GEF-8 PROJECT IDENTIFICATION FORM (PIF)

TABLE OF CONTENTS

General Project Information

Project Title	
Climate Change Adaptation in Lowlands of Lao PDR	
Region	GEF Project ID
Lao PDR	11399
Country(ies)	Type of Project
Lao PDR	FSP
GEF Agency(ies):	GEF Agency ID
FAO	
Executing Partner	Executing Partner Type
To be decided at PPG	Others
GEF Focal Area (s)	Submission Date
Climate Change	10/18/2023
Project Sector (CCM Only)	
Climate Change Adaptation Sector	
Taxonomy	
Focal Areas, Climate Change, Climate Change Adaptation, Climate information, Mainstreaming adaptation, Ecosystem-based Adaptation, National Adaptation Programme of Action, National Adaptation Plan, Climate resilience, Livelihoods, Community-based adaptation, Least Developed Countries, Sustainable Development Goals, Influencing models, Convene multi-stakeholder alliances, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Demonstrate innovative approache, Stakeholders, Local Communities, Private Sector, SMEs, Civil Society, Community Based Organization, Beneficiaries, Communications, Strategic Communications, Behavior change, Awareness Raising, Indigenous Peoples, Type of Engagement, Participation, Consultation, Information Dissemination, Partnership, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Sex-disaggregated indicators, Women groups, Gender results areas, Access to benefits and services, Access and control over natural resources, Knowledge Generation and Exchange, Participation and leadership, Capacity Development, Capacity, Knowledge and Research, Innovation, Knowledge Exchange, Peer-to-Peer, South-South, Field Visit, Conference, Knowledge Generation, Seminar, Professional Development, Training, Workshop, Learning, Theory of change, Adaptive management, Indicators to measure change	
Type of Trust Fund	Project Duration (Months)
LDCF	72
GEF Project Grant: (a)	GEF Project Non-Grant: (b)
4,781,507.00	0.00
Agency Fee(s) Grant: (c)	Agency Fee(s) Non-Grant (d)
454,243.00	0.00
Total GEF Financing: (a+b+c+d)	Total Co-financing

5,235,750.00	20,000,000.00
PPG Amount: (e) 150,000.00	PPG Agency Fee(s): (f) 14,250.00
PPG total amount: (e+f) 164,250.00	Total GEF Resources: (a+b+c+d+e+f) 5,400,000.00
Project Tags CBIT: No NGI: No SGP: No Innovation: Yes	

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. The explanation and justification of the project should be in section B "project description".(max. 250 words, approximately 1/2 page)

Lao PDR's "lowlands" are tropical lowlands and floodplains along the Mekong River and its tributaries. They constitute 20% of the country's surface yet support more than 50% of its population. These areas are exposed to several climate extremes including heatwaves,[1][1]https://unfao-my.sharepoint.com/personal/sameer_karki_fao_org/Documents/Documents/Documents/Lao/8LDCF/Resub%20Nov%2025/Revised%20GEF-8%20PIF%20Lao%20Lowlands_Draft%2020231122%20(1).docx - _ftn1 floods, droughts tropical cyclones and landslides. Some of these areas are experiencing more frequent flooding. Many of these areas, have also experienced medium and large increases in precipitation anomalies from 1981 – 2022. While flood is a key issue, increased droughts due to more erratic distribution of rainfall during the wet season is also a concern. Changes in climatic patterns have both seasonal and long-term impacts on agricultural livelihoods, particularly for those dependent on rain-fed crops. Increase flood impact livelihoods and assets, food availability, access to health and education, and other income opportunities. Observed temperature anomalies are likely affecting crops and make working conditions for people and livestock more challenging.

3. This project aims to strengthen the resilience of lowland communities, resources and agrifood systems to climate change through climate-smart and nature-based adaptation approaches. The project will deploy an integrated interventions in four target provinces and lessons learned will be scaled out to support improved resilience across all the low-lying regions of Lao. These interventions include 1) Flood and climate-risk mapping and integrated landscape planning; 2) climate-smart and nature-based agrifood production and value chains; 3) Investment in community-based integrated landscape and water resources management; 4) Increased access to climate information services, forecasts, and early warnings to enhance risk management and anticipatory action; and 5) Adaptive knowledge management and outreach at national and global levels.

Indicative Project Overview

Project Objective

To strengthen the resilience of livelihoods in low land communities in Lao PDR to climate change through climate-smart and nature-based adaptation approaches at landscape and watershed levels

Project Components

Component 1: Strengthening policy coherence and institutional capacities for integrated landscape planning and financing

Component Type	Trust Fund
Technical Assistance	LDCF
GEF Project Financing ($)	Co-financing ($)
500,000.00	2,500,000.00

Outcome:

Outcome 1: Capacity to plan, coordinate and facilitate investment in inclusive, integrated, and nature-based climate change adaptation actions in Lao Lowlands strengthened

Output:

1.1.1. Inclusive, climate risk informed and integrated landscape planning for resilient low-land communities

1.1.2. Strengthened mechanisms to coordinate provincial and local implementation of climate risk-informed, gender oriented integrated land use and development planning using nature-based approaches

1.1.3. Innovative modalities and public-private and social partnerships to facilitate investment in priority lowland adaptation options

Component 2: Implementing priority landscape and nature-based adaptation actions to strengthen resilience of lowland communities and supporting ecological and agrifood systems

Component Type	Trust Fund
Investment	LDCF
GEF Project Financing ($)	Co-financing ($)
3,653,816.00	13,547,619.00

Outcome:

Outcome 2.1 Communities and agricultural value chain actors adopt gender sensitive, climate-smart and nature-based adaptation actions

Outcome 2.2 Resilience of lowland communities and supporting ecological and agrifood systems strengthened through improved use of climate information and anticipatory action

Output:

2.1.1. Climate-smart and nature-positive agrifood production systems and value chains promoted

2.1.2. Lowland communities adopt inclusive, integrated landscape and water resources management approaches and nature-based adaptation actions

2.2.1. Lowland communities and agricultural value chains use climate information services for enhanced risk management and anticipatory action

Component 3: Project knowledge management and communication

Component Type	Trust Fund
Technical Assistance	LDCF
GEF Project Financing ($)	Co-financing ($)
150,000.00	2,000,000.00

Outcome:

Outcome 3.1 Project monitored, evaluated and lessons learned

Output:

3.1.1 Knowledge management, Communications, Visibility and Outreach

M&E

Component Type	Trust Fund
Technical Assistance	LDCF
GEF Project Financing ($)	Co-financing ($)
250,000.00	1,000,000.00

Outcome:

3.2 Effective monitoring and evaluation informing adaptive management

Output:

3.2.1. Gender sensitive project Monitoring, and evaluation plan and M&E capacity development

3.2.2 MTE and TE conducted and management responses implemented for MTE

Component Balances

Project Components	GEF Project Financing ($)	Co-financing ($)
Component 1: Strengthening policy coherence and institutional capacities for integrated landscape planning and financing	500,000.00	2,500,000.00

Component 2: Implementing priority landscape and nature-based adaptation actions to strengthen resilience of lowland communities and supporting ecological and agrifood systems	3,653,816.00	13,547,619.00
Component 3: Project knowledge management and communication	150,000.00	2,000,000.00
M&E	250,000.00	1,000,000.00
Subtotal	**4,553,816.00**	**19,047,619.00**
Project Management Cost	227,691.00	952,381.00
Total Project Cost ($)	**4,781,507.00**	**20,000,000.00**

Please provide justification

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly 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

1. Most of Lao PDR's territory falls within the Mekong River Basin. The country's climate is divided into two distinct seasons: rainy season (or south-west monsoon) from May to mid-October, followed by a dry season from mid-October to April. The country's mean annual temperature is 23.4ºC and mean annual rainfall is 1,733 mm year (1901-2020)[i]. The "lowlands" of Lao PDR, defined as tropical lowland plains and floodplains along the Mekong River and its main tributaries, constitute 20 percent of the country's total surface, yet support more than 50 percent of its population. The majority of the country's low-lying areas are in the southern portion of the country between Vientiane and Xaisombuon provinces and Champasak and Attapeu provinces (Figure 1). As in most South-East Asian nations, these 'lowlands' also support the majority of the Laos' economic infrastructure, food production and natural freshwater habitats, including significant areas of wetland. As such, the lowlands represent a significant proportion of the economic, social, environmental, and natural resources of the country - most particularly in the fertile and easily accessible lowland floodplain landscapes. Due to high population densities and multi-sectoral development pressures, however, these landscapes present considerable challenges in achieving balanced and sustainable management of land use, natural resources, water resources, food systems, rural livelihoods, freshwater biodiversity, and associated environmental and social pressures.

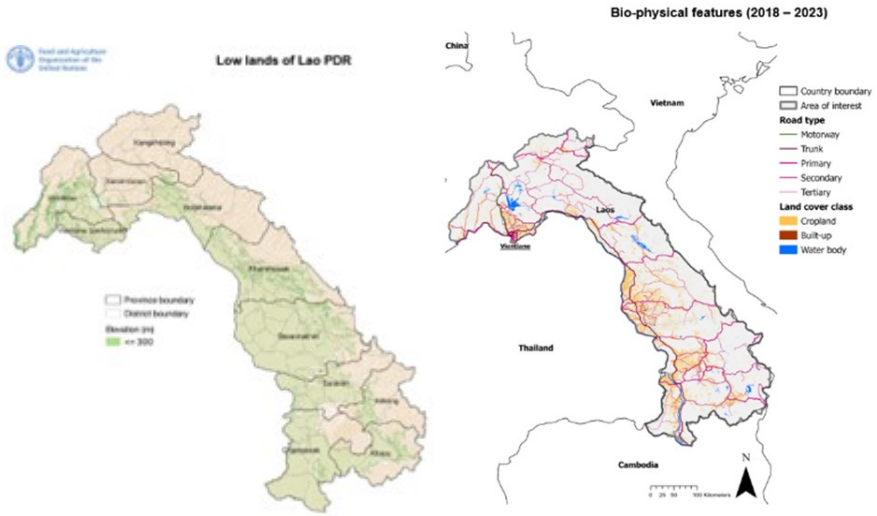


Figure 1 – Areas of southern Lao PDR with Elevation below 300m

Project Target Areas and Observed and Anticipated Impacts of Climate Change

3. During 1901-2020, Lao PDR has experienced a significant increase in mean temperature across the country, with the temperature increase accelerated to a rate of 0.1-0.3ºC per decade during the last 50 years. There have not been any discernible trends in national-level rainfall over the 1901-2020 period. The Climatology and Agro climatology Atlas of Lao PDR[ii][ii] ('FAO-MAF Atlas' hereafter) provides additional insight into climate change during 1990-2019:

- The northern region experienced higher temperature growth compared to the central and southern regions, and the increasing rates of minimum temperature are much higher than the ones of maximum temperature. Many northern areas are even showing more than 0.8 ºC increase in minimum temperature for the 30-year period. Further analysis of the observed data for average conditions derived from Copernicus Climate Service (ERA5) shows that average minimum temperatures are particularly high in the low-lying regions of southern Lao PDR (Figure 2).

- Rainfall in northern and central regions has stayed the same or slightly decreased, while southern region shows increasing total rainfall with more than 30 mm increase in some areas.

- Monsoon onset dates have been delayed in 13 out of 18 provinces.

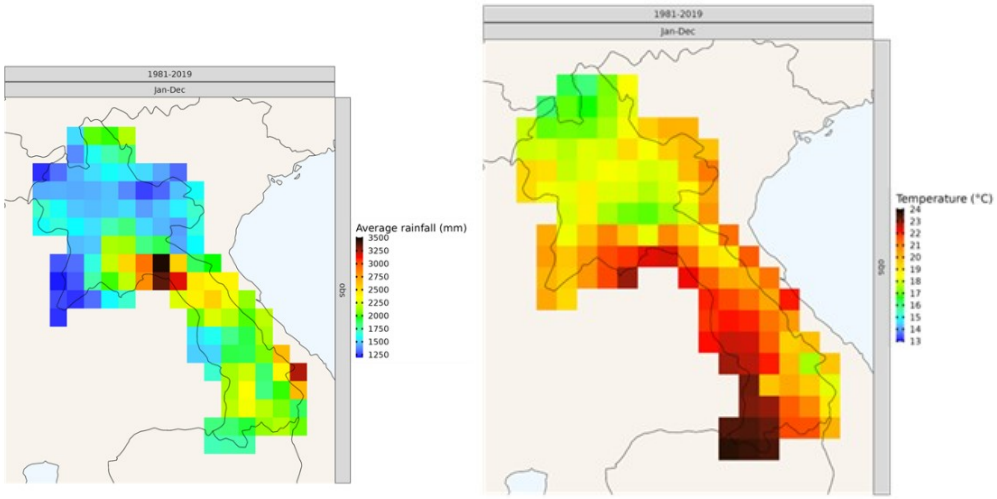


Figure 2 - Average annual rainfall and MINIMUM temperature Lao PDR, 1981–2019

4. Analysis by FAO indicates that certain regions of the country have been experiencing higher than average temperature anomalies in the past five years when compared to average climate conditions over the past four decades. In the southern low-lying areas of Lao PDR targeted by this project, minimum, mean and maximum temperature anomalies have been pronounced during a significant portion of the main cropping season (April to October) (Figure 3).

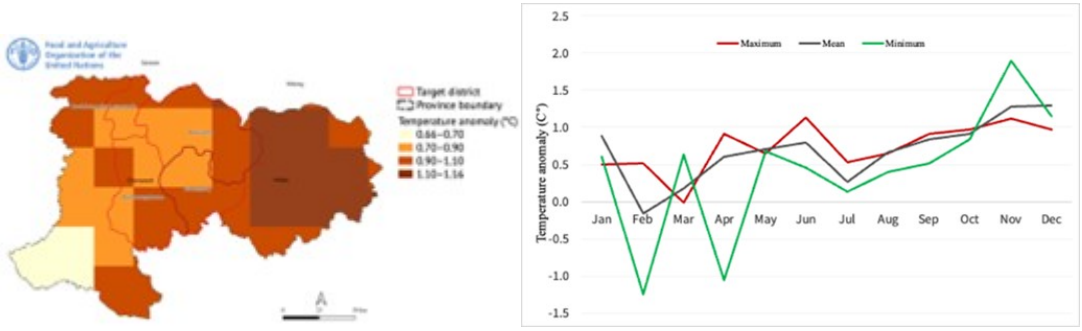


Figure 3 - Mean temperature anomalies and Mean monthly temperature anomalies in the project area, Lao PDR (0.05° resolution)[iii][iii]

5. Lao PDR is exposed to several climate extremes including heatwaves,[iv][iv] floods, droughts tropical cyclones and landslides. It is ranked 69th out of 191 countries by the 2019 Inform Risk Index, including ranking 6th in exposure to flooding (riverine and flash).[v][v] During 1970-2010, Lao PDR experienced 33 globally recorded natural hazards (mostly floods and droughts), affecting approximately 9 million people and causing damages over US$ 400 million (World Bank). Average annual losses from disasters are around 1–2% of GDP, most of which is due to flooding.[vi][vi] The number of people affected by climate-related disasters has increased from an average of 60,000 per year during 1993-2002 to over 320,000 in 2003-2012. The UN Economic and Social Commission for Asia-Pacific estimated that without these disaster impacts, Lao PDR could reduce extreme poverty by 71 percent by 2030 but this rate would be halved (41 percent) if the disaster impacts are not mitigated[vii][vii]

6. Flood hazard mapping that presents flood severity in terms of inundation depth and area with respect to 10-year, 25-year, 50-year and 100-year return periods has identified eight river basins and a number of districts at risk[viii][viii]. Floods induced by tropical storms are frequent and severe: 20 extreme floods occurred between 1960 and 2012, affecting 3.5m people.[ix][ix] On average, the population annually affected by flooding is estimated at 48,000 people and the annual damages are $159 million.[x][x] Furthermore, the costs of flood are increasing: the combined damage of floods induced by storm Son Tinh, storm Podul and tropical depression Kajiki in 2018 and 2019 is estimated at US$535.5 million,[xi][xi] compared to US$400 million caused by all natural hazards during 1970-2010 (discussed above).

7. Lao PDR already suffers from increased frequency and intensity of extreme and prolonged rains associated with typhoon tail-ends crossing into Laos from the South China Sea. This has resulted in an increased frequency and incidence of serious flooding over the last decade in central and southern Lao PDR. Currently, approximately 40,000 people in the lowlands are exposed to flooding annually; this number is projected to double by the 2030s.[xii][xii]

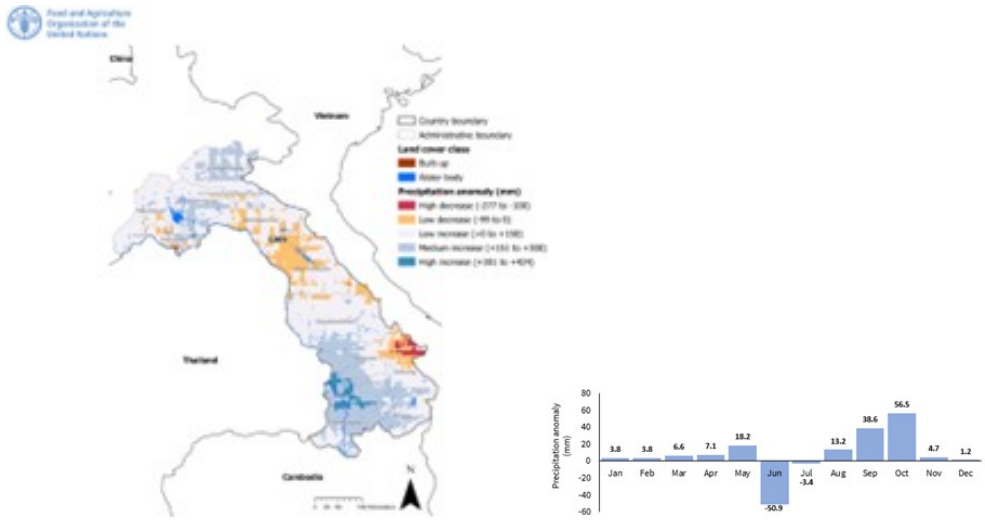


Figure 4 – Precipitation anomaly and timing in the LOWLANDS of southern lao pdr, 1981-2022

8. FAO analysis of standing water anomalies in Lao PDR over the period from 2018-2023 highlights that flood occurrence is concentrated in a few specific areas within the low-lying regions of the country (Figure 5). Some of these areas are experiencing more frequent flooding with an event detected in more than half or more of the past six years. Some of these areas, particularly in the southern provinces of Champasak and Attapu also correspond with areas subject to medium and large increases in precipitation anomalies over

the period from 1981 – 2022. Trends in precipitation anomaly suggest decreases during June and July around the planting time for the main season annual crop and an increase toward the end of the season.

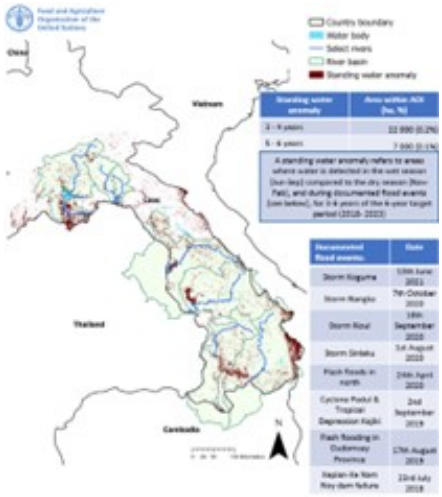


Figure 5 – standing water anomalies and documented flooding events in the LOWLANDS of southern lao pdr, 2018-2023

9. While flood is a key issue, the distribution of rainfall during the wet season is also often erratic, leading to drought periods. At present, Lao PDR faces an annual median probability of severe meteorological drought of around 4 percent .[xiii][xiii] Drought can occur throughout the country, with southern and northern parts of the central region and southern parts of the northern region susceptible to drought during both dry and wet seasons (ADPC, 2012). A 2006 study conducted by the World Food Programme (WFP) found that about 46 percent of the rural population is vulnerable to drought (WFP, 2006). Apart from rainfall, drought exposure in Laos is impacted by hydropower development on the Mekong River, which significantly alters the hydrology of the region. [xiv][xiv] Analysis by FAO using the Agricultural Stress Index System (ASIS) indicates that low-lying areas in the south of Lao PDR have been experiencing medium to high level of drought frequency over the recent past (Figure 6).

10. Projections by 23 General Climate Circulation Models under the recent Coupled Model Intercomparison Project 6 (CMIP6) Shared Socioeconomic Pathways (SSP) 585 scenario in Lao PDR – corresponding to the high emission scenario of the representative concentration pathway (RCP) 8.5 in CMIP5 show a 1-3ºC temperature increase for 2040-2069 period and 2-6ºC increase for 2070-2099 period. The projections also indicate greater variation of yearly rainfall (1,933-4,204 mm/year for 2040-2069 period and 2,029-4,441 mm/year for 2070-2099 period, compared to 1,948 mm/year for 2000-2019).[xv][xv] Overall, climate change is expected to: i) increase the frequency and intensity of extreme rainfall events,[xvi][xvi] with consequent increase in frequency and severity of floods; ii) increase temperatures and decrease rainfall during the dry season, leading to longer and severe droughts; iii) increase the incidence and range of pests and diseases, and iv) present new challenges related to water storage or transfer mechanisms due to rising temperatures.[xvii][xvii]

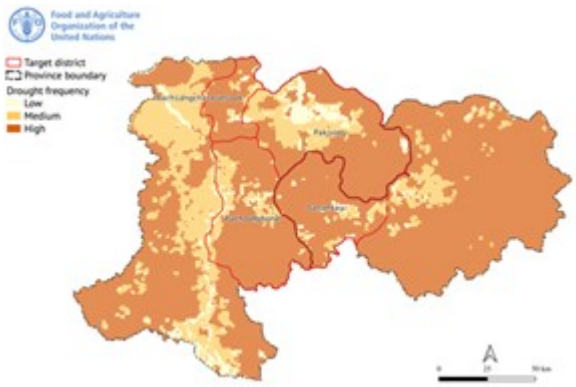


Figure 6 - Extent of historical drought (1984–2022) in targeted districts, Lao PDR

11. More specifically:

- The median probability of a heatwave (currently at around 3 percent) is projected to increase significantly under different emission pathways (see Figure 3). In addition, days of maximum temperature above 90 percent of historical distribution are projected to increase from 41 days per annum during 2000-2019 to 73-116 days for 2070-2099.[xviii][xviii] The general increase in temperatures suggests a transition to a chronically heat-stressed environment. [xix][xix]

- For droughts, projections suggest that the return periods of 12-month droughts could reduce. [xx][xx] The increasing trend of potential evapotranspiration and monsoon onset date and significant annual variation of rainfall will increase the occurrence of severe droughts in the near future.[xxi][xxi]

- For floods, CMIP6 SSP585 scenario projects greater daily rainfall intensity (up to 26-28 mm/day, compared to 9 mm/day for 2000-2019), which may increase the risk of flash or surface flooding and associated landslides.[32] Another study using the CMIP5 RCP8.5 under the RCP8.5 emissions pathway found that climate change is expected to double the annual population affected by river flooding to over 80,000 people and increase annual damages by $295 million by the 2030s; if impacts of increasing urbanisation and economic development are taken into account, these figures are likely to be higher.[xxii][xxii]

- Projected increase in the amount of rainfall accumulated during extreme rainfall events (up to 23 percent under the highest emissions pathway) may increase the risk of flash or surface flooding and associated landslides.[xxiii][xxiii]

- The 2021 IPCC Working Group 1 report on the Physical Science Basis of Climate Change found that the amplitude (strength) of ENSO and the frequency of high-magnitude events were higher since 1950 than during 1850-1950 and 1400-1950 periods.[xxiv][xxiv] Although the lack of consistency among different climate models led to the IPCC's low confidence in how ENSO could change in a warming world.[xxv][xxv][xxvi][xxvi][xxvii][xxvii] this finding indicates that Lao PDR (which has been historically affected by ENSO) will be exposed to the significant impacts of ENSO phenomena over the coming decades as well.

Analysis for projected future (2030–2070) periods under RCP 2.6 and RCP 8.5 scenario using the ensembled mean of CORDEX-CORE simulations derived using the FAO CAVA tool platform, indicate that average rainfall is projected to be lower than the historical average under both scenarios. Minimum and maximum temperatures are projected moderate slightly.

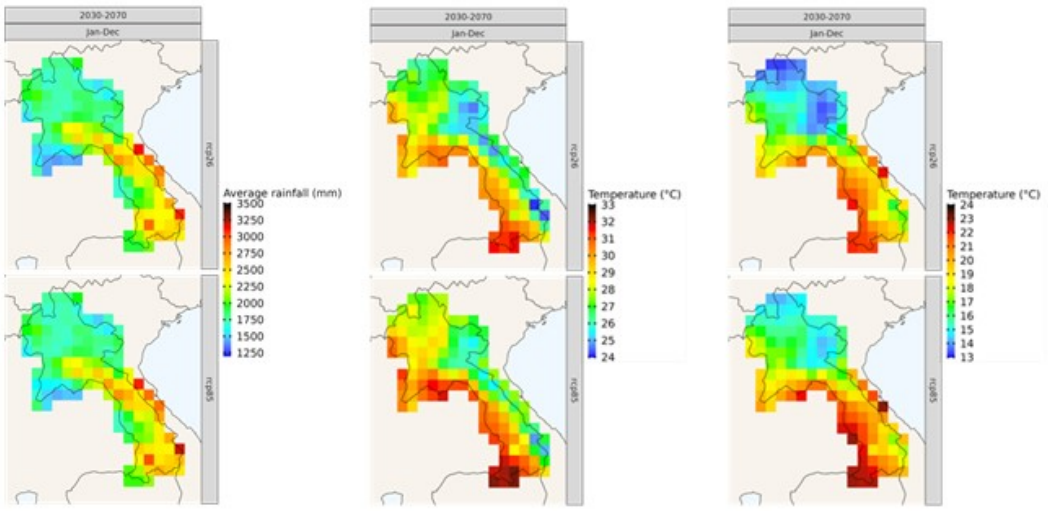


Figure 7 – Projected future average rainfall, maximum and minimum temperature in lao Pdr under RCP 2.6 and 8.5

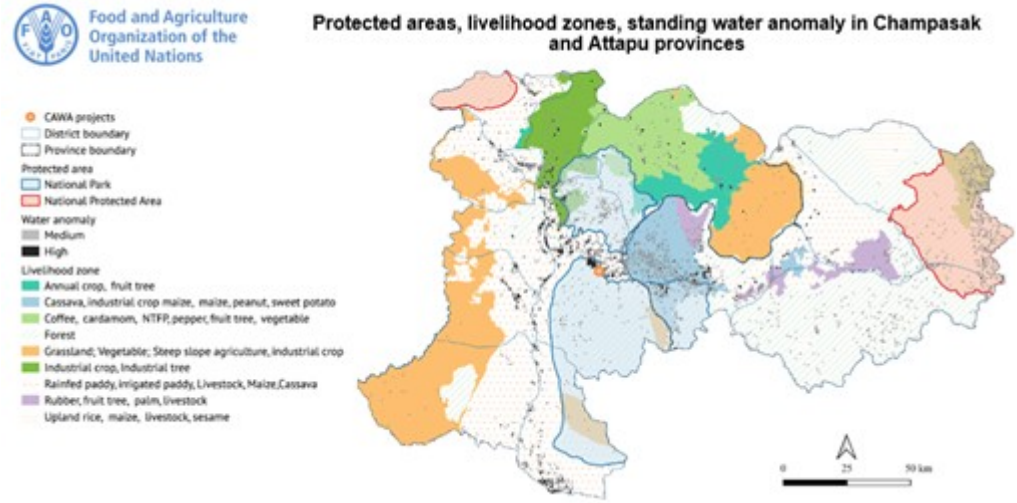


Figure 8 – project target areas, flood frequency and agricultural livelihoods

12. Four districts across these provinces – Sanamxay, Bachiangchaleunsook, Paksong and Pathoomphone – account for significant portions of area with regular recorded flood occurrence over the past six years. The districts fall within the Xe Don and Xe Kong river basins and account for a variety of agricultural livelihoods in the low-lying areas of Lao PDR and the country more broadly including rainfed and irrigated paddy mixed

with livestock, cassava mixed with industrial crops, coffee and non-timber forest products (NTFP) and fruit trees. These districts are the proposed target areas for this project.

Table 1 – Population and flood occurerence in project target areas

Province	Districts	Male	Female	Total	Area with standing water anomaly in 3-4 out of past six years (ha) MEDIUM	Area with standing water anomaly in 5-6 out of the past 6 years (ha) HIGH
Attapu	Sanamxay	20 366	20 998	41 364	481.9	59.9
Champasak	Bachiangchaleunsook	32 731	33 869	66 600	118.1	13.7
Champasak	Paksong	48 863	49 624	98 487	147.8	17.6
Champasak	Pathoomphone	35 199	35 679	70 878	1 231.9	194.7
	Total	**137 159**	**140 170**	**277 329**	**1 979.6**	**285.9**
	% of two provinces	8.9%	8.2%	8.5%	65.6%	76.4%
	% of southern lowlands	51.8%	47.5%	49.5%	9.6%	5.5%

Climate sensitivity and vulnerability of livelihoods in low-lying regions of Lao PDR

13. The agriculture, natural resources and rural development sector in Lao PDR is characterized by (i) geographically scattered production due to the country's topography and weak linkages to urban populations and regional markets, (ii) a heavily rice-based production system with limited diversification of component that is also constrained by limited access to irrigation in the dry season, and (iii) a heavy dependence of the population on the sector for employment and food.[xxviii]xxviii Rice represents 60 percent of agricultural land, 50 percent of agricultural output and 80 percent of all Lao farmers.

14. The ND-GAIN climate vulnerability index identifies projected reductions in cereal yields as a key source of vulnerability in Lao PDR's food sector.[xxix]xxix During 1995-2015, on average, rice production during El Niño years was lower compared to neutral non-ENSO years, and higher during La Niña. This trend was clearest in the south of Lao PDR (4 percent decrease and 4 percent increase, respectively). Overall, World Bank simulations show that agricultural GDP falls by 0.8 percent ($21m) during an El Niño event relative to a neutral climate year; in contrast, a typical La Niña event expands agricultural GDP by 0.5 percent ($12m).[xxx]xxx

15. Other major crops include maize, cassava, banana, citrus, watermelon and coffee; in addition, niche products such as garlic, cardamom and ginger are cultivated in geographic pockets with favorable cultivation and market conditions. A large part of the 960,000 ha wet-season rice area is rain-fed and cultivated for subsistence, and limited irrigation coverage results in only 4 percent of the wet-season area being cultivated in dry season. Livestock production accounts for 18 percent of agriculture GDP and includes water buffalo, pigs, cattle, and poultry. Commercial livestock production has developed around major towns and cities.

16. The increased wet season flood risk has resulted in a shift to dry season cropping and a greater community / economic exposure to 'hydrological drought'. Meanwhile, in non-flooding lowland areas, the incidence of 'climatic drought' for wet season crop production has risen. The increased impact on the country, infrastructure, food production, and rural economies of these flood and drought events,

and the expense of the often-needed follow-up relief programs, can already be registered as a serious climate change impact on the Lao national economy, and upon the poor and vulnerable in Lao rural communities. The displacement of communities due to floods can increase the risk of health issues associated with overcrowding, inadequate sanitation, and limited access to healthcare.

17. Changes in climatic patterns have both seasonal and long-term impacts on agricultural livelihoods, particularly for those dependent on rain-fed crops. Shifts in the start of the monsoon season make it difficult for farmers to know when to plant crops from year to year and may lead to longer dry periods exacerbating drought. Similarly, changes in seasonality of rainfall increase flood risks and impact livelihoods in terms of food availability, access to health and education, and other income opportunities. Observed trends in temperature anomalies, for both maximums and minimums, are likely affecting key growth phases of crops while also making working conditions for agricultural workers and livestock more challenging.

18. These impacts are expected to worsen with climate change due to projected further increase in frequency and severity of floods and droughts (as discussed above), which is likely to lead to crop failure and livestock losses. Continued increase in moderate temperature and precipitation extremes will undermine agricultural productivity and livelihoods. Furthermore, modelling of climate suitability of major crops in Lao PDR (paddy rice, maize, cassava and coffee) under the GEF-5 SAMIS project shows that in many areas, these crops face the risk of becoming marginal or not suitable under the projected climate changes.

19. Food insecurity and malnutrition are still widespread in Lao PDR, and largely associated with ethnicity, gender, and geography. An estimated 33.1 percent of children under five years of age were stunted in 2017[xxxi]xxxi. Widespread inequalities and disparities exist, imposing challenges to the achievement of the Sustainable Development Goals (SDGs). Poverty remains high among minority ethnic groups and falls less quickly among poorly educated households. In 2019, a poverty rate of 34.6 percent was observed among people living in households headed by someone with no formal education[xxxii]xxxii. While 75 percent of male members of agricultural households who are over 10 years old are able to read and write without difficulty, this rate is only 57 percent among female members. Moreover, major inequalities exist between female and male-headed agricultural households, with female-headed households often having smaller holdings by area, fewer plots of land, fewer income-generating livestock, lower levels of fishery and forest-related activities, and lower crop marketing rates. They also generally spend a larger proportion of cash income on food and have less access to safe drinking water sources than their male counterparts. A recent study by Department of Agricultural Land Management (DALAM), National Agriculture and Forestry Research Institute (NAFRI), International Centre for Tropical Agriculture (CIAT) and FAO[xxxiii]xxxiii suggests low adaptive capacity of agricultural livelihoods in Lao PDR.

20. The growth of the agriculture sector has been lagging behind the rest of the economy, at around 3.7 percent per annum (ADB, 2018). Although declining in terms of contribution to the GDP (from 52 percent in 1997 to 16 percent in 2021)[xxxiv]xxxiv, agriculture continues to play a pertinent role in Lao PDR' economy, employing 61 percent of labour force in 2019 (around 2.33 million people).[xxxv]xxxv Rural poverty has decreased faster in rural areas than in towns (by 7.6 percent points to 23.8 percent) during 2013-2019 thanks to growth in farm incomes and remittances among rural households[xxxvi]xxxvi. However, about 50 percent of people employed in agriculture are still mainly or partly subsistence farmers with household income below US$300 per year. Agriculture production is becoming increasingly commercialized with 33 percent of farmers today producing mainly for sale. This comes with emerging local businesses and farmer organizations and changing access to land (with increasing land lease,

contract farming and foreign-investor plantations). At the same time, increasing use of chemical fertilizer raises concerns on its impacts on unique biodiversity and ecosystems of the country.

21. More broadly, the wetlands and protected areas that surround and connect production landscapes across low lying areas are also threatened by both climate change and human pressures. Rice cultivation and other activities adjacent to wetlands result in pollution, and aquaculture has led to the introduction of invasive species into freshwater ecosystems.[xxxvii][xxxvii] Unsustainable water use for agriculture, exacerbated by meteorological droughts, has caused wetland degradation in some areas, whereas elsewhere, wetlands have been drained for development. Dam building has interfered with sediment and nutrient transport and fish migration. Without intervention, wetlands are likely to be lost, as will the species that depend on them, while the communities that use them will be displaced and lose their traditional ways of life.

Key Baseline Initiatives and Investments

22. Lao PDR has put in place a number of key strategies to support action to address the risks outlined above to livelihoods in the target areas. The Nationally Determined Contribution (NDC) outlines long-term agricultural adaptation targets include 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 NDC also highlights priorities to increase water resource infrastructure resilience to climate change through nature-based solutions and strengthen early warning systems.[xxxviii]xxxviii

23. The National Strategy on Climate Change (2010) and National Climate Change Action Plan (2013-2020) prioritize sector-specific projects on agriculture and water. As part of these projects the government intends to conduct assessments of climate impacts on agriculture; strengthen water resources information, enhance knowledge, advisory services and technology transfer to farmers and enhance capacity for the implementation of adaptation plans. Specifically on water, the government also prioritizes Integrated Water Resources Management (IWRM), adopting river basin approach, management of surface and ground water and wetlands for climate resilience and strengthening early warning systems to manage flood and drought risks. The 9th National Socio-Economic Development Plan 2021-2025 outlines programs of work to eenhance adaptation to climate change and reducing risks of natural disasters.[xxxix]xxxix

24. Several projects across Lao PDR are being designed and/or implemented to support the government's effort to give effect to these strategies and strengthen climate change resilience of agricultural livelihoods. These are presented later in section on coordination.

25. The majority of these initiatives have focused on addressing climate risks to value chains, but do not explicitly consider the interface between natural systems and agricultural production systems; particularly as they apply to agriculture in low lying areas. Many of these baseline projects are also focusing on provinces other than Champasak and Attapeu. The GEF7 FAO-LDCF "Climate Smart Agriculture Alternatives for Upland Production Systems in Lao PDR" is adopting an approach that employs integrated, landscape-level planning involving climate-smart practices and nature-based solutions for resilient and sustainable landscapes. As part of this project, targeted communities in Luang Prabang and Houaphan will develop participatory, resilient, and sustainable land-use and investment plans incorporating innovative, evidence-based, locally appropriate, gender-responsive, and climate-smart livelihood options and nature-based solutions. There is scope to adopt such integrated approaches in the low-lying regions of the country to strengthen the climate change resilience of communities in the areas and address specific issues regarding flood risk and river basin management.

26. The recently completed GEF-FAO project Climate Adaptation in Wetland Areas (CAWA) project (2016-2023) provides a strong model to build upon to scale-up ecosystem-based, landscape level approaches to strengthening resilience and adaptive capacity in rural communities. CAWA employed landscape-based, ecosystem-based and working-with-nature approaches to enhance the resilience of lowland communities while preserving wetland biodiversity. It worked with thousands of families in 86 villages surrounding Laos' two Ramsar sites, Xe Champhone and Beung Kiat Ngong. The project adopted a multi-sectoral integrated approach to interventions and planning, built bottom-up community ownership of interventions, and employed adaptive planning practices and non-linear learning practices. Examples of activities undertaken include:

- Flood mapping
- Establishment of wetland reserves and fish conservation zones
- Wetland clearing and invasive species control.
- Hydrological and water quality monitoring
- Water storage restoration, well improvements and compost production to support dry-season rice production.
- The establishment of veterinary centers and planting of fodder plants for livestock production
- The establishment of native fish breeding centers to support native fish aquaculture.
- Women's programmes to support income generation from handicrafts and fish product processing.

27. Through these and other activities, the CAWA project successfully reduced community climate change and disaster risk; increased food security, livelihood resilience and local incomes; increased wetland site protection, ecosystem function, and fish biodiversity and productivity; and strengthened local capacities at maximum cost efficiency with minimum external input. An independent GEF evaluation found that the project "offers a potentially important regional model for an integrated ecosystems-based approach for sustainable wetlands management."[xl][xl] Women beneficiaries praised CAWA's "positive impact on alternative, resilient livelihood creation." The project's broad expansion towards the end of its implementation period, in 2019, demonstrates the high demand for the services it provided.

28. Another recently completed GEF-FAO project "Strengthening Agro-climatic Monitoring and Information Systems (SAMIS) to improve adaptation to climate change and food security for farmers in Lao PDR" (2017-2023), has supported the government of Lao PDR to establish a fully modernized, national agrometeorological advisory system capable of delivering a range of climate services including tailored early warning systems for extreme events and pest outbreaks. This project also strengthened institutional and technical capacity for monitoring and analysis of agriculture production systems based on climate-informed, agroecological analysis and location specific information on prevailing agricultural livelihoods across the country.

Barriers to action

29. Despite these baseline investments, realizing the government of Lao PDR's vision for climate resilient agricultural livelihoods in low lying regions of the country faces a number of interconnected barriers.

30. **Barrier 1:** Weak institutional capacity to mainstream climate change into development plans or translate them into actionable measures at local level. Lao PDR has given high priority in its policies to ensure climate change adaptation actions are implemented. However, there have been capacities constraints to mainstream climate change into development plans or translate them into actionable measures at local level, tailored to local specificities. Furthermore, development plans and associated programmes/projects are sectoral focused, and institutional silos have not allowed landscape-based, integrated approaches in development planning in general and climate change adaptation in particular. Theses weak institutional capacities is a key barrier to climate change adaptation in Lao PDR.

31. **Barrier 2:** Lack of diversified sources of long-term financing for nature-based adaptation. Absence of diversified sources of long-term financing for adaptation, especially nature-based adaptation is also hampering adaptation to climate change. The current financing for climate change adaptation continues to be low, due to inadequate appreciation on the benefits of appropriate investment, and innovative partnerships with the private sector for climate change adaptation have not been identified nor implemented. There is still poor multi-stakeholder engagement and inter sectoral collaboration for climate change adaptation planning. Past LDCF support has strengthened Lao PDR's capacities on climate forecast and warning, but gaps remain in tailoring these for different agroecological zones.

32. **Barrier 3:** Lack of access to appropriate technologies to promote climate-smart and nature-based adaptation measures to strengthen resilience of agricultural value chains and livelihoods. Lao has experience on various facets of supporting climate change adaptation at community level, but there is inadequate experience and expertise to scale up actions at landscape/ river basin levels to address some of the key climate change challenges and related disaster risk reduction and mitigation to keep pace with changes in population, increasing urbanization in lowlands and also more unpredictability related to climate change related impacts. Communities, households and the private sector lack access to appropriate technologies to promote effective adaptation measures in their plans and actions. There is limited learning and sharing amongst communities. Local communities and other stakeholders have limited experience and capacities to absorb and act on meteorological and hydrological advisories, forecasting and early warning related to possible hazards. The role of the private sector, whose presence and activities in the lowlands in agrifood systems, tourism, and infrastructure are increasing, is very low in climate change related actions.

33. **Barrier 4:** Limited integration of climate information and knowledge into land-use planning and investment processes and low capacity to act on meteorological and hydrological advisories, forecasting, and early warning of associated hazards. There is limited integration of climate information and knowledge into land-use planning and investment decisions by governments, households and the private sector. Increased national and global knowledge on likely impacts of climate change to lowland communities, businesses and infrastructure have not been appropriately 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 landscape level.

Without GEF scenario

34. Without action, the low land areas of Lao PDR will continue to be subject to increasing impacts from climate change including changes in average growing season conditions, moderate extremes and larger scale extreme climate events. Serious typhoon-related floods are increasing in frequency and severity in

Lao PDR and are most likely already beyond the scope of traditional engineered flood control. Communities will continue to suffer because of limited capacity to anticipate extremes, particularly floods, and manage water resources to maintain ecosystem services and address associated risks from climate change.

35. In the absence of technical assistance, it is also likely that investment priorities will favor grey water management infrastructure that may not reflect diverse community needs and be susceptible to climate extremes. It is therefore time to adapt land use, development, and food systems in lower floodplains to 'work with nature' and maximize the benefits of floodwaters and flooded landscapes. This approach would allow expenditures related to engineered flood control to be reduced, and its negative impacts on lower floodplain functions and associated water resources, food systems, and ecosystems eliminated. Communities will also continue to lack actionable climate information and early warning 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.

36. This baseline future scenario suggests that it is imperative to invest in climate resilience through the LDCF window in low lying areas of Lao PDR and to demonstrate and scale approaches that will support progress toward achieving Lao PDR's NDC and climate change policy targets related to the agriculture and water sectors. These investments need to prioritize low lying areas that are subject to regular inundation and precipitation anomalies.

B. PROJECT DESCRIPTION

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 PIF guidance document. (Approximately 3-5 pages) see guidance here

1. The Climate Change Adaptation in Lowlands of Lao PDR project aims to strengthen the resilience of livelihoods in low land communities in Lao PDR to climate change through climate-smart and nature-based adaptation approaches at landscape and watershed levels. Based on the climate rationale outlined above, the project will specifically target four districts in Champasak and Attapu provinces in the southern lowlands of the country: Sanamxay, Bachiangchaleunsook, Paksong and Pathoomphone. 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:

1. Climate resilience in farming systems and agriculture infrastructure.
2. Appropriate technologies for climate change adaptation, including nature-based and circular economy solutions.
3. Improved management of surface water, groundwater, and wetlands for climate change resilience.
4. Increased water resource infrastructure resilience to climate change, including through nature-based solutions; and

5. Strengthened early warning systems.

Transformational Logic

2. The project's theory of change is based on the premise that the project's objective will be achieved by overcoming the barriers outlined above through deployment of an integrated set of interventions in the four target provinces with the potential for lessons learned to be scaled out to support improved resilience across all of the low-lying regions of Lao PDR. These interventions include:

- Flood and climate-risk mapping and integrated landscape planning.
- Investment in climate-smart and nature-based agrifood production and value chains.
- Investment in community-based integrated landscape and water resources management.
- Increased access to climate information services, forecasts and early warnings to enhance risk management and anticipatory action; and
- Adaptive knowledge management and outreach at national and global levels.

3. This integrated approach aims to reduce the risk of climate change impacts over time by addressing the exposure, and sensitivity of agricultural livelihoods in low lying regions and increasing the adaptive capacity of communities. Each output addresses one or more barriers to the further promotion of climate change adaptation. Ultimate achievement of the project's objective is influenced by a number of assumptions regarding the capacity of stakeholders and 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 public and private sector actors to invest in climate-smart agricultural value chains and nature-based solutions and the continuing access to climate information services, forecast and early warnings. The project will also need to engage in proactive, risk management to address a range of risks to and from the project (Figure 8).

4. The project interventions will build upon or closely coordinate with a number of pivotal recently completed and ongoing initiatives. In particularly, it will further develop the GEF-FAO CAWA integrated CCA-DRM-NRM approach and expand its application across the four target provinces, which are at the base of the Xe Don and Xe Kong river basins. The project will contribute to the implementation of the recently developed River Basin Management Plans and also compliment the resilient, climate-smart agriculture value chain initiatives being implemented by the government and partners in other parts of the country and make full utilization of the agrometeorological and early warning systems developed under the GEF-FAO SAMIS project. During the Project Preparation Grant (PPG) phase, a further assessment will inform specific details of the following outputs and associated activities to ensure the additionality and complementarity of the project with the baseline investments, parallel investments and co-financing activities.

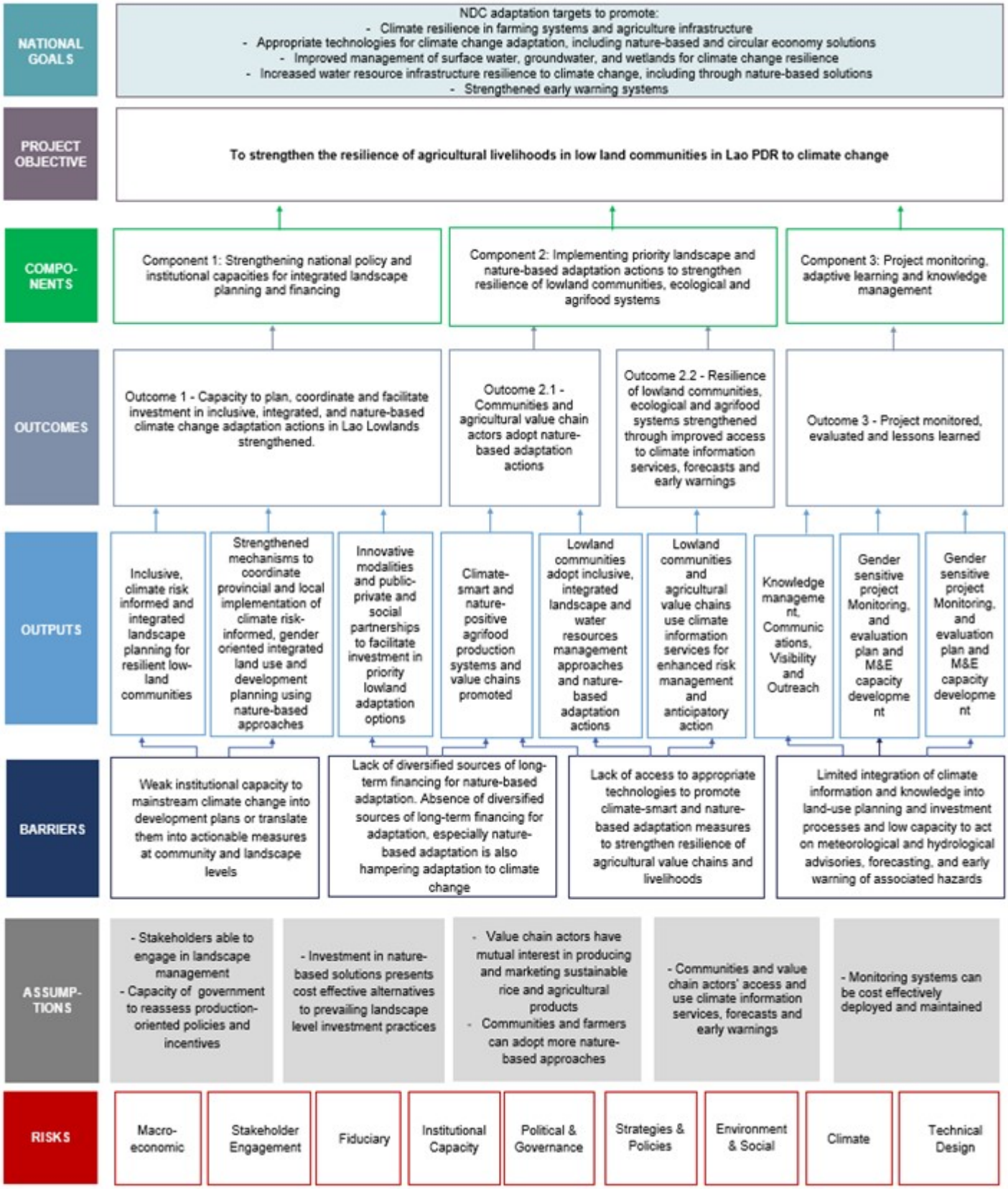


Figure 8 – project theory of change

Component 1: Strengthening national policy and institutional capacities for integrated landscape planning and financing.

5. This component will create an enabling environment for sustainable climate change adaptation in Lao lowlands through 1) Inclusive, climate risk informed and integrated landscape planning for resilient low-land communities; 2) Strengthened mechanisms to coordinate provincial and local implementation of climate risk-informed, gender oriented integrated land use and development planning using nature-based approaches; and 3) Identification of innovative modalities and public-private and social partnerships to facilitate investment in priority lowland adaptation options.

6. A detailed assessment of climate trends and likely impacts on lowlands, and socioeconomic trends relevant to Lao lowlands will be undertaken, with the aim to provide robust input for integrated landscape-level planning and identification of climate change adaptation solutions (Output 1.1.1.). The analysis will comprise key hazards including flood, drought and moderate extremes. The analysis will build upon the climate downscaling and agroecological zoning analysis exercises developed under the GEF-FAO SAMIS project. As part of this exercise, the project will also build upon earlier efforts to map historical extreme flood patterns (flood areas, depths, and duration of inundation), and conduct a rapid inventory to identify remaining natural wetland habitats. This exercise will support the revision of the spatial definition of flood risk in land use and development planning. The assessment will be validated by social mapping across typhoon-affected lowland floodplains of tributary rivers and cover the nine provinces in central and southern Laos to support scaling and potential impact beyond the primary project target areas.

7. The assessment will be used to identify climate risk-informed, gender oriented integrated land use options to implement adaptation priorities outlined in the NDC and potentially also prioritized for inclusion in the NAP, which is currently under development. This baseline mapping will support the identification of adaptation measures in natural resources, land, water and agrifood systems management, and reinforce a working-with nature approach in the face of increasing climate risks and compounded impacts of development processes. The planning process will place particular emphasis on the following principles: 1) Community ownership and bottom-up approaches; 2) Vertical policy coherence and mainstreaming of nature-based, community-led adaptation; and 3) Stakeholder engagement comprising gender equity and social inclusion including a collaborative learning-by-doing approach and knowledge exchange to facilitate innovation and technology transfer, sharing of good practices, and scale-up of successes.

8. The national government agencies will lead this process in collaboration with provincial governments, thereby strengthening the capacity of MONRE to undertake this exercise and their coordination capabilities with provincial and local authorities. The exercise will be led by MONRE's DMH and NRERI, will involve the DWR and LNMC and be supported by PONRE. The assessments will provide critical inputs for participatory, integrated land use planning, which will inform the policy and institutional capacity building work under Output 1.1.2 and provide focus, locations, technical design, and primary planning of on-ground adaptation activities under Component 2.

9. Policy, planning and capacity building activities will be developed in parallel to support national government drive integrated planning and landscape- and ecosystem-based management of natural resources, land, water and agrifood systems in lowland floodplains at provincial and local levels (Output 1.1.2). These activities will aim to build consensus to reduce land use and development pressures upon the natural landscape and ecosystems and reduce the compounding effects that exacerbate the impacts of climate change, particularly floods and droughts. Specific policy and institutional capacity building activities will include: 1) Reviewing and updating land use planning processes; 2) Promoting Integrated landscape and Water Resources Management (IWRM) at basin and sub-basin level for flood and drought resilience; 3) Review and update requirements for environmental and social risk assessments as part of lowland floodplain development planning and project approval processes; 4) Pilot implementation of improved land use planning processes in villages across the target districts; and 5) Inventory and review of flood forecast and early warning capacities for central and southern Laos. The planning process will be developed with an emphasis on enhancing gender equity and social inclusion.

10. This activity will address a lack of visibility, awareness, and preventive action to mitigate flood impacts, consolidating numerous past and on-going studies of government ministries (MONRE, MLSW and MPWT) and the MRC to test flood forecasting and flood return period models (time series data-based event estimations). The project will conduct an inventory of such efforts within the Mekong tributary river basins of Laos, and summarize results, collating estimates of flood return periods for all large tributary river basins in central and southern Laos. Then, the project will select the most practical flood forecasting modelling approaches for application across these typhoon-affected basins as the flood early warning system for lowland Laos. This activity will optimize existing MONRE in-house technical capacity and will be coordinated by DMH, with MONRE (DWR & LNMC), MLSW, MPWT, MoME and MRC support.

11. A complimentary stream of work will identify innovative modalities and public-private and social partnerships to facilitate access to finance for local government, farmers and farmer organizations to rollout priority adaptation interventions (Output 1.1.3). The Strategy for Financing the 9th Socio-Economic Development Plan (NSEP) 2021-2025 of Lao PDR, estimates that, particularly for its Outcome 4 (Environmental Protection and Climate Change Management), green and resilient infrastructure investment could require around USD 1 billion a year while biodiversity protection would cost USD 60 million a year. Lao PDR's 2021 NDC, aligned with the objectives of the 9th NSEDP, estimated that investment in climate mitigation needs amount to USD 4.8 billion by 2030, which is around USD 500 million a year (around 2.5 percent GDP per year). The Financing Strategy highlights required legislative and regulatory changes and investments to, amongst others, unlock private sector finance for sustainability objectives.

12. The "National Green Growth Strategy till 2030 in Lao PDR" also emphasizes the need to develop financial mechanisms to encourage or promote green programmes/projects and activities. While it names the government budget as the main source of financing, the Strategy also highlights the potential of public-private partnerships, measures to increase tax revenue, and the establishment of a Green Growth Promotion Fund. Financial incentives will be developed in parallel with work under the project to deploy specific adaptation options under Component 2.

Component 2: Implementing priority landscape and nature-based adaptation actions to strengthen resilience of lowland communities and supporting ecological and agrifood systems.

13. This component focuses on field-level implementation of integrated adaptation solutions for 1) climate-smart and nature-positive agrifood production systems and value chains and 2) inclusive, integrated landscape and water resources management using nature-based adaptation actions and with a focus on integrated water resources and flood risk management. The project will also work to enhance capacities for the production and dissemination of climate information, forecasts and early warnings, as developed under the GEF-FAO SAMIS (project, among others, and further strengthened through collaboration with the upcoming Green Climate Fund (GCF) project to scale up and enhance these agrometeorological advisory and early warning systems. Field level measures adopted will also draw upon lessons learned from the GEF-FAO CAWA and Upland agriculture projects to combine ecosystem and flood risk management through a community-based bottom-up approach and the promotion of climate-smart and resilient agricultural value chains.

14. Field-level activities will be designed to maximize synergies and avoid overlap with relevant existing projects active in project sites. A programme of activities will be compiled for each site, adapted to the local context and the priorities and preferences of local communities. The following preliminary criteria for site selection for the project have been determined:

- Exposure to climate change risk comprising flood, drought as well as other hazards.
- Sensitivity
- Adaptive capacity
- Species richness; presence of vulnerable freshwater species
- Presence of lowland rice culture
- Wetland ecosystem vulnerability (pollution levels, overfishing etc.)
- National government priorities
- Local government and community interest
- Presence of peatlands

15. The project will focus on deploying improved, climate-smart and nature-positive agrifood production systems and value chains (Output 2.1.1). Target value chains and livelihoods will encompass rainfed and irrigated rice systems as well as other food crops, inland fisheries and aquaculture, livestock, industrial crops such as cassava, cash crops such as coffee and the harvesting of non-timber forest products. The focus of these activities will be adjusted depending on the needs of local communities and long-term potential of the area. Specific measures the project may support will include:

- The adoption of improved crop and livestock varieties with higher tolerance to floods, droughts and heat extremes

- Improved soil and water management
- Improved Plant Nutrients Management
- Integrated pest and disease management
- Practices to enhance the resilience of freshwater fisheries.
- Crop and livestock insurance mechanisms
- Climate resilient post-harvest measures, including storage and processing.
- Pest and disease surveillance systems
- Strengthened veterinary and extension services.
- Enhanced capacity of farmer/fisher and water user cooperatives
- Reduction of community risk of vector- and water-borne diseases, where linked to climate change.

16. The project will promote community-led and district technical agency-guided efforts to adopt climate resilient agro-ecological practices that reduce encroachment, environmental and water use impacts on freshwater ecosystems and lower floodplains. NbS promoted will include integrated pest management (IPM) and conservation agriculture to reduce pesticide, herbicide, and fertilizer use; and improved low-water use agronomic approaches. These practices will be supported by improved delivery of climate information, such as the drought warnings provided by the Lao Agriculture Climate Advisory System (LaCSA) developed under the GEF SAMIS project.

17. The project will support adoption of inclusive, integrated landscape and water resources management approaches and nature-based adaptation actions (Output 2.1.2). It will draw on the learnings of GEF CAWA project to support a shift to more diversified, resilient, and nature-positive livelihoods. These activities will support multiple objectives: a) improved local food security; b) enhanced profitability of agriculture and sustainability of local livelihoods; c) reduced impacts on wetlands, natural resources and biodiversity, from adjacent economic activities and agrifood systems, particularly in rice landscapes; d) improved community-led integrated natural resources and water management; and e) enhanced community and ecosystem resilience to climate change impacts such as increasingly severe floods and droughts.

18. Innovations will be applied to adjust the standard IWRM approach to ensure nature-based solutions are fully incorporated and allow for flood water retention, aquifer recharge and shallow water storage. Where needed, the project will support new small-scale and nature-based infrastructure to mitigate floods and droughts, improve fish migration and enhance ecosystem health across the entire sub-basin. In project sites that are less prone to floods, activities will focus on increasing resilience to drought, including through investments in solutions that enhance water supply reliability, such as nature-based solutions for capture and storage (e.g., shallow natural water storage in floodplain lakes and ponds, etc.) and conservation measures (e.g. dry season water use agreements for both groundwater and surface

water, water metering and/or licensing, agro-met services that allow farmers to make better on-farm water management decisions). Strong role of women, indigenous communities and the private sector will be ensured for this output.

19. The project will also build on the results of GEF-FAO SAMIS and its follow-up project, expected to be funded by the GCF, which will produce and disseminate agricultural climate information services. Specifically, the project will work with communities to ensure that information and warnings are used by 'last mile' users and that vulnerable farmers and communities are equipped to prepare for climate hazards, and able to take anticipatory actions to mitigate their impacts (Output 2.2.1.). The project will encourage dialogue between climate service producers, namely DMH but also MAF agencies such as PPC to facilitate improvements in LaCSA advisory products and develop new products for risks and sub-sectors not currently covered as part of this system. Additional support will be provided to disseminate information to communities, producers and businesses in target districts through different channels including extension services, social media, the LaCSA app and village loudspeaker services.

20. As part of this output, a flood Warning and Dam Operation Communication System for Government Administrations Located Downstream of Hydropower Dam Operations will also be established to reduce flood risks resulting from dam operations, which tend to exacerbate the impacts of natural floods during high intensity precipitation events. The project will introduce operational procedures that include mandatory flood warnings and mitigation of flood impacts (enforced through amendment of hydropower operating licenses). It will require hydropower dam developers and operators to communicate more effectively with downstream government administrations (District Vice Governors via PONRE) about planned dam releases and associated gate and spillway operations. This would be coordinated by MONRE Vice Minister and DMH, with support from DWR, MoME and MRC.

Component 3: Learning, knowledge management and M&E.

-

21. The project will generate knowledge products to support implementation processes and improvement of its performance. These will also be disseminated to inform policy making and South-South and Triangular Cooperation. Knowledge products will be generated through three components and will produce training modules, develop strategy and plans, guidelines and protocols for both the private and public sectors on the approaches to climate change adaptation promoted through the project. Learning products from the project will be documented and disseminated through different media and target a range of stakeholders and project beneficiaries. Learning from the project will also be used to inform regional and global work on adaptation and resilience through engagement with other GEF and related adaptation projects and programmes such as the Sustainable Rice Landscapes Initiative (SRLI). The knowledge materials to be generated under the project will be clearly defined during PPG phase. Under this component, the project will be monitored and evaluated to ensure that lessons learned are used to inform future adaptation planning and implementation efforts at sub-national and national levels. Lessons learned and information generated by the project will also be used to inform future planning exercises and efforts to better mainstream nature-based adaptation. Learning from the project will also be used to inform regional and global work on adaptation and resilience through engagement with other GEF and related adaptation projects and programmes such as the Sustainable Rice Landscapes Initiative (SRLI).

22. The climate change and climate risk information generated by the project, as well as the methods used, implementation experiences and results of the project's promoted approaches and practices, will be collated, catalogued and made widely accessible to relevant national and local authorities, the public

and interested regional and global stakeholders (Output 3.1.1.). To achieve this, communications materials (publications, videos etc.) will be produced, exposure events organised, and data sharing 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. As a part of Outreach, as well as to ensure their strong involvement in decision making and equitable benefit from the project, the project will develop a strong gender action plan as well as ensure FPIC with indigenous communities. A strategy will also be developed for the private sector's involvement for climate change adaptation.

23. The work of the project relevant to management of predominantly rice-based landscapes in the target areas will be used to contribute to the regional and global efforts of SRLI to disseminate a range of best practice approaches and monitoring systems to support a sustainable and resilient transformation in rice production systems. The project will also benefit from capacity development and learning materials developed by linked SRLI projects in Asia and globally as well as benefit from engagement opportunities with public and private sector SRLI partners. MAFF will be engaged to support this work in collaboration with relevant MONRE departments.

24. A climate Change, Flood Risk and Wetland Value Environmental Education Program will also be developed to address the low levels of awareness of flood and drought risks associated with climate change, as well as of the value of and ecosystem services provided by wetlands, the project will develop a curriculum for students at primary and secondary school, and university levels. Topics addressed will include floods, droughts and associated water availability issues resulting from climate change; the value of natural wetlands in facilitating the implementation of nature-based development approaches that enhance resilience to these climate change impacts; and the value of wetlands for conservation of freshwater ecosystems and biodiversity.

25. The project will benefit from a gender-sensitive MEL framework that will involve all stakeholders, including participating communities, in project monitoring and evaluation (Output 3.1.2.). Where possible, indicators will be aligned with existing indicators already in use by the National Government. The project's MEL framework will include specific pathways for interim monitoring results to be fed back into project planning. It will also facilitate agile, adaptive planning. 'Signal indicators' will be identified that will be monitored continuously and that will induce the modification of strategies and activities if they reach predetermined 'trigger values.' Monitoring datasets will be freely shared with stakeholders including the National Government and the Laos Statistical Information Service, formatted to comply with open data standards. As part of the project MEL framework, a mid-term and terminal evaluation will be prepared to support learning and support the sustainability and durability of project outcomes (Output 3.1.3.). This work will be coordinated by across involved MONRE departments with support from FAO.

Global Environmental Benefits

28. The project is expected to yield multiple benefits on both local and global environmental fronts. It aims to enhance climate change resilience and adaptation capacities among 43,000 members of the rural population in the target districts (50 percent women) and 5,450 households. This will be achieved through targeted interventions in the areas of agriculture, forestry, fisheries, water and watershed management, and DRM, all aimed at bolstering climate resilience and sustainability. The project will promote climate resilient management on 17,800 hectares of land including 7,900 hectares of agricultural land, 7,000 hectares of natural and production forests and 2,900 hectares of freshwater bodies. The project will drive additional delivery of through planning processes at district and village level and through the dissemination of project guidance, analysis and approaches across the low-lying regions of Lao PDR. Under Component 3 of the project, outreach to foster additional benefits will be encouraged through engagement in regional and global networks such as SRLI.

Innovation and scalability toward broader transformation

29. The project will promote innovation through the adoption of anticipatory, agile, and adaptive management practices and non-linear learning in living laboratory settings, co-developing interventions together with communities. The design and scaling of low-cost, community-led, nature-based approaches rather than engineering solutions to facilitate adaptation to climate risks that will draw upon a mix of local knowledge and advanced assessment and analysis developed under Component 1 of the project.

30. The project will also foster transformation because by aiming to change the trajectory of development in lower floodplains of Lao PDR from one of increased construction, flood damage, degradation of wetland ecosystems, and biodiversity loss to one of nature-based livelihoods, reduced flood damage, maximization of the benefits of seasonal flooding, and improved wetland health resulting in enhanced ecosystem services. Its transformative impact is further enhanced by the sharing of methodologies and results with interested stakeholders in lowland areas in other parts of the Lower Mekong River Basin and beyond.

31. The additionality of GEF funding arises from the fact that adaptation financing is lacking and private sector business cases for investing in adaptation projects benefiting vulnerable populations are non-existent. Therefore, without GEF funding, these interventions would not be implemented, despite their cost-effectiveness, proven long-term sustainability, positive impacts on biodiversity conservation and wetland health, and the economic benefits they generate for some of the world's most climate-vulnerable communities.

Indicative Implementation Arrangements

26. The project execution will be determined during PPG stage. It is expected it will be executed through national implementation modalities, with additional technical support from national and international technical expertise. Relevant Government entities will implement the activities of the project; primarily the Ministry of Natural Resources and Environment (MoNRE) and the Ministry of Agriculture and Forestry

(MAF) (Figure 9). Relevant departments under each Ministry will lead delivery of project outputs based on their respective mandates and areas of expertise. Agency roles will be defined during the PPG phase.

27. Based on consultations to develop this project concept, specific agencies have been proposed as possible focal points for different elements of the proposed work program (Table 3). These roles will be confirmed during the PPG phase. The project will be implemented in close coordination with ongoing GEF-7 projects and also with ongoing and future GCF projects to maximize impact and avoid duplication of efforts.

Table 3 – Tentative agency roles

Outcome	Output	Lead Agency	Proposed Role
1.1	1.1.1. Inclusive, climate risk informed and integrated landscape planning for resilient low-land communities	MONRE	Assessment of climate change risks, preparation of planning materials and coordination. Key agencies may include DMH, DWR/MONRE, and DALAM.
	1.1.2. Strengthened mechanisms to coordinate provincial and local implementation of climate risk-informed, gender oriented integrated land use and development planning using nature-based approaches	MONRE, MAF	Coordination with provincial and local governments. Key agencies may include DOPC/MONRE and DALAM/MAF.
	1.1.3. Innovative modalities and public-private and social partnerships to facilitate investment in priority lowland adaptation options	MONRE	Engagement with potential public, private and social partners and specification of finance options. Key agencies may include DOPC/MONRE, DOPC/MAF.
2.1	2.1.1 Climate adaptive and nature positive agrifood value chains	MAF	Deployment of adaptation options targeting agricultural production systems and value chains. Key agencies may include PAFO/DAFO.
	2.2.1 Community-based landscape and water resources management	MONRE, MAF	Deployment of adaptation options targeting landscapes and water resources. Key agencies may include DWR/MONRE, PAFO/DAFO.
2.2	2.2.1 Improved access to climate information services, forecast and EW for enhanced risk management and anticipatory action	MONRE	Production of advisory services and dissemination to last mile users for risk mitigation and anticipatory actions. Key agencies may include DMH/MONRE, MAF/PPC and PAFO/DAFO.
3.1	3.1.1 Knowledge management, Communications, Visibility and Outreach	MONRE, MAFF, FAO	Coordination of KM activities through the NAP process and sector adaptation strategy. Work will be coordinated by MONRE with support from MAF. FAO will support regional and global engagement opportunities.
	3.1.2. Gender sensitive project Monitoring, and evaluation plan and M&E capacity development	MONRE, FAO	Overall responsibility for M&E and ensuring project results inform adaptation planning and implementation. To be led by MONRE with potential support from FAO.
	3.1.3 MTE and TE conducted, and management responses implemented for MTE	MONRE, FAO	Evaluations will be prepared in collaboration with FAO office of evaluation.

Coordination and Cooperation with Ongoing Initiatives and Project.

Does the GEF Agency expect to play an execution role on this project?

If so, please describe that role here. 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

A list of key projects that are relevant to this project have been tabulated under the project rationale section of this PIF. During the full proposal development, concrete actions for coordination and collaboration with these projects will be detailed and agreed upon. The project will ensure strong coordination and cooperation with ongoing LDCF projects implemented by FAO, UNEP and other GEF agencies, and also with new projects in the pipeline. Coordination and cooperation will be done at multiple levels -- by the GEF OFP, by FAO Country Office and also by the project teams themselves. FAO, as the GEF Implementing Agency, will also ensure coordination and collaboration on relevant themes with ongoing projects globally. These will include sharing of lessons, appropriate technological and other innovations.

Table 2 – Baseline projects to strengthen climate change resilience of agricultural livelihoods

Project title and duration	Financing	Location	Outcomes, outputs and activities
Lao PDR Agriculture Competitiveness Project (2021-2027)	World Bank, $29.3m	Vientiane, Bolykhamxay, Khammouane, Xayabury	Increase competitiveness of rice, maize and vegetable value chains by: - improving irrigation infrastructure - promoting adoption of good varieties and quality seeds - promoting good agricultural practices - improving extension service capacity of PAFOs and DAFOs.
Sustainable Rural Infrastructure and Watershed Management Sector Project (SRIWMSP) (2020-2027)	ADB, $50m	Houaphan, Xiangkhouang, Louang Prabang, Xaignabouli	Increase profitability of the agriculture, natural resources and rural development sectors by: - increasing market-oriented agricultural production (with focus on HVCs including tea) - improving irrigation infrastructure and management - protecting catchments linked to subproject command areas - improving nutrition awareness and facilities
Partnerships for Irrigation and Smallholders Commercial Agriculture (2019-2025)	IFAD, $13m	Houaphanh, Luang Prabang, Xaiabury, Xiangkhouang	Provide irrigation management and market linkage support to irrigation systems rehabilitated under SRIWMSP, including: - training water user groups (WUGs) on O&M of new irrigation systems; - supporting farmer groups and WUGs to implement best agricultural practices in term of climate resilience,

Project title and duration	Financing	Location	Outcomes, outputs and activities
			nutrition relevance and responsiveness to market demands; - establishing a Farmer Group Investment Facility to enable groups of farmers to develop minor infrastructure for agricultural production and market access; - establishing multi-stakeholder platforms (farmers, input suppliers, buyers and financial institutions) for promising agricultural commodities to enhance coordination within value chains; and - improving nutritional practices.
Climate-Friendly Agribusiness Value Chains Sector Project (2018-2025)	ADB, $40.5m	Khammouane, Saravan, Savannakhet, Vientiane Capital, Champasak, Sekong	Improve productivity of rice and vegetable value chains by: - rehabilitating small-scale irrigation infrastructure and rural roads; - enhancing crop research, and safety- and quality-testing infrastructure; - improving climate-friendly infrastructure for agribusiness enterprises; - promoting farm mechanization through smallholder financing via agricultural production groups
Strategic Support for Food Security and Nutrition Project – Global Agriculture and Food Security Program funds (2016-2022)	IFAD, $38.8m	Oudomxay, Phongsali, Xiangkhouang, Houaphan	Reduce poverty and malnutrition in the poorest communities by: - strengthening the capacity of district officials and NAFRI to deliver climate-smart agriculture technologies and training; - implementing community-driven agriculture-based nutrition interventions; and - establishing market-driven partnerships targeting high-value, climate-resilient commodities.
Climate Smart Agriculture Alternatives for Upland Production Systems in Lao PDR (2021-2025)	FAO-LDCF, $3.5m	Luang Prabang, Houaphan	Promote climate-smart agriculture in upland production systems by: - integrating AEZ climate modelling from SAMIS into provincial- and district-level land use planning; - training district extension officials in climate-smart agriculture practices, e.g., interpreting crop suitability assessments; - establishing value chain networks for 6 agricultural value chains (coffee, tea, small livestock, non-timber forest products, herbs and vegetables); and - developing and implementing investment action plans for improving climate resilience and profitability of these value chains.
Strengthening Agro-climatic Monitoring and Information Systems (SAMIS) to improve adaptation to climate change	FAO-LDCF, $5.5m	National	Activities aimed to:

Project title and duration	Financing	Location	Outcomes, outputs and activities
and food security for farmers in Lao PDR (2017-2023)			- strengthen agro-climatic monitoring, analysis, communication and use of data and information for decision making in agriculture and food security; - strengthen institutional and technical capacity for monitoring and analysis of agriculture production systems including food security vulnerability and development of Land Resources Information Management Systems (LRIMS) and agro-ecological zoning (AEZ); and - promote knowledge management and dissemination of information and lessons learned for planning, monitoring and evaluation (M&E).
Northern Rural Infrastructure Development Sector Project' (2010-2017 and 2017-2021)	ADB, $50m	Luang Namtha, Bokeo, Phongsali, Oudomxai	Improve agricultural productivity by - rehabilitating and constructing irrigation systems and rural access roads; - training WUGs in maintenance of the installed infrastructure; - stabilising upstream watersheds; - establishing farmer producer groups to coordinate supplies of agricultural produce to markets and processors; - supporting contracts between farmers and processors with price incentives based on quality; and - securing land ownership certificates for WUG members. Targeted crops include rice, maize, cassava, tea and rubber.
Greater Mekong Subregion East–West Economic Corridor Agriculture Infrastructure Sector Project (2013-2022)	ADB, $60m	Saravan, Savannakhet	Improve irrigation and rural road infrastructure in order to optimize agricultural output, promote crop diversification and increase production efficiency. Infrastructure upgrades are complemented by: - training of WUGs in irrigation systems O&M; and - providing WUGs with advice on crops to be grown, agriculture techniques to be followed, and processing and market improvement opportunities to be pursued.
Building the Capacity of the Lao PDR Government to Advance the National Adaptation Planning Process	UNEP-LDCF, $3.5m	National	The purpose of the project is to strengthen institutions and capacity building for stakeholder and the government in order to establish national adaptation planning (NAP) process. Components of work include: - Institutional and technical capacity for the NAP Process in Lao PDR; - Climate information system for prioritizing adaptation needs; - Social and economic development in Lao PDR that integrates adaptation to climate change; and - Monitoring, reviewing and reporting on the NAP Outcomes in Lao PDR.

Core Indicators

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.

false

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

true

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

true

This project will collaborate with activities begin supported by other adaptation funds. If yes, please select below

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

This Project has an urban focus.

false

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

true

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	10.00%
Coastal zone management	0.00%
Water resources management	30.00%
Disaster risk management	0.00%
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 **false**	Change in mean temperature **true**	Increased climatic variability	Natural hazards **true**

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

CORE INDICATORS – LDCF

	Total	Male	Female	% for Women
CORE INDICATOR 1 Total number of direct beneficiaries	138,000	69,000.00	69,000.00	50.00%
CORE INDICATOR 2 (a) Area of land managed for climate resilience (ha) (b) Coastal and marine area managed for climate resilience (ha)	17,800.00 0.00			
CORE INDICATOR 3 Number of policies/plans/ frameworks/institutions for to strengthen climate adaptation	21.00			
CORE INDICATOR 4 Number of people trained or with awareness raised	10,000	5,000.00	5,000.00	50.00%
CORE INDICATOR 5 Number of private sector enterprises engaged in climate change adaptation and resilience action	4.00			

Risks to Project Preparation and Implementation

Summarize risks that might affect the project preparation and implementation phases and what are the mitigation strategies the project preparation process will undertake to address these (e.g. what alternatives may be considered during project preparation-such as in terms of consultations, role and choice of counterparts, delivery mechanisms, locations in country, flexible design elements, etc.). Identify any of the risks listed below that would call in question the viability of the project during its implementation. Please describe any possible mitigation measures needed. (The risks associated with project design and Theory of Change should be described in the "Project description" section above). The risk rating should reflect the overall risk to project outcomes considering the country setting and ambition of the project. The rating scale is: High, Substantial, Moderate, Low.

Risk Categories	Rating	Comments
Climate	Moderate	A climate risk assessment undertaken at PIF stage has suggested that the project has high risk from climate change impacts without project modulation, and medium with project modulation. Extreme weather events could hamper project implementation, but also provide further justification 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
Environment and Social	Moderate	74. An initial environmental and social impact assessment has been carried out to screen the project activities and assess possible social and environmental impacts. A detailed Environmental and Social Management Plan (ESMP) will be prepared outlining the environmental and social safeguard principles, standards and requirements. Project implementing partners and FAO will jointly undertake environmental and social safeguard due diligence on the projects and various project components following the Government and FAO's Social and Environmental Standards. It will also comply with the relevant policy and legal frameworks of the GEF to ensure full mitigation of any environmental or social impacts of civil works. No adverse impacts on indigenous peoples are expected, and the project will have a grievance redress mechanism following standard GEF guidelines. An Environmental and Social Management Plan (ESMP) and a Gender Action Plan (GAP) will be developed during project preparation to ensure any risks to the environment and local communities are managed appropriately.
Political and Governance	Low	Comprehensive and detailed consultations among national and sub-national stakeholders will be undertaken throughout project preparation and implementation. Government priorities could change – this risk is mitigated by the existing working relationship between FAO and MONRE; the involvement of all stakeholders in project planning from

		the beginning; and the previous experience with CAWA project which demonstrated widespread interest in the activities.
Macro-economic	Moderate	As an LDC, Lao PDR is vulnerable to global macroeconomic context. The proposed project activities are highly cost-effective and do not require large one-off infrastructure investments. They are also designed to enhance communities' resilience against macro-economic shocks. Macro-economic variability is therefore highly unlikely to have major impacts on the project's success.
Strategies and Policies	Low	The project is aligned with existing relevant strategies and policies in the country.
Technical design of project or program	Low	The project builds on the successes of the past LDCF projects and the effectiveness of many of its technical design aspects has already been proven. Agile, non-linear learning approaches based on continuous monitoring will facilitate adaptation of activities where necessary in response to unforeseen changes in circumstances.
Institutional capacity for implementation and sustainability	Moderate	Comprehensive and detailed consultations among relevant institutions will be undertaken throughout development and implementation of the project. The project will identify the capacity gaps and will actively strengthen the capacity of stakeholders involved to lead/participate in relevant activities and continue these beyond the duration of the project.
Fiduciary: Financial Management and Procurement	Moderate	The project will be delivered through national execution modalities with government delivery partners. Operational and fiduciary risk

		assessments will be required during the PPG phase of the project to determine potential risks and management strategies to be adopted to ensure project deliver and appropriate financial management and procurement processes are followed
Stakeholder Engagement	Low	Extensive stakeholder engagement will continue to be undertaken during project preparation and implementation, with special focus on inclusive engagement processes for women, youth and other vulnerable groups. This will be informed by the development of detailed stakeholder engagement plans.
Other		
Financial Risks for NGI projects		
Overall Risk Rating	Moderate	

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

Describe 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.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

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. (max. 500 words, approximately 1 page)

1. The project addresses all four themes highlighted in the GEF8 LDCF programming directions in an integrated manner for the lowlands of Lao PDR:

    a. Agriculture, Food Security, (and indirectly health): The project will support investment in climate-smart and nature-based agrifood production and value chains targeting enhanced agricultural livelihoods and food security.
    b. Water: Project measures will include support community-led and district technical agency-guided efforts to adopt climate resilient agro-ecological practices that reduce encroachment, environmental and water use impacts on freshwater ecosystems and lower floodplains;
    c. Nature-Based Solutions: The project will promote nature-based infrastructure to mitigate floods and droughts, improve fish migration and enhance ecosystem health across the entire sub-basin;
    d. Early Warning and Climate Information Systems: The project will promote use if agro-hydrometeorological forecasting and information and related institutional capacity building.

2. In terms of scale, the primary approach of the project will be to work at landscape and value-chain based approaches; whilst integrating spatial planning, ecosystems and nature based solutions as far as possible, and focusing on rural communities as a priority.

3. The project will support policy coherence and mainstreaming of climate adaptation at wider a landscape/ watershed/ lowland 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, cutting across different sectors, regions, and governance levels, requiring enhanced vertical (across governance) and horizontal (across sectors) institutional integration. The project will have strong focus on knowledge management and sharing and ensuring effective arrangements for long term collaboration among different stakeholders to ensure "whole of society" approach, including strong private sector engagement. Sustainable finance also is a strong cross cutting focus of the project under both Components 1 and 2.

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

1. In terms of national priorities, the project will, the project addresses[KS(1] 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.

2. 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 circular economy 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.[1]2

3. 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:

    i. 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.

    ii. 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.

iii. 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.[2]3

4. National Strategy on Disaster Risk Reduction 2021-2030: The project will contribute to the priority actions of this strategy: 1) Understanding risks, Vulnerability and Risk Assessment; 2) Strengthening risk governance; 3) Reducing vulnerabilities and building resilience and 4) Strengthening disaster preparedness for more effective response and recovery to build back better (BBB).[3]4

5. National Biodiversity Strategy and Action Plan (NBSAP): Lao PDR's National Biodiversity Strategy and Action Plan (NBSAP) 2016-2025 identifies the importance of wetlands and other freshwater ecosystems to biodiversity, but lists as an "outstanding concern" that "work on the National Wetland Inventory has not yet started." Among the planned activities, the NBSAP lists the establishment of "at least 250 Fish Conservation and breeding sites" with local community support, as well as the development of a national wetlands strategy and management plans for at least 12 important wetland sites.[4]5

Natural Resources and Environment Five Year Plan 2021-2025: The project directly aligns with Objective 3: Enhance adaptation to and coping with the impacts of climate change and natural disasters; Objective 4: Enhance regional and international cooperation and integration; and Objective 5: Enhance institutional capacity. It also contributes to Objective 1: Utilize, protect, conserve, and manage sustainable natural resources; and Objective 2: Promote environmental quality to ensure good quality of life for people and green growth development.[5]6

[1] 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

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

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

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

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

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

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

Yes

Stakeholder Engagement

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

Yes

Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities: Yes

Civil Society Organizations: Yes

Private Sector: Yes

Provide a brief summary and list of names and dates of consultations

Date	Name of event	Discussion on new PIF	Total participants	Key institutions
5 September 2022	The GEF, GCF, AF synergized programming workshop chaired by MONRE	A session on GEF8 and LDCF programming discussed, and the preliminary concept of this project was presented.	47 participants including 36 men, 11 women	MONRE, MAF, MPI, Ministry of Public Works and Transport, Ministry of Energy and Mines, MOIC, WB, FAO, UNDP, WFP, UNIDO, GGGI, ADB, UNEP, IUCN, EPF
6 December 2022	The final workshop for SAMIS workshop	Results and lesson learnt from the project reaffirmed the need for and benefits of climate information services/ agro-meteorological advisories in building resilience of agriculture and livelihoods and how to scale up the services under this new LDCF project.		MONRE (DOPC, DMH,DCC), MAF, FAO, MPI
12-15 June 2023	High level, multi-sectoral visit to the CAWA project	Verified the successes and discussed lessons learned from CAWA's model of integrated CCA-Disaster Risk Management and natural resources management in building resilience in the lowlands	67 participants including 20 female and 47 male participants	MONRE, MPI, MAF, PAFO Savanakhet, Champasak, DONRE, DAFO, DLWU and FAO

		and replication opportunities.		
25 September 2023	The CAWA final workshop	Presentation and consultation on the concept note of this LDCF project	89 participants including 39 female and 50 male participants	MONRE (DOPC, DOE, DWR, DMH, DOIH, DCC), MOFA, MAF, MPI, LWU Vientiane Capital, PLWU in Savannakhet and Champasak, DAFO, DLWU, DONRE, PONRE,MICT,IUCN, WWF, WCS, IWMI, World Vision, MRC, NUoL
June to September 2023	Several meetings with MONRE including with the Deputy Minister and different technical departments	Presentation and consultations on the concept note of this project	8-10 persons each meeting	MONRE, FAO

(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

Private Sector

Will there be private sector engagement in the project?

Yes

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

Yes

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

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 in the Project Description (Section B)

Yes

ANNEX A: FINANCING TABLES

GEF Financing Table

Indicative 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 ($)
FAO	LDCF	Lao PDR	Climate Change	LDCF Country allocation	Grant	4,781,507.00	454,243.00	5,235,750.00
Total GEF Resources ($)						**4,781,507.00**	**454,243.00**	**5,235,750.00**

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount ($)

150000

PPG Agency Fee ($)

14250

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	PPG($)	Agency Fee($)	Total PPG Funding($)
FAO	LDCF	Lao PDR	Climate Change	LDCF Country allocation	Grant	150,000.00	14,250.00	164,250.00
Total PPG Amount ($)						**150,000.00**	**14,250.00**	**164,250.00**

Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/	Focal Area	Sources of Funds	Total($)

		Regional/ Global			
Total GEF Resources					**0.00**

Indicative Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing($)	Co-financing($)
CCA-1-1	LDCF	1,000,000.00	2500000
CCA-1-2	LDCF	2,390,000.00	12000000
CCA-1-3	LDCF	1,000,000.00	4000000
CCA-1-4	LDCF	391,507.00	1500000
Total Project Cost		**4,781,507.00**	**20,000,000.00**

Indicative Co-financing

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Donor Agency	KOICA grant for MONRE on internal water resource management and drought risk management	Grant	Investment mobilized	12000000
	KOICA potential grant for FAO on internal water resources management and climate resilient agriculture	Grant	Investment mobilized	8000000
Total Co-financing				**20,000,000.00**

Describe how any "Investment Mobilized" was identified

KOICA is currently under discussion with the Lao Government and also FAO to support investment projects that are relevant to this project. These are considered investment mobilized. The Korean International Cooperation Agency (KOIKA) and FAO are discussing a project entitled “More Efficient, Carbon Neutral and Resilient Agriculture, Rural Development and Water Resources Management” that includes Champasak as a target province" for the amount mentioned (8 million).

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

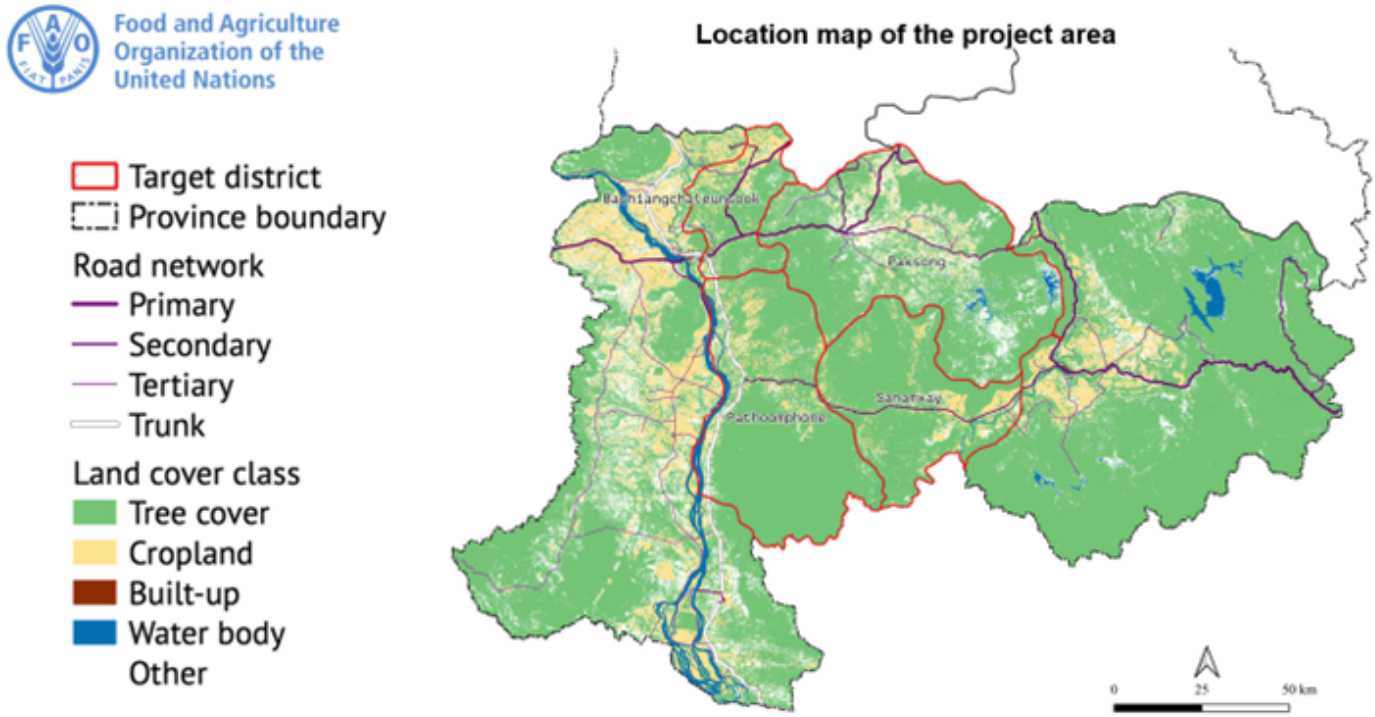
GEF Agency Type	Name	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	Jeffrey Griffin				Jeffrey.griffin@fao.org
Project Coordinator	Sameer Karki				sameer.karki@fao.org

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

Name	Position	Ministry	Date (MM/DD/YYYY)
Ms. Phakkavanh Phissamay	Director General, Department of Planning and Finance	MONRE	10/16/2023

ANNEX C: PROJECT LOCATION

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



ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title
Environmental and Social Safeguards Screening Checklist

ANNEX E: RIO MARKERS

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Significant Objective 1	Principal Objective 2	Significant Objective 1	Principal Objective 2

ANNEX F: TAXONOMY WORKSHEET

Level 1	Level 2	Level 3	Level 4
Influencing Models	Strengthen institutional capacity/decision-making	Local adaptation investment planning	
	Demonstrate innovative approaches	Climate-resilient technologies and techniques	
	Deploy innovative financial instruments	Mechanisms to increase financial access	
Stakeholders	Beneficiaries		
	Local communities		
	Civil Society	CSOs/CBOs	
	Private Sector	Farmer organizations, MSMEs	
		Input suppliers, local financial institutions, traders, processors, exporters	
	Type of Engagement		
	Knowledge and Learning		
	Stakeholder engagement		
Capacity, Knowledge and Research	Enabling activities	LLA investment planning	
	Capacity development	Risk identification, adaptive options, EbA, NbS, and business planning.	
	knowledge generation and exchange		
Gender Equality	Gender mainstreaming	Women groups	
		Sex-disaggregated indicators	
		Gender-responsive indictors	
	Gender results areas	Gender-responsive investment planning	
Focal Area/Theme	Climate change	Adaptation	Least Developed Countries
			Climate resilient agriculture
			EbA, NbS