



## Climate Smart Agriculture alternatives for upland production systems in Lao PDR

### Part I: Project Information

**GEF ID**

10187

**Project Type**

FSP

**Type of Trust Fund**

LDCF

**CBIT**

No

**Project Title**

Climate Smart Agriculture alternatives for upland production systems in Lao PDR

**Countries**

Lao PDR

**Agency(ies)**

FAO

**Other Executing Partner(s)**

Ministry of Agriculture and Forestry (MAF)

**Executing Partner Type**

Government

**GEF Focal Area**

Climate Change

**Taxonomy**

Focal Areas, Influencing models, Stakeholders, Gender Equality, Capacity, Knowledge and Research, Climate Change, Climate Change Adaptation, Sea-level rise, Livelihoods, Least Developed Countries, Mainstreaming adaptation, Climate resilience, Innovation, Private sector, Complementarity, Climate finance, Adaptation Tech Transfer, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Demonstrate innovative approaches, Convene multi-stakeholder alliances, Deploy innovative financial instruments, Indigenous Peoples, Private Sector, Capital providers, Financial intermediaries and market facilitators, Individuals/Entrepreneurs, Type of Engagement, Partnership, Information Dissemination, Consultation, Participation, Communications, Public Campaigns, Education, Awareness Raising, Strategic Communications, Behavior change, Civil Society, Non-Governmental Organization, Community Based Organization, Local Communities, Beneficiaries, Gender Mainstreaming, Sex-disaggregated indicators, Women groups, Gender-sensitive indicators, Gender results areas, Access to benefits and services, Participation and leadership, Knowledge Generation and Exchange, Access and control over natural resources, Capacity Development, Knowledge Generation, Workshop, Training, Learning, Adaptive management

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 1

**Climate Change Adaptation**

Climate Change Adaptation 2

**Duration**

60 In Months

**Agency Fee(\$)**

332,782

**Submission Date**

4/5/2019

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

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCA-1	LDCF	2,452,078	11,150,000
CCA-2	LDCF	1,050,890	6,500,000
	<b>Total Project Cost (\$)</b>	<b>3,502,968</b>	<b>17,650,000</b>

## B. Indicative Project description summary

### Project Objective

To enhance resilience of vulnerable upland communities to climate change impacts through CSA practices in upland production systems

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
Component 1: Strengthening the enabling environment to promote uptake of more integrated climate smart land use approaches in Lao PDR	Technical Assistance	<p>1.1. Strengthened national policy, legal, and institutional frameworks to mainstream CCA for systemic impact and promote the transfer of CCA technologies and approaches in upland agriculture and NRM</p> <p><i>Indicators</i></p> <p>-</p> <p>- Number of policies, plans or development frameworks that mainstream climate resilience</p> <p>- Improved national financing for state-sponsored CSA - as a tool for CCA activities in u</p>	<p>1.1.1. Inter-sectoral coordination mechanism at national and sub-national levels to mainstream CCA priorities into agriculture and NRM policies, plans and programming and promote technology transfer strengthened</p> <p>1.1.2. Strengthened policies, law, or associated regulations to mainstream CCA into agriculture and NRM sectors at national and sub-national levels</p>	LDC F	300,000	2,150,000

pland areas in Lao PDR

- Increased funding identified for CCA measures in agricultural and NRM sectors in upland areas of Lao PDR

<p>Component 2: Integrating climate smart land-use approaches and practices into land-use planning and incentives for resilient commodity value chains in the northern uplands of Lao PDR</p>	<p>Investment</p>	<p>2.1. Innovative CCA technologies and approaches transferred and mainstreamed into integrated land use planning and programming to ensure development of sustainable, multifunctional landscapes in two target provinces of the northern uplands of Lao PDR</p>	<p>2.1.1. Climate vulnerability and risk assessments of targeted local communities in two target provinces of northern upland areas of Lao PDR undertaken</p> <p>2.1.2. Innovative locally appropriate gender-responsive CCA practices and climate smart livelihood options for northern uplands production systems demonstrated, transferred and scaled up in two target provinces of northern upland areas of Lao PDR (water-saving practices, integrated pest management; integrated nutrient management; conservation agriculture and agro-forestry, post-harvest losses, ICT tools for precision decision-making in crop nutrition, pest management and smart harvest scheduling, etc)</p> <p>2.1.3. CCA planning and decision-making tools and data, including information management systems</p>	<p>LDC F</p>	<p>1,750,000</p>	<p>8,250,000</p>
		<p><u>Indicators</u></p>				
		<p>- Number of technologies transferred</p>				

<p>- Number of households and communities adopting economically viable alternatives for increasing resilience</p>	<p>information management systems, for the agriculture and NRM sectors, developed and accessible to land-use planners and other decision-makers with equipment provided</p>
<p>- Number of multi-stakeholder land-use plans for selected production landscapes</p>	<p>2.1.4. Participatory resilience assessment and livelihood diagnostics to support evidence-based decision-making</p>
<p>2.2 Incentives for innovative and resilient value chains under implementation established to adopt and scale up CCA in selected production landscapes</p>	<p>2.1.5. Similarity and suitability analyses to mainstream CCA into integrated management plans conducted</p>
<p><u>Indicators</u></p>	<p>2.1.6. Model integrated participatory land use plans that mainstream CSA as a vehicle for CCA and promote sustainable climate resilient livelihoods developed and tested for pilot villages in 2 target provinces</p>
<p>- Incentives for climate-smart agriculture at national and sub-national levels</p>	<p>Output 2.2.1. Market opportunities and other incentives, models and tools to encourage farmers and NR users to adopt CCA practices and climate smart livelihood options identified and linked to the provincial/local level adaptation plans</p>
<p>- Increase in public and private sector (at least 5 different types of enterprises)</p>	<p>2.2.2. CSA Action Plan for CCA and associated integrated financing strategy for two target provinces i</p>

supporting smallholder farmers to scale up best practices and adoption of self-reliant approaches for managing climate variability and change

- Number of food/feed value-chains with increased resiliency

- Improved access to microfinance and insurance for local climate smart livelihood options

n the northern uplands to support mainstreaming and upscaling of CCA into agriculture developed

2.2.3. Resource use efficient and biodiversity friendly food value-chains strengthened in two target provinces of northern upland areas of Lao PDR

(rice, coffee, maize, banana, livestock, feed)

<p>Component 3: Enhancing capacity of northern upland farmers and local communities and extension services to implement CCA approaches and practices, and providing incentives for land and natural resource users to adopt them</p>	<p>Investment</p>	<p>3.1. Increased options, incentives and capacities of vulnerable communities in targeted upland areas of Lao PDR to adopt and implement climate smart livelihood practices in their production systems, to better adapt to climate variability and change and</p>	<p>LDC F</p>	<p>1,036,160</p>	<p>6,200,000</p>
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meet food security and nutritional needs

Indicators

- Number of extension agents, decision makers, farmers with capacity for supporting resilient on-farm practices

Output 3.1.1. Technical training for rural extension services in agriculture and forestry to enable them to promote locally appropriate gender-responsive CCA practices and climate smart livelihoods and associated tools and incentives (future crop suitability assessment, adaptive value chain planning)

3.1.2. CCA outreach programmes and local knowledge sharing and learning networks on CCA practices and climate smart livelihoods for farmers and natural resource users established (through TSC and FFS) and operational

3.1.3. Decision-makers and planners in key agencies and institutions trained in relevant CCA priorities and planning elements for agriculture and NRM in upland areas of Lao PDR and necessary CCA planning equipment made available

3.1.4. Village community representatives, especially women, trained in CCA priorities and solutions, planning processes and negotiations skills to enable them to represent their communities and participate effectively in village, district and provincial level CCA planning and programming forums



Component 4: Monitoring & Evaluation, project communication and lesson learning	Technical Assistance	4.1. Project Monitored and Evaluated, information disseminated and lessons from project implementation progress monitoring, review and evaluations codified and shared	4.1.1. A Gender-Sensitive Project Monitoring & Evaluation Plan and a relevant system are in place  4.1.2. Communication Strategy and KM strategy are developed and implemented  4.1.3. Project Mid-term review and Final Evaluation are conducted	LDC F	250,000	500,000	
		<i>Indicators</i>					
		- Increased national awareness on resilient landscapes and value chains					
		- A gender-sensitive monitoring and evaluation systems					
<b>Sub Total (\$)</b>					<b>3,336,160</b>	<b>17,100,000</b>	
<b>Project Management Cost (PMC)</b>							
					LDCF	166,808	550,000
<b>Sub Total(\$)</b>					<b>166,808</b>	<b>550,000</b>	
<b>Total Project Cost(\$)</b>					<b>3,502,968</b>	<b>17,650,000</b>	

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Government	Ministry of Agriculture and Forestry	In-kind	Recurrent expenditures	500,000
Government	Provincial Agriculture and Forestry Offices	In-kind	Recurrent expenditures	200,000
Donor Agency	Strategic Support for Food Security and Nutrition Project (SSFSNP) – IFAD and WFP	Grant	Investment mobilized	6,500,000
CSO	Helvetas	In-kind	Recurrent expenditures	1,000,000
GEF Agency	World Bank	Grant	Investment mobilized	3,800,000
GEF Agency	FAO	In-kind	Recurrent expenditures	650,000
Donor Agency	GIZ	Grant	Investment mobilized	5,000,000
			<b>Total Project Cost(\$)</b>	<b>17,650,000</b>

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

GIZ investment mobilized: GIZ will co-finance the proposed LDCF project in the upcoming GCF GIZ Project Proposal being submitted to the GCF Board for consideration. The value of the project is US\$169 million, US\$46 million of which are being requested from the GCF Mitigation Result Area. US\$5 million will be used as GIZ co-financing with LDCF funding for resilience mainstreaming complementing GCF funding for mitigation in the forestry sector.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	LDCF	Lao PDR	Climate Change	NA	3,502,968	332,782	3,835,750
<b>Total GEF Resources(\$)</b>					<b>3,502,968</b>	<b>332,782</b>	<b>3,835,750</b>

## E. Project Preparation Grant (PPG)

PPG Amount (\$)

150,000

PPG Agency Fee (\$)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	LDCF	Lao PDR	Climate Change	NA	150,000	14,250	<b>164,250</b>
<b>Total Project Costs(\$)</b>					<b>150,000</b>	<b>14,250</b>	<b>164,250</b>

## Part II. Project Justification

### 1a. Project Description

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

Lao PDR is land-locked mostly mountainous country comprising of three main regions: (i) a northern upland area above 1,000m with a relatively dry temperate and sub-tropical climate and annual rainfall typically between 1,500 and 2,000 mm; (ii) a central mountainous area that ranges in altitude from 500 to 1,000 m (but some mountain peaks reaching >2,000 m) with a tropical monsoonal climate typically receiving 2,500 - 3,500 mm precipitation a year; and (iii) the tropical lowlands and floodplains along the Mekong River and its main tributaries which includes the plains of Vientiane, Borikhamxay, Khammouane, Savannakhet, Champasack, Saravane, and Attapeu Provinces.

#### *Agriculture sector and food security*

Lao PDR is the most rural country in Southeast Asia, with over three quarters of the total population currently living in such areas. The agriculture sector in Lao PDR is one of the country's most important, accounting for 29.9 % of GDP, and approximately 70-80% of the population is dependent on the sector for their livelihoods. Around 80 percent of the rural population is still subsistence farmers, depending heavily on rice-based agriculture, raising livestock and collection of food from the wild, including Non-Timber Forest Products (NTFPs), to meet food and nutritional needs. Despite this, there are high levels of food insecurity and under-nutrition in the country, and it is estimated that 44 % of children below five years of age are stunted. Food insecurity and undernutrition have strong geographic links and is particularly prevalent among remote rural upland communities in the Lao PDR where poverty levels are medium to high.

Farmers in these upland regions have traditionally relied on shifting cultivation (swidden) on slopes, clearing forest or by burning fallow land to prepare land for crops. Indeed, 80% of Lao PDR is mountainous, with 70% of arable land being cultivated on sloping land. Based on analysis of recent satellite images commissioned by the Sector Working group for Agriculture and Rural Development (SWG-ARD) of the Ministry of Agriculture and Forestry<sup>[1]</sup>, it estimated that shifting cultivation covers an area of 6.5 million ha (23.7% of total land area). Upland production systems are traditionally very low input with little or no fertilizer, the use of traditional seeds, and are almost completely reliant on manual labour, with generally low productivity. Poverty rates in rural areas are high partly due to a lack of sustainable livelihood opportunities, which have led farmers to over-exploit natural resources and increasingly adopt agricultural mono-cropping without consideration of soil conditions or the integrity of ecosystems critical for local livelihoods, food security and nutrition.

In recent years, upland farmers have reduced and even eliminated the traditional rotation cycle with long fallow periods in their effort to raise production and generate more revenue from commercial (cash) crops, with farmers turning more to annual crops, particularly maize production in the north since the early 2000s, driven by policies aimed at reducing poverty and stabilizing farming systems (land allocation policy, focal area development) and increasing demand from international markets for agriculture products, especially from neighboring Vietnam, China and Thailand. These shorter fallow periods no longer allow for natural replenishment of nutrients in the soil, which with limited adoption of other soil conservation practices, are leading to soil degradation and erosion with declining soil nutrient status (reduced Soil Organic Matter), decreasing yields and productivity, and the need to clear more space for subsistence and cash crops. Other land use practices are exacerbating the process, such as the planting of annual crops on exposed hilltops prone to erosion, and uncontrolled

livestock grazing on hillsides. As of 2015, the area of the country that is under the three categories of “Other Vegetated Area”, “Regenerating Vegetation” and “Barren Land” is 6.28M ha (27%), with “Regenerating Vegetation” in part associated with shifting cultivation practices accounting for the majority of that at 5.8 M ha (25%)[2].

In addition, encroachment, clearance and conversion of forests (particularly unclassified forest areas) occurs widely in these upland regions[3], principally for agriculture. For instance, consultations on the drivers of deforestation in 2017 under the REDD+ framework showed that every district in Houaphan and Luang Prabang province identified either pioneering shifting agriculture, agricultural expansion or both as main drivers of deforestation.[4] The impact from agriculture on forests is projected to increase in the future, as district level socio-economic development plans have projected that agricultural land in the province will increase by over 90,690 ha from 2016 to 2020[5], with the focus on expanding cash crop production in the province. As a result, forest ecosystem services critical for agriculture, such as soil stabilization and pollination, are being lost or degraded, and forest resources, e.g. NTFPs such as resin, medicine, fibre, nuts and fruit, which are often an important source of income for rural areas (contributing an estimated 30-70% of income for forest-dependent households), are not managed sustainably with the result that they are often over-exploited. Furthermore, markets and management practices for NTFPs that could encourage their more sustainable production are poorly developed with little diversification and marketing of niche or value-added gender-specific products, so there is little inducement against overharvesting.

There are also risks to local human communities with cash crops farmers being highly susceptible to fluctuations in market prices, where significant declines in price can have a detrimental impact on peoples’ livelihoods especially if they have little financial security, and the lack of agricultural diversification increases the vulnerability of villagers to crop failures due to climate change.

### *Impacts of climate change*

A recent study on climate change mapping for Southeast Asia, sponsored by the Economy and Environment Program for Southeast Asia (EEPSEA)[6], ranked the Lao PDR as one of the most vulnerable countries in the region, where vulnerability is defined as a function of exposure, sensitivity and adaptive capacity. The study found that 6 provinces in Lao PDR are among the most vulnerable regions in Southeast Asia, with low adaptive capacity largely due to high levels of poverty.

Predicted changes in climate will have a range of impacts in Lao PDR, mainly due to increases in annual mean temperatures of around 0.1-0.3°C per decade, a longer annual dry season, increased and more variable annual rainfall with more intensive rainfall events, and more frequent and severe drought and flooding events[7]. For instance, the Nationally Determined Contribution (NDC) for the Lao PDR, published in 2017, notes that 14 out of 17 provinces as well as the capital Vientiane have experienced significant floods since 1995. Lao PDR is also experiencing increasingly frequent episodes of drought with severe droughts occurring in 1996, 1998 and 2003, and it is estimated that 6 out of 17 provinces are already at high risk of droughts. Droughts adversely affect water resources, hydroelectricity generation and agricultural production resulting in widespread economic losses. In addition, the 5th Intergovernmental Panel on Climate Change (IPCC) report (2014) indicates that the average mean temperature and average annual precipitation have increased in the wet season and decreased in the dry season in the Mekong Basin.

The increased climate variability is expected to lead to greater differences in precipitation between dry and wet years, which, accompanied by an increase in overall temperature, is likely to have significant negative impacts on water resources, natural ecosystems and agricultural production seriously affecting Lao PDR’s agricultural sector. As a result, agriculture is one of the four key sectors highlighted by Lao’s National Adaptation Programme of Action (NAPA), submitted to the UNFCCC in 2009, as well as one of the five key sectors of the National Determined Contribution (NDC) as being highly vulnerable to climate change and requiring priority adaptation measures (the other four sectors being forestry, water resources, health). The first adaptation objective of Lao PDR’s

National Determined Contribution is the promotion of resilient agriculture. This calls for the promotion of resilient agricultural farming practices and technologies to address climate change impacts as well as crop and animal diversification and resilience; especially in areas where floods and droughts are likely to be exacerbated due to climate change.

Farming systems rural populations with limited adaptive capacities in the northern uplands are particularly vulnerable to climate change impacts, especially extreme rainfall and temperature events. Unfortunately, the unsustainable agricultural and natural resource use practices mentioned above, combined with flash floods and landslides associated with heavy rainfall in the mountainous areas, have led to widespread soil erosion and land degradation, further affecting food production and food security, and also reducing opportunities for Green House Gas mitigation, as proven by multiple case studies for Lao uplands areas[8],[9],[10],[11]. It is clear that current farming systems and practices employed in the region and focus on a limited number of cash crops are not sustainable and need to be modified in the face of predicted climate change impacts.

Both NDC and NAPA have prioritized increasing climate resilience in the agriculture sector and the INDC also stresses the need for effective management of water resources and forests to achieve both adaptation to climate change and for GHG mitigation. Climate Smart Agriculture (CSA)[12] provides a suitable framework to implement the Lao PDR's NAPA and INDC priorities through its three central pillars: (i) sustainably increasing agricultural productivity and incomes; (ii) adapting and building resilience to climate change at field, farm and landscape levels; and (iii) offering opportunities to reduce and/or remove GHG from agriculture (compared to a 'business as usual' scenario), where possible, and is being promoted as an approach to more sustainable, resilient agriculture in the face of climate change. While CSA benefits extend beyond CCA, however the GEF resources will be used for those CSA activities that benefit adaptation objectives. The farmers who receive CSA training and knowledge will however be able to use it for activities beyond CCA.

### ***The barriers that need to be addressed***

There are several key barriers that need to be overcome to enable widespread adoption of climate resilient agriculture and more sustainable natural resource management (particularly at landscape scale) in the northern uplands.

#### ***Policy and regulatory barriers***

Lao has several national policies and laws that are relevant to climate change adaptation. Several of these have been formulated in recent years, and they have tended to be sectoral in focus. These include new law on Disaster Risk Management and Climate Change led by MONRE, which is expected to be finalized in 2018. A national policy for Meteorology and Hydrology, which is extremely relevant to CCA, has also recently been approved. The government has issued a number of regulations in an effort to control mismanagement of land use, including the 2012 moratorium on issuance of land concessions for certain investment types[13]. Several barriers exist in operationalizing these practically. Firstly, there is limited dissemination of these to the local level and thus there is limited understanding on the implication of these on practical work of different line agencies at local level. Since these policies and regulations are not tailored to specific agro ecological regions, experiences of practical application of these policies and legislation do not exist for the upland farming communities, and there is also limited understanding of these new policies and legislation amongst different government agencies at the local level.

This is primarily due to limited capacities of the government and line ministries in strengthening and guiding mainstreaming of CCA concept at the policy and operational levels. In addition, there are extremely limited resources and for this cross-cutting multi-sector awareness programs on climate change for decision makers and other stakeholders. Similarly, financing for CCA and CSA initiatives tends uncoordinated and strategic, with several similar Government and donor-led initiatives operating across Laos through different ministries and agencies, largely independently of each other. Furthermore, the use of integrated and innovative financing solutions and involvement of rapidly growing private sector to promote climate smart agriculture and livelihoods are underdeveloped in current policy frameworks.

### *Institutional weakness*

MONRE is in charge of the official climate change reporting to UNFCC through its Climate Change Department. The government is working to coordinate with all relevant sectors through the NDPCC and Inter-Agency Steering Committee (IASC) and a sector working group in disaster risk management. However, due to a lack of an appropriate and fully developed monitoring system, there is a lack of coordinator approach within the Ministry. In addition, there is insufficient coordination and collaboration between key sector institutions and agencies with remits that cover CC adaptation and mitigation leading to poorly integrated approaches and programmes. For instance, although the management of agricultural land use and forestry is under the mandate of the Ministry of Agriculture and Forestry, the management of agricultural resources is highly compartmentalized and spread across dozens of agencies. In addition, relevant data and knowledge on the status of agriculture and the environment in Lao PDR, e.g. water resources, climate data, soil quality, climate change vulnerability, agricultural incomes, etc., needed to support CSA and integrated landscape approaches, are spread across different national and regional entities.

There is also limited institutional capacity (knowledge/information, experience/skills, assessment and decision-making mechanisms and tools, etc.) among the key Government agencies to address the challenges posed by CC, at all levels (national, provincial and district levels), particularly in areas related to planning and programming for CSA and advising communities on locally appropriate practical CCA measures. Within the MAF for instance, there is a recognized shortage of expertise in CCA approaches, in terms of both trained staff and systems, as well as relevant data management systems. Similarly, staff turnover and low knowledge of specific CCA approaches and practices for uplands or development of alternative livelihood approaches among the local rural extension services hampers promotion of CSA practices and alternative climate smart livelihoods at the District level. This is not aided by the training available which tends to be either too technical or too generic and not sufficiently tailored to the local situation.

In addition to the low national and regional government capacities to adopt and implement CSA approaches, there is a lack of capacity at the village/community level to improve soil fertility, water management and reduce GHG emissions. Decentralized offices are poorly equipped, and their staff are mostly not sufficiently skilled in assessing vulnerabilities and promoting CCA actions.

### *Poor integration of climate smart land-use approaches and practices into land-use planning in the northern uplands*

As mentioned earlier, food production systems in Lao PDR include the use of agriculture lands, forests and wetlands and many local communities rely on other ecosystem services provided by natural habitats. Consequently, to ensure food and nutrition security, land uses need to be integrated and land use planning needs to consider climate variability and impacts and measures to adapt to climate change at the broad landscape scale.

At present, several land use planning approaches, focused on different sectors, and operating at different scales and by different agencies, are applied in Lao PDR. These include: variations of a Participatory Land Use Planning (PLUP) process developed by MAF and the National Land Management Authority (NLMA, incorporated into the MoNRE) which is used at provincial, district and village levels; a Forest and Land Use Zoning (FLUZ) process used to identify and plan forest uses; and Integrated Spatial Planning (ISP) applied at district and provincial levels for a wide variety of land uses such as mining, agriculture, hydropower and forestry<sup>[14]</sup>. However, few of these currently incorporate CC considerations and there is no standardized approach or harmonized strategy to better identify and integrate CCA and CSA priorities and guidance into land-use plans. This is partly due to very limited institutional capacity (CCA planning tools, trained staff, equipment, data management systems) within both the national and provincial level authorities responsible for agriculture, forestry and natural resource management to undertake land use planning across landscape scales and to incorporate CC relevant information, such as the results of Climate Vulnerability and Risk Assessments (see below). Levels of awareness of potential climate change impacts and possible adaptation and mitigation solutions among government institutions are also considered insufficient for effective decision-making on land use planning.



Provincial and district level land use planning are often not consistent or targets not well aligned, as well as a major disconnect between land use plans in SEDPs and actual land use, where agricultural land likely is double the area reported in official provincial statistics (as many areas are illegally cleared)[15]. Further, the lack of effective systems and capacity to monitor, evaluate and enforce the implementation of land use plans leads to a lack of sufficient checks and balances to ensure compliance with plans. These complicate the integration of CCA into land use planning.

Although government authorities do take decisions on land use planning at the provincial, and district levels, these tend to be top-down and do not effectively integrate traditional/customary land use practices, leading to introduction of measures that are not well adapted to the needs of the local populations. These can exacerbate land degradation and deforestation. But several models of participatory land use planning have been applied successfully at village level in some areas of Laos providing opportunities to the communities most affected and involved in agriculture and NRM in the upland areas (limited village-level participatory land use planning). In those areas, many stakeholders, especially women and minority groups, can have an effective voice in such decision-making forums, even though they lack some technical knowledge or skills in effective communication and negotiation.

Furthermore, scientific data/information systems and vulnerability and adaptation studies are scarce and are not available in a systematic manner. For this, Village Disaster Management Plans, although they are comprehensive and encompass the entire disaster management cycle proposing activities for prevention and mitigation also, might sometimes be based on wrong assumption or in the lack of information that is present at all levels.

#### *Poor capacity of northern upland farmers and local communities to implement CCA approaches and practices*

Some potential, generic CSA approaches, based on national and international guidelines, have been identified for Lao PDR through national strategies and the GEF-supported UNEP Technology Needs Assessment (TNA) project, of which Lao PDR is one of the pilot countries. These include: integrated land uses and crop diversification with conservation agriculture (CA), agroforestry, Assisted Natural Regeneration (ANR), market analysis and development (MA&D) of NTFPs, facilitated by integrated land use planning. However, CSA practices need to be locally determined as only some will be appropriate and the mix of approaches will depend on the local conditions (social, cultural, economic, income sectors, climate and land types and suitability for CSA, etc.) as well as priorities and tradeoffs between productivity, resilience and mitigation goals.

Some CSA practices and technical options have been tested and are already employed in the northern uplands, e.g. use of several varieties of rice and agroforestry rings around some villages for food security, fodder, firewood and income generation purposes, but these are limited (in type), not widespread, offer a relatively low level of food security and resilience to adverse climate change impacts, and overall there is a general lack of locally appropriate technical solutions for CSA for the northern uplands. In addition, although some soil conservation techniques are familiar to many village communities in the northern uplands, they have not been widely adopted. Many climate smart approaches such as intercropping, crop rotation, agroforestry, innovative forest restoration, and the sustainable use of NTFPs that offer opportunities for secondary or alternative livelihoods are still at largely the pilot stage in Lao PDR, and have not been up scaled. Furthermore, although many Farmer Organizations (FOs) in the northern uplands have developed at least limited access to markets for their NTFP and manage to sell products locally, many of these initiatives have relied on either external support from donor-funded projects or are dependent on foreign buyers, and overall there is very little capacity at local level in business development/management, and such entrepreneurship is underdeveloped.

Public awareness about the link between environmental sustainability, climate change, and disasters is extremely weak. Local communities do not have information on how to cope with the consequences of climate change and do not know about actions they can take to mitigate hazards. For this farmers in the Lao PDR, particularly in the northern uplands, also currently have very limited capacity to adapt to predicted adverse climate change impacts, and overall, there is poor awareness, knowledge, tools and skills among communities in northern upland areas of Lao PDR of CSA and climate smart livelihood options. Information on climate change related to agriculture, forestry and other land uses tends to be communicated in very technical terms, and is often not tailored to different target audiences with different levels of literacy and access to online services. In addition, sharing of experiences and dissemination of

information on good practices of CSA (what has been found to work, what has not) with different stakeholder groups is not coordinated effectively, and success stories and knowledge produced by projects tend to remain within the immediate agriculture, forestry and rural development sectors in the responsible development community and government line agencies. This leads to poor scaling up of potentially transferable approaches and practices.

Farmers are generally conservative and risk-averse in their approaches and there is a level of societal/cultural inertia to change. At present, there are few incentives, support or encouragement from authorities for farmers to adopt improved agricultural practices (improved yields, soil conservation practices, diversified cultivation systems and rotation cycles, etc.) in the northern uplands or pursue livelihood diversification activities, such as supporting investments in sustainable livestock raising and fodder production. For instance, there is poor availability of rural credit, crop insurance, cheap micro-financing or savings initiatives for small scale CCA livelihood alternatives to existing agriculture practices, and markets for alternative value-added CSA products are underdeveloped with limited knowledge of even existing market outlets. Overall, there is relatively little private sector investment or involvement in financing, marketing and trading in CSA products from the upland areas of Lao PDR, and a lack of financial security and incentives does not encourage farmers towards a transition to CSA practices.

At the local level, there is a particular need to encourage learning from pilots and demonstrations and more broadly disseminate findings through the farming communities. However, government rural agricultural extension services do not have sufficient resources to use traditional "Training and Visit" methods and they lack the technical knowledge to promote CSA approaches[16]. The Government is considering the adoption of a "Green Extension" policy emphasizing the mainstreaming of farmer-led methods such Farmer Field Schools, as a more resource-efficient and sustainable approach to building the required capacities of farming communities. In the context of acquisition of technical knowledge, District extension staff require training in conducting assessments of climate vulnerability/risk and of adaptation and mitigation benefits, in CCA approaches and practices including soil conservation, and in application of climate services such as provision of meteorological information. Extension services also need training to provide support for localization of business models for CSA and marketing to help villagers position themselves in key value chains and enhance their negotiation power.

Finally, upland farmers have limited market access partly due to poor transport infrastructure. Some cooperatives have and established for high value products such as coffee but these have not been replicated to other products and thus do not benefit larger groups of farmers not involved in such high value commodities.

2) the baseline scenario and any associated baseline projects,

### ***Government programmes***

The agricultural sector remains central to both growth and poverty reduction in the country. Annual public domestic investments (actual) in agriculture were approximately US\$12.4 million in 2017[17]. Rural growth will be mainly driven by the continued commercialisation of agriculture and management of the natural resource base. There are a number of baseline projects that address issues associated with improving agricultural production through strengthening institutional and technical capacities and improving the monitoring of factors of agricultural production. Key national programs in the two target provinces include: Vision 2030; Strategy 2025; 8th Five-Year Development Plan (2016-2020); Forestry Strategy to the Year 2020; Agriculture Development Strategy to 2025 with Vision to 2030.

### ***Key donor-supported initiatives***

There are a number of relevant donor-supported programmes that incorporate some aspects of agriculture and natural resource management that are relevant to climate change adaptation. These are estimated to be more than US\$ 314 million in total. Some key programmes relevant to this project are described below.

**\_Northern Uplands Food and Nutrition Security Improvement Project** (USD 3 million, 2016-2020) financed by EU and implemented by Helvetas aims to contribute to secured and improved livelihoods of poor rural women and men farmers in the Northern Uplands of Laos. The project aims to improve food and nutritional security, especially of women and young children in Vieng Phoukha and Ngoy districts.

**Strategic Support for Food Security and Nutrition Project (SSFSNP)** supported by IFAD under the Global Agriculture and Food Security Program (GAFSP), with an overall budget of over USD 38 million (US\$ 30 million from GAFSP). The goal of the project, which will operate until 2020, is to reduce extreme poverty and malnutrition in the poorest communities in 12 districts across 400 villages in Houaphan, Oudomxai, Phongsaly, Xieng Khouang provinces in the upland areas of Lao PDR. The project will reduce malnutrition and enhance income and food security in rural communities by supporting nutrition-sensitive and climate-smart agricultural practices. The SSFSNP is designed to pilot new approaches and technology and scale up existing successful agricultural technologies and systems to accelerate Government of Laos's achievement of national food security and improved nutrition goals. It places strong emphasis on building an enabling environment for sustainable market-led improvements in nutrition-rich and diverse agricultural production and productivity and rural employment and incomes. The SSFSNP also has a focus on the empowerment of women to improve family diets and is actively seeking business models that achieve mutually beneficial outcomes for investors and farmers and farmer groups and improve collaboration and communication between foreign direct investment (FDI) and ODA investments.

**Sustainable Forestry and Rural Development – Scaling-Up Participatory Forest Management (SUFORD-SUPFM)** project (2013-2019) supported by World Bank is working on SFM, village development and alternative livelihoods in 13 provinces of Lao PDR to support sustainable management of natural production forests to alleviate rural poverty. It also seeks to incorporate and monitor forest carbon emissions, and introduce performance payments for forest carbon sequestration and timber harvesting benefit-sharing schemes.

**Landscape Management and Conservation Agriculture Development for Eco-Friendly Intensification and Climate Resilient Agricultural Systems (EFICAS)** project in Lao PDR was managed by Cirad and funded by the European Union. EFICAS sought to develop innovative methods and intervention approaches to support farmers' adoption of a more climate smart agricultural systems based on conservation agriculture. The EFICAS Project also sought to develop innovative methods and interventions to support adoption of climate smart agricultural systems and to improve community livelihoods and resilience through: (a) village landscape management (engaging village communities in designing low-carbon emission strategies); (b) participatory networks on agroecological practices (engaging development stakeholders in testing agroecological practices adapted to local contexts); and (c) multi-stakeholder communication platform (creating an enabling environment to broad scale dissemination of alternative production systems through participatory learning approaches, and formulation of evidence-based policies). The current phase of the project is operating from 2014-2018. The EFICAS project takes a landscape approach that emphasizes adaptive management, stakeholder involvement, and multiple objectives, seeking to simultaneously contribute to food security, livelihood opportunities, biodiversity conservation, climate change mitigation/adaptation, and cultural and recreational needs. Project activities are conducted in the 3 northern provinces of Phongsaly, Luang Prabang and Houaphan, with 12 intervention villages have been selected to develop and test project landscape approach. Although the project has ended, it provides an important technical foundation to build on.

A National **REDD+** Task Force has been established with inter-ministerial representation and the Government of Lao PDR signed the REDD+ Readiness Preparation Grant Agreement with the World Bank in August 2014. Following the agreement, MAF assigned the Project Management Team (PMT) consisting of the REDD+ Office under the Department of Forestry (DoF). Provincial REDD+ Action Plans (PRAPs) has been prepared for six provinces in the northern uplands (2017) – including the two target provinces of this project - for period 2018-2025, which aims to: reduce emissions from land use, deforestation, forest degradation and through sustainable land use management, and the conservation and enhancement of forest carbon stocks; and increased ecosystem

resilience and enhanced livelihoods of forest-dependent peoples, and stresses the need for direct investments in improved upland rice cultivation systems, alternative cash crop production systems and for livestock raising and fodder production. While the activities are limited to the forestry sector in the landscape that is integrated, the project provides an important baseline for work on several outputs in the LDCF project.

FAO has implemented several projects in Lao PDR and relevant regional initiatives in the field of agriculture, food security, climate change risk management, disaster preparedness and emergency response, and sustainable intensification of agricultural production among smallholders, is in line with FAO's common vision and the 'Save & Grow' approach. The FAO Laos Office has long experience of working with government agencies specifically with MAF, as well as the Ministry of Natural Resources and Environment, on issues related to climate change adaptation and mitigation, agriculture and food security.

FAO has been assisting the GoL with the LDCF-GEF project on *Climate Adaptation in Wetland Areas (CAWA) in Lao PDR* and the *Strengthening agro-climatic monitoring and information systems (SAMIS) to improve adaptation to climate change and food security* project. FAO technically supported a UNDP-GEF funded agro-biodiversity project to ensure that agro-biodiversity is incorporated in national policies and that Lao farmers continue to benefit from the biodiversity present in their farming systems, which has guided policy formulation since 2011. Regarding climate smart agriculture, FAO Lao PDR is part of the regional network to implement the Paris Agreement through CSA (TCP project *Addressing the 2030 Agenda on climate change and food security through Climate-Smart Agriculture*) which include Bangladesh, Cambodia, Lao PDR, Myanmar, Philippines and Viet Nam. FAO has also helped establish a network of Farmer Field School (FFS) in 8 provinces including Luang Prabang focusing on using participatory approaches at the local level for testing and adoption of new farming practices. This is relevant for the present project as FFS are important tools for adopt and adapt innovative technologies while learning by doing climate smart practices. In addition, FAO has supported the MAF in preparing the *Plan of Action for Disaster Risk Reduction and Management in Agriculture*. Relevant global FAO programmes include FAO-Adapt (data and knowledge for the impact and vulnerability assessment and adaptation), an organization-wide framework programme launched in 2011 that provides general guidance and priority seems actions and implementation to support FAO's multidisciplinary activities for CCA. On the side of climate change mitigation, FAO is engaged in advancing the country's readiness for REDD+, in collaboration with a number of development partners, particularly in preparing ground for piloting REDD+ at a regional level in the North of the country, to be implemented with funding anticipated from the GCF (see below), and to receive potential REDD+ results-based payments through the FCPF Carbon Fund. GEF-funded projects will not be listed as co-financing.

**Green Climate Fund (GCF)** is financing a Readiness proposal on REDD+ implemented by FAO (US\$350,000 2018-2020). Key interventions of relevance to the project are: 1) Establish a coordination mechanism between Department of Climate change (NDA office) and the Ministry of Agriculture and Forestry - Department of Forestry (REDD+ Div.) at provincial and national levels; 2) Develop and consult on private sector incentive schemes to support Zero-deforestation agriculture for the six Northern provinces<sup>[18]</sup> of the Lao Emissions Reduction Program. The Proposal also aims to strengthen the institutional foundation for a Zero Deforestation Agriculture policy to address the most expansive driver of deforestation in the Lao People's Democratic Republic. While the activities target mitigation in the forestry sector in the landscape that is integrated, the project provides an important baseline for work on several outputs in the LDCF project.

In addition, three concept notes have been submitted to the GCF: 1) Resilient Integrated Food Systems (RIFS) in Rural Laos (UNDP), 2) Implementation of the Lao PDR Emission Reductions Program through improved governance and sustainable forest landscape management (GIZ), and 3) Ecosystems and Urban Adaptation in Lao PDR (UNEP). The proposed LDCF project will in particular strongly correlate with the GIZ project that is now at the Project Proposal stage mainstream CCA and resilience for systemic impact at landscape level. The total value of the GIZ proposal is US\$169 million, US\$46 million of which are being requested from the GCF Mitigation Result Area. US\$5 million of the project will be used as GIZ co-financing with LDCF funding for resilience mainstreaming in two target provinces complementing GCF funding for mitigation in the forestry sector.

**Asian Development Bank (ADB)** is implementing a technical assistance project for Sustainable Rural Infrastructure and Watershed Management Sector (USD 3 million, 2018-2020). Key interventions of relevance to the project are: Improved land use management within the PRI scheme watersheds, 2) improved institutional arrangements and capacity for good agriculture practices and sustainable watershed management. The follow up project is proposed to the GoL amounting US\$58 million covering the provinces<sup>[19]</sup> under the proposed LDCF project. The provides an important baseline for work in the proposed Components 1 and 2, while the focus on the project is primarily on infrastructure and select agricultural practices. The project is co-financing the above-mentioned GIZ GCF project and will not be used as co-financing.

The project's alternative scenario is to change current destructive land-use practices, e.g. slash and burn, to more climate resilient and environmentally sustainable methods and approaches through promotion and adoption of CSA and introduction and promotion of alternative livelihood practices, such as the sustainable collection and marketing of non-timber forest products (NTFP) applying a landscape approach in the northern uplands of Lao PDR. This is to be achieved through strengthening relevant supporting policy, institutional, financial and planning frameworks; building capacity of key institutions and stakeholders to plan, adopt and/or promote climate resilient agriculture practices and approaches and more sustainable livelihoods in the northern uplands of Lao PDR; and improving incentives for local communities to adopt more sustainable climate smart land and natural resource use practices and value chains.

### **Component 1 - Strengthening the enabling environment to promote uptake of more integrated climate smart land use approaches in Lao PDR**

LDCF funding will be used to strengthen relevant policy, legal, institutional and financial frameworks to promote the uptake of CCA approaches in the agriculture and natural resource management (NRM) sectors at the national level and in the two provinces in the northern uplands, including identifying and facilitating sources of finance for conversion to more climate smart agriculture and livelihoods. FAO defines CSA aiming to tackle three objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions, where possible. The LDCF funding will be focused on CCA activities with GHG mitigation co-benefits to be sought.

The project will strengthen a cross-sectoral 'task force' (or coordination mechanism) comprising representatives of key government departments and sectors together with private sector representation (Output 1.1.1), building on the coordination mechanism developed by GCF Readiness proposal implemented by FAO. The coordination mechanism will comprise of the Ministry of Agriculture and Forests (MAF), with representation from the Ministry of Environment (MoE), Ministry of Finance, and key donor programmes such as REDD+.

LDCF resources will be used to mainstream CSA into national agricultural, environmental and land management policy development processes, including contributing to the operationalisation of the NAPA, the national Strategy on Climate Change, Climate Change Action Plan and on-going NAP process (Output 1.1.2). In the cases where a law or policy is already approved, CSA will be included in their amendments and updates, as well as subnational (provincial and district) development plans, such as provincial strategies and action plans and the District Socio-Economic Development Planning (DSEDP) processes. In addition, the CSA AP will take into consideration and integrate the specific needs for revision and integration of sector policies in order to facilitate their improvement and revision. A review of potential target policies and plans, programmes and projects, for mainstreaming will be undertaken. Government and donor-funded projects that are already looking to mainstream climate change adaptation approaches into agriculture, environment and development sector processes and initiatives in Lao PDR will be especially targeted through, for instance, providing tailored information on CSA to be included in their (wider) policy briefs.

**Component 2 - Integrating climate smart land-use approaches and practices into land-use planning and incentives for resilient commodity value chains in the northern uplands of Lao PDR**

Component 2 targets activities to transfer innovative practices and approaches to better resist adverse CC impacts and provide incentives (e.g. easier access to cheap micro-finance and risk insurance) of northern upland farming communities in Lao PDR to adopt CCA approaches and practices. It will promote gender-sensitive climate smart livelihoods in targeted areas, as well as developing alternative climate adapted livelihood options to diversify sources of sustainable incomes for land and natural resource users, thereby increasing their economic resilience. A few CSA techniques and practices, such as Assisted natural Regeneration (ANR)[20], have been tried in the region and are considered locally appropriate but they are not being implemented due to low institutional capacity and inertia from farmers themselves. Consequently, the project aims to achieve behavioural change among land and natural resource users, not only by providing capacity for individuals to adopt CS practices but through providing and promoting incentives to encourage them to do so.

The Government has identified the two provinces in which this LDCF project will work in Luangprabang province and Huaphan Province. These provinces were selected because of their high degree of vulnerability to climate change based on criteria related to: (i) frequency and intensity of droughts, floods and cold spells on agricultural production and food security; (ii) high levels of dependency on agriculture; and (iii) forest cover and watershed conditions.

Climate vulnerability and risk assessments (VRA) will be undertaken to better identify the key issues relating to CC impacts and land and natural resource use in the target regions (Output 2.1.1). Firstly, VRA will be undertaken in selected areas during the PPG and will be used as baseline in the tracking tool. During the project, the VRA will be repeated using a more advanced - but comparable - methodology for the mid-term and end of project. This will build on recent experiences in several countries in the region that are now actively developing and deploying risk assessment methods following publication of the Intergovernmental Panel on Climate Change (IPCC) Assessment Report 5 (AR5)[21]. An initial analysis will be undertaken at the PPG stage of the target areas for the full project.

The examples of climate-resilient and innovative on-farm practices for transfer (Output 2.1.2) are the following:

- water-saving practices (household reservoirs, drip irrigation, electric pumps);
- integrated pest management;
- integrated nutrient management; conservation agriculture and agro-forestry;
- technologies to reduce post-harvest losses (climate-proofed drying and storage facilities); and
- ICT tools for precision decision-making in crop nutrition,
- pest management and smart harvest scheduling (e.g. Pest Risk Manager and EasyHarvest).

Nature-based solutions will be encouraged where feasible, e.g. the use of natural buffer zones, use of natural materials in water harvesting structures, companion plants in ecological engineering schemes to support natural enemies and reduce pesticide needs.

The project will help build capacity to improve technical information and decision-support systems needed by government staff (all levels, including those responsible for community level plans) to incorporate CSA into land use planning and programming, including the provision of necessary equipment (Output 2.1.3). The information management systems and collation of data, such as the development of CCA-specific mapping data layers, and training in scenario and risk analysis and trade-off approaches, are known to be a particular requirement, but specific capacity needs will be assessed during the PPG stage. For instance, the Project will investigate the applicability of using the FAO Collect Earth platform[22] to develop customized satellite-based data products to inform land-use planning and monitor project implementation[23]. The 'decision-support system' will either take shape as planning software capable of capturing and interpreting the land use/climate vulnerability data, or as guidelines or decision-trees. This will be scoped out and further defined during the project development stage.

Participatory resilience assessment and mapping, and livelihood diagnostics (to support evidence-based decision-making) under Output 2.1.4. will be generated using the Self-evaluation and Holistic Assessment of Climate Resilience of farmers and Pastoralists (SHARP) tool developed by FAO. It assesses the resilience of agro-ecosystems on the basis of 13 indicators disaggregated by agricultural practices using portable devices, such as iPads to address the needs of smallholder farmers and pastoralists (both men and women). SHARP will thus be applied in close coordination with upscaling of climate-smart agriculture on-the-ground. SHARP works through a participatory survey developed for Android tablets spanning environmental, social, economic, governance and general agricultural practices. The SHARP application produces a relative ranking of resilience priorities for each participating household. The results can then be discussed with female and male respondents, individually or in a group. In addition, all results are uploaded online and can be used for further analysis to understand resilience priorities, trends and determinants at a more aggregate level. It is possible to look at the resilience ranking holistically or in its individual components and then look deeper into the elaboration of the questions to better understand why land use—s - women and m—n - responded the way they did.

Direct biophysical decision support outputs, such as land evaluation, suitability and similarity analysis, land capability classification and agro-ecological zoning are critical for transferring innovative SLM options and will be done under Output 2.1.5. Similarity maps identify locations/ecosystems where a particular SLM has the potential to be outscaled based on environmental criteria. Suitability analyses mean fine-tuning of similarity analyses with more specific data that result in classifying areas/land as highly, moderately, or marginally suitable for a particular SLM, especially when linked with institutions capacity building, training and methodology transfer for young professionals and students.

A preliminary assessment of existing CSA approaches and practices for CCA, gaps and needs in the selected target areas will be undertaken during the PPG stage, which will inform the design of project activities to build the capacities of smallholders to adopt (locally adapted) approaches to CSA. Identification of locally appropriate practices for the pilots will feed into the development of the model participatory integrated land use plans under Output 2.1.6. Output 2.1.6 will be conducted at the landscape level focused on the integration of different land uses, primarily agriculture but also include forestry and water management in these upland landscapes. The utility, appropriateness and cost effectiveness of a range of land use planning and decision-making approaches and tools (see above) will be examined during the PPG phase, along with the feasibility of developing an integrated, replicable, flexible and user-friendly 'toolkit of approaches' to land use planning (e.g. including PLUP, SSLUP, FLUZ, ISP, NTD, SHARP[24], and LADA approaches/tools) to mainstream CSA across different landscapes with different demographic, socio-economic and biophysical contexts, and government planners and decision-makers will be trained in their use. A capacity analysis will be undertaken during the PPG to identify the level of knowledge, training, human resources, equipment and systems used and any other specific needs and build on the review and gap analysis undertaken under Output 2.1. The project will screen land use plans already developed (or under development), e.g. developed through the SSFSNP, SUFORD-SUPFM and EFICAS projects, for CCA and CSA. These climate-smart plans will then be mainstreamed into higher-level village cluster, district and provincial level planning processes such as FLUZ and ISP.

Market opportunities and other incentives, such as improving access to index-linked risk insurance and microfinance, will be identified, developed and promoted (Output 2.2.1). This will involve market assessments, Value Chain Analysis/Market Analysis and Development (MA&D) [25] studies for the NTFPs from forested areas in the target regions, as well as non-timber fallow and agroforestry products from agricultural areas. Value chain analysis and MA&D plans will be developed setting out options for commercial development of the sustainable use of NTFPs, and model small-scale enterprise business plans will be developed with associated investments identified for target communities (delivered through FFS and the extension services) to promote more diverse livelihood opportunities for men and women locally. The private sector/business community is expected to be particularly involved in these project activities, e.g. through linkage to finance facilities, insurance for small-scale farmers, equipment, seed provision, etc. The project will focus particularly on those NTFPs identified as more climate resilient and which can be integrated easily to CSA approaches promoted through other project activities for agricultural lands around the target communities (to be identified at the PPG stage). Climate-resilient and multi-use NTFPs that supply a diverse range of goods for commercial

as well as domestic use will also be a focus for restoration efforts of degraded forest. This will provide local communities with additional livelihood options while at the same time increasing the potential of the forested areas around farmland communities to provide other valuable ecosystem services such as water provision and soil stabilization.

LDCF resources will be used to develop a CSA Action Plan for CCA (Output 2.2.2) for two provinces that comprise the northern uplands as an enabling framework to guide government, donors, and other stakeholders in planning and implementing CSA activities as well as helping to build institutional and technical capacities for CSA of key ministries and institutes to mainstream climate smart considerations into their decision-making. Development of the CSA AP [N1][PM(2)] will be based on a baseline assessment and gap and needs analysis (undertaken during the PPG phase) of the existing regulatory, policy, institutional and financing frameworks as well as a review of how the agriculture and NRM is reflected in national climate policies, strategies and regulatory instruments, and consider incentives and market opportunities, and be informed by the CSA Guidelines. The CSA-AP will have a range of CSA indicators to track provincial and local progress on its adoption and uptake, including readiness, process, outcome and impact indicators. These will be developed during the PPG stage, and may employ a CSA indicator index approach[26].

Development of the Plan will be informed by, and will itself inform, the on-going National Action Plan (NAP) development process being led by UNEP and contribute to its implementation. It will also build on similar initiatives being undertaken in other FAO CSA projects in the region[27], which may offer additional opportunities for synergies, collaboration or co-financing (to be investigated at the PPG stage). An Integrated Financing Strategy (IFS) will be developed to identify and leverage national and external sources to fund CSA projects and programs and act as the resource mobilization tool for the CSA AP and also consider how to facilitate access to credit for local farming households for CSA.

At least five resilient food and feed value-chains will be strengthened under Output 2.2.3. Support will go to strengthening of value chains for products such as rice, coffee, banana, maize, livestock products and poultry, and feed. Technologies and approaches from countries in the region with similar condition will be transferred.

### **Component 3 – Enhancing capacity of northern upland farmers and local communities and extension services to implement CCA approaches and practices, and providing incentives for land and natural resource users to adopt them**

Component 3 will mostly target planners, decision-makers and staff at the provincial and district levels, but also includes some activities targeted at national level government staff concerned with land-use planning. Component 2 aims to build technical capacity by strengthening CCA planning tools, data and information management systems, and equipment as well as specific CCA guidance and training (Output 2.2) to land-use planners and decision-makers to enable them to better identify and integrate CCA priorities and guidance into district and local level land-use plans.

The project will strengthen the capacity of the local government extension services (Technical Service Centres (TSCs) at the district level) in CSA (Output 3.1.1), taking a 'training of the trainer' approach. An initial capacity needs analysis of the target extension services will be undertaken during the PPG. However, training to improve the capacity of local extension services to communicate and disseminate knowledge on diversified climate-resilient livelihoods and resource use options to beneficiaries is a known need, and a 'training pack' on CSA approaches and practices for extension staff will be developed. The LDCF project will integrate CSA principles into the existing Farmer Field Schools and farmer-farmer extension approaches already being developed through the baseline projects through the rural extension services.

Local CCA outreach programmes, guided by specific communication strategies and plans, targeting farmers and other NR users on locally appropriate CSA practices and climate smart livelihood options will be delivered for each target area (Output 3.1.2) and the decision-makers and planners in key agencies and institutions will be trained in relevant CCA priorities and planning elements and necessary CCA planning equipment will be made available (Output 3.1.3).



These Outputs will draw on the results of Outputs 2.1.2 and be promoted through a variety of media and local appropriate audio-visual communication materials in both digital and printed formats and available through radio, TV and social media channels. An assessment of the educational and language levels of the local stakeholder groups and familiarity with, and access to, online media, will be undertaken during the PPG phase in order to ensure effective design of outreach products and materials, which will be set out in a Communication Strategy. Village-level awareness and outreach activities in the target districts will be supported by the LWU.

Information on locally appropriate CCA good practice and climate smart livelihood options and opportunities will be made available through information and knowledge-sharing and learning networks hosted by the rural extension services with specific training on their use provided through the Farmer Field Schools (FFS) mechanism (building on the FAO's long experience of FFS in Laos, and through development of a standard CCA/CSA module that can be replicated elsewhere in Lao PDR). Once established, the networks will provide a mechanism for the dissemination and updating of experiences of locally successful climate smart practices.

Whilst Village Development Committees, Forest Management Units and Laos Women's Union (LWU), are expected to help facilitate the inclusion of local men and women in the decision-making process to agree on climate smart land uses, e.g. through PLUP, communities are generally under-represented in planning decision processes, and their views and experiences are not sufficiently included. This is often due to lack of technical knowledge and experience with how best to present their opinions and recommendations, even though agriculturalists have the greatest practical experience of what works and what does not under local conditions and how to deal with the day-to-day reality of climate change. Consequently, the project will also provide targeted capacity building at the village/community level (Output 3.1.4) to empower the communities and individuals, especially women, most involved in agriculture and NRM in the upland areas to enable them to participate effectively in relevant decision-making forums relating to land and natural resource use.

#### **Component 4 - Monitoring & Evaluation, project communication and lesson learning**

This component includes all project Monitoring and Evaluation (M&E) activities (Output 4.1.1) including reporting and the organization of the mid-term and end of project evaluations (Output 4.1.3), and a project-specific communication strategy and plan (Output 4.1.2) developed to ensure common understanding of key project messages and activities, with project results and lessons captured and distilled and made available periodically. M&E, knowledge management and project communications, are means to an end, not ends in themselves, largely serving project management functions and so do not contribute to a specific outcome. This component also includes the promotion of the key project aims and messages to ensure all the stakeholders and partners have a common understanding of the project's aims and activities, set out in a project-specific communication plan.

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

N/A

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

Lao PDR is a Least Developed Country, and very vulnerable to climate change. Due to unsustainable farming practices and a recent focus on production of a limited number of climate-sensitive cash crops, soil erosion and degradation has increased particularly in the mountainous northern uplands of Lao PDR. This is making agriculture increasingly unproductive and forcing farmers to shorten fallow periods and further engage in shifting cultivation with increased clearance and degradation of forests and natural resources with loss of ecosystem services important for local communities. Climate change is expected to worsen these negative trends if there is no intervention.

As set out in the NAPA, the primary climate change-related hazards in Lao PDR are floods and droughts which are directly contributing to fluctuating agricultural production and food insecurity, particularly in highland areas, and indirectly through damaging effects on related sectors, particularly water resources, the transportation network (including remote communities' access to distant agricultural markets), and public health services which further increase agricultural household's vulnerabilities.

As climate change advances, the situation in the northern uplands will become more precarious while production that relies on slash and burn and a limited number of climate-sensitive cash crops. With little diversification of crops and income sources and without proper tools, skills, knowledge and support to adapt their farming systems and improve their sustainability, farming communities, especially the poorer most vulnerable ones are likely to be hit hard by climate change.

To address this negative trend and support food security and improve resilience to climate change requires a different approach focused on CSA and land use with diversified and integrated production systems coordinated over landscape levels with changes in farmer behaviour. The LDCF project's emphasis on improving agricultural land management and use practices will help increase crop productivity, contribute to food security and build the resilience of local communities. The same practices can also deliver significant climate change mitigation benefits in the form of reduced GHG emissions and increased carbon sequestration. In addition, reversing deforestation, through, for example, ANR, can reduce vulnerability to adverse climate change impacts such as floods and soil erosion.

Without targeted investments and technical inputs, unsustainable land practices will continue, and CCA priorities and practices and climate smart livelihoods will not be integrated into agricultural and rural development initiatives in the northern uplands, with a weak framework and limited national support to promote adoption of, and investment in, CSA in the upland areas of Lao PDR. This will make agriculture more precarious in the northern uplands, leading to reduced food security and leaving potentially many tens of thousands of poor farmers as climate change victims.

The LDCF project builds on, and is complemented by, the efforts of several on-going baseline projects that operate across some of the most vulnerable districts in the upland provinces in northern Lao PDR, some of which have been identified as sources of co-financing (to be fully explored during the PPG stage). For instance, the Strategic Support for Food Security and Nutrition Project (SSFSNP) project offers a number of entry points, synergies and areas for cooperation with the LDCF project, particularly in relation to development of farmers' organizations linking men and women farmers to markets and support to private agri-business investment and an extension approach that shifts the extension worker role from 'solution giving' to that of process helper and resource linker in a system emphasizing decentralized farmer-to-farmer<sup>[28]</sup> and enterprise-to-farmer extension. However, the SSFSNP does not have a specific focus on climate change adaptation activities to provide farmers with viable alternative sustainable livelihoods or directly target cultivation practices to counter climate vulnerability, nor does it specifically seek to integrate climate smart agriculture practices into production systems to ensure sustainability and build resilience to climate change. Consequently, the LDCF project will complement/enhance the SSFSNP by offering opportunities to incorporate CSA approaches developed by the LDCF project into existing farming systems particularly as part of ongoing FFS and Farmer-Farmer extension systems. The LDCF project will also ensure that climate smart land use planning, rather than land use planning per se, is better integrated into the SSFSNP frameworks in order to identify sustainable integrated land use systems building CSA good practices, climate change resilience and adaptation.

Similarly, the LDCF project will collaborate with the Sustainable Forestry and Rural Development – Scaling-Up Participatory Forest Management (SUFORD-SUPFM) project through its activities to develop sustainable livelihood options to help avoid deforestation and forest degradation, including NTFP domestication. The SUFORD-SUPFM project's livelihood activities are concentrating on food security, rural infrastructure and livelihoods, as well as Small and Medium sized Enterprise (SME) development, business development planning, and producer group organization, which offer significant opportunities for synergies and exchange of experience and shared activities with the proposed LDCF project. In addition, the SUFORD-SUPFM project will focus on village land use mapping, developing village rules on customary forest uses and Community Action Plans, and Production Forest Area Management Plans in areas close

to the LDCF proposed project area in Oudomxay province, which will provide important relevant experiences to help shape the planning activities proposed for district and village/community levels under the LDCF project. The SUFORD-SUPFM have also been working on establishing gender-focused and ethnic teams involving the Lao Women's Union (LWU), including strengthening Women Production Groups by providing capacity building for weaver groups and training on forest management plans, which will provide important background experiences and recommendations for the proposed LDCF project in addressing gender and other disadvantaged group involvement in the project.

In terms of the Landscape Management and Conservation Agriculture Development for Eco-Friendly Intensification and Climate Resilient Agricultural Systems (EFICAS) project, LDCF resources will be used to scale up the innovative agro-silvopastoral solutions developed under EFICAS and ADB, and build on lessons learned from the EFICAS. Over the past decade the project has successfully tested a range of technical options in the northern uplands of Lao PDR to support a sustainable intensification of upland agriculture (although not through a CSA lens), and diversified cropping systems based on agro-ecological principles have proved effective in restoring degraded soils and improving agricultural productivity while limiting the use of external chemical inputs. The LDCF project will draw on these lessons as well as linking directly with the next phase of the EFICAS project but also contribute CCA/CSA experiences to the EFICAS project.

The various REDD+ related activities in the target provinces are also expected to contribute to help meeting the LDCF project's aims. For instance, the PRAP for Houaphan Province will provide technical support to integrate business model development into SEDPs and planning processes, which the LDCF project will link with. The PPG phase will also scope out the potential for the development and testing of user-friendly seasonal forecasts and shorter range forecast tool with farmers using locally accessible methods such as mobile phone text messages, building on the FAO-LDCF '*Strengthening agro-climatic monitoring and information systems to improve adaptation to climate change and food security in Lao PDR*' project.

The project also builds on the lessons learned and good practices of the UNDP- LDCF funded project "*Improving the Resilience of the Agriculture Sector*" (IRAS) project, which sought to mainstream CCA in PLUPs in three other provinces in Lao PDR. The lesson learned and experiences practices from this adaptation-focused project will be incorporated into the climate smart land use planning process in this project. Similarly, the proposed project will scale-up the lessons identified in the GEF funded *Mainstreaming Biodiversity into Lao PDR's Agricultural and Land Management Policies, Programs and Plans* project, which is working on the sustainable use and conservation of biodiversity by reducing the conversion of natural ecosystems and safe-guarding agro-biodiversity, including the conservation and domestication of NTFPs. The experiences on developing sustainable harvesting and domestication of NTFPs will be particularly explored and incorporated into the design of this proposed project. In addition, the project will build on the lessons learned from the multi-donor collaborative Northern Uplands Development Program (NUDP) which recently came to an end. The NUDP worked on a framework to facilitate improved institutional coordination on issues pertaining to sustainable upland livelihood development, sustainable alternatives to shifting cultivation, and land use planning.

The proposed LDCF project will in particular strongly correlate with the GIZ project that is now at the Project Proposal stage mainstream CCA and resilience for systemic impact at landscape level. The total value of the GIZ proposal is US\$169 million, US\$46 million of which are being requested from the GCF Mitigation Result Area. US\$5 million of the project will be used as GIZ co-financing with LDCF funding for resilience mainstreaming complementing GCF funding for mitigation in the forestry sector.

5) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and

The LDCF project will provide a range of adaptation benefits and other co-benefits. The project targets LDCF Objective 1 and Objective 2. The specific adaptation benefits of the proposed LDCF-financed project will include: (i) increasing the resilience of people, communities and local ecosystems to climate change-induced droughts and floods; (ii) reducing soil erosion; (iii) improving and maintaining water quality through restored ecosystems; (iv) promoting

groundwater recharge and water conservation; (v) providing NTFPs and alternative livelihoods; and (vi) improving food security through intensified and diversified climate-resilient agricultural practices.

The project will lead to climate resilient agriculture and NRM mainstreamed into land use planning and programming in the northern upland areas of Lao PDR, with widespread adoption of diversified climate smart land uses (climate proofed production systems) and more resilient climate smart livelihoods among the farming communities in target areas of the northern uplands of Lao PDR. As a result, these communities will have improved resilience and food security of communities in northern upland areas of Lao PDR with reduced vulnerability to climate change shocks; and there will be reduced degradation of agricultural and forest lands with an increased area with some form of forest cover in northern uplands of Lao PDR.

The LDCF project will transfer innovative technologies that contribute to improved land management and farming practices, and enhanced soil fertility and nutrient and water resources with **reduced climate change induced flooding and soil erosion** through the promotion of CSA practices for CCA, including agro-forestry, and more sustainable utilisation of NTFPs in the northern uplands of Lao PDR. Current land degrading farming activities in the northern uplands, notably slash and burn practices, will be reduced through transfer of innovative sustainable agricultural and improved natural resource management and more ecosystem-based farming approaches, notably CSA approaches for CCA such as minimum/no tillage and mixed cropping; utilization of agricultural biomass for rehabilitating soil quality instead of burning; crop rotation/diversification; identification of climate-resilient and disease-resilient crop varieties using indigenous knowledge for adaptation to climate change; and use of more perennial/fruit trees and ANR (such as to make village agroforestry rings more climate resilient). Improved cropland management practices will increase crop productivity and therefore contribute to food security and improved food nutrition.

In terms of the enabling environment, the proposed LDCF project will lead mainstreamed resilience into and better alignment of policy, regulatory, investments and institutional frameworks to support landscape level coordination, facilitated through development of a CSA Action Plan for CCA and IFS. The process of developing the CSA AP and associated ISF is expected to bring together around 250 key national and sub-national decision makers and involve at least 8 national and sub-national agencies/institutes, and will help improve their knowledge and understanding of how to identify, implement and monitor adaptation strategies and measures. In addition, the project's capacity building efforts target at land use planning will give decision-makers at all levels (particularly PAFO and DAFO) the knowledge, skills and tools required to integrate and ultimately upscale CCA, climate smart livelihood approaches and sustainable environmental management into routine land-use and development planning processes, not just for the northern uplands but for other regions of Lao PDR as well. At the local level, the project will mainstream resilience into land use plans at village level in each of the districts the project works in, through a mix of the development of new land use plans (PLUPs), where such plans do not exist, or through integrating CSA priorities and recommendations into existing plans, or into those being developed by other relevant initiatives that include target villages. There is also scope to enhance local land tenure security through strengthened land use planning.

The main expected adaptation benefits of this LDCF project at the community level will be an increased capacity to anticipate and adapt to climate change and to manage climate risks and vulnerability in pilot areas. The project will work with local farming communities and markets, through proven models such as Farmer Field Schools and extension services, to help improve the skill sets of local producers. The use of the FFS and rural extension services will ensure that the LDCF resources are applied to an existing structure, thus ensuring cost effectiveness. Utilizing existing FFS plus their establishment in new areas in Lao PDR and linkages to existing extension and other programmes of the MAF, will allow efficient-scaling up of CCA best practices and lessons-learned. Project activities to support better direct participation of communities in the decision-making processes will particularly benefit women and minority ethnic groups in the uplands and help meet gender priorities as co-benefits of the project, e.g. through Gender-specific farmer groups formed to develop NTFP resources.

Furthermore, LDCF project will mainstream CCA and resilience complementing GCF GIZ funding for mitigation in the forestry sector in the project titled "Implementation of the Lao PDR Emission Reductions Program through improved governance and sustainable forest landscape management". GIZ will co-finance the proposed LDCF project in the upcoming GCF GIZ Project Proposal being submitted to the GCF Board for consideration. The value of the project is US\$169 million, US\$46 million of which are being requested from the GCF Mitigation Result Area. US\$5 million will be used as GIZ co-financing.

The project will also generate significant climate change mitigation co-benefits in the form of reduced or avoided GHG emissions, e.g. from traditional slash-and-burn cultivation, will enhance carbon sequestration, particularly from ANR and agro-forestry activities. In addition, the introduction and wide uptake of CSA project will also result in a substantial reduction in the use of pesticides, herbicides, and fertilizer, which are often the cause of loss of soil productivity and a net contributor to climate change. Substantial LD co-benefits are also expected.

Overall, the LDCF project is expected to improve the climate adaptation capacity and resilience and reduced vulnerability to climate change impacts of around 100,000 people (50% women and 50% men). The project will also help restore local degraded natural ecosystems to more climate-resilient states, with an estimated 50,000 hectares of degraded forest restored to secondary forest and open forests, producing a landscape of different forest types, food security and livelihood options improving adaptation to climate change and improving soil health. In addition, local inhabitants, in particular in poor communities, will benefit from greater opportunities for local employment through ANR, agro-forestry and development of NTFPs initiatives (and an incentive for their adoption). Adaptation benefits and co-benefits will be fully detailed during the PPG phase.

6) innovation, sustainability and potential for scaling up.

***Innovativeness:*** The project has several innovative aspects, including transfer of innovative technologies into land use planning for the targeted provinces, notably the use of Assisted Natural Regeneration to help restore forest cover in shifting cultivation lands, create agroforestry plots, and restore degraded forests, is also innovative for the northern uplands of Lao PDR. The integration of climate resilience within the core training provided through FFS (a specific CCA/CSA module that can be replicated elsewhere in Lao PDR) and through farmer-to-farmer exchanges is also innovative, and the project's proposed use of Market Analysis & Development to develop, promote and commercialise NTFPs is also relatively new approach for the target provinces and will help strike a balance between the socio-economic benefits and environmental sustainability of resources. Furthermore, the majority of climate focused work in the environment/agricultural/forestry sectors in Lao PDR has to date been largely directed towards mitigation measures, e.g. REDD+ initiatives, whereas the current project's focus is on adaptation. Thus, the proposed project will target mainstreaming resilience into large GCF investments planned for mitigation in the Northern provinces – targeting a landscape approach to bring interventions to scale.

Research and extension on conservation agricultural practices will be streamlined within the concept of CSA in an innovative way of integrated approach based on the local needs. The CSA-AP is considered innovative in that such a coherent, coordinating plan does not exist, and the associated IFS will help explore innovative financing mechanisms for CSA, including public-private partnerships to complement the LDCF resources and upscale the activities of this proposed project. The project will also develop an indicator mix for assessing the adoption and implementation of CSA in policy and practice in Lao PDR (designed during the PPG phase) which will contribute to wider regional understanding on how to measure successful adaptation. Innovative similarity and suitability analyses conducted in a participatory way will ensure eventual scale up.

***Potential for scaling up:*** Many of the project's models and activities to support sustainable, ecosystem-based management at the local level are expected to be replicable and scalable (with some modification) and can will be replicable to other districts and provinces, particularly others in the northern uplands and mountainous regions elsewhere in the wider region. Indeed, the project areas were partly chosen to represent the variety of different existing land uses, topographies, and ethnic varieties that occur in the northern uplands of Lao PDR, so results from introduction and uptake of the CSA approach are expected to be applicable over the whole northern uplands and beyond. The guidelines on CSA developed under Component 1 and local good practice identified under

Component 3 are also likely to have wide utility. The CSA AP and IFS will support the spread of CSA and project results from the pilot districts nationally and to neighbouring provinces. Some products from the project, including the capacity building at the local level, e.g. CSA training videos and materials, radio programmes and posters, will be designed to facilitate their upscaling to other districts and provinces, and knowledge management tools and other devices to motivate replication will be set in place. Lessons learned on locally appropriate, gender responsive CCA practices for upland areas in Lao PDR will also be captured for up-scaling and dissemination nationally and fed into other District and Provincial planning processes and will also feed into regional knowledge networks on CSA/CCA. There are also substantial opportunities to “scale-up” CSA planning approaches, tools and other project results and recommendations through existing baseline projects, e.g. the SSFSNP project operates across 400 villages in upland Laos, including provinces not targeted by the proposed project. Such opportunities for upscaling which will be explored during the PPG phase.

The project’s focus on the use of the existing extension services (TCS) and FFS networks for project communication and awareness activities and training in CSA and development of alternative climate smart livelihoods, will provide a route for the dissemination and replication of project experiences, results and lessons learned to other areas and improve the likelihood of sustainability of project results and successes, as training and knowledge will be passed on. The proposed project will also invite representatives from adjacent districts and from neighboring provinces to participate in trainings and outreach events to facilitate replication.

**Sustainability:** The CSA AP will create an improved enabling environment for CSA in Lao PDR with clear roles, responsibilities and needs identified for the different agencies involved with for CSA, supporting institutional sustainability for promotion of implementation of CSA and climate-smart livelihood options and opportunities, and potential sources of finance for these identified through the IFS, supporting financial sustainability. Much of the project’s efforts will be focused upon providing institutions with the tools required for long-term institutional integrity and coordinated efforts. The capacity building/training programmes will be integrated into institutional structures by the end of the project. It is expected that the cross-sectoral platform (Output 1.1) will be incorporated into official government structures supporting institutional sustainability. The project’s ‘training of the trainer’ approach to building capacity will also improve opportunities for replication and to improve the likelihood of sustainability of project results and experiences as training will be passed on. The project will also link to the sustainability strategy of the SSFSNP and other baseline projects.

The project’s capacity building and promotion of CSA practices and alternative livelihoods options and opportunities as well as identification of additional financial sources to link farmers to markets, will help build resilience among the local communities, with the adoption and implementation of CSA activities supported through the local integrated participatory land use plans. This will reduce vulnerability of stakeholders to external impacts (such as climate fluctuation, disasters and price fluctuations) and thus support local socio-economic sustainability, assuming that future climate change events do not make conditions for the continued existence of agriculture and other NRM practices untenable in upland areas of Lao PDR (e.g. Increased frequency of extreme temperature and rainfall events caused by CC do not lead to shifts and loss of agro-ecosystems including forests and/or unmanageable pest/disease infestations. It is anticipated that once the CSA land use has been shown to be widely effective and financially viable in the pilot areas, it will become embedded in local farming practices and consequently considered ‘sustainable’.

In terms of environmental sustainability, the project aims to improve environmental sustainability and the maintenance of critical ecosystem services across the northern uplands through the adoption of CSA and more sustainable use of NTFPs, which will help reduce land and forest degradation and loss. Increased tree and forest cover is also expected to result from the promotion of agroforestry and ANR schemes through the project.

[1] Lazar, 2014. Shifting Cultivation in Laos: Transitions in Policy and Perspective. Clark University, USA. Available at: [https://www.researchgate.net/publication/261988092\\_Shifting\\_Cultivation\\_in\\_Laos\\_Transitions\\_in\\_Policy\\_and\\_Perspective](https://www.researchgate.net/publication/261988092_Shifting_Cultivation_in_Laos_Transitions_in_Policy_and_Perspective)

| Source: FIPD. DOF forest type map 2015

| Average gross forest cover loss in Houaphan Province was 3263 ha/year between 2000 and 2015.

| Huaphanh PRAP, 2017 and Luang Prabang PRAP, 2017

| Data from aggregated district-level socio-economic plans for 2016-2020 in Houaphan province.

| Hotspots! Mapping climate change vulnerability in South East Asia. EEPSEA, 2010

| Source: IUCN study for FAO-LDCF CAWA project

| Lestrelin, Pelletreau, Valentin, 2006. Local Knowledge and Land Degradation: Participatory Case Study in the Uplands of the Lao PDR. In: Proceedings of the Conference Sustainable Sloping Lands and Watershed Management: linking Research to Strengthen Upland Policies and Practices (2006, Luang Prabang, Lao PDR). Available at: [http://horizon.documentation.ird.fr/exl-doc/pleins\\_textes/divers12-08/010043653.pdf](http://horizon.documentation.ird.fr/exl-doc/pleins_textes/divers12-08/010043653.pdf)

[9] Lacombe, Valentin, Sounyafong, de Rouw, Souleuth, Silvera, Pierret, Sengtaheuanghoung, Ribolzi, 2018. Linking crop structure, throughfall, soil surface conditions, runoff and soil detachment: 10 land uses analyzed in Northern Laos. Science of the Total Environment. Volumes 616–617, March 2018, Pages 1330-1338

[10] Lestrelin, Vigiak, Pelletreau, Keohavong, Valentin, 2012. Challenging established narratives on soil erosion and shifting cultivation in Laos. Volume 36, Issue 2. May 2012 Pages 63–75

[11] Lestrelin and Giordano, 2006. Approaching land degradation in the uplands of Laos: looking beyond the proximate causes. In: Proceedings of the International Symposium Towards Sustainable Livelihoods And Ecosystems In Mountainous Regions (7-9 March 2006, Chiang Mai, Thailand)

[12] Climate Smart Agriculture entails (among other things) improving agronomic practices, including: crop rotation using legumes which increases SOM; intercropping and tree cover which helps to reduce soil erosion and improves nutrient management; the use of improved seed varieties; soil-water conservation, bunds and terraces on slopes; minimum/no-tillage and permanent organic soil cover with plant residues and/or cover crops (Conservation Agriculture); balanced fertiliser use; altering cropping patterns, planting dates and farm management techniques; and trees integrated into the landscape providing fodder, fuel, construction materials, biodiversity conservation, watershed protection, and can reduce heat stress of livestock. See <http://www.fao.org/climate-smart-agriculture/en/>

3] Prime Minister's Order No. 13 of 2012, regarding suspension of new investment projects related to mining, rubber and eucalyptus plantations.

[14] Other approaches that have been used in Lao PDR include the Government of Lao PDR (GoL) Soil Survey and Land Use Planning (SSLUP) mechanism, and FAO's GEF-funded Land Degradation Assessment for Drylands (LADA) mechanism for planning catchment area natural resource management and livelihood activities, and the Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP) to assess and manage vulnerability to climate change, and NTD which focuses on the socio-economic aspect of land use planning.

[15] For instance, the Houaphan Province SEDP established an official target to have an agricultural area of 70,545 ha by 2020, while aggregated district SEDPs targets would result in a total agricultural area of 254,558 ha by 2020. Spatial data, on the other hand, indicated that in 2015 Houaphan Province had a total agricultural area of 73,161 ha (DoF/FIPD 2015 unpublished).

[16] EcoLao (2012). Scoping Assessment of Climate Change Adaptation Priorities in the Lao PDR. Regional Climate Change Adaptation Knowledge Platform for Asia, Partner Report Series No. 6. Stockholm Environment Institute, Bangkok. Available online at [www.asiapacificadapt.net](http://www.asiapacificadapt.net) or [www.weADAPT.org](http://www.weADAPT.org).

7] Ministry of Planning and Investment, Lao PDR. 2017 Statistical Yearbook.

[18] The Lao People's Democratic Republic's REDD+ programme identifies the six provinces of Bokeo, Huaphanh, Luang Namtha, Luang Prabang, Oudomxay and Sayabouri in the North of Lao as the pilot region, and also the target area of the ER-Programme of Lao. These provinces have hosted early actions on REDD+ including provincial level planning on REDD+. While the Readiness proposal is generally intended to support the National REDD+ Strategy at the national scale, the six provinces mentioned above, will be seen as a priority for working with field data and specific case studies.

[19] Houaphan, Luang Prabang, Vientiane, Xiangkhouang

[20] ANR is a cost-efficient approach that has been applied by FAO in the region to restore forest cover in shifting cultivation lands, create agro-forests, and restore degraded forests, and combined with enrichment planting is a participatory approach for restoration and agroforestry land use that can produce quicker results in terms of improving water quality, food security, tree cover, fire control, and soil condition. It involves identifying tree seedlings that are emerging naturally in degraded areas after shifting cultivation operations and promoting their survival by killing grasses and weeds that suppress tree growth. As the grasses and weeds are pressed down to protect the soil, ANR also improves soil moisture and hydrological function and allows for the growth of herbs and small animals that people can collect to supplement their farm food intake, improving food security.

[21] For introduction see [https://www.ipcc.ch/report/ar5/wg2/docs/WGIIAR5\\_SPM\\_Top\\_Level\\_Findings.pdf](https://www.ipcc.ch/report/ar5/wg2/docs/WGIIAR5_SPM_Top_Level_Findings.pdf) and <http://climate-adapt.eea.europa.eu/knowledge/tools/adaptation-support-tool/step-2/risk-vulnerability-assessment>.

2] [www.openforis.org/tools/collect-earth.html](http://www.openforis.org/tools/collect-earth.html)

3] The USAID SERVIR Mekong program is already using the Collect Earth platform in this way. In both Huaphanh and Luang Prabang provinces, Provincial forestry officers have been trained in using Collect Earth for forest cover change assessment, under the UN-REDD Programme's technical assistance.

[24] SHARP may be particularly relevant as it is a climate resilience, self-assessment tool for farmers and pastoralists in developing countries. It is conducted at the individual farmer/pastoralist level, facilitating the assessment of farmers' and pastoralists' resilience to CC, while at the same time building their capacity to react to CC, thus increasing their levels of resilience, and supports the collection of gender disaggregated data on practices and resilience to climate change which can facilitate scaling-up gender sensitive actions on the ground.

[25] MA&D is a socio-economic village forestry development mechanism designed to assist local people in developing income-generating enterprises while conserving tree and forest resource. It takes environmental, social and economic aspects into consideration, and does not decide beforehand whether people should opt to become private entrepreneurs or form farmer organizations. It can reduce overharvesting, provides incentives for the enhancement of carbon stocks, and increases the resilience of farmers and businesses to climate change. MA&D reduces the need for out-migration and offers more livelihood opportunities for women and men locally. MA&D targets all economic levels and systematically stresses linkages among social and environmental concerns alongside technological, commercial, and financial aspects of small enterprise development, and also builds strategic alliances between value chain actors and service providers. See [www.fao.org/forestry/enterprises/25492/en/](http://www.fao.org/forestry/enterprises/25492/en/)

6] E.g. being developed through the World Bank – see <https://csai.worldbank.org>, and see - Measures to measure progress towards climate-smart agriculture (CSA) (als) Research program on Climate Change, Agriculture and Food Security. CGIAR, CCAFS) – <https://ccaafs.cgiar.org/csa-programming-and-indicator-tool> And CSA Planning and Indicator Tool at <http://bit.ly/CSA-PNI-Tool>



7] For instance, in Bangladesh FAO is working with CIAT on developing a CSA investment strategy in partnership with the World Bank and is also delivering a regional programme of similar work with the CIAT team. FAO is also currently targeting private sector investment opportunities in CSA, which will inform the development of the Laos CSA project. FAO is also supporting Bangladesh, Cambodia, Lao PDR, Myanmar, Philippines and Viet Nam in addressing 2030 Agenda through CSA.

#### 8] Lao Extension Approach (LEA)

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[N1] But if this is a national plan, what about the lowland parts of Laos? Will it cover them as well? How are they relevant to the focus of the project which is the northern uplands?

[PM(2)] It will only cover upland?

### 1b. Project Map and Coordinates

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

The project activities are located in two provinces in Northern Uplands – Luang Prabang and Houaphan. Please refer to Annex A for the maps.

## 2. Stakeholders

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

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities

If none of the above, please explain why:

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

Stakeholder Institutions	Relevant roles and responsibilities to the project
Ministry of Agriculture and Forestry (MAF)	MAF is responsible for ensuring food security, the development of commercial agriculture, along with the management of agricultural lands and sustainable forestry. MAF will provide guidance on national policy and practices for sustainable development of the agricultural sector covering soil conservation, agroforestry, food security and markets for agricultural products among others, particularly in relation to Components 1 and 2.
Department of Agricultural Land Management (DALAM)	DALAM, within MAF, has responsibility at national level for developing approaches and methods for agricultural land use planning and sustainable land/soil management, as well as for monitoring the development of these areas of the agriculture sector. It will be the main executing partner for this project.
Department of Forestry (DoF)	DoF is responsible for the management of all types of forest, including production of NTFPs, and for promoting ANR, as well as leading awareness raising and providing local level technical training on forest management.
Forest and Forest Resource Development Fund (FFRDF), DoF	FFRDF raises funds from forestry operations to fund awareness-raising initiatives, forest restoration, training, and planting activities. FFRDF will work on the M&A&D approach and identify synergies with the FAO-GIZ Microbanking Project on microfinance to mobilize resources and create incentives for farmers to adopt CSA.
Department of Agricultural Extension and Cooperatives (DAEC)	DAEC is responsible for policy development and technical guidance to provincial and district level agricultural extension services provided by PAFO and DAFO (see below), as well as the development of agricultural cooperatives and other types of farmers' organizations. The project will work with the extension services to build local farmer capacity in CSA and development of NTFP enterprises.

National Agriculture and Forestry Research Institute (NAFRI)	NAFRI is mandated to undertake research for development (applied research) on rice and other cash crops, livestock, fisheries, forestry, agricultural land, and related topics, and to provide information services. It will provide support to the M&D process.
Provincial and District Agriculture and Forestry Offices (PAFO/DAFO)	PAFO and its associated DAFO have the mandate to manage and support the sustainable development of agriculture and all types of forest areas in the provinces of Luangprabang and Huaphan. The PAFOs will provide the provincial level coordination for the sustainable development of the agricultural sector covering soil conservation, agroforestry, food security and markets for agricultural products among others, particularly in relation to Components 2 and 3. The provincial offices house the technical expertise, while the district offices serve as the links between the national government and rural communities.
Ministry of Natural Resource and Environment (MoNRE)	MoNRE is responsible for the management of natural resources in order to better protect the environment and ensure sustainable development, including the management and development of watersheds, collection and collation of environmental information and indicators, and coordinating responses to climate change.
Department of Water Resources (DWR), Ministry of Natural Resources & Environment (MoNRE)	DWR is responsible for the planning, management, conservation, and development of national water resources, including surface water and groundwater.
Department of Climate Change (DCC)	DCC's mandate is to act as the focal point on climate change in Lao PDR and supports the national NAP process. The project will work closely with DCC to support the NAP process. It supports a Climate Change Office, which was established in 2008 to serve as the secretariat of the National Steering Committee on Climate Change (since replaced by the National Environment Committee). It acts as the 'national focal point' on climate change actions and initiatives, and coordinates a number of the national government's activities related to the UNFCCC.
Department of Land Use Planning and Development (DOLUPAD)	DULUPAD is responsible for land use planning and development in watershed and protection forest areas.
Natural Resources and Environment Information Center (NREIC)	NREIC are working on the development of indicators for agricultural investments, the development of land register databases, and agricultural investment safeguards.

Department of Environmental Quality Promotion (DEQP)	DEQP hosts the GEF Focal Point of the Government of Lao PDR, and is responsible for integrated spatial planning and environmental impact assessments.
FAO	GEF implementing agency. Responsible for technical assistance and overall management and supervision of the project preparation. FAO will contribute core programme resources from the country programme, and mainly provide technological support the development of food security and nutrition policy at the central and provincial levels, based on sustainable practices.
<b>Other Stakeholders</b>	
Lao Biodiversity Association (LBA)	LBA is a CSO that is working with local communities. LBA will provide support to the district offices on the facilitation and coordination of activities at the local level.
Lao Women's Union (LWU)	LWU has ministerial status with an organizational structure ranging from the central level to the grassroots. Its work focuses on the promotion of gender equality, cultural heritage and the rights of all ethnic groups in preserving and developing Lao PDR.
Bagong Pagasa Foundation Inc. (BPF), Philippines	BPF provides training and backstopping on ANR and other forms of forest restoration techniques in the Asia-Pacific Region and will technically backstop the work on ANR.
Farmers' Organizations	Locally-based organizations representing farmers and producers that work to develop commercial agriculture and manage villages' forests.
Local communities	Local communities in Huaphan and Luangprabang provinces, which include several ethnic groups, such as Lao Loum, Khmu, and Hmong.

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

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

The recent FAO Country Gender Assessment for Laos (January, 2017) summarized evidence that rural women in Lao PDR are key to agriculture productivity, land use and management, performing a large portion of the agriculture and livestock work. However, rural women often have poor access to land, resource entitlements and inputs such as credit and technology and extension services. Although women farmers are responsible for over half of all agricultural activities, customary practices often restrict women's ability to own or work land, the critical asset for households that depend on agriculture.

The project will actively incorporate a strong gender component in all stages and will adopt a Gender Policy to ensure there is gender equality in all job creation, a specific drive to empower and build the capacity of women in communities as well as involve female farmers in stakeholder engagement.

Project resources, in helping to strengthen and improve community based agriculture and NR management, will promote the economic welfare and empowerment of rural women through specific activities targeted at women such as building capacity to participate effectively in decision-making forums (Output 3.1) and by ensuring women have equal access to resources such as agricultural inputs, finance and extension services. The project will pursue a gender-sensitive approach whereby women's participation in training workshops, demonstration activities, farmers field schools, and management committees will be strongly promoted. Project efforts will also seek to strengthen rural women's self-confidence and capacity to take on leadership roles, while working with men to champion and support change through removing gender-discriminatory norms and attitudes. It is expected that the project's work to strengthen the governance framework for CSA (Outputs 1.1 and 3.1) will catalyze policy, financial and land tenure reforms in support of active participation of rural women.

In addition, the FFS and farmer-to-farmer programmes implemented through this project will have components designed especially for women and women-only cohorts. For instance, the Farmer Field School models are designed to have cohorts specifically for women to help address unique gender based issues. The project's monitoring and reporting efforts will be disaggregated by gender to ensure women, women-headed households, and women-led economic and subsistence issues are well understood and part of the project's overall monitoring framework. Gender balance will be sought and achieved for all project governance and implementation. There is generally poor involvement of women in planning and decision-making processes relating to land and its management and the project will give particular attention to building capacity to enable more women to participate in these forums and present their views and wishes and thus have their voices heard. The results of these gender initiatives will be mainstreamed into district planning process, as well as the national level policy and regulatory framework to strengthen GoL's ongoing investments in mainstreaming gender at the national level.

Gender-specific specific groups will be established to identify and support potential women NTFP entrepreneurs, examine specific roles for women in the improvement (adding value) and/or creation of agro-forestry schemes, and specific opportunities for women to develop flexible supplementary sources of income such as craft making. The choice and promotion of specific agricultural crops for CSA will also be considered in the context of the different uses and

practices of men and women in the northern uplands. Gender-specific approaches in identifying agricultural crops in the context of conservation agriculture. The Lao Women's Union groups will lead the organization of the gender-specific pilots and the collection of gender-disaggregated data.

In addition, outreach/communication and training materials for the farming communities will be tailored to capture the different interests of men and women audiences and ensure both men and women have equal opportunity to improve their knowledge and skills from the project, with training sessions held at a variety of times to ensure women (the major child care providers) are not disadvantaged due to family commitments.

A gender analysis and assessment will undertaken during the PPG phase to provide the basis for understanding gender roles and relations, identify existing structural and socio-cultural constraints as well as opportunities for meaningful participation in the project by women. To ensure that they get equal and priority access to project services and benefits, the LDCF project will adopt measures to increase women's participation and influence in (among others) community-based participatory planning under Component 2, and a minimum level of approved activities must be a priority for women.

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

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

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

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

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

Yes

#### 4. Private sector engagement

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

Yes

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

Private sector plays a critical role in agricultural activities, including through forms of direct investment through concessions and as buyers of crops through contract farming schemes in the northern Lao landscape. Incentivising and training the application of climate-proofed agriculture practices through private sector players (including financing institutions) will be a strategic approach to reaching out to more farmers.

Among ongoing discussions building private sector understanding, inputs, interest and potential ownership and investment in the CCA interventions of this project, FAO is also supporting government to prepare contract farming frameworks for use as critical market linkage tool with farmers and supporting sustainable production landscape. The main private sector players (e.g. CP and Beetagro) are already engaged with FAO in pilot private sector/small-holder win-win Contract Farming Frameworks. The project will utilize this platform to further inform and engage private sector to build resilient production supporting Climate Change Adaptation (and related GEBs, sustainable livelihoods).. The project will continue to engage private sector in-depth in the PPG phase.



## 5. Risks

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

Risk	Rating (impact and probability)	Mitigation measures
Relevant national, provincial and district sector agencies do not have the capacity to support project activities	Impact – 4 Prob - 2	The project is designed to specifically build the capacities of government agencies at national and local levels. This will include making certain that project activities are scaled to match government absorptive capacity. This will be addressed at all levels, from national to local. The inter-sectoral task force (Output 1.1) will also help promote buy-in.
There is resistance (inertia) among land/ natural resource users and advisors to changing their current practices to locally appropriate CSA practices and developing supplementary livelihoods, and motivating many smallholder farmers to adopt CSA production methods at a scale required to comprehensively address ecological challenges may be difficult	Impact – 4 Prob - 2	The project will take a realistic stance towards this issue. During the PPG phase, the design team will define specific target areas, explore the potential for developing specific incentives and associated capacity needs to encourage the adoption of CSA practices and sustainable utilization of NTFPs to achieve the desired behavioral change. Project outreach activities will seek to promote behavioral change through a tailored awareness raising activities and the promotion of incentives with hard evidence that they can benefit the farmers.
Government (national, provincial and district) and donor commitment to support locally appropriate CSA and sustainable NR use practices is not maintained in the face of other challenging development priorities	Impact – 3 Prob - 1	The need to adapt to adverse climate change impacts in rural farming areas through the introduction of CSA and conservation agriculture is viewed as a priority by the Government of Laos, as set out in various CC-related policies and plans. Once established and adopted among the local population and incorporated into regular outreach and training programmes through the rural extension services and FFS, the uptake of CSA practices is likely to be self-sustaining, and is expected to require less direct government support.
Economic returns from products from climate smart livelihood	Impact – 3 Prob - 2	This is likely to be a greater risk in the early stages of the initiative, but the project will develop financial incentives and support access to

<p>s are insufficient to maintain their incomes and food security and incentivise land and NR users to adopt CSA practices due to poor market development, access and opportunities in the northern uplands of Lao PDR</p>	<p>PROD - 3</p>	<p>o markets for the products of CSA production and sustainable utilization of NTFPs (through Output 3.3) and link with the baseline projects which are also seeking similar market development, as well as involving banks and agricultural insurance companies in the market development aspects of the project. Engagement of the private/business sector, including local banks and agricultural insurance companies will be crucial in this, and they will be engaged as stakeholders in the project. It should be noted that there is increasing demand for sustainably sourced (certified) agricultural and NTFP products among Asian consumers promoted through public awareness campaigns and pressure for increased efficiency and productivity of the agricultural sector in Lao PDR to meet demand due to population growth and changes in diet, which should encourage market transformation.</p>
<p>Economic and social rewards and other co-benefits from 'business as usual' land and NR use (e.g. slash and burn) in northern uplands of Lao PDR are judged higher than those through adoption of CSA and more sustainable land use practices.</p>	<p>Impact - 3 Prob - 3</p>	<p>The project will collate and present economic, social and environmental data on published studies in Lao PDR and the region that demonstrate the financial benefits of adopting CSA and costs to the 'business as usual' practices, and promote this through the CSA-AP, outreach and training activities at all levels. An economic and social cost-benefit analysis and case studies on from the region will be undertaken and built into the outreach/communications work to promote/incentivize greater uptake of CSA practices and livelihood options to encourage behavioral change of stakeholders.</p>
<p>Future conditions due to climate change may become too extreme, making the continued existence of agriculture and other NRM practices untenable in upland areas of Lao PDR e.g. increased frequency of extreme temperature and rainfall events caused by CC lead to shifts and loss of agro-ecosystems including forests and/or unmanageable pest/disease infestations in northern upland areas.</p>	<p>Impact - 2 Prob - 2  (in short term)</p>	<p>Unpredictable and worsening weather patterns could influence long-term effectiveness of the project initiatives. However, this impact is gauged to be marginal during the project implementation period, and the project aims to build capacity of local stakeholders on proven land and natural resource use practices that have higher resilience to changing climate (climate smart) and environmental conditions, that will enable stakeholders to modify farming and resource management approaches as needed. Part of this effort will be to enhance capacity to monitor for climate change trends/impacts.</p>

## 6. Coordination

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

The proposed project will coordinate with a range of relevant initiatives and groups in Lao PDR to share experiences to avoid overlap and double-spending of resources for maximum synergistic impact. Synergies and areas for collaboration with these other initiatives will be mapped during the PPG phase with agreement on common activities and cost-sharing explored and agreed.

Linkages will be explored with the FAO-LDCF project *Strengthening agro-climatic monitoring and information systems to improve adaptation to climate change and food security in Lao PDR*, implemented by the Department of Meteorology and Hydrology, on sharing information and improving capacities on interpreting and managing agro-meteorological and climatological data and communicating climate-relevant information. Furthermore, the project will benefit from sharing data on climate modeling and agro-ecological zoning with possible joint workshops and events.

The project will cooperate with several REDD+ initiatives operating in Lao PDR, including JICA REDD+ activities as well as GIZ funded Climate Protection through Avoided Deforestation (CliPAD) initiative, and the prospective Emission Reduction Programme in Northern Lao PDR, envisaging financing under the Green Climate Fund (GCF) including sharing good practices and information on CCA, carbon sequestration potential of agricultural, agroforestry, and NTFP productive forest lands. The proposed project will also collaborate closely with the Natural Resources and Environment Information Center (NREIC) to support development of a land register database at the district level with information on climate smart alternatives for the stabilization of shifting cultivation. The project will support NREIC to develop indicators on CSA relevant land uses in the two districts as a pilot.

In terms of project delivery within Lao PDR, as the national executing agency for the project, the MAF will host the monitoring and information system, and support the project's capacity building process, while, DAE will be the implementing agency. In light of the complex mix of partners and stakeholders and the project's intent to effect change across large landscapes, a project steering group will be established composed of representations of key agencies and initiatives that share interests with the proposed project. This project coordination and oversight mechanism will be established during the PPG period so that the key stakeholders may review and comment upon the full project design to ensure it is compatible with the implementation environment and builds upon best practices.

## 7. Consistency with National Priorities

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

Yes

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

The GoL has ratified the **Paris Agreement**. The CCA priorities that the project will target are the following:

- Promote Climate Resilience in Farming Systems and Agriculture Infrastructure (sector: crops, plant production and livestock management)
- Strengthening Water Resource Information Systems for Climate Change Adaption (sector: water, water management)
- Managing Watersheds and Wetlands for Climate Change Resilience (sector: sector: water, water management, forestry)
- Increasing Water Resource Infrastructure Resilience to Climate Change (sector: water, water management, irrigation)

The **National Adaptation Programme of Action (NAPA)**, published in 2009, highlights five main barriers to its implementation that the LDCF project seeks to address: (i) coordination and cooperation amongst the sectors concerned; (ii) lack of accurate information and data; (iii) lack of capacity, awareness and unsystematic monitoring; (iv) lack of appropriate tools and equipment such as guidelines and communication material on how to adapt to climate change; and (v) limited budgets to implement alternatives (such as micro-financing). Among the priorities identified for the agriculture sector in the NAPA the project seeks to address: (i) crop and livelihood diversification; (ii) promotion of secondary professions; (iii) mobilization of funds; (iv) land use planning; (v) improved productivity; (vi) and better organization of agricultural production. The project will also address a number of priority areas listed in the NAPA for the forestry sector, including: (i) eradication of slash and burn; (ii) use of village forests; (iii) seed production, nurseries and forest fire control; (iv) public awareness; (v) integrated forest plantation management; and (vi) village forests and NTFPs.

The project is consistent with the **National Strategy on Climate Change (NSCC, 2010) of Lao PDR**. The NSCC highlights integrated solutions, awareness, education, community participation, innovative financial instruments and the integration of climate and disease-resilient crops and farming patterns into landscapes. For climate change adaptation this translates into the following goals which are articulated in the NSCC: increased resilience of key economic sectors and natural resources to climate change and its impacts; enhanced cooperation, strong alliances and partnerships with national stakeholders and international partners to achieve national development goals; and improved public awareness and understanding of various stakeholders about climate change, vulnerabilities and impacts in order to increase stakeholder willingness to take actions. In terms of relevant priority projects and programmes in the agriculture sector, the NSCC stresses the need to: promote climate resilience in farming systems and agricultural infrastructure; promote appropriate technologies for climate change adaptation including conservation agriculture, and climate-smart/resilient agricultural practices; strengthen financial instruments and capacity development for farmers; and enhancing information dissemination and extension support (to staff and farmers).

The project is also relevant to the **Climate Change Action Plan (CCAP)** which promotes actions to develop institutional and human resource capacity on climate change, build climate resilience for farming systems and rural economies, improve resilience of forest ecosystem services and goods, improve the management of agricultural lands, and mobilize new climate-related finance mechanisms, as well as the need to strengthen education and public awareness in media. Lao PDR is also in the process of developing their *Climate Change and Disaster Law*, which was expected to be completed in 2017. In addition, Lao PDR has **Nationally Determined Contribution (NDC)** which lists many priorities that directly link to the project, particularly adaptation projects in the agriculture, forestry and land use change sectors. These include the following agriculture sector priorities: *Promote Climate Resilience in Farming Systems and Agriculture Infrastructure; Improve appropriate resilient agricultural farming system practices and technologies to address climate change impacts; and Develop and improve crops and animal diversification and resilience especially in the risk, flood and drought areas* projects. Under the forestry and land use change sectors relevant priority area in the INDC include: *Promote Climate Resilience in Forestry Production and Forest Ecosystems* and *Promote Technical Capacity in the Forestry Sector for Managing Forest for Climate Change Adaptation* projects. So far the government has earmarked US\$12.5 million for the implementation of the measures identified in the NDC, but has at the same time noted the need for external finance equivalent to nearly US\$1.5 billion. In addition, the Government of Lao PDR wants to develop a **National Adaptation Plan (NAP)** and the LDCF project will feed relevant project information to support such a process through close collaboration with the DCC and UNEP.

**The Technology Needs Assessment for Climate Change Adaptation (TNA CCA) 2013** highlights agroforestry and integrated cropping as existing key approaches that can help farmers adapt to climate change and build climate resilience that need strengthening. Key new technologies and approaches identified to further develop CCA in Lao PDR that the LDCF project will champion include integrated farming, soil improvement (soil carbon management), integrated land use planning, conservation agriculture, and crop diversification, and the development of the NTFP sector is mentioned as a specific area in need of support. Similarly, the **Technology Needs Assessment for Climate Change Mitigation (TNA CCM)**, submitted by DCC to UNFCCC, highlighted the necessity of developing climate change oriented agroforestry systems that maximize carbon capture and storage and can contribute socioeconomic and environmental benefits. The TNA CCM highlights the linkages between sustainable community forest management and climate change mitigation, and how agroforestry can be a key carbon sequester, as well as adoption of conservation agriculture as a type of organic farming that reduces emissions from fertilizer and pesticide manufacturing elsewhere.

This project is consistent with the objectives of the **Agricultural Development Strategy (ADS) 2011-2020**, which discusses the threat of land degradation, lower productivity and desertification from shifting cultivation. Of particular relevance is the objective to restore degraded forestlands and reduce upland degradation to improve resilience to climate change, and aims to stabilize slash-and-burn cultivation by 2020. The ADS also highlights the importance of ecosystem-friendly agroforestry farming systems including integration of livestock with crop production and maintaining diversified farming systems, together with conservation agriculture and other similar opportunities including organic agriculture and fair trade. The **Agriculture and Forestry Development Strategy to 2025 with Vision to 2030** highlights the importance of adoption of sustainable production practices adapted to region specific context and increased and modernized production of sustainable agricultural commodities, among others. The project is also aligned with the **National Agro-Biodiversity Programme and Action Plan (2016-2025)**.

Along with other issues, the **Forestry Sector Strategy for 2020 (FS2020)** addresses the allocation of forests within village boundaries for sustainable management, and the classification of village forest use (e.g. for protection, rehabilitation), as well as agreements on rules for managing each forest type. To support poverty reduction goals through forestry, the FS 2020 highlights capacity building, law enforcement, participation, domestic processing, NTFP management and the protection of soils and watersheds. The project is also aligned with the **National Action Program on Combating Drought/Desertification (1999)**, the main objectives of which are food security, stabilization and reduction of slash-and-burn cultivation, conservation of watershed forests, enhancement of farmer livelihoods and poverty reduction.

The project is also relevant to the priorities of several other wider development strategies and plans for Lao PDR. These include the **National Growth and Poverty Eradication Strategy (NGPES)** which highlights the agriculture and forestry sector as one of four main sectors where there are opportunities for supporting growth and poverty reduction, with agroforestry is identified as a key sub-sector to support growth. Also, the **8<sup>th</sup> National Socio-Economic Development Plan (NSED) 2016-2020** highlights (among other things) the need to: (i) halt slash and burn cultivation and increase forest cover to 70% by 2020; (ii) protect and sustain the environment and plan for climate change mitigation, especially to preserve and enhance forest cover and conserve water; (iii) identify development zones and land use areas, especially areas with forest cover, including conservation areas, production forests, protected forests, and watersheds; and (iv) and ensure resources to help prevent natural disaster, particularly, forest fires, droughts, floods, and river bank and mountain erosion. Also relevant to the LDCF project, the NSED also seeks to promote support for small and medium enterprises, address gender equity, promote agricultural production relating to industrial processing and services in rural areas, **and** enhance participation at the village and village cluster (*kumban*) levels. Finally, the project is in line with the **National Nutrition Policy (NNP) 2010**, which stresses the importance of dietary diversity as well as ensuring an adequate balanced intake of fat, protein and micronutrients (in Lao PDR obtained especially from NTFPs and fruit).

## 8. Knowledge Management

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

There is no formal mechanism in place to facilitate exchange of information and lessons learned on CSA in Lao PDR. Dissemination and management of knowledge on CSA will be strengthened and supported with LDCF funding in this proposed project. The project involves discrete outreach/communication and knowledge management outputs as well as specific mainstreaming and advocacy activities, targeted at land and natural resource users, technical support staff, land use planners, and decision-makers, and implemented from national to local levels.

The project will identify and record lessons learned using a structured processes (to be developed during the PPG phase) as part of the project's overall communication, outreach and lesson learning activities set out in the project's communication strategy and plan. The project will create a web-based knowledge platform for dissemination of project results and for sharing lessons learned and best practices on CSA identified from the project's work in the target areas of the northern uplands, and include of mechanisms for peer-to-peer learning.

The project will explore additional means of knowledge sharing during the PPG stage to ensure wider dissemination of knowledge created by the project. FAO will explore use of electronic and print media, as well use of ICT such as mobile phone applications/ text and voice messaging etc. It is recognized that many rural upland communities lack access to web-based approaches, and traditional communication means/channels will continue to be understood, viewed and harnessed where effective. Exact communication plan and information sharing details will be worked out further, and once a detailed analysis of penetration of relevant medium/media are carried out during PPG stage.

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

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

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Mr. Khampadith Khammounheuang	Operational Focal Point / Executive Director Environment Protection Fund	Ministry of Natural Resources and Environment	4/4/2019



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

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

Target Province	Geoname ID#
Luang Prabang	1655558
Houaphan	1657114

**Picture 1. Lao PDR positioning in South East Asia.**



Picture 2. Luang Prabang and Houaphan provinces in Northern Uplands in Lao PDR.





Picture 3. Land cover in Luang Prabang and Houaphan provinces in Lao PDR



