United Nations Development Programme

Country: Lao PDR

PROJECT DOCUMENT

Project Title:

Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts

UNDAF Lao PDR 2007 - 2011 (June 2006) Outcome:

By 2011, the livelihoods of poor, vulnerable and food insecure populations are enhanced through sustainable development (within the MDG framework)

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:

Promote climate change adaptation

UNDP Strategic Plan Secondary Outcome:

1. Strengthened capacity of developing countries to mainstream climate change adaptation policies into national development plans

Expected CP 7 (March 2007) Outcome:

Outcome 2: Pro-poor planning mechanisms, harmonization of aid coordination and disaster management

Expected CPAP Output:

Capacities on sustainable land management, drought and flood preparedness enhanced through participatory adaptation and monitoring activities in selected provinces

Executing Entity/Implementing Partner: Ministry of Agriculture and Forestry, MAF, Vientiane, Lao PDR

Implementing Entity/Responsible Partners: National Agriculture and Forestry Research Institute, NAFRI

Conceptual Summary (brief description next page)

The NAPA follow-up project realizes improved resilience of the agriculture sector to Climate Change impacts through four distinct outcomes, which in itself form a logical sequence of components, envisaging future replication

1. Knowledge Management
2. Capacity Building
3. Community-based agricultural adaptation practice
4. Adaptation learning

Each outcome has a significant stand-alone value, at the same time additional benefits accrue through close integration of the four components.

Programme Period:	2011-2014
Atlas Award ID:	00060492
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PIMS #	3868
Start date:	May 2011
End Date	April 2015
Management Arrangements	NIM
PAC Meeting Date	7th January 2011

Total resources required	$ 12,163,998
Total allocated resources:	**$ 12,163,998**
a) LCDF	$ 4,445,450
Co-financing	
b) Government Lao PDR	
(In-kind)	$ 378,320
(Parallel)	$ 4,764,969
UNDP (Parallel)	$ 2,575,259
Total Co-financing	$ 7,718,548

Agreed by (Executing Entity/Implementing Partner):

Mr. Soulivanthong Kingkeo, Deputy Director General — Date/Month/Year
National Agriculture and Forestry Research Institute (NAFRI)
Ministry of Agriculture and Forestry (MAF) Lao PDR

Agreed by (UNDP):

Ms. Kyoko Yokosuka, Deputy Resident Representative (Programme) — Date/Month/Year

Brief Description

The land-locked country of Lao PDR is highly exposed and vulnerable to flooding and drought. These impacts are being induced by observable changes in the climate including higher than usual intensity rainfall events during the raining season and extended dry seasons. The related risks include sudden flash-floods, landslides and large-scale land-erosion on slopes and - recently - typhoons in the south. These events can be very destructive not only altering the landscape, fauna and vegetation, but also destroying public infrastructure, property, productive land, agricultural assets and harvests. The people of Lao PDR are particularly vulnerable to climate change because 80% of livelihoods are associated with some form of agricultural activity. Furthermore poor farmers have a limited asset base and lack access to support provided by the state.

Furthermore recent market forces, mainly through external investors and tourism, have started to re-structure agricultural production towards large scale monoculture farming and away from more traditional subsistence smallholder farming. The overall effect has been to delink long established interdependencies between farming and ecosystems, to reduce diversity in crop varieties and production techniques, leading to even greater vulnerability to climate risks.

In order to promote resilience in the agricultural sector Lao PDR needs assistance in improving the knowledge base on climate change, strengthening agriculture and rural sector policies and developing institutional capacities so that systematic adaptation planning can be carried out. At the same time appropriate and adaptive agricultural practices need to be introduced on the ground together with measures to introduce alternative livelihood options for poor rural communities.

There are numerous barriers to achieving these objectives. Climate risks (both immediate and long term) are not well integrated into rural and agricultural development policies. Agricultural extension services are ill equipped to advise farmers on how to improve resilience in practical and cost effective ways. Information on climate risks is not readily available and few people in government and within other institutions have the skills to interpret this information for decision makers. Furthermore there is insufficient understand of the way in which poor farmers are already coping with climate risks and the nature of the support that they need to increase their resilience except in quite general terms.

In order to promote resilience in the agricultural sector and enable informed decision-making, the existing knowledge base on climate change and impacts in Lao PDR will be strengthened, specifically as it relates to agricultural production, food security and vulnerability. The capacities of sectoral planners at national, provincial, district kumban levels will be strengthened to understand and address climate change related risks to local food production. Community-based adaptive agricultural practices and off-farm income generating opportunities will be demonstrated to farmers and communities in 3 provinces and 5 districts. Adaptation monitoring and learning as a long-term process will assure that lessons learnt do benefit the local population, as well as national policies and international Climate Change adaptation efforts.

Contents

List of Acronyms and Abbreviations

AA2CC	Agriculture Adaptation to Climate Change
ADB	Asian Development Bank
AKP	Adaptation Knowledge Platform
APR	Annual Project Review
ANR	Agriculture and Natural Resources
ASEAN	Association of Southeast Asian Nations
BCCI	Biological Corridors Conservation Initiative
CC	Climate Change
CCTAM	Climate Change Training and Adaptation Modules
CPAP	Country Strategy and Action Plan
CP/CPD	Country Programme Document
CTA	Chief Technical Adviser
DAFO	District Agriculture and Forestry Office (MAF)
DG	Director General
DLF	Department of Livestock and Fisheries (MAF)
DoA	Department of Agriculture (MAF)
DoE	Department of Environment (WREA)
DoFI	Department of Forestry Inspection (MAF)
DoL	Department of Land (NLMA)
DoLUPaD	Department of Land Use Planning and Development (NLMA)
DoP	Department of Planning (MAF)
DoWR	Department of Water Resources (WREA)
DPI	Provincial Department of Planning and Investment
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
INGO	International Non Government Organizations
IP	Implementing Partner
IRRI	International Rice Research Institute
IUCN	World Conservation Union
IWRM	Integrated Water Resource Management
LAO PDR	Lao People's Democratic Republic
LIP	Local Integration Platform (Technical working group on province/district level)
LNMC	Lao National Mekong Committee (WREA)
M&E	Monitoring and Evaluation
MAF	Ministry of Agriculture and Forestry
MDG	Millennium Development Goals
MEA	Multilateral Environmental Agreements
MPI	Ministry of Planning and Investment
MRC	Mekong River Commission
NABP	National Agricultural Biodiversity Programme
NAFES	National Agriculture and Forestry Extension Service (MAF)
NAFRI	National Agriculture and Forestry Research Institute (MAF)
NAPA	National Action Plan for Climate Change Adaptation
NBCA	National Biodiversity Conservation Area
NGPES	National Growth and Poverty Eradication Strategy
NIM	National Implementation Modality
NLMA	National Land Management Authority
NSDS	National Sustainable Development Strategy
NSEDP	National Socioeconomic Development Plan
NTFP	Non-timber forest product

ODA	Overseas Development Assistance
PAFO	Provincial Agriculture and Forestry Office (MAF)
PIR	Project Implementation Review
PIR	Project Implementation Report
PLUP	Participatory Land Use Planning
PM	Project Manager
PMO	Prime Minister Office
PPR	Project Progress Reports
PSU	Project Support Unit
PTF	Project Task Force (Technical working group on national level)
QPR	Quarterly Progress Report
REDD	Reduced Emissions from Deforestation and Degradation
SDC	Swiss Agency for Development and Cooperation
SEDP	Socio-economic Development Plan
TABI	The Agro-biodiversity Initiative
TPR	Tripartite Review
UNCCD	United Nations Convention on the Control of Desertification
UNDP CO	UNDP Country Office
UXO	Unexploded Ordinance
WREA	Water Resources and Environment Administration
WWF	Worldwide Fund for Nature

List of Annexes

1. Situation analysis

1.1 Climate change - induced problem

Lao PDR (commonly Laos) is a land-locked country covering a total area of 236,800 sq km. Besides Thailand and Vietnam it borders Myanmar, Cambodia, and China. The Mekong River forms a large part of the western boundary with Thailand and – together with some other rivers – presents a very significant renewable water resource with a total basin area of 333.6 cu km. Most of the countryside is rugged mountains covered by substantial forest with some plains and plateaus. The lowest point is the Mekong River at 70 m above sea level; highest point is Phou Bia at 2,817 m. Administratively, the country is divided into 16 provinces and 1 capital city. The total population in July 2010 is estimated to be 6,993,767 with 40.5% being between 0-14 years old; the ratio between the sexes is close to 1:1.

Lao PDR has a tropical climate influenced by the southeast monsoon, which generates significant rainfall and high humidity. The climate is divided into two distinct seasons: rainy season, or monsoon, from May to mid-October, followed by a dry season from mid-October to April. The average annual rainfall ranges from 1,300 – 3,000 mm. Average temperatures in the northern and eastern mountainous areas and the plateaus are 20°C, and in the plains 25-27°C. For the year 2006, the average temperature for the country was 26.5°C (National Statistic Center 2006).

The major climate hazards which Lao PDR regularly faces include flooding caused by heavy rainfall during the raining season, drought caused by extended dry seasons, sudden flash-floods in the mountainous parts of the country, landslides and large-scale land-erosion on slopes, occasional windstorms and - recently - typhoons in the South. Being a country of watersheds and water catchments Laos is by nature heavily exposed to climate variability and change. While there are considerable variations in the way in which these hazards are felt across the country, often these events can be very destructive not only altering the landscape, fauna, flora and vegetation, but also destroying public infrastructure, property, productive land, agricultural assets and upcoming harvests. The effects are reduced to some extent through centuries-old coping mechanisms used by farmers, fishers, hunters and gatherers which have evolved to deal with such environmental change phenomena and the associated challenges and risks represented.

Current and future climate-related risks to Lao PDR and key areas of vulnerability have been analyzed in the country's First National Communication (STEA, October 2000) to the United Nations Framework Convention on Climate Change (UNFCCC) and the National Adaptation Programme of Action (WREA, April 2009). Climate risks are also considered in recent assessments of disaster risks, poverty and vulnerability (Snidvongs 2006, WFP 2007, EEPSEA 2009). Climate change is expected to change the frequency, intensity and location of existing climate hazards and challenge the existing coping mechanisms of the population; especially those living in rural and remote places. The fast pace of change, including events like typhoon Ketsana which are beyond the level of any realistic chance for adaptation, dismantle customary response and survival skills. Combined with demographic and economic developments in the country, poor farmers have become some of the most vulnerable in society, while the traditional resilience of agriculture sector and food production in general has been diminished.

As learnt in the consultation workshops during the PPG phase most rural and remote village dwellers in Laos, experience unusual highs and lows in the daily weather pattern, changed and shorter raining seasons, and commonly report decreases in rainfall. These new climatic variations confront the farmer with situations that challenge traditional approaches to farming, acquired technical knowledge and the agriculture cycle that has, for centuries, been the foundation of community and household livelihoods. For example, changes in quantity and timing of rainfall and floods have an immediate effect on crop production. Some known rice varieties no longer grow under new climatic conditions. Changes in temperature and humidity bring new species of pests and diseases to animals and plants that are unknown to farmers. Given the small size of land (0.5 to 2 ha) usually farmed these changes impact significantly and directly on the food security of small holder farmers and their families.

Migration to other places is the consequence, often forcing women and younger groups of the population to seek their chances in the more urbanized parts of the country, or in Thailand, Vietnam, China, and even further afield. According recent GoL studies, at least 60 percent of Lao workers in Thailand are women, and they work as domestics, hotel maids, and in restaurants and other entertainment venues, garment factories, and food processing plants. As women migrants frequently end up in low-status, low-wage production and service jobs, they are exposed to a much higher risk of exploitation, violence and abuse.

Increasing climatic variability and change is not followed by immediate changes in agricultural practices (usually a slow process), and new diseases are experienced with plants and animals. The duration and extent of the rainy season basically decides how many crops (e.g. rice) a farmer can grow, and what kind of varieties. Unusual or unexpected changes in rainfall patterns reduce the options for the farmer considerably. Agricultural water management practice has neither sufficient time, nor the technical means to adapt to changing water regimes. As a result, agricultural yields are going down considerably (a reduction by 2/3 of the rice/paddy yield is reported in the south of Laos) although there might be an accumulation of other effects contributing to such dramatic decreases.

Competing interests over water and land use by large-scale monoculture farming, industrialization, urbanized developments, and power generation exacerbate the issue of water management. Consequently we see the unfolding of a situation that in a country with a small population and rich natural resources of water, access to water has become a serious constraint for the agriculture sector and to food production. Smallholder farmers are significantly affected but the economic damages experienced have not been quantified. The NAPA document provides some initial figures: up to 70.000 ha of productive land have been affected by flood, and damages between 3-15 million US$ annually are estimated, (DoP/MAF 2005).

Most importantly, the classical local approaches to coping with flooding and drought are becoming less and less effective. This distorts the annual balance of “living with water, river and flood”, which is such a feature of traditional livelihood systems in Laos, and across the Mekong region. The long-term implications of climate change on this central theme of renewal – which is celebrated through a traditional calendar of important cultural events and festivals throughout the year - strike at the heart of the Lao way of life.

With the erosion of traditional agricultural practices, the weakening of existing local coping mechanisms for drought and flooding (inherited knowledge on the annual agricultural cycle, traditional crops, husbandry, variations of different species, subsistence production, shifting cultivation, communal land to be shared among community members, use of forest products, hunting, gathering), and the rise of new climate related challenges, the country’s agricultural institutions need to be strengthened. There is a very high demand for pro-active and innovative guidance, solid technical steering and support, provision of tangible assistance at household, village, kumban and district levels.

Given the fact that 29.9 % of GDP in Lao PDR is generated through the agriculture sector and that approximately 80% of the population is engaged in agricultural activities, the level of resilience of the agriculture sector to climate change becomes a central economic, environmental, social and institutional issue for the development of the country and for combating poverty. In addition, taking into account that women are key players in agriculture – eighty one percent of women contribute to agricultural export, and women traditionally manage marketing of

agricultural products and livestock production – it is also an issue for promoting equitable growth which is inextricably linked to improving women's lives.
Diversification is critical and a key measure in building resilience to climate risks. There is a need for well targeted subsidiary measures (finance, in-kind, logistics, market access, etc.) to make food production more rewarding for farmers and using this as an incentive for better land management practices - also recognizing the need to support development of opportunities for off-farm income.

Southern Lao PDR June 2010:

Raining season delayed over dry rice paddy fields

Erosion of river banks and low water levels

Escape of villagers to higher locations after typhoon Ketsana 9/2009

1.2 Origins and underlying causes for climate change effects

Inherent Physical Vulnerability and Resilience

1. Laos is inherently vulnerable to climate and other natural hazards due to its geographic and geophysical characteristics. It has high mountains and hills (steep slopes), considerable differences in elevation, narrow catchment areas, enormous river, water and wind forces (regular rain, raining season, river-flow dynamics, floods, strong winds, typhoons) that are changing and modulating the physical environment. (Section 1.1). Historically, because of full and dense coverage by forest and other protective vegetation, the landscape has exhibited considerable natural resilience to these influences, including climatic variability, occasional extreme weather events and other major hazard events. Forests, in particular, have played an important role in protecting mountain slopes, the banks of Lao's wide network of small and large rivers and other natural features from the impacts of extreme weather events. The economic, biological, social – and climate related - values of forests have long been recognized. The existing natural protective and regulatory functions of the forests as the country's first line of defence against a range of natural hazards including climate risks are therefore a major economic asset of the country.

Threats arising from current land use and development practice

2. A major cause of increasing physical vulnerability to climate risks in Lao PDR, is that these natural assets are not systematically and comprehensively taken into account in the development planning process. Settlements, large tracts of farmland and critical physical infrastructure are at risk due to siting. Furthermore natural resilience is being lost as forests are converted into farmland or land for industrial development, or simply logged for the production of timber, firewood and charcoal. Sandbanks are mined for sand; vegetation areas along the banks and inland wetlands are being converted to other forms of land use. Irrigation and drainage systems are not being designed to withstand future heavier rainfall and flooding. Major physical modifications of mountains and hills that result from logging, quarrying, road construction and some unsuitable forms of slash-and-burn cultivation are often especially damaging to natural resilience, as these usually alter topography and serve as entry points for wind and water erosion. In many parts of the country such interventions have either created fresh problems of flooding and erosion or exacerbated existing ones. Most methods of controlling erosion and flooding rely on engineering and hard physical structures such as walls and bank protection through full coverage with concrete surfaces, which are very expensive and

difficult to maintain or replicate.

3. As a result of experience over the past years, there is now far greater general understanding of how ineffective land use planning coupled with booming economic development can adversely impact mountains and river systems and increase vulnerability to climate and other natural hazards. However, there are still many constraints to modifying existing approaches to land use, mountain slope, river bank, forest protection and agricultural development in Lao PDR. These include gaps in the policy framework (further development of agricultural policies, sub-sector strategies, technical guidelines and implementation plans), weak intersectoral coordination, limited institutional and individual capacity for climate risk assessment, planning and management, limited technical knowledge and know-how (eg. Climate information management and analysis, technical approaches to agricultural extension with a focus on climate hazards, and community-based approaches for agricultural and rural development) as well as major financial constraints. These are considered briefly below and discussed further under Section 1.3.

Threats arising from changing economic parameters

4. Over the past years agriculture in Lao PDR has been subject to changing economic parameters which include the stimulation of foreign investment, increasing export and market orientation of the producers, tourism development. One of the consequences of these forces has been an expansion of mono-culture practices, often combined with contract farming for investors. This has led to a gradual yet pervasive transformation of farming and food production systems. The single most important factor for market-oriented production is the price (followed by quality of the goods) which usually requires the producer to streamline and rationalize agricultural production. This process needs the gradual introduction of a set of technologies for land management, water supply, seed and crop selection, pest management, harvesting, storage, etc. in order to reduce cost and, subsequently, offer reduced prices. However, because of the highly competitive environment for some agricultural products, the farmer is often forced to go beyond limitations of the agro-ecosystem, leading to various forms of environmental degradation (eg. through the overuse of agriculture inputs causing negative impacts on water quality and soil fertility).

5. The investment or work of a farmer into his/her farming system pays off only if the basic natural parameters (agricultural land, soil fertility, grazing land, water access, productive seeds, labour force, etc) remain relatively constant. In this regard the gradual introduction of market economics and inappropriate technologies into a traditional farming system based on subsistence smallholder farming has the effect of dismantling critical protective environmental features in-built within the system; inherited by experience and experience-based knowledge and observation.

6. The consequences of changes in economic parameters affecting agriculture and food production is an important strategic issue; it is especially relevant in the context of quality and substance of the sector's resilience to climate change. Given the small size of Lao PDR's economy, squeezed between the substantial economic forces of China, Vietnam and Thailand, demand from their markets can easily have the effect of re-structuring agricultural production of Lao PDR, leading to a rapid transition away from subsistence farming. While re-structuring the agricultural sector in Lao PDR is unavoidable, and supply and demand are in principle central functions for production and productivity, attention has to be paid by GoL to the negative side-effects of such processes – and to the additional risks presented by increasing climatic variability and change.

Four main factors influencing the quality and strength of the agriculture sector's resilience to climate change have been discussed and identified with a large number of professionals and stakeholders during four consultation and planning workshops from March to July 2010.

1. Inadequate resource, data and information base

Data and information on possible impacts of climate change on agriculture is insufficient for informed decision-making at both technical and policy levels. As a result, the hands of politicians and technicians are often bound to

prevailing theory and practice. The weak resource and knowledge base on CC matters in Lao PDR is acknowledged by all professionals, and the academic institutions are expected to provide better support and to feed quality information and analyses into the political decision-making process. Representatives from different departments participating in the consultation workshops claim that the present information provided to the GoL is not adequate for addressing future agricultural and food security challenges and to develop a sustainable vision for the future.

Science and knowledge based institutions are specifically requested to source applicable scenarios and practical options on the following challenges:

- The trend in Lao PDR, despite low population density of Lao PDR and because the actual landmass available for agriculture is very limited, towards agricultural production moving into marginal lands, linked also to other livelihood options remaining limited.

- Unplanned responses to market demands from neighbouring countries, from overseas, and from specific local industries steering production towards less climate resilient and environmentally damaging mono-culture agriculture and food production. And important element to this is the need to develop more reliable land use policy and planning tools, also taking into account climate risks.

- While it is recognized that Lao farmers historically have developed coping strategies to address increasing climatic variations, but these are either overlooked, or they are not further investigated or supported by official policies. Some existing adaptation strategies are banned or stigmatized because they conflict with certain modernization strategies, often introduced from outside.

2. <u>Limitations in systematic, institutional and individual capacity</u>

Strategy and policy development on national level works reasonably well; the new national CC strategy is strong evidence of the GoL's commitment. But transformation of strategies and policies into operational actions, procedures and standards is not adequately supporting this progress; especially when it comes to province, district, kum ban, village realities. A successful transformation into operational guidelines is especially important for the new national Climate Change strategy.

While macro-economic development benefits appear to materialize in the country, potential damages and disadvantages on micro-economic level and local livelihoods are not being counterbalanced sufficiently. Neither institutional responses, nor civil or individual reactions have the necessary safeguards in place to protect poor and vulnerable rural groups against climate hazards.

Community-based organizations in support of agriculture, such as farmer-to-farmer agricultural extension services, are largely absent. Organized agricultural development at farmer level is very limited. Resources are not shared among farmers. Technical capacity on farms, in villages or kum bans is very basic.

Wide-spread rural poverty limits the adaptive capacity and capability of individuals, farmers and villagers to respond to natural disasters, flooding, and droughts. Poor farmers have limited opportunities to improve yields, increase income, and/or to develop alternative, appropriate farming systems with greater in-built resilience to climate hazards. The variety of farming systems potentially available for each agro-ecological zone is not explored yet.

3. <u>Absence of tested and verified agriculture / rural adaptation technologies and practices (on-farm and off-farm) related to climate change</u>

GoL authorities and international agencies are active in promoting awareness to climate change, but there are only very limited measures on the ground that deal with the issues in practical terms. The available rich diversity of local agricultural seeds and varieties, a pre-condition for different adaptation strategies, is endangered by commercial inputs for yield maximization (as a result of market or investor demand). There is an ambivalence towards different concepts and opportunities related to traditional systems of "shifting cultivation / slash and

burn agriculture". There is a clear need to better analyse related costs and benefits as well as opportunities and risks for various key groups that are currently reliant on such systems. In many situations shifting cultivation can be an appropriate way for local communities to do agriculture. Unfortunately, it is also very often used as a pre-cursor for massive logging, char-coal production, fire-wood provision for brick kilns, and extensive land conversion for other purposes. Such alteration is often driven by powerful individuals or groups with specific economic interests, and it is very difficult for any government to control this process.

The central role of forests, and forest management for future climate change adaptation strategies, not only related to agriculture, is not sufficiently recognized or emphasized in sectoral strategic documents. Traditionally, farming systems in Laos are closely aligned with utilization of forests, trees, wood, and NTF products. Every change in the forestry landscape will have an immediate effect on the farming system (livelihood), and with forests being the first line of defence against climate change induced risks this will directly influence the quality of the agriculture sector's resilience. By physical shape forests and trees serve as a fence for agricultural production against erosion by wind and water and protect against extraordinary climate variation on-site (micro climate). They help to maintain or regulate water level and humidity, two important parameters for agriculture. In themselves , forests are highly diversified eco-systems able to provide a wide range of nutritional inputs into agricultural households, or for animal husbandry (feed and fodder).

Subsistence and small-holder farming generates few off-farm income opportunities. Through appropriate commercialization built upon diversification of agriculture, more of these opportunities could be provided. Such rural employment opportunities are probably the most important adaptation option for the rural societies in case the climate variations go beyond the degree of flexibility that can be tolerated by present-day agriculture.

4. Slow dissemination of appropriate coping mechanisms and adaptation practices

The local and traditional knowledge of the farmers is gradually being eroded and replaced by specialized knowledge suitable for cash crop production, contract farming and special market requirements (e.g. tourism industry). However, the full variety of appropriate technologies and the spectrum of options (e.g. organic farming, conservation agriculture) do not reach the local farmer. Often, technologies reaching the villages are pre-selected according to certain commercial interests.

Systematic interaction and networking on Agricultural Adaptation to Climate Change (AA2CC) between different institutions even at a national level only occurs when a new project is launched. The Climate Change Office in WREA very busy in preparing the (delayed) Second National Communication (SNC) and often mentioned national committee on Climate Change is still in early stages of development, although the new national Climate Change strategy promises greater attention and follow-up.

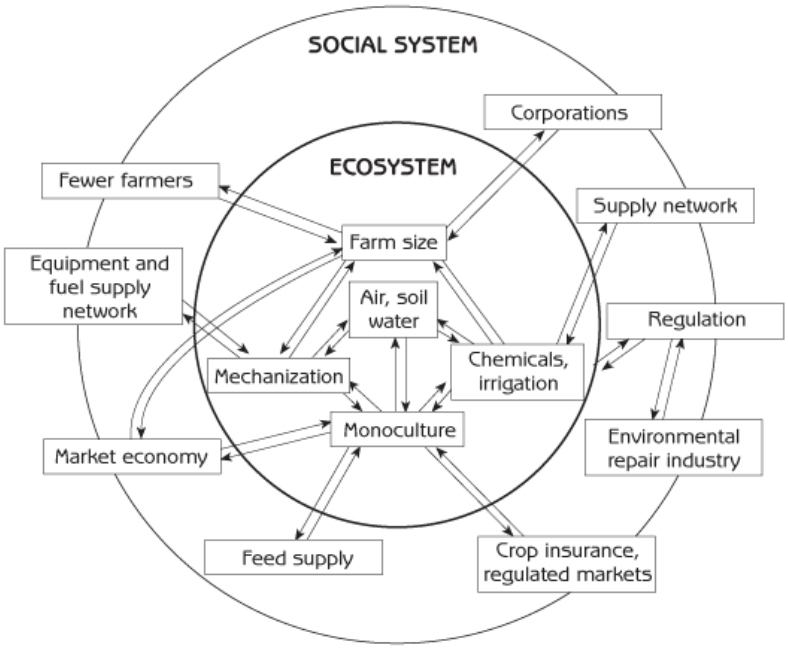
Policy and technology exchange with Thailand, Myanmar, Vietnam, Cambodia, China and other SEA countries has just started to discuss AA2CC as a regional topic.

1.3 Long-term solutions to achieving the solution

1. Inadequate resource, data and information base

The classical agricultural and forestry research stations and institutions have to be re-invented as incubators for primarily local agricultural knowledge and practice, guided by thinking in terms of ecological systems / agro-ecological systems, and shaped for utilization by practitioners. In Lao PDR this refers to NAFRI - and its branches / stations in the regions and the provinces - to the Lao National University, but also to institutions and organizations like the MRC, IUCN, and WWF.

Departments associated to meteorological and hydrological data and information are most important, and so are the general departments of statistics. A more strategic approach to data gathering and analyses is required, and networking of existing institutions should provide regular and specific reports to decision-makers and planners. Land use planning and actual land use practice are the platform for bringing this information together in a single series of maps, a single plan, providing decision-makers with an important rational tool.



Analysis of the agricultural system requires a functional network of resources, data, and information

AA2CC relevant information should be systematically developed, maintained and analyzed under the long-term perspective of a single entity that has the professional outreach and qualifications required for such a task. The classical, but re-invented, agricultural and forestry research stations and institutions have to see their role in providing quality information and applicable analysis to the local public, politicians, specialists and ordinary citizens, farmers, alike.

2. Limitations in systematic, institutional and individual capacity

Full institutional development, providing quality services, not only related to CC matters, across all GoL institutions and MAF entities, especially in districts, kum bans and villages, is regarded as the main long-term goal for AA2CC, which is fully in line with Lao PDR government policy.

An essential part of achieving the long-term objectives of CC adaptation in Lao PDR, is the availability of funding through the GoL's annual budget, with provisions for long- and short-term resources, covering national, provincial, district and kumban needs.

The evolutionary and gradual development of policies, implementation guidelines and procedures will make existing strategies a tool for change. If AA2CC strategies cannot be broken down to practical implementation advice for GoL agencies in provincial and districts, and tangible, measurable improvements for the farmer, the chances for strengthening the resilience of the agriculture sector are modest.

MAF should aim to develop a comprehensive strategy for the agriculture sector, according to the Ministry's initial mandate. A strong rural development orientation based upon agriculture, forest use, fisheries, livestock etc. should be guarded by detailed sub-sector policies.

Similar to the agricultural research institutions, agricultural extension services must be strengthened and restructured to be able to better provide required human resources, to demonstrate successful adaptation techniques, and to build up related capacities amongst farmer and villagers.

3. Absence of tested and verified agriculture / rural adaption technologies and practice related to CC

A stronger and more innovative role for research, technical support and agricultural extension should be expected. Agricultural research and development should be better integrated for practical utilization on the ground, opening up a wider range of options for the farmer. For example, among the detailed technical agriculture practices promoted by the extension service will be agro-forestry system development. Monocultures should be replaced by integrated agricultural systems using a variety of crops, vegetables, livestock, fishery, or mixed agro-forestry systems based on the existing ecological parameters for the region. Appropriate options for commercial farming (even contract farming) have to be developed.

Development of a demonstration garden for indigenous fruit tree varieties
Project: Developing a community model to contribute to the conservation and development of genetic resources of indigenous fruit tree species and varieties and the agricultural ecosystem of low lying delta affected by the annually seasonal flood in Ly Nhan District, Ha Nam Province (GEF/SGP)

Alley cropping in the Philippines.
In alley cropping, an agricultural crop is grown simultaneously with a long-term tree crop to provide annual income while the tree crop matures.

Incentives for sustainable land management technology need to be introduced. For example, planting materials for hedgerows and perennial trees can be provided as a one-off commitment that is more appropriate than providing subsidies in every cropping season, every year. This should be done through consultative meetings and other participatory methods such as PRA, SWOT analysis and Mind Mapping, to determine farmer and community needs, goals and preferences.

Incentive strategies and policies to facilitate the adoption of sustainable land management practices should be provided as necessary for farmers who normally are resource-poor and cannot afford costs associated with the adoption of conservation farming. The feasibility of incentives in the form of wages, grants, subsidies and loans should be assessed: a cost-sharing approach should be promoted with participatory extension. Training and capacity building (non-monetary and human resource development) programmes and technical support are considered the best incentives for promoting self-reliance, responsibility and ownership among farmers and cohesiveness in the community. Sometimes social and cultural acceptability are perceived to be more important than the economic viability of sustainable land management. Information, education and communication and participatory monitoring and evaluation are important supporting mechanisms for productive and sustainable integrated conservation and land management.

Incentives will enhance the speed of the transformation process and increase competitiveness of adaptation strategies. It will balance shortcomings of the market, and help to avoid the tendency towards short-terms gains overriding long-term interests in the agricultural sector, the agricultural producers, and society in general.

In the interest of a growing population and long-term poverty reduction the rural economy must diversify into non-agriculture related jobs and employment. This new generation of off-farm employment should partly be inspired by genuine opportunities from low carbon and low emission based production and technology.

Internalization of environmental cost (including adaptation to CC) will increase the economic value and price of agricultural and other off-farm products, and open up a wide range of opportunities for science, technology, production and commerce in areas that so far have been regarded as economically not feasible, or as being outside the daily reality of life.

Some of these opportunities and "emerging needs for resilience" of the rural society are already well known and – as it is with most innovations – are waiting to reach "critical mass for break-through":

- Agricultural technology with CO_2 + N reduction
- Agricultural technology with clean/renewable energy utilization
- Research on agro-product related climate risks on local level
- Search for, testing and introduction of alternative crop species, harmonious to the ecosystem
- Conservation farming (no tillage)
- Organic food production
- Food and water storage technology
- Incentives for forest conservation/soil protection/erosion control
- Appropriate irrigation systems / development of small scale irrigation systems / weirs
- Recovering / reclamation of flooded agricultural areas
- Strategic and operational planning showing impact of CC on agriculture production systems
- Early warning systems in villages with practice on the ground and safe areas in their vicinity
- Using mass organizations and media to strengthen individual household and group responses to climate change

4. <u>Slow mainstreaming of AA2CC on community, national and regional level</u>

Creative and innovative means are developed to inform and educate the local population on climate change matters, and associate these events to consequences for the daily life in the rural community and farming systems employed by the villagers. Especially important is the understanding of early warning systems, and

practical preparedness for natural disaster situations. Climate change adaptation has to be mainstreamed from being a promotional event to a standard feature of daily life, similarly to economic thinking when going shopping. Naturally, the existing educational institutions have an important role to play in this, and the development of suitable national curricula is an important step in this direction. Similar important, but faster put into practice, is the direct engagement of the rural population in their local cultural environment, e.g in Wats (pagodas) and local schools. Mobile training units, local road shows, community radios are suitable means to achieve this; also the mass organizations for women and youths in Lao PDR can take over a substantial role in awareness creation.

The interaction and networking on AA2CC matters between different institutions on national level will be improved. This is foremost a matter of policy development and coordination on most senior GoL level in the country, but it is also an issue that should be brought more concisely and succinctly into the policy discourse among the political party members. For Lao PDR a good affiliation with the political structure and improved synchronization with both the GoL structure and the structure of the Lao People's Party (LPRP) would be a key. The CC Office in WREA may have to enhance its grasp on the situation and the institutional arrangements for the committee on Climate Change have to be improved and strengthened. Most essentially, the new national CC strategy has to be brought alive and procedural conclusions and guidelines to be formulated.

The exchange of technical opinions between different sector officer, technicians and planners has to be organized and to introduce the AA2CC as a subject of regular professional debate in the sector ministries. Regional policy and technology exchange with Thailand, Myanmar, Vietnam, Cambodia, China and other SEA countries is most important for similar climatic zones in the different countries, because it can facilitate the direct transfer of suitable technology applied in a neighbouring country.

1.4 Barriers to overcome

The planning and consultation process during the project preparation differentiated between 4 potential barriers related to communication, institutions, economics, and policies.

Barrier 1: Communication

General: A high level of illiteracy prevails in the rural areas. Farmers often have no reading skill. Even the official language Lao is not understood by some ethnic groups. There is no internet, no media, TV or radio in many local areas. Local staff and local translators will help the project to cope with this.

Awareness creation: It is difficult to translate science into the local context of Laos. Statistical facts are difficult to transfer to the local population. Poster art (illustrations) must be applied, and if available community radio has to be used.

Data collection and dissemination: Baseline information is not available, and it is difficult to collect and to interpret. Access to remote areas is challenging and many communities cannot be reached during the raining season. There is no unified database or data management system by the GoL. Dissemination of information is a logistical challenge. The selection process for the field sites has considered the logistical barriers as an important criterion. Data, information and knowledge management will be directly addressed through Outcome 1.

Agricultural extension: Extension messages do not reach farmers. Extension messages are not adapted or not understood by farmers. In some communities there are cultural barriers to adaptation and it is very difficult to collect local knowledge and get an understanding of the existing coping mechanisms: information is often conflicting and scattered over many places. The project will address most of these issues under Outcome 2 and Outcome 3.

Barrier 2: Institutional Capacity

Although manned by a good number of staff the outreach capacity of MAF is weak, and NAFRI/NAFES have to find ways to better motivate extension workers. A farmer to farmer extension approach barely exists, and no

other effective channels for delivery of extension services are available. Furthermore no Climate Change experts are available in the GoL institutions.

The GoL staff working on the ground are in many cases unskilled, which is especially relevant for the new Technical Service Centres in the kum bans. The practical commitment of institutions mandated to provide services to farmers is often reduced to verbal promises only with no required actions being taken.

Under all four outcomes these points will be addressed through concept and design, approach, organizational structure and identified activities of the project, as far as AA2CC institutions are concerned, and the cooperation among the relevant partners and institutions.

Barrier 3: Discrepancy Macro/Micro Economics

Adaptation to Climate Change is a long term goal requiring additional investments into farming systems coming from a range of sources including the private sector. However, at this point in time, the private sector may not be willing to provide this investment in view of the short term economic interest imperative.

While macro-economic planning and the GDP of Lao PDR show a strong overall performance, the benefits accruing at the rural village level do not often match national performance. This means that it is very difficult to engage rural farmers in climate change adaptation activities unless the make sense at a micro economic level.

Furthermore, resources available at village level for livelihood diversification are also few. Incomes are largely dependent on natural resources and market access is often limited, particularly during heavy rainfall events. Most farmers are living from subsistence farming and below the poverty line. Many have no understanding of the cash economy, and very often they have no income to buy additional food for up to four months during the dry season.

Barrier 4: Policies

National sector policies do not explicitly take into account AA2CC strategies with the exception of the recently approved national strategy on climate change – which remains a relatively aspirational document for now. The new strategy, although a strong sign of the Government's commitment, so far has no established institutional framework through which it could be implemented. Guidelines for implementation are missing, and it is not clear how the CC strategy will influence other strategies of GoL. For example, the existing new draft National Socio-Economic Development Plan, the most important planning document on national level, makes no reference to this strategy nor recognises climate change as a risk factor with the potential to affect economic development goals.

The National Committee on Climate Change remains a concept only. The institutional set-up in the country tends to assign many responsibilities to WREA and there is a risk of thematic and logistical overload. As it is in many countries, the most essential linkages between irrigation, water management and agricultural extension are not sufficiently well spelled out in policy documents and neither is the issue of coordination between these critical areas resourced. While there is greater opportunity for horizontal engagement at province, district and kumban level, there is much more limited capacity at these levels and a tendency to look for guidance from higher levels rather than to attempt pragmatic action on the ground.

The development and drafting of a contemporary, comprehensive and distinct MAF strategy with details on sub-sectors, macro-economic vision, food security approach, poverty alleviation, etc. is still ongoing. This means that strategic guidance for operational activities is somehow limited. On the other hand this provides a good opportunity for the LDCF project to feed back lessons learnt into the policy development process.

The Project Approach to Barriers Removal

The project combines three of the four major approaches to barriers removal presented in the Adaptation Policy

Framework (UNDP 2005) in order to achieve effective integration of climate change risks into policy and planning on land use, to promote greater knowledge and understanding of climate risks and to promote adaptation of vulnerable farmers to these risks, as discussed above. Thus, the project uses a combination of the hazards-based, policy-based and adaptive capacity-based methods and strategies to remove a range of policy and capacity barriers, and gaps in technical knowledge and know-how .

1.5 Stakeholder baseline analysis

Key stakeholders with a major direct role in the project were identified and consulted at different stages during the Project Preparation Grant (PPG) phase to obtain their inputs and feedback for designing the project. The majority of key stakeholders at the national level are from various departments and divisions of GoL. NAFRI in MAF will take the lead in coordinating with other stakeholders and overseeing the implementation of the project.

The other major stakeholders outside Vientiane are the province (PAFO) and district authorities (DAFO), both the civil servants and probably elected officials, as well as the local communities in the target areas, and specifically the newly established Technical Service Centres (TSC) on kum ban level. The criteria for selecting target districts were identified and agreed through a series of consultations with national stakeholders, including NAFRI. Consultations were also held with district representatives and provincial representatives in the north (Xayaboury) and in the south (Savannakhet) of Lao PDR.

A number of other stakeholders likely to have an interest in the project's results but without an active role in the project were also identified. Both primary and secondary stakeholders will be engaged through the mechanism of "Project Task Force" (PTF, national level) and/or "Local Integration Platform" (LIP, provincial/sub-provincial level). The importance of strong engagement by INGOs, mass organizations and communities in the project was flagged at the last national stakeholder consultation, including the need to ensure that future consultations capture the full range of perspectives, including those of minorities, less vocal groups and village residents who may not have been present at the time of the consultation. The importance of gender equity and other gender aspects was emphasized throughout the consultation process.

Bilateral consultation throughout the PPG process

The PPG Phase (March to July 2010) included a series of bilateral meetings between members of the PPG Team and representatives and resource persons from other projects, GoL agencies, NGOs and other organizations.

Outcome: During these meetings CC related information, ideas and thoughts were collected; opinions on useful approaches and strategies were exchanged, and the evolving NAPA follow-up project structure was presented.

Information and consultation session at NAFRI Vientiane on 25th of March 2010 (WS1)

A first public information and consultation session on the NAPA follow up project was organized on 25th of March 2010 at the NAFRI conference room in Vientiane.

Outcome: The session informed potential stakeholders about the project PIF. Initial guidance and useful advice related to PPG process, stakeholder identification, strategy and approach, technical issues, and site selection was gathered by the team.

Regional consultation workshop South at PAFO Savannakhet on 28-29th of April 2010 (WS2)

A regional consultation workshop for a NAPA follow-up project was held on 28-29 April 2010 at the PAFO conference room, Savannakhet. The focus was on pre-selection of suitable project sites in the south of Lao PDR.

Outcome: A number of agricultural issues probably related to Climate Change were identified and 10 potential project sites for component 3 were suggested in 10 districts in 5 provinces. The pre-selection followed criteria and indicators explained by the PPG team.

National planning workshop on central level at Lao Plaza Vientiane on 18th-19th of May 2010 (WS3)

The national planning workshop was organized to present the project framework, to identify core problems/causes, strategies/desired responses and potential stakeholders on national level. Goal was to provide inputs for the eventual revision of the existing project Result Framework (logframe).

Outcome: A better understanding of the project framework among key stakeholders was achieved, an analysis of project situation was undertaken, potential strategies and national stakeholders were identified. Inputs for a revised project Result Framework were provided and valuable recommendations for project design, implementation and management received.

Regional consultation workshop North in Xayaboury province on 17th -18th of June 2010 (WS4)

A regional consultation workshop for a NAPA follow-up project was held on 17th -18th June 2010 at the PAFO conference room, Xayabouly . The focus was on pre-selection of suitable project sites in the north of Lao PDR.

Outcome: A number of agricultural issues probably related to Climate Change were identified and 10 potential project sites for component 3 were suggested in 10 districts in 4 provinces. The pre-selection followed criteria and indicators explained by the PPG team.

Approximately 200 professionals were engaged during the consultation process from March to June 2010.

Institution / Stakeholder Group	Inputs during PPG Phase	Role in Stakeholder Involvement Plan
MAF: Different technical Departments Department of Planning	Data Information Guidance on GoL procedures Participation in workshops and meetings	Executive member in Board Senior Beneficiary in Board Member of Project Task Force Implementation of contracted activities (extension, agriculture, forestry, fisheries, small livestock, home gardening, water management, others)
MAF: Different projects implemented through MAF	Data Information Participation in workshops and meetings Lessons learned and experience made Potential for cooperation and collaboration	Members of Project Task Force Collaboration and support for implementation in same target provinces and districts Participation in CC learning workshops Participation in regional CC conferences Gradual engagement into additional co-finance (as part of a future exit strategy)
MAF: NAFRI Different projects implemented through NAFRI	GoL Counterparts Data Information Organization of workshops and meetings Human Resources Office equipment Logistical support	Implementing Partner Chairman TWG and PMU Overall management of 4 components Direct implementation responsibility for 3 components Pooling of sources on NAFRI compound IT support / database management Innovative and creative inputs ALM contributions Monitoring and Reporting
MAF:	Data	Actual field implementation with focus on

Institution / Stakeholder Group	Inputs during PPG Phase	Role in Stakeholder Involvement Plan
PAFOs and DAFOs for 20 provinces in the North and South of the country	Information Participation in workshops and meetings Site identification Local agricultural details	component 3 Contracted human resources and outputs Coordination of Local Integration Platforms North and South Support by provincial Governor
NLMA	Data Information Planning process for land use and land titling Participation in workshops and meetings	Member of Board Member of TWG Contributions to component 1 and 2 Contracted districts plans with CC focus
NDMO	Data Information Natural disaster responses and warning system Participation in workshops and meetings	Member of Board Member of TWG Contributions to component 1 and 2 Contracted early warning / disaster preparedness training on the ground
WREA	Data Information Significance of NAPA for LaoPDR Climate Change Office National Communication on CC Other NRM and environmental issues Participation in workshops and meetings	Member of Board Member of TWG Contributions to all components Cross-fertilization with CC office and other relevant Departments such as the water Resources Department Implementation guidelines for national CC strategy Quality expansion of agriculture information for Lau PDR in National Communication UNFCCC
MPI	Data Information GoL Priorities Potential for co-finance	Policy Support Support for future co-finance as part of exit strategy / project sustainability
UN agencies and similar UNDP, FAO, WFP, etc.	Data Information Thematic support Logistical support Guidance in PPG matters Participation in workshops and meetings	Member of Board Senior Supplier Quality Assurance Logistical and administrative support Guidance in conflicting matters Collaboration and cooperation on project level Policy support Linkage to other international activities and events
Donors ADB, IFAD, WB, EU, SIDA, GTZ, SDC, ACIAR, Worldbank	Data Information Potential for collaboration, cooperation and funding support Participation in workshops and meetings	Main recipient of information and lessons learned Some might be senior suppliers on the board Occasional participation in Board or TWG Participation in CC learning workshops Participation in regional CC conferences Support for future co-finance as part of exit

Institution / Stakeholder Group	Inputs during PPG Phase	Role in Stakeholder Involvement Plan
		strategy / project sustainability
NGOs / NSAs IUCN, others	Data Information Thematic support Assurance on collaboration in the field Participation in workshops and meetings	Member of TWG and LIP Implementation of contractual outputs Networking
GoL Mass Organizations	Participation in workshops and meetings	Information dissemination Awareness creation Mobilization of specific target groups
Different national and international experts	Data Information Participation in planning workshops Technical opinions and advice	Data Information Selective participation Execution of contracts
Other GoL institutions and private individuals	Data, information, logistical support, etc	As deemed necessary and appropriate according to the approved annual work plan

Full details on the comprehensive stakeholder consultation process and reports from the PPG phase with names, functions, addresses, possible contributions are in Annexes 2 to 2.5.

The full Stakeholder Involvement Plan is attached as Annex 3.

2. Strategy

Food insecurity resulting from climate change in Lao PDR will be minimized and vulnerability of farmers to extreme flooding and drought events will be reduced as part of an overall approach designed to introduce new adaptative techniques to farmers while encouraging a diversification of livelihood strategies at community level. This will be achieved by overcoming key policy, communication & information, institutional and economic barriers, as outlined in Section 1.4 relating to agriculture and food security as identified in the NAPA as requiring immedaite action. Thus, under Outcome 1 the information base for understanding climate risks and vulnerability will be strengthened and organised in way that it can effectively inform agricultural sector policies and planning. Outcome 2 addresses the need to develop the capacity of planners at different levels of government to use this information in the planning and allocation of resources. Outcome 3 focuses on Lao PDR's agricultural extension services and demonstrating new techniques to build resilience at the community level including targeted training modules to ensure that these techniques take hold are become widely applied. Under outcome 4 lessons learned and adaptation knowledge generated through the project will be systematically compiled, analyzed and disseminated nationally and internationally, thereby supporting further up-scaling and replication.

2.1 Project rationale and policy conformity

Rationale

LDCF resources, will be used to deliver agricultural adaptation benefits to ongoing national efforts, which are mainly focused on poverty alleviation, food security and sustainable economic development. The Project will address impacts of climate change on the agriculture sector, with an emphasis on developing and piloting new adaptation actions and activities within existing agro-ecosystems.

LDCF investment will lead to strengthened policy, a coordinated and strategic investment in climate change adaptation in agro-ecosystems with long-term national capacity building in Lao PDR. Knowledge management and mainstreaming of climate change issues will widen awareness and support is expected across different sectors from within the country. The project is very well timed to strengthen and support the further roll-out of GoL and donor activities under the recent national Climate Change strategy.

The proposed project will implement a top priority identified in the National Adaptation Programme of Action (NAPA), which was finalized and submitted to the UNFCCC on 22nd May, 2009. The NAPA process has identified four sectors as being highly vulnerable to climate change and requiring priority adaptation measures: agriculture, forestry, water resources, and health. The NAPA has confirmed that the primary climate change-related hazards in Lao PDR are floods and droughts and their adverse impacts on food security and agricultural production. Climate change is expected to have a range of impacts which includes increases in annual mean temperatures by around 0.1-0.3 ^{o}C per decade; a longer annual dry season; more intensive rainfall events; and more frequent and severe drought and flooding events. The 4th IPCC report (2007) indicates that the Mekong basin is expecting increasing maximum monthly flows of +35-41% and decreasing minimum monthly flows of 17-24% over the course of this century, which will substantially increase flooding risks in the wet season and water scarcity in the dry season.

Although some steps have been taken in this respect, for example through a SIDA-funded Upland Agriculture and Forestry Research Programme (implemented by NAFRI), there is an urgent need to further strengthen adaptation efforts and develop a comprehensive programme that addresses key barriers to adaptation in the agricultural sector at all levels. This involves systematic integration of climate risk considerations into major agricultural sector policies (including a draft National Agricultural Strategy to 2020) and plans; strengthening of institutional, organizational and individual capacities to understand the link between climate change and future food security; and introduction of appropriate and resilient agricultural practices at the local level. Project results will ultimately feed into the design and adoption of specific agricultural planning and extension

guidelines. This process will be accompanied with targeted training for provincial and district authorities, with a focus on planners and agricultural extension staff.

The objective of the proposed project is to minimize food insecurity resulting from climate change in Lao PDR and reduce the vulnerability of farmers to extreme flooding and drought events. In order to increase the adaptive capacity of the agriculture sector in Lao PDR to a changing climate, and improve the resilience of food production systems, the project proposes the following four-pronged activity approach:

1. Strengthening of the national knowledge and information base on climate change impacts in Lao PDR and their effects on agricultural production and food security;
2. Enhancement of the capacity of sector planners and agricultural producers to understand and address climate change – related risks and opportunities for local food production; and
3. Demonstration and promotion of diversified and adaptive agricultural practices at the community-level;
4. Communication and dissemination of information and adaptive lessons learnt.

Through this well integrated approach the project can be considered a main contribution towards MDG #1 – Eradicate Extreme Poverty and Hunger in Lao PDR. Poverty in the country declined steadily from 46 percent to 33 percent during the decade 1992-2002, and the country is on course to attain the MDG target of halving poverty by 2015. While the incidence of poverty has declined, and the poor are getting less poor on average, the share of the poorest quintile in national consumption also fell from 9.6 percent to 8 percent. This suggests an increase in inequality during 1992-2002, thereby confirming evidence from other sources about increasing disparity among the poor and the non-poor.

2.2 Consistency of project with objectives and priorities of GEF / NAPA

Consistent with the Conference of Parties (COP-9), the project will implement priority interventions in Lao PDR's NAPA and therefore satisfies criteria outlined in UNFCCC Decision 7/CP.7 and GEF/C.28/18. It will address urgent and immediate climate change adaptation needs and leverage additional co-financing resources from bilateral and other multilateral sources. The project requests the LDCF to finance the additional costs of achieving sustainable development imposed on eligible countries by the impacts of climate change. It is country-driven, cost-effective, and will integrate climate change risk considerations into land-use planning, agriculture and disaster risk reduction initiatives, which are priority interventions eligible under the LDCF guidelines. The project focus of safeguarding Lao PDR's food security against future climate risk by pursuing a range of adaptive agricultural practices is aligned with the scope of expected interventions as articulated in the LDCF programming paper and decision 5/CP.9. As climate impacts fall disproportionately on the poor, the project recognizes the link between adaptation and poverty reduction (GEF/C.28/18, 1(b), 29).

The Project is according to the objectives and priorities of GEF/NAPA as outlined in Decision 28/ CP.7. The project addresses the urgent and immediate adaptation needs of the Lao PDR. The project implementation approach through 4 interlinked components is easy to understand. The project is distinctly action-oriented and country-driven from the very first days of the PPG process. The project sets clear priorities for urgent and immediate adaptation activities as identified by GoL / MAF / NAFRI.

The preparation of this NAPA follow-up project was guided by a comprehensive and extensive participatory process involving all stakeholders, including local communities, an multidisciplinary approach (professionals from different sectors participated); and a complementary approach, building upon existing plans and programmes, including national action plans and national sectoral policies.

The NAPA follow-up project significantly contributes to sustainable development in Lao PDR; it has a 50% target quote for gender equality; was and remains country-driven in further design and final implementation, and will demonstrate sound environmental management while being as cost-effective as possible. Whilst participatory in the coordination arrangements, simplicity of technical adaptation action on the ground is a key feature of the project.

2.3 Country ownership: country eligibility and country driven-ness

The Government of Lao PDR has developed and implemented a wide-range of policies that directly or indirectly relate to Climate Change and/or agriculture adaptation to climate change. The main overall development goals reflect international commitments and focus on poverty reduction, economic growth and social development, advancement of infrastructure and investment in hydropower and mining, but also protecting the environment and gender equity. They also acknowledge that future economic growth continues to rely on the sustainable use of the natural resource base and capacity of the agricultural sector to adapt to climate change challenges. Development in the Agriculture and Natural Resources sector focuses on commodity oriented agricultural production, stabilization of shifting cultivation and enhanced productivity.

Important policies and policy documents are:

The *National Communication on Climate Change*, the first report was published in October 2000, the second is presently under preparation through the CC office within WREA.

The *National Adaption Programme for Action / NAPA,* published in 2009, outlining priority programmes and actions for Lao PDR. For agriculture / food security these cover:

1. Improve capacity of NDMC
2. Promote secondary professions to improve livelihoods
3. Land use planning
4. Promotion of relevant paddy and other crops
5. Technical capacity of local agricultural officers
6. Improve relevant crop varieties and animal species
7. Improve crop and animal disease laboratories
8. Processing and storing of food and feed
9. Establishment or strengthening of farmer groups
10. Promote soil improvement
11. Bank erosion protection
12. Integrated Pest Management
13. Organic fertilizer research

The *GoL's Strategy for Climate Change, March 2010,* with adaptation and mitigation options for 7 key priority areas, and the following objectives for the agriculture sector / food security:

1. Mainstreaming Climate Change in policies, strategies, plans
2. Enhancing Conservation Agriculture
3. Improving water management and flood control
4. Financial instruments, community based measures
5. Country specific, sector-based research on macro and village level
6. Information dissemination and extension support
7. Cooperation among sectors, regional and international cooperation

The *National Growth and Poverty Eradication Strategy* (NGPES) provides strategic guidance for secure future economic growth and to achieve poverty eradication in a holistic and comprehensive manner. The Strategy is an operational guide toward for enhancing growth and development and reducing poverty, with the goal to eradicate poverty by 2020.

The *National Sustainable Development Strategy* (NSDS) embodies the country's strategic planning process to address the full integration of economic, social and environmental objectives across sectors, territories and generations and sector-wide mainstreaming of sustainable development principles and poverty-environment linkages.

The GoL's '*Strategic Vision for the Agriculture and Forestry Sector*' (1999) guided the development in these sectors during the past decade and included the following key themes: participatory planning; lowland transformation (transformation of farming systems – market oriented cash crop production/ modern farming technologies) to help to expand the production of export commodities; sustainable development of sloping lands (protection of NPA's, regulate harvest of NTFPs, community based approach to land management); stabilization

of shifting cultivation; expansion of irrigation (more effectively, expansion of area); human resource development (focus on agricultural staff at district level, improve participatory planning/ extension techniques); enabling environment for business development. The document appears outdated in parts, and the replacement by a comprehensive strategy for agriculture, livestock, and fisheries would be helpful to guide future climate change adaptation activities.

Among other policy documents of MAF, the '*4 Goals and 13 Measures*', four development targets are identified: ensuring food security, commercialization of agriculture production, shifting cultivation stabilization for poverty reduction, and sustainable forest management.

Based on the overall policy directions various legislations were established subsequently.

Related to land management the promulgation of the *Land Law* in 1997 was an important milestone. It was amended in 2003 and facilitates together with PM Decree 88 effective and efficient management of land. Criteria for individual and collective or communal land titles are provided in the recent *Ministerial Instruction No 564* issued by the NLMA. This instruction includes a new aspect in contrast to previous legislations as it provides for the issuance of land titles for collectively or communal managed lands.

The PM *Decree No 135 on State Land Lease or Concession* approved in May 2009 determines principles, procedures and measures regarding granting of state land for lease or concession, to promote the development of state land ('to turn land into capital') including the investment into cash crop production to generate income for the state budget. Different Articles specify conditions related to land concession for agricultural business such as for cash crops/ NTFP's and industrial tree plantation. Art. 26 defines where such investment can take place.

The *Forestry Law* (2007) provides principles, regulations and standards for the use of forestland and resources. It defines the responsibilities and roles of authorities on various levels for forest management, control and inspection. Primary responsibility over forest resources is handed over to MAF and its line agencies at provincial and district level, but also to village organizations.

The *Agriculture Law* dates back to 1998 and determine principles, rules, and measures regarding the organization and activities of agricultural production as the basis for economic development. It covers aspects such as the management and preservation of agricultural practices, promote agricultural production, to create favourable conditions to expand agro-industrial processing and to avoid negative impacts on the environment. It also regulates the application of fertilizer and pesticides.

In collaboration with UNEP an *Environmental Law* is presently in preparation. Also in the last stage of finalization is an *inter-ministerial agreement on conversion of agricultural land* for other purposes.

The 5 Year SEDP's are strategic documents, which provide medium-term social and economic targets and goals for the provinces and districts. They outline sector strategies for achieving those targets. Plans integrate national development and sector policies with the needs and priorities of the province and the districts. Provincial plans take the five-year development plans for districts within the province into consideration. The Provincial Department of Planning and Investment (DPI) is responsible for the finalization of this plan in coordination with provincial sector departments, the private sector and mass organization representatives. The plan is approved by the Provincial Governor.

In this context, the Government of the Lao PDR endeavours to find practical solutions to the challenges posed by climate change at a national level by formulating policies, approving proper rules and regulations and making solid decisions to participate with the international community by ratifying the United Nations Framework Convention on Climate Change (UNFCCC) in 1995 and the Kyoto Protocol in 2003. Thus, Lao PDR is fully committed to its obligations involving the management and protection of the environment.

Lao PDR completed its first greenhouse gas (GHG) inventory as part of the Initial National Communication (INC) to the UNFCCC in 2004 for 4 out of 6 areas identified in the IPCC inventory guidelines: agriculture, energy, land use change and forestry and waste. The 1990 level inventory concluded that Lao PDR was a net sink of CO_2 with

the net annual removal of 121.6 million tons of CO_2, compared to 24.18 million tons of CO_2 emitted in the country.

There have been several requests from the Lao government for support and donor assistance in climate change adaptation matters. Donor coordination in the ARN sector is done through the overarching Agriculture and Natural Resource Sector Working Group including a number of sub-sector working groups.

The project concept was identified as a priority for Lao PDR with the GEF and the government submitted an endorsement letter through its national Operational Focal Point to the GEF in support of this project as per GEF policy. As noted in the section above, the project is highly relevant to national priorities and was developed through extensive stakeholders' consultations including four national and provincial stakeholders' workshops and numerous informal meetings.

Maintaining a strong complementarity with the Vulnerability & Adaptation Assessment carried out under Lao's Second National Communication (SNC) to the UNFCCC, and making use of the regional Climate Change modelling performed by other parties, the project will ensure that climate change scenario planning is introduced to policy makers in the agriculture sector and beyond. The project will provide critical support to MAF to safeguard food security throughout the country and, at the same time, contribute to ASEAN agreements aimed at increasing food security at a regional level.

The project is consistent with the food security focus of Lao's National Socio-Economic Development Plan (NSEDP, 2006-2010) and aligned to the tasks of the Technical Working Group on 'Food and Livelihoods Security and Agricultural Productivity' under the National Steering Committee on Climate Change (NSCCC), established by the Prime Minister on 08/05/2008. By strengthening the information and knowledge base on climate change impacts, the proposed project will enable integration of climate risk data into hazard and vulnerability databases of the Ministry of Agriculture and Forestry (MAF) and the National Disaster Management Office (NDMO) under the Ministry of Labour and Social Welfare (MLSW). Project results will inform the implementation of the new Climate Change Strategy for Lao PDR which includes a dedicated component on adaptation in the agriculture sector.

According to the draft 7th NSDEP (2011-2015) different sectors, namely agriculture, forestry, energy, meteorology, urban planning, industry and health will work together to do interdisciplinary research on the impact of climatic change and the source of greenhouse gases, and seek appropriate methods for mitigating the impact. Effort will be made to incorporate this into the Five-year Plan, and then draw up strategies to mitigate the impact of climate change, in line with sectoral planning and poverty reduction strategy. It is expected that the project will be able to provide substantial practical and thematic experience into this planning process.

The project document was reviewed in consultation meetings consisting of government representatives, implementing agencies and other stakeholders to ensure country ownership and strong coordination amongst existing initiatives. The minutes of the meetings are attached under Annex 2. The Government of Lao PDR is also provided co-financing for this project as a clear indication of their support to the project and national ownership.

Because of the important impact of climate change on agricultural landscapes, and its recognized implications for food security, agricultural production and GDP, this project is of great relevance to the GoL's targets. Tangible measures to support achieving these targets have been identified in the project design, including improvement of land use planning, establishment of extensive technical support at the village cluster (kum ban) level, and capacity building. Through supporting the development of Lao specific climate change scenarios in drought and flood-prone areas, the project will actively promote the integration of climate change considerations into agricultural planning and practices at national, provincial and district levels in collaboration with the local stakeholders.

To further ensure strong national ownership, this project will be nationally implemented under UNDP's National Implementation Modality (NIM). While there will be international support, the project will be locally driven by a national team. This national implementation is to be done through the Ministry of Agriculture and Forestry, and specifically NAFRI, and in close collaboration with NAFES and other departments. The national implementation

of the project promotes full responsiveness and integration of project activities to Lao PDR strategies and policies.

The key organisations identified to coordinate the implementation of the proposed project are the National Agriculture and Forestry Research Institute (NAFRI), steering implementation with different MAF entities, e.g. the National Agriculture and Forest Extension Service (NAFES), and the National Land Management Authority (NLMA), the National Disaster Management Office (NDMO), provincial institutions, and others.

2.4 Design principles and strategic considerations

By funding the additional costs of interventions necessary to meet the urgent and immediate adaptation needs for Lao PDR identified in the NAPA process, the project will ensure that the risks of climate change, including variability, are integrated into ongoing agriculture management practices and programmes. By integrating this project with programmes that promote baseline development needs in the agriculture sector, LDCF funding will protect baseline development investments in food security and assist Lao PDR to achieve MDG 1-Eradicate extreme Poverty and Hunger and UNDAF Outcome 1 ("By 2011, the livelihoods of poor, vulnerable and food insecure populations are enhanced through sustainable development within the MDG framework"). Supported by GEF, the Lao PDR has initiated (late 2008) the process of developing a Second National Communication (SNC) to the UNFCCC. The Vulnerability and Adaptation Assessment under the SNC Project will directly tie into the climate knowledge and information-related deliverables of the proposed project and ensure that relevant climate models and scenarios are actively applied.

The Ministry of Agriculture and Forestry (MAF) will provide overall leadership and direction for the proposed project, and NAFRI Vientiane will house the Project Support Unit (PSU). NAFRI will have overall responsibility for the project; specific technical activities will be sub-contracted to relevant technical parties. The wide range of extension works will be undertaken through NAFES, other technical departments of MAF, the provincial disaster management agencies, provincial extension agencies and Village Cluster Service Centres (TSC kum ban), and will ensure meaningful and consistent community participation. The project will develop strong coordination and collaboration with important actors on climate change, food security and agricultural development in Lao PDR, especially with ADB, AusAid, World Bank, IFAD, WWF, MRC, GTZ, DED, IUCN, and AFD. Activities will be closely coordinated with:

- the MRC's Climate Change and Adaptation and Flood Management and Mitigation programmes;
- ADB support to develop community managed irrigation systems (loan 2086)
- ADB support to manage and mitigate against floods and droughts (proposed project: GMS-LAO Flood and Drought Risk Management and Mitigation);
- ADB's ongoing support to the National Climate Change Strategy and the Climate Change Office;
- UNDP supported Second National Communication to the UNFCCC;
- UNDP/UNEP Poverty Environment Initiative (PEI) which aims to build the long term capacity of the government to integrate environmental concerns in national development plans, investment management processes and poverty reduction strategies,
- the recently designed UNDP Project "Institutional Strengthening and Capacity Development on Disaster Risk Management in Lao PDR By 2011", which aims to enhance the livelihoods of poor, vulnerable and food insecure populations and
- the "Small Grants Programme /AusAID Mekong and Asia Pacific (MAP), Community-Based Adaptation (CBA) Programme (August 2009 – June 2014) to improve the adaptive capacity of communities, thereby reducing their vulnerability to the adverse effects of climate change risks.

WWF and IUCN are working on climate change programmes, which focus primarily on climate change impact research and will feed into the proposed project (Component 1). Field activities related to adaptation and agricultural techniques (Component 3) will be coordinated closely with the Northern Uplands Programme which is currently in the final design by AFD, EC, SDC and GTZ, as well as ADB and IFAD's Sustainable Natural Resource Management and Agricultural Productivity project for southern Lao PDR. SDC, UNDP and FAO's support to agro-biodiversity conservation and sustainable use have specific components that highlight agro-biodiversity as an

important element in adaptation to climate change, which will feed into the piloting of diversified and resilient agricultural practices. Baseline data on drought and flooding hazards in Lao PDR will be consolidated on the basis of input provided by the Mekong River Commission's Flood Management and Mitigation programmes; SEA START and JMA AGCM models, the Department of Meteorology and Hydrology, and others. Project locations have been chosen based on technical criteria, as well as to complement the Ministry of Agriculture and Forestry's Northern Uplands Programme, the Sustainable Natural Resource Management and Agricultural Productivity Programme, and UNDP/FAO's support to agro-biodiversity Practical links will be established between components 2 and 3, and the UNDP/GEF funded agro-biodiversity project.

The project links up to numerous ongoing country interventions. Given the large number of potential stakeholders, actors and project a major challenge for the project will be to carefully maintain an effective and efficient implementation mode while assuring quality networking and participation.

The NAFRI compound in Vientiane accommodates a number of projects and national and international institutions (Conservation Agriculture, International Water management Institute, others) that have own climate change related activities. The project strategy offers the unique opportunity to bundle these activities into the NAFRI business plan, to share experiences and results under the umbrella of one agency, in this way promoting NAFRI as a leading partner for Agricultural Adaption to Climate Change (AA2CC) in the country and the region. The project strategy has a straight-forward logic from information to knowledge management (outcome/component 1), from knowledge management to capacity building (outcome/component 2), from capacity building to agricultural practice (outcome/component 3), and, finally, from practice and lessons learnt to communication and exchange of these (outcome/component 4).

The project will constitute an active contribution to the GoL's 7th National Socio-Economic Development Plan which provides a unique and early opportunity to gradually mainstream the model and experiences into the country's development thinking.

Initial co-finance is assumed through the following operations, and a further gradual increase and expansion of co-finance during the implementation period not only expected but will be a pro-active task of the project manager.

Agency/Department/Project	Activity / Link
1. Developing multi-scale climate change adaptation strategies for farming communities in Cambodia, Lao PDR, Bangladesh and India (2010-2014), ACIAR	To adapt and apply available tools/methods to select and assess adaptation strategies for rice-based cropping systems
	To develop capacity in research and extension processes that support the building of adaptive capacity in rice-based cropping systems
	To select and evaluate a suite of crop and water management adaptation options suitable for provincial level dissemination
	To derive and disseminate principles and policy recommendations that will enable a more effective design and implementation of adaptation programmes at multiple scales
2. Developing improved farming and marketing systems in rainfed regions of southern Lao PDR (2009-2013), ACIAR	Diagnosis and integrated assessment of farming and marketing systems
	Optimisation, testing and adaptation of crop and livestock technologies and marketing/extension approaches
	Sharing of knowledge and pilot scaling out of varieties, crop and livestock technologies and marketing approaches
	Alleviation of constraints posed by drought and uncontrolled flooding

3. Northern Uplands Rice Farming Systems Research Project (2008-2012), SDC	Options for productive rice based farming systems in the uplands formulated
	Relevant stakeholders have access to, and can use, recommendations and reflects their concerns
4. Rice Productivity Improvement Project (2009-2011), Worldbank	Support to Farmer seed groups and on-farm demonstrations
	Support to rice research and seed multiplication centers
5. Poverty and Environment Initiative (PEI), UNDP	Changing agro-ecological systems and adaptive subsistence or small-holder farming Climate change related environmental hazards (floods, drought, and erosion) and effects on agricultural investment, small holder farming and other forms of livelihood in rural Laos.
	Climate Change adaptation and "sound environmental management", and future possible CC scenarios.
	ESIAs and AA2CC. Review of existing strategies, guides, plans etc. is envisaged by the project.
	Changes and modifications made by human beings as part of economic analysis. In the context of AA2CC this would refer to different Agro-Ecological Systems / Zones, related farming systems.
6. Institutional Strengthening and Capacity Development on Disaster Risk Management, UNDP (NDMO)	Community practice on the ground: participation of men and women, to prevent, reduce, mitigate and cope with the impact of the shocks from natural hazards associated to CC.

Note: projects 1-4 are implemented under NAFRI.

2.5 UNDP comparative advantage

The Government of Lao has defined food security as a top priority in the National Growth and Poverty Eradication Strategy (NGPES). The UN and therefore UNDP has been assisting the country to achieve this goal under the United Nations Development Assistance Framework (UNDAF). The proposed project is aligned with UNDP's comparative advantage, as articulated in the GEF Council Paper C.31.5 "Comparative Advantages of GEF Agencies", in the area of capacity building, providing technical and policy support as well as expertise in project design and implementation.

UNDP's strengths come from its mandate to manage environment for sustainable development and achievement of the Millennium Development Goals, and from its strong country presence in the Lao PDR. UNDP has been assisting Lao PDR to formulate and implement its national development plans and strategies, such as the NGPES and the NSEDP. Through the Governance and Public Administration Reform Programme (GPAR), UNDP has been helping the Government of Lao to deliver civil services to the poor more effectively. UNDP has provided technical and administrative support to Lao PDR to elaborate its First National Communication (FNC), the National Adaptation Programme of Action (NAPA), the National Capacity Self Assessment for Global Environment Management (NCSA), and this support is being continued with the GEF - and UNDP - funded Second National Communication (SNC).

UNDP is working together with national partners to develop the capacity of national and local government and communities to develop and implement sustainable wetland management plans in southern Lao PDR; and with civil society to develop the GEF-funded Small Grants Programme including in the field of climate change adaptation. This programme of work is to be complemented with a forthcoming joint UNDP-FAO GEF project in the area of agro-biodiversity that focuses on mainstreaming biodiversity into Lao PDR's agriculture and land management policies, plans and programmes, contributing to both biodiversity conservation and improved rural

food security. In the area of disaster preparedness and management, UNDP is currently supporting the elaboration of a regional national disaster management strategy.

UNDP has an ongoing environment portfolio managed by a dedicated unit in partnership with UNEP, and it is working with the Government on the Poverty-Environment Initiative, NSEDP and the round-table process, giving it a unique position to mainstream key issues in national policies, strategies and plans.

The proposed project will be linked to these ongoing programmes/projects of UNDP, thereby ensuring that the results of this project will be up-scaled and mainstreamed into national development processes. UNDP is, therefore, best-positioned to implement this adaptation project. UNDP will explore potential collaboration with UNEP and other UN agencies in the spirit of the on-going UN Reform process and the development of an integrated UNDP-UNEP Environment Programme in Lao PDR. It emphasizes mainstreaming of environment and climate change concerns into national development strategies and plans. It has a wide portfolio for mainstreaming climate change into national and global policies, and for developing the capacity of local governments, communities and indigenous groups. Together with GoL agencies, UNDP Lao was responsible for developing the NAPA Programme, and for strengthening government capacity for the MEAs.

UNDP has a Climate Change Advisor in the Climate Change office at WREA and is extremely well positioned on CC issues. UNDP is in a unique position to mainstream key issues in national policies, strategies and plans. UNDP's current work to strengthen local governance and service delivery offer other opportunities to promote key issues at provincial and district levels. Because of its distinct comparative advantage UNDP will be the lead agency as GEF Implementing Agency for this project.

2.6 Gender considerations

Swiss Agency for Development and Cooperation (SDC) research in 2007 has noted that "women are playing more significant roles in house work such as cooking, weaving, cleaning and babysitting while men are mainly perceived to be responsible for demanding physical labour such as construction of the home, building weaving equipment, rearing livestock and hunting for exotic foods." Women are typically given key responsibility for food security in the family and as such are intrinsically linked to resource choices for family consumption. However, there is a noted bias toward men in decision-making positions, so specific measures are required to encourage and support the engagement of women in decision-making related to agriculture production and productivity, as well as in equitable benefit sharing from such decisions.

Additionally, women farmers' voice must also be promoted in affecting policy changes envisages under this project. As this project will seek to show a link between climate change and food security women will be key stakeholders. As anywhere else in the world, there is no simple tool to integrate gender considerations across the country. An important consideration is that each community should be seen as being unique and that the project will orient activities in a way that promotes gender equity while acknowledging and respecting the cultural-ethnic roles of gender.

The project aims at a 50% quota among staff. All data collected and analysed will be gender-segregated. A gender mainstreaming programme will be developed by a local consultant, which will include two gender audits during the implementation period, plus gender check-lists for all technical activities undertaken on the ground. All TOR for contractors or MoU with GoL agencies will draw attention on gender equity during implementation of the project.

Most importantly, the "economic visibility" of women in the farming household and the agricultural production cycle will be enhanced wherever there is an opportunity. Knowledge management under component 1 will allow gender-specific interpretation and analysis of data and information. The awareness and training modules developed under component 2 will target the different functions of men and women in agriculture and farming household, and women are strongly encouraged to participate in the training. Extension activities under component 3 will actively address these different functions. Communication and information activities under component 4 will highlight the aspects of gender specific experiences and gender equity, not only related to Climate Change but also in the general access to natural resources like water and land. While it is important to

acknowledge the traditional roles and functions of men and women, they should not be necessarily limited to these roles because women's traditional roles at times might not fully allow them to participate in decision-making process or to be empowered.

A specific gender report will be prepared annually by the PSU for the Board, PTF and LIP meetings. Promotion, PR and awareness materials produced by the project will consider gender-specific aspects.

2.7 Project Objective, Outcomes and Outputs/activities

Project Objective and Outcomes are aligned with UNDP's thematic focus on adaptation to climate change and are matching or do correlate to Goal, expected Impact and Indicators of the GEF LDCF/SCCF Result-Based Management Framework Adaptation to Climate Change.

Project Objective: Food insecurity resulting from climate change in Lao PDR minimized and vulnerability of farmers to extreme flooding and drought events reduced

OUTCOME 1[1]

Knowledge base on Climate Change impacts in Lao PDR on agricultural production, food security and vulnerability, and local coping mechanisms strengthened.

GoL Co-financing amounts for Outcome 1: $ 1,320,000

UNDP Co-financing amounts: $ 775,000

LDCF project grant requested: $ 498,070

Baseline: Basic regional climate change information has been compiled in the NAPA for Lao PDR. However, this information has not yet been comprehensively applied to the agricultural sector. Additionally, vulnerability information is highly scattered across different public and private sector entities, government departments and development agencies and has yet to be comprehensively consolidated and delivered to national stakeholders in a user-friendly and policy-relevant manner. Climate change data is collected sporadically by different agencies. Systematic analyses of data either does not take place, or is not distributed to partners. Academic and teaching institutions are only peripherally engaged in the process of CC and adaptation analyses. A number of international NGOs (e.g. IUCN, WWF) have carried out local and regional level studies recently, together with the Mekong River Commission which has compiled the most significant and comprehensive regional analysis available – providing an important starting point for this component of the project. UNDP is supporting the implementation of Lao PDRs' Second National Communication to the UNFCCC which includes vulnerability and adaptation assessment focusing on agriculture and water resources and this will be carried out in parallel with the proposed project (Ministry of Environment and Natural Resources) and use the same structure of technical working groups. In addition there are four ongoing MAF/NAFRI implemented adaptation projects focusing on rice cropping and rice seed research that will provide some climate impact data as well as field tested adaptation options for crop and water management which can be disseminated at provincial level. These activities will show benefits to the project through the co-finance agreements made.

Adaptation alternative: Existing climate hazard and vulnerability information for Lao PDR for agricultural production will be systematically compiled, documented and assessed on the basis of global and regional climate change models. The information compiled will be used to analyze agricultural land-use planning in flood- and drought-prone areas and develop alternative land use plans for different climate scenarios. Based on the results of this analysis, climate risk projections will be integrated into a comprehensive national database for flooding and drought hazards and vulnerabilities to be established by the project. A functional system for the collection, distribution, and internalisation of climate-related risk information at the national, district, and local levels will promote the sharing of project knowledge both within Lao PDR and in the greater Mekong sub-region, together with important regional stakeholders such as the MRC. This information will then be made available to all other interventions in the sector and inform the design of new policies, plans and investment programmes. Some

[1] *All outcomes monitored annually in the APR/PIR.*

information and analysis will be fed into the Agriculture and CC Working Group, established under the SNC process, and promote stronger links with this project and a conduit for ensuring that this SNC achieves a wider impact on agriculture sector planning also. The outcome is equally linked to the activities that will be undertaken at the national upstream/policy levels (Component 2) and at the downstream/community levels (Component 3). The differentiated impacts of climate change are gender dynamic and gender considerations will be given particular attention in the assessment and consolidation of vulnerability data. A technical connection between information pools and working groups at the Climate Change office (WREA) and NAFRI will be established.

Output 1.1.:

1.1. Existing climate hazard and vulnerability information for Lao PDR compiled and integrated into an agriculture and climate risk information system, coordinated by NAFRI (established under Output 1.4.) leading to the establishment of a long-term warning system linked through to Province and District Level Agriculture and Forestry departments and the rural farmers via the extension services which they provide. The risk information system will be established in the three target provinces and 5 target districts and the systems trialed, revised and codified for up-scaling in other provinces. The system is expected to reach up to 15,000 households under the project and upscale more widely thereafter.

Indicative Activities

1.1.1 Roundtable meetings with relevant agencies
1.1.2 Agreed information and reporting system: information flow, forms, formats, time frame, responsibilities
1.1.3 Regular dissemination of information across relevant agencies and to provinces
1.1.4 Streamlining of digital information and maps, accessible online and through www

Output 1.2.:

1.2. Scenarios for agricultural production in Lao PDR assessed on the basis of local expertise, regional and global Climate Change models – building on the ongoing Second National Communication downscaling work and extending this work into the three specific Provinces of concern to this project: Savannakhet, Saravan and Xayaboury.

Indicative Activities

1.2.1 CC scenarios from international and regional sources available at NAFRI
1.2.2 CC scenarios assessed regarding relevance agriculture and food security in the 3 target provinces
1.2.3 Local and indigenous knowledge made available to inform scenario assessments

Output 1.3:

1.3. Agricultural land-use planning in flood- and drought-prone areas in three target sites in 3 provinces analyzed and alternative land use plans developed based on climate-risk scenarios and long-term warning indicators. These revised land use plans will be widely consulted and used as a basis for capacity development activity with planners under Component 2. More than 100 planners drawn from national, provincial, district and local levels will be engaged through the process of developing these alternative land use plans.

Indicative Activities

1.3.1 MoU with NLMA on local land use plans for target sites
1.3.2 Criteria and indicators for land use plans and CC adaptation defined?
1.3.3 Development of local land use plans through NLMA / PLMA or contractors
1.3.4 Codification into guidelines of process applied in revising land use plans on the basis of climate risk information.

Output 1.4:

1.4. Comprehensive national long-term information system for flood and drought-related hazards and vulnerabilities, and the effects on agriculture established, managed and updated by NAFRI.

Indicative Activities

1.4.1 Agreement among relevant partners on structure and content of information system
1.4.2 Establishment of database / system at NAFRI
1.4.3 Maintenance and update of database through NAFRI

Project Integration: Outcome 1 will prepare the rational basis for the planned interventions by collecting, analyzing and disseminating AA2CC data and information from within MAF, the GoL institutions, across the country, and the region. In 2 selected districts the present status of information available will be translated into 2 land use plans anticipating future changes in land use due to climatic variations. From the very beginning the Knowledge Base will be fully integrated into the existing NAFRI structure to enhance sustainability prospects after 2014.

OUTCOME 2

Capacities of sectoral planners and agricultural producers strengthened to understand and address climate change – related risks and opportunities for local food production and socio-economic conditions.

GoL Co-financing amounts for Outcome 2: $ 1,608,469

UNDP Co-financing amounts: $ 850,259

LDCF project grant requested: $ 781,770

Baseline: The institutional and policy frameworks for agricultural production, food security and flood and drought prevention in Lao PDR do presently not consider mid- and long-term climate change risks. Capacity gaps at the national and provincial level to access, understand, interpret and apply climate risk information for agricultural planning purposes are prominent. At the district, kum ban and village level, technical service centres, farmer cooperatives and disaster management committees lack the financial resources and knowledge to effectively address robust and resilient decision making in the face of dynamic hydro-meteorological hazards. Poverty reduction strategies and agricultural land use plans in Lao PDR give limited consideration to climate variability and change, which has resulted in sub-optimal use of land and high vulnerability of farmers to climatic hazards. Agricultural planners and disaster management professionals are presently not able to efficiently translate climate risk projections into resilient planning and investment decisions that translate into long-term improved food and income security for local communities. The Ministry of Agriculture and Forestry, and most other GoL Agencies, besides WREA with the Climate Change Office, do not have human resources with an understanding of climate risks and adaptation. GoL staff typically have a very rudimentary understanding of contemporary CC issues, there is no system and few incentives in place to engender institutional knowledge building and learning. Consequently no specific agricultural extension packages for CC adapted agricultural practice exist so that farmers in more remote rural areas are left to fend for themselves. In recognition of these weaknesses MAF has recently launched a series of adaptation projects closely linked to the stated outcomes of the proposed LDCF financing and which provide the Government co-financing for this project. Research and extension work is designed to build adaptive capacity in rice based cropping systems; in the South improved farming and marketing systems will be developed with a focus on vulnerable rainfed agriculture; in the North uplands rice farming systems research is being carried out to improve productivity. However given the low level of understanding of climate change and related risks there is a danger that these initiatives produce research outcomes only with limited practical applicability.

Adaptation alternative: The project will build the capacity of sectoral planners in MAF, WREA, MPI, NLMA, NDMO and selected PAFOs and DAFOs to understand and plan for projected climate change impacts on agricultural production in Lao PDR. Climate risks will be integrated into agriculture (including land use) planning policies and strategies, helping to demonstrating the practical value of a comprehensive national database on climate risk. Capacity building activities will span from national to provincial and local levels, involving agricultural officers, extension workers, farmer cooperatives and local stakeholders. The project will ensure integration of climate risk projections and low-cost adaptation actions into the training programme for MAF, NDMO, NLMA, agricultural extension workers and local farmer groups. A committee used as “local integration platform” (LIP committee) will assure coordination, collaboration and information of all local partners, and will be the implementation and monitoring hub at sub-provincial level. A number of specific training and adaptation modules (CCTAAM) for the agriculture extension process will be developed with LDCF resources which will be widely applied in the target provinces and districts but available to be applied more widely also based on experience gained and availability of additional resources. Collectively these measures will provide a much

broader basis of understanding and knowledge to be able to apply ongoing Government interventions in adaptation research and extension work effectively.

Output 2.1.:

2.1. Planners and technical staff within MAF, WREA, MPI, LMA, target PAFOs and DAFOS, and other relevant GoL agencies trained to understand Climate Change risks for agricultural production and review policy and planning options for enhanced food security

Indicative Activities

2.1.1 Training Need Assessment (TNA) in relevant GoL agencies, and on provincial, district, kumban, village levels
2.1.2 Training curricula developed / provided
2.1.3 Training implemented
2.1.4 Training monitored and assessed

Output 2.2.:

2.2. Climate resilient land-use planning principles developed and integrated into Lao PDR's poverty reduction and agricultural policies & action plans based on outcomes 1 and 3.

Indicative Activities

2.2.1 Relevant strategies, policies, plans identified and reviewed
2.2.2 Dialogue with relevant agencies on CC modifications and amendments
2.2.3 Relevant strategies, policies, plans updated

Output 2.3:

2.3. Agricultural officers, extension workers, farmer cooperatives and TSC (Technical Service Center) members in target districts trained in climate change impacts on agricultural production and socio-economic conditions, and potential community-based adaptation options (e.g. agro-forestry, conservation agriculture, replacement / refinement of slash and burn practice, etc)

Indicative Activities

2.3.1 Methodology for CC Training and Adaptation Modules (CCTAM) developed with relevant organizations on provincial, district, kumban and village levels
2.3.2 CCTAM Crop/Agro-Forestry
2.3.3 CCTAM Small Livestock
2.3.4 CCTAM Fisheries/Aquaculture
2.3.5 CCTAM Fruit/Vegetables
2.3.6 CCTAM Off-farm adaptation / income
2.3.7 CCTAM "Safeguarding Land" programme for schools, pagodas etc.

Output 2.4:

2.4. District Disaster Management Committees (DDMC) in target districts trained in climate risk assessment and potential community-based risk reduction strategies, including periodical ground practice with communities

Indicative Activities

2.4.1 Training Need Assessment DDMCs
2.4.2 Training curricula developed / provided
2.4.3 Training curricula implemented
2.4.4 Annual ground practice with communities on-site
2.4.5 Training and ground practice monitored and assessed

Project Integration: Outcome 2 will use the data and information generated under outcome/component 1 to develop and implement special training modules for sector planners and agricultural extension officers, and to review existing policies, strategies, plans and guidelines in the light of the accumulated knowledge base. Methodology plus six training and extension curricula for AA2CC will be developed as "Climate Change Training and Adaptation Modules" (CCTAM) that combine teaching of CC issues with existing agricultural practice in the country, or neighbouring countries, eventually. One of these modules will be developed around 'off-farm activities', meaning income generating activities in a rural environment, not directly associated to agriculture, e.g.

motorcycle repair, construction, beauty parlour, small business development, etc. One module will specifically aim to extend knowledge through the schools and wats (pagodas) in the target areas. These extension modules will play a central role for future replication of the project outputs/outcome.

OUTCOME 3:

Community-based adaptive agricultural practices and off-farm opportunities demonstrated and promoted within suitable agro-ecological systems

GoL Co-financing amounts for Outcome 3: $ 1,513,000

UNDP Co-financing amounts: $ 475,000

LDCF project grant requested: $ 2,699,190

Baseline: Agricultural practices and extension services have not yet been adapted to take climate change risks into account. There is a general lack of awareness about community-based approaches to address climate change risks and there is an urgent need for a framework of best practices that can be developed and adopted as a comprehensive and ecologically sensitive resilience approach to climate risk. Livelihoods and coping ranges within communities will continue to deteriorate as a result of increased extremity and frequency of floods. More intensive rainfall events subsequent to longer dry periods will increase tendencies of land degradation, and changes in the distribution and severity of extreme drought and flooding events will increase vulnerability in hazard-prone agricultural areas. The majority of farmers rely on subsistent rain-fed rice farming for their daily staple, and on wild meat and aquatic resources for their source of animal protein. With assistance from donors, the Government of Lao has been implementing various measures such as the establishment of public irrigation systems to reduce the vulnerability of farmers to extreme weather events and, thereby, improve food security. However, existing agricultural practices do not consider changes in tributary peak flows, changing rainfall intensities and prolonged dry spells, and are generally focusing on singular crop production. As there is consistently less diversification in products, owing to growing import demands from neighbouring countries, smallholder farmers are generally not able to cope with dynamic changes in the climatic variables that influence their crop health and yield. Support to Farmer seed groups and on-farm demonstrations and support to rice research and seed multiplication centres are being put in place with assistance from the World Bank. This activity in particularly will show strong benefits to the project through the co-finance agreements made.

Adaptation alternative: In close coordination with the National Agriculture and Forestry Extension Service (NAFES) and the Provincial and District Agriculture and Forestry Offices (PAFO, DAFO), and through a highly participative approach, the demonstration and analysis of climate resilient cropping schemes in flood- and drought-prone areas will be realized. Through the introduction and demonstration of diversified agricultural production for farmers depending on rain-fed crops, and the development of sustainable production checklists, the project will strengthen capacity at all levels to increase the resilience of agricultural production systems. Main agriculture cropping or farming systems will be addressed through specific technical modules, to be developed by MAF departments, NAFRI, and others under component 2 (capacity building). Demonstration sites will showcase community based rainfall capture, storage and adaptive irrigation systems in drought-prone agricultural areas. A key part of this component, leading from practice to policy, will be the work in micro-watersheds. The project will focus in one micro-watershed in the north (primarily upland agro-ecological zone) and one in the south (lowland) of the country. Starting from a piloting in such different areas, the project will generate a series of lessons learned and best practices, the latter of which can be scaled up through adoption and adaptation by NAFES and PAFO/DAFO at a national level. Community-based adaptation measures will be piloted in selected communities to promote the diversification of crops, the introduction of drought- and flood-resilient crop options, resilient farming methods and low-cost water conservation/irrigation technologies in areas prone to diminishing or highly variable rainfall. A specific technical module will offer income-generating activities outside farming (off-farm employment). Local cultural institutions (e.g Wats, Schools) will be engaged in the extension and diversification process. A strong local contribution from the country's mass organizations (women, youths) is expected on matters of regular information and systematic awareness creation. Pilot target districts have been selected, based on the levels of exposure to drought and flooding hazards, socio-economic vulnerability and replication potential of project-related outputs.

Output 3.1.:

3.1. Resilient elements in existing farming systems identified and strengthened as a basis both for wider replication of successful practices and for the introduction of additional adaptation measures using these existing coping mechanisms as entry points.

Indicative Activities

3.1.1 Analyses of existing farming systems
3.1.2 Identification of resilient elements
3.1.3 Integration of resilient elements into CCTAMs

Output 3.2.:

3.2. Supply chains for different climate-resilient crops, livestock, etc., and farming inputs analyzed and economic impacts/market barriers assessed

Indicative Activities

3.2.1 Existing supply chain analyses with main agricultural traders in LaoPDR
3.2.2 Identification of suitable crops, inputs etc. available on regional / international supply chains
3.2.3 Economic analyses macro level
3.2.4 Economic impact farming household

Output 3.3:

3.3. Climate resilient cropping, livestock, fisheries, and forestry practices, introduced across at least 1 flood-prone and 1 drought-prone area.

The selection of specific climate resilient practices in each of these areas will be carried out via the introduction of the CCTAM approach (Climate Change Training and Adaptation Modules). These modules provide not only training but also technical advice and small scale physical investments. The approach envisages the use of PRA based techniques to initially raise awareness and understanding of climate related risks and the need for adaptation, followed by the introduction of a range of generalized adaptation techniques drawn from experience in other regions in Asia experiencing floods, droughts and related erosion and landslides.

An initial 6 CCTAMs will be introduced to farmers and communities in villages as a basis for review of technical suitability and appropriateness of the modules for each village. Project staff and PAFO/DAFO extension officers will present the agro-technical details of each CCTAM package, and the farmers / communities will prioritize 1-3 modules most appropriate for their location and farming system(s). Based on the actual situation related to flood, drought, erosion etc., the most useful physical support measures (see output 3.5) will also be identified. Key criteria will include: a) ability to enhance the economic viability of each proposed agro-tech component, and b) effectiveness in reducing key climate related risks.

An initial cost estimate for the prioritized modules and identified physical investments will be prepared and endorsed by the farmers and the farming community as “CCTAM Implementation Plans” for village / kumban / district.

Indicative Activities

3.3.1 Implementation plan for CCTAMs on provincial, district, kumban and village levels
3.3.2 Introduction CCTAM Crop/Agro-Forestry
3.3.3 Introduction CCTAM Small Livestock
3.3.4 Introduction CCTAM Fisheries/Aquaculture
3.3.5 Introduction CCTAM Fruit/Vegetables
3.3.6 Introduction CCTAM Off-farm adaptation / alternative income
3.3.7 Introduction CCTAM “Safeguarding Lands” in schools

Output 3.4:

3.4. Diversified agriculture, livestock, fish, vegetables, NTF production, and alternative feasible off-farm activities demonstrated in target districts where farming communities are dependent on rain-fed crops.

Under this output the "CCTAM Implementation Plans" for the target village / kumban / district will be implemented in the field. The technical content of each CCTAM implementation plan will be extended to the target farmers via a joint analysis of the farming systems (what is produced? how is it produced? who produces it? what are the costs of production? what is the agricultural cycle / calendar?). Demonstration plots will be established for all CCTAMs by community members most engaged and interested to undertake the pilots. Farmer field schools, field days and cross-visits will be organized by NAFRI, DAFOs and TSCs to spread the pilot farmers' experience within the community, and to other villages. Technical leaflets on a range of relevant agricultural techniques will be produced in local language, distributed to farmers and used in the extension process. All field based activities will be visited by extension staff as a weekly or bi-weekly routine over a minimum 24 month implementation period, and progress on-site will be recorded in detail during this time.

Indicative Activities

3.4.1 Extension process for CCTAMs
3.4.2 Farming systems and farm budgets
3.4.3 Demonstration plots
3.4.4 FFS, Field days and cross-visits by farmers in target districts
3.4.5 Systematic follow up on-site
3.4.6 Farming system monitoring / database

Output 3.5:

3.5. Rainfall capture, storage and adaptive irrigation and/or drainage management, and small-scale flood protection measures introduced in target drought-prone districts where rainfall is becoming more variable.

The physical measures (hard adaptation) under this Output will directly support or enable the technical agricultural activities (soft measures) planned for the CCTAMs under Output 3.3 and implemented under Output 3.4. They will constitute the most direct and visible intervention against negative climatic events as demonstrated through floods, droughts, erosion. Central for this output are measures addressing improved water management including capture, storage and effective channelling. The measures will be taken either at a household level (e.g. jars, tanks, capture facilities, pumps, other tools, etc.), village level (ponds, wells, nurseries) or catchment / slope / area level (e.g. irrigation, drainage works, bank protection, erosion control). The proposed measures below provide a sample list based on standard practices applied within the region. As indicated in Output 3.3 each measure will first need to be evaluated for local suitability and integrated into the CCTAM implementation plans on cost basis and ability to support related

Indicative Activities

3.5.1 Rainfall capture / rainwater harvesting facilities (jars, tanks, etc) made available
3.5.2 Water storage facilities (ponds, reservoirs) rehabilitated or constructed
3.5.3 Irrigation or drainage facilities with functional O+M mechanism and water user groups rehabilitated
3.5.4 Bank protection and erosion control rehabilitated or constructed
3.5.5 Tree nurseries established
3.5.6 Wells dug or drilled, pending on-site conditions
3.5.7 Equipment, tools etc. provided as material input into the agricultural extension process

Project Integration: Outcome 3 will implement the modules designed and developed under outcome/component 2 directly in the field, based on the prevailing farming systems in the village. Each village or participating farming household will be linked to one or several of the CCTAM extension modules. The supply chain for core agricultural inputs (usually this means seeds, tools, equipments, soil improvements, pest management supplies, animal health and feed improvements, etc; but also micro finance could be a valid subject) into the target districts will be analyzed and enhanced. All extension modules will be accompanied by a direct physical improvement and protection measure against CC variations in the village or on the farm. The experience made and lessons learnt

under outcome/component 3 will be extremely enriching for the future discussion on community-based AA2CC, for the overall impact of the project and its potential for replication.

OUTCOME 4:

Adaptation Monitoring and Learning as a long-term process

GoL Co-financing amounts for Outcome 4: $ 323,500

UNDP Co-financing amounts: $ 475,000

LDCF project grant requested: $ 210,780

Baseline: The current knowlege about successful and unsuccessful climate risk management approaches in Lao PDR is not systematically captured and analyzed. Consequently there is no way for national, provincial and district authorities (sector planners) to learn from the lessons learned or to scale up successful activities. Overall data and information dissemination does not exist. Data is collected sporadically by different agencies but primarily kept for internal use. Systematic analyses of data does either not take place, or is not distributed to partners. The engagement of local stakeholders in monitoring and sharing of lessons is very limited as is the involvement of provincial and district institutions. The Second National Communications project is the only ongoing attempt to compile national level statistics and to disseminate these more widely. However the structure of this report is primarily focused on national reporting to the UNFCCC and its value for the organisation and dissemination of information within Lao PDR is more limited as a result. Regional initiatives such as UNEP/SIDA/SEI's Adaptation Knowledge Platform have recently come into play and are making efforts to significantly increase the sharing of information and knowledge among Mekong countries. A recent initiative of the AKP hosted by UNDP was specifically focussed on adaptation and agriculture bringing together all national agricultural institutes in the region.

Adaptation alternative: Project lessons will be captured in, and disseminated through, the global Adaptation Learning Mechanism (ALM) platform and evolving regional networks such as the Adaptation Knowledge Platform (AKP). Project knowledge will be shared with other regions and countries facing climate-induced drought and flooding hazards to agricultural production, made accessible through the AKP and ALM's web-based interface, on-line dialogues, and printed material. In cooperation with other partners bi-annual regional conferences for the GMS countries will be organized. Annual technical adaptation workshops for Lao professionals of different sectors will be implemented on the NAFRI compounds. A specific information programme for villagers and farmers will be delivered through the CCTAAM agricultural extension process (component 2 and component 3).

Output 4.1.:

4.1. Project lessons captured in systematic monitoring, and periodically disseminated through, the Adaptation Learning Mechanism (ALM) and other suitable regionally based networks.

Indicative Activities

4.1.1 Project Monitoring System established

4.1.2 Project website established

4.1.3 Quarterly contribution into ALM, regional networks

Output 4.2.:

4.2. Project knowledge shared with other countries in the Greater Mekong Sub-region facing climate-induced drought and flooding hazards to agricultural production through conferences and workshops at NAFRI

Indicative Activities

4.2.1 Annual CC Agriculture conference at NAFRI
4.2.2 Production of publications, audio/video materials with focus on creative means of promoting CC adapatation

Output 4.3:

4.3. Project knowledge incorporated into national flood and drought prevention and agricultural training programmes in Lao PDR

Indicative Activities

4.3.1 Annual workshop on CC Agriculture mainstreaming with relevant instititutions and organizations at NAFRI

Project Integration: Outcome 4 will monitor and extract all significant information on efficiency, effectiveness, impact, sustainability and relevance from components 1-3, and analyze, publish and present it to a local, national, regional or global audience. Policy makers, technial professionals, field workers and farmers in the target village will be part of a diversified communication and implementation strategy. This outcome/component 4 is important to maintain constructive engagement of stakeholders, GoL agencies, UN system, donors, general publice in ongoing and future AA2CC activities, including provision of additional and new co-finance, in other words: long-term impact, sustainability and relevance.

Role of NAFRI in overall project implementation

For all outcomes NAFRI has a special role to play in monitoring of the results, analyzing of data, information, and experiences for guiding policy development in MAF or other relevant GoL agencies. Also, other projects and organizations settled on the NAFRI compound are able to provide valuable inputs and contributions into this.

Operationally, the PAFOs in the North and the South will integrate all project components, especially those directly implemented by MAF departments, through a conclusive annual and monthly workplan under the overall management of PM, PSU and sub-branches.

Stakeholder	Mandate / responsibility	System capacity	Institutional capacity	Human capacity
MAF	MAF is responsible for all aspects related to agriculture and forestry. **All of its departments are relevant to the adaptation of the agricultural sector to climate change.**	Mature Ministry with long tradition. Legal, policy and procedural frameworks within which institutions and individuals operate to steer and implement AA to CC. Several plans with strategic orientation but no valid A+F strategy.	Ability to operate effectively within the given system on all AA policies and measures related to CC. To be further developed: Institutional audits Internal management guidelines Improved working conditions provinces and districts (e.g. tools and means of communication)	Significant number of technical staff across the whole country on all administrative levels will facilitate project outreach. Comparative ease of multiplication and replication. Award schemes that identify and reward good practices to be developed.
MAF National Agriculture and	NAFRI's primary task is to design, implement and coordinate all agriculture and forestry research in Lao	Can provide policy and procedural frameworks Strategic Plan 2010	CC relevant areas: **Commodity based research**: rice research, aquaculture and wetlands management, livestock husbandry and	Qualified staff in different research centers in Vientiane HQ and in regional centers Qualified staff in different projects

Stakeholder	Mandate / responsibility	System capacity	Institutional capacity	Human capacity
Forestry Research Institute **(NAFRI)**	PDR. Its main responsibilities are to: 1. Undertake natural resource assessments and socio-economic studies 2. Improve and manage plant and animal genetic resources through selection, multiplication and production of varieties 3. Research on forages and fodder trees, improved use of feed to improve smallholder production, and promote industrial processing of products 4. Adopt agriculture, forestry and fisheries research strategies to the government economic development programs. 5. Produce and disseminate information on agriculture, forestry and fisheries practices and technologies. 6. Coordinate agriculture research within Laos and collaborate with international organizations to improve information sharing.	Research Plan 2012 Business Development Plan (new) Cohesive organizational structure High potential to link adaptive research with adaptive activities High potential for networking with Lao PDR High potential for international networking Good potential for innovation	production improvement, and animal nutrition and health, **Research on natural resource management**: forestry and natural resource management, including soil and water management, agro-forestry, forestry ecology and community-based forest management **Cross-cutting research**: seed multiplication, genetic resource management and agriculture biodiversity, plant protection, post harvest processing, and farming systems research. **Method development:** developing new methods and processes with extension services, such as: Land use planning, market analysis and development, agro-ecological analysis, formation of community based organizations. **Marketing and socio-economic research**: understanding value chains, agro-enterprise development, livelihood and gender focused research, and indigenous knowledge **Policy based research:** identifying key challenges facing policy-makers and then synthesizing in a manner that is relevant and easily understood, providing feedback on policy implementation through workshops and research studies. **Information services and networking**: library services, data management, GIS, ICT, the packaging and dissemination of research results and strengthening coordination between different actors in the agriculture sector particularly with the National Extension Service.	implemented under NAFRI, e.g. URDP Qualified staff in different institutions within the NAFRI framework: IWMI, IRRI, Conservation Agriculture Good IT and language skills. Experience working in a project mode and with international staff High motivation Practical guidelines to assist interactions between key players in process to be developed Monitoring and review of the effectiveness of the components to be developed

Stakeholder	Mandate / responsibility	System capacity	Institutional capacity	Human capacity
		Platforms that facilitate regular professional debate and policy dialogue between the key stakeholders (e.g. professional networks or regular conferences to review and discuss states of practice) Pilot projects that test proposed changes in legislation or guidance, are implemented as part of inter-institutional learning and involve local expert through on-job training		

The full table is included as Annex 4. UNDP at present undertakes an overall capacity assessment of the Ministry of Agriculture.

Project sites

Southern Lao PDR: a number of agricultural issues probably related to Climate Change were identified and 10 potential project sites for component 3 were suggested in 10 districts in 5 provinces:

No	Location
Attapue Province	
1	**Sanhamxay district**
2	**Phouvong district**
Xekong Province	
3	**Lamam district**
Savannakhet Province	
4	**Outhoumphone district**
5	**Champhone district**
Saravanh Province	
6	**Khongsedone district**
7	**Toumlanh district**
8	**Taoauy district**
Champasack Province	
9	**Sanasomboune district**
10	**Mounlapamoke district**

Northern Lao PDR: a number of agricultural issues probably related to Climate Change were identified and 10 potential project sites for component 3 were suggested in 10 districts in 4 provinces:

No	Location
Xayabouly Province	
1	**Botane district** - Kumban Namphou, Kumban Nong Phak Bong
2	**Phieng district** - Kumban Meung Pheing, Kumban Naxing, Kumban Phonesaath.
3	**Pak Lai district** - Kumban Pha kea, Kumban Boungma, Kumban.
Luang Nam Tha Province	
4	**Nam Tha district** - Poung, Pasak, Nanoy and Mai villages, Luang, Donekhoune, Tha Or, and Mai villages
5	**Long district** - Luang Pha Kha, chom Chaeng, Aisaeng
Oudomsay Province	

6	**Xay district** - Kumban Nam Bak
7	**La district** - Viengkham, Donsaath, and Tang Ngaey villages
Luangprabang Province	
8	**Xieng Ngeun district** - Kumban Sobjune
9	**Luang Pra Bang district** - Kumban Kok Van, and Kumban Xaen Kha Lok
10	**Nam Bak district** - Kumban Nayang

Following on-site checks and field visits the list of pre-selected districts has been reduced to the following recommended 3 target areas:

A Savannakhet Province: Outhumphone and Champhone districts

B Saravan Province: Kongsadon district

C Xayaboury Province: Phieng and Paklia districts

The pre-selection followed criteria and indicators laid down by the PPG team. List of participants, findings and observations eventually related to climate change, and other information are included in under Annexes 2.4 and 2.5.

In total, it is planned that 30.000 households (or 100.000 persons) will benefit from the project with an equal share of male / female beneficiaries. The actual target figure of beneficiaries will be reviewed during the inception phase according to the different outcomes of the four components.

2.8. Key indicators, risks and assumptions

Indicators

The main indicators of project success will be the availability of a framework for climate change resilient agriculture through the integration of climate risk planning into key sectoral policies and plans and the systematic application of climate risk planning principles by designated GoL officials to land use planning, agriculture and food security in Lao PDR. This will result in measurable benefits to rural farmers in terms of the proportion of the population and the value of assets protected through adaptation measures implemented as a result of the project. Other important indicators at the project outcome level include: the amount of capacity to address climate risks that is developed within relevant sections of government and civil society at national, provincial, district and Kumban levels; the number of farmers aware of and able to apply new agricultural practices that address climate risks; and the number % improvement in farmer yields as a result of adaptation measures trialed at farmer and community level. These outcomes can be measured through field based surveys, discussions with planners, the review of key planning documents, and the review of changes in sector budgetary allocations. Objective and outcome indicator targets are provided in the Project Results Framework in Section 3. Key risks and assumptions are summarized in the UNDP Risk Log in Annex 6.

Risks

There is a risk that the integration of climate risks into land use planning and agricultural strategies/plans will face difficulties due to limited commitment/understanding of climate change issues within relevant stakeholders at national and local levels. This risk will be mitigated through dedicated capacity development Outputs and strong linkages to the mandate of the National Committee for Climate Change; the Second National Communications to the UNFCCC; and the process of further elaborating the Agriculture Strategy for Lao PDR to 2020, as well as supporting the execution of the recent national Climate Change strategy. Disaster management committees will also be critical stakeholders at all levels, and will serve to raise practical levels of awareness of the implications of climate change.

A lack of coordination between the national policy level and the communal demonstration levels may impact on the project timeline. There is a risk of limited technical capacity at the demonstration sites to monitor project

lessons and synthesize their value for policy-related processes. In order to mitigate against these risks, the project will engage government officials at high levels to formalize a multi-sector Project Board responsible to oversee the project and its deliverables. The project will ensure that a proper communication and awareness strategy is in place so that lessons learned can be transformed into accessible language.

The main risks at the level of the Project Objective are:

LFM level	Description of the risk	Potential consequence	Countermeasures / management response
PO	CC adaptation process is externally driven (donor driven)	Process will stop when donor funding stops	Donor TWGs to negotiate GoL budget contribution
PO	CC manifests itself as sudden natural disasters	Emergency situation will eliminate development efforts and targets	Dual strategy for disaster management and agricultural adaptation
PO	CC appears outside adaptive flexibility for agriculture	Farmer will give up farming and/or leave the area: poverty increase	Land use planning with identification of set-aside areas for agricultural production, housing, rural infrastructure
PO	Tangible economic benefits from AA are miniscule for agricultural households	Farmer will give up farming and/or leave the area: poverty increase	Livelihood diversification strategies – small enterprise development – vocational training
PO	Competing economic interests erode base and options for AA to CC	Short-term gains and long-term damages	UN, GoL, international community to articulate political responses
PO	Reduced access to sufficient land and water	Farmer will give up farming and/or leave the area: poverty increase	PM/PSU to raise the issue and inform policy makers
PO	Population growth	Constraints on availability of natural resources	PM/PSU to raise the issue and inform policy makers

The UNDP Risk Log is attached as Annex 6, outlining for each level of the Results Framework a most potential risk (strategically, operationally, technically).

On management level the highest risks for failing to achieve the "agriculture adaptation to climate change objective" are:

- Fragmentation of project into usual standard operations implemented by different agencies (missing the strategic CC objective and the core problem, see also chart below), and
- Inconsistent management structure caused by too many stakeholders on several levels.

The management arrangements made for the project will reduce these risks, see also chapter 5.

2.9 Cost-effectiveness

As demonstrated in the budget for this project, it has been tightly designed along principles of cost-effectiveness. All costs for inputs, human resources, supplies are evidently competitive, both in national and international context. The project aims to reach at least 108.000 beneficiaries (persons) with an average investment of USD 150 per household (total LCDF budget, including management cost), covering 13.500 households under component 3. The tangible benefits coming from this investment per household will be far outweighing the cost. The LCDF part of the project was able to attract a substantial GoL and UNDP co-finance with significant structural benefits accruing for the NAPA follow-up project which will further increase the overall economic benefit. As part of the participatory approach fostered by the project, community contribution (in-kind) is encouraged. The internal monitoring system included in this project will help to maintain a culture of cost-effectiveness during project implementation.

Realistically, and compared to ongoing operations of other rural development projects providing agricultural extension services, the project is very cost-effective. Given the innovative and "learning" character of operations the long-term economic benefits for replication can be most substantial.

The proposed project is based on the promotion and dissemination of community-based, low-cost adaptation options in the agriculture sector, focusing on diversified crop choices, resilient farming techniques and freshwater conservation. As it is closely aligned to a range of baseline rural development initiatives on the ground, it will aim at a strategy of alignment, demonstration and replication rather than at an extensive technology-push. In line with country needs, the adaptation measures proposed through this project focus on measures that do not disrupt current rural development frameworks.

Furthermore, throughout the NAPA process, the selection criteria used to identify and prioritize the list of activities in the sectors of agriculture, forestry, water and water resources, included: loss of lives and livelihood security; human health; food security and agriculture; availability of potable water for using and drinking; infrastructure development; cultural, historical and natural heritage; sustainable use and conservation of biodiversity; land use and forest protection; other environmental amenities; and administrative and personnel capacity building. As such, the investments selected for the LDCF are not only the most urgent but also most cost-effective.

The project's knowledge management, capacity building and community-based adaptation approach will have a better cost-benefit ratio than the scaling up of disaster response systems in Lao PDR, which would only come into effect after food security has already been adversely impacted and resulted in widespread human, material and immaterial losses.

With the successful implementation of the project leading to tangible outputs and outcomes within the first 2-3 years there is a considerable potential to attract further co-finance into the operational framework, or for future duplication and replication. The anticipated co-finance at start of the project is approximately 7,71 million USD (including GoL in-kind contribution). As part of the project implementation strategy project management will be pro-actively engaged to source further co-finance during the implementation period.

Agency/Department/Project	Amount (USD)	Component
1. Developing multi-scale climate change adaptation strategies for farming communities in Cambodia, Lao PDR, Bangladesh and India (2010-2014), ACIAR	381,026	C2
2. Developing improved farming and marketing systems in rain-fed regions of southern Lao PDR (2009-2013), ACIAR	1,227,443	C2
3. Northern Uplands Rice Farming Systems Research Project (2008-2012), SDC	423,000	C3
	323,500	C4
4. Rice Productivity Improvement Project (2009-2011), Worldbank	1,090,000	C3
	1,320,000	C1
5. Poverty and Environment Initiative (PEI), UNDP	1,900,000	C1-C4
6. Capacity Development on Disaster Risk Management, NDMO Project, UNDP	675,259	C1,C2
Total 1-6	7,340,228	

Note: projects 1-4 are implemented under NAFRI.

2.10 Sustainability

The project was designed through close consultation with key stakeholders (see Annex 2). It has the full support of the Government of Lao PDR and other key stakeholders as it addresses urgent and immediate adaptation priorities identified through the NAPA. These relate to one of the most vulnerable elements in Lao, ie. its

agriculture and supporting natural systems that provide the main source of livelihood for 80% of the population. The project is strongly anchored in several major national policies and programmes (as indicated in Sections 2.3) and project results will be institutionalized in the following ways: adaptation measures developed through the project will be mainstreamed into key sector policies and planning tools; Climate Change Training and Adaptation Modules (CCTAM) will be developed with a focus on community based farming and off farm activities. These will be designed with replicability in mind and remain after project completion as a continuing key resource for extension workers within MAF; capacity development of planners and all levels of government will provide a central focus for all activities (particularly under Outcome 2). Through these means, project results can be sustained long beyond the life of the project. Sustainability has also been built into the project approach by the project's emphasis complementing other initiatives (including capacity development) supported through MAF, UNDP and others. When LDCF funding ends, up-scaling and replication will be taking place and project impacts will have been institutionalized through the combined impacts of the project's work on capacity development, policy changes, additional technical knowledge and education and advocacy.

Institutional sustainability: The project builds upon existing institutional structures of the government. For example the functions of the Project Board will be taken on by a pre-existing project review and coordination structure that exists within MAF at central level. At sub-national level the project will provide support functions through its existing Provincial Agriculture and Forestry Offices (PAFO). Much of the capacity development effort will be focused on institutional strengthening within NAFRI and NAFES and the approach taken will be to engage with as many staff as possible at different levels to reduce the effects of attrition of staff over time.

Financial sustainability: The active work of the project in the village will support value chain promotion at community level, which it is expected will lead to increased household income. All climate change agricultural extension packages (training and development under component 2, implementation of adaptation activities under component 3) will undergo financial and economic analyses during design and before they are introduced. Activities that appear not to be financially or economically viable for a small-scale farmer will not be introduced. As standard practice the project will refer to viable cost per unit (cost per beneficary, cost of a training day, cost per productive ha of agricultural land, price of agricultural produce, etc.) norms.

Social sustainability: The capacity building activities, networking and field-level presence will help achieve social sustainability of the project. The build up of trust through dialogues and stakeholder consultations and stakeholder mobilization done through capacity building by the project will assist in achieving this long-term objective. A strong focus on building on local knowledge, capacities and incentives – as well as strong project focus on ensuring gender equity in all operational matters are expected to lead to social sustainability.

Environmental Sustainability: The project's focus on climate change adaptation within existing agro-ecosystems are expected to lead to better environmental sustainability and enhanced natural resources management. Flood control and erosion measures will stabilize the physical environment. The importance of integrated water resources managementin kumbans and villages cannot be over-emphasized. Local effects on climate variabilities may be expected., e.g through re-forestation measures.

2.11 Replicability

The project's activities, especially the demonstration work under Outcome 3, are designed to be replicable, if proven to be effective on the ground. The project's work on capacity building of GOL, MAF, PDMO, NLMA, NAFRI, DAFO/PAFO staff can be replicated comparatively easy through the government's own workplan, if funds are made available through the national budget. Much of the replication will also be promoted through national policy, legal and institutional strengthening all 4 Outcomes. The project will build the capacity of the MAF, NAFRI, PAFO and DAFO staff tobe directly engaged in extending the approaches to other villages, districts and ultimately provinces. The element of a farmer to farmer approach under Outcome 3 will help to promote avenues for direct and indirect replication.

In principle, the project has very strong replicable features under all 4 componets. The degree of replication will be decided by the quality of the works, and the appropriateness for the user, matching the climate change adaptation objectives. In this regard it is important the project management is able to maintain the strategic direction of the project, and avoids a fragmentation of the activities into isolated actions by individual partners and stakeholders. Measures that are above the economic basis of the farmer have to be temporarily subsidized to speed up extension and to allow growth and strengthening of the process.

A high degree of replicability from farmer to farmer or community to community will be achieved through the design of appropriate technical extension packages under component 2, translated into action through component 3. The development of practical extension services, messages, materials and guidebooks should also contribute to replicability. In the context of the overall project approach replicability is not only defined under outcome 4 but across all components.

2.12 Stakeholder involvement plan

The stakeholder involvement plan for the project implementation phase (national, provincial, district, village and community level) is provided in Annex 3.

3. Results Framework

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: UNDP Laos CPAP 2007-2011 • **Outcome 2:** Enhanced ownership and capacity for pro-poor planning, implementation and harmonized aid coordination, and disaster management ▪ *Output 2.4:* Increased capacity within the Government to prepare and respond to natural as well as man-made disasters at all level					
Country Programme Outcome Indicators (UNDP Laos CPAP 2007-2011): • Capacities on sustainable land management, drought and flood preparedness enhanced through participatory adaptation and monitoring activities in selected provinces.					
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page): 3. Promote climate change adaptation					
Applicable SOF (e.g. GEF) Strategic Objective and Program: Least Developed Countries Fund (LDCF) National Adaptation Programmes Of Action (NAPA)					
Applicable SOF (e.g. GEF) Expected Outcomes: N/A					
Applicable SOF (e.g. GEF) Outcome Indicators: N/A					
	Indicators	**Baseline**	**Targets End of Project**	**Source of verification**	**Risks and Assumptions**

	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective[2] Food insecurity resulting from climate change in Lao PDR minimized and vulnerability of farmers to extreme flooding and drought events reduced. **(equivalent to output in ATLAS)**	Availability of a framework for climate change resilient agriculture in Lao PDR Percentage of households in pilot districts (Savannakhet, Saravan and Xayaboury province) actively implementing climate change adaptation measures introduced by the project Proportion and value (yield) of agricultural assets with increased resilience to climate change as a result of adaptation measures implemented by this project	Climate risk considerations are not integrated into major agricultural sector policies (including the National Agricultural Strategy to 2020); institutional, organizational and individual capacities to understand the link between climate change and future food security need to be strengthened. Current agricultural practices among subsistence farmers are based on historical climatic conditions and trends and are unsuited to increase flooding and drought conditions that are becoming increasingly frequent in Lao PDR. Currently the yield of agricultural land is being affected by climate change related factors leading to reductions in productivity.	By the end of the Project a framework for CC resilient agriculture is available, and being used by the GoL in actively planning for widespread introduction of adaptation measures. By the end of the project 6 Training and Agricultural Adaptation Modules (CCTAMs) have been extended to 75% of target households in 2 pilot districts (Savannakhet/Saravan province, Xayaboury province) By the end of the project interventions on the ground increase agricultural productivity on Climate Change affected land by 25%	Project terminal evaluation report Project surveys and technical assessment reports Survey of productivity (yield) in target areas	Risks: CC Adaption process is driven externally CC manifests as sudden natural disaster Assumptions: Actual climate change lies within a "flexibility range" for adaptive agriculture Tangible socio-economic benefits are generated for the farmer Project is able to attract further co-funding during the implementation period
Outcome 1[3] Increased knowledge and understanding of climate variability and climate induced threats on agricultural production, food	**1.** Cover: Number and type of stakeholders served by expanded climate and vulnerability information and knowledge base related to agriculture and food security **2.** Impact: Numbers of national	Basic regional climate change information has been compiled in the NAPA Lao PDR. However this information has not been sufficiently downscaled or applied to the agricultural sector. Vulnerability information is scattered across public and private sector entities, government departments and development agencies.	All stakeholders identified during PPG and inception phases have access to an efficiently organized and up to date knowledge and information network for climate change impacts on agriculture and food security. By the end of the project 60% of identified	Survey of identified relevant stakeholders Provision in	Risks: Complex technical and organizational management of knowledge base Assumptions: Adequate and timely national and international support

[2] *Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR*

[3] *All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.*

	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
security and vulnerability, in Lao PDR **(equivalent to activity in ATLAS)**	and provincial level stakeholders using improved climate and vulnerability information in formulation of climate resilient policies and plans. **3.** Sustainability: Resources available to maintain knowledge base after end of the project	Information is currently not in a form that can be used by national stakeholders in a user-friendly and policy-relevant manner. It is not available in any form to sub-national authorities and key specialists (such as local planners and extension workers) responsible for working with farmers directly. There is no national budget allocation for establishing and maintaining an appropriate knowledge network for climate change information.	national and provincial government stakeholders are using the knowledge base for sector planning: strategies, long-term plans, annual plans and budgets, project work plans By the end of the project 50% of cost for operation and maintenance of the knowledge base and information network are included in the sectoral budget allocation for agriculture	NAFRI budget	for sharing and exchange of climate change data, modeling information and other relevant data and information Systematic coordination between relevant stakeholders GoL Budget available after project end
Outputs supporting Outcome 1: 1.1. Existing climate hazard and vulnerability information for Lao PDR compiled and integrated into a agriculture and climate risk information system, coordinated by NAFRI (established under Output 1.4.) leading to a long-term warning system. 1.2. Scenarios for agricultural production in Lao PDR assessed on the basis of local expertise, regional and global Climate Change models 1.3. Agricultural land-use planning in flood- and drought-prone areas analyzed and alternative land use plans developed, based on climate-risk scenarios and long-term warning indicators 1.4. Climate risk projections integrated into a comprehensive national long-term information system for flooding and drought-related hazards and vulnerabilities, and the effects on agriculture, managed and updated by NAFRI					
Outcome 2 Capacities of sectoral planners and agricultural producers strengthened to understand and address climate change – related risks and opportunities for local food production and socio-economic conditions **(equivalent to activity in ATLAS)**	2.1. Cover: Number of targeted institutions (agriculture, water management, food security, early warning, poverty alleviation, etc) with increased capacity to reduce risks of and respond to climate variability. 2.2. Impact: Number of targeted agricultural officers, extension workers, farmer cooperatives and TSC (Technical Service Center) members in target districts have an advanced understanding of key climate change risk and impacts on agricultural production and socio-economic conditions.	Capacity gaps at the national and provincial level to access, understand, interpret and apply climate risk information to promote climate resilient agricultural planning and investment decisions are prominent. At the district and village level, farmer cooperatives and Disaster Management Committees lack financial resources and knowledge for resilience decision making in the face of dynamic hydro-meteorological hazards. Poverty reduction strategies and land use planning in Lao PDR give limited consideration to climate variability and	By the end of the project at least 4 planners from at least 6 sectors / sub-sectors relevant to agriculture, food security and CC are able to effectively apply climate risk information in annual and multi- year planning exercises and have applied these skills to the review and revision of existing sector / sub-sector strategies. By the end of the project 75% of DAFO, DDMC, TSC staff in target districts have been trained in applying climate risk information and are applying this acquired knowledge in the planning and implementation of their activities.	Project monitoring and technical assessment reports Official documents Peer group review of modules / guidelines	Assumptions: Implementation modalities for national CC strategy are further developed Evolving innovative capacity of NAFRI is providing new ideas and approaches

	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
		change.			
Outputs supporting Outcome 2: 2.1. Relevant stakeholders in MAF, WREA, MPI, LMA, target PAFOs, and other relevant GoL agencies trained to understand Climate Change risks for agricultural production and review policy options for enhanced food security (applied training) 2.2. Climate resilient land-use planning integrated into Lao PDR's poverty reduction and agricultural policies & action plans 2.3. Agricultural officers, extension workers, farmer cooperatives and TSC (Technical Service Center) members in target districts trained in climate change impacts on agricultural production and socio-economic conditions, and potential community-based adaptation options (e.g. agro-forestry, conservation agriculture, replacement of slash and burn practice, etc) 2.4. District Disaster Management Committees in target districts trained in climate risk assessment and potential community-based risk reduction strategies, including periodical ground practice with communities					
Outcome 3 Community-based adaptive agricultural practices and off-farm opportunities demonstrated and promoted within suitable agro-ecological systems **(equivalent to activity in ATLAS)**	3.1. Cover: Number and type of climate risk-reducing farmer level practices identified and trialed to support adaptation of livelihoods and/or resource management. 3.2. Cover: % or targeted farming households aware of predicted adverse impacts of climate change and implementing new adaptive practices for agro-ecosystem and landscape management. 3.3. Impact: Improvement in farmer yields and water availability due to adaptation measures trialed in more than 50% of targeted communities.	Agricultural practices, extension services and demonstration sites have not yet been adapted to take climate change risks into account. For example changes in tributary peak flows, changing rainfall intensities and prolonged dry spells are not considered. There is a general lack of awareness about community-based approaches to address climate change risks. As there is consistently less diversification in products, smallholder farmers are generally not able to adapt to dynamic changes in the climatic variables that influence their land, water source, crop, health and yield. The majority of farmers rely on subsistence rain-fed rice farming for their daily staple and sale, and on wild meat and aquatic resources for their source of animal protein.	By the end of the project at least 100 practical field-based adaptation interventions (food security, water management, flood and drought control) are trialed in the 5 pilot districts according to accepted technical standards By the end of the project 75% of farming households in 5 pilot districts (3 provinces), equivalent to 13,500 households, have had access to extension services based on 6 Climate Change Training and Agriculture Adaptation Modules (climate resilient cropping, livestock, fisheries and forestry practices, water management etc.) By the end of the project there is a 25% improvement in farmer yields resulting from adaptation measures trialed in target communities in 5 pilot districts.	Project monitoring and technical assessment reports Baseline survey / repeat baseline Beneficiary survey Survey on perception of stakeholders	Risks: Competing market mechanism (contract farming, monoculture, investment + demand) continue to appear more attractive Legal and organizational framework for farmer organizations is inadequate Assumptions: Pilot activities and results are able to influence mainstream debate on agriculture in Lao PDR Successful decentralization of project activities Constructive collaboration with other projects in the target area
Outputs supporting Outcome 3: 3.1. Resilient elements in existing farming systems identified and thoroughly strengthened 3.2. Supply chains for different climate-resilient crops, livestock, etc., and farming inputs analyzed and economic impacts/market barriers assessed					

	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
3.3. Climate resilient cropping, livestock, fisheries and forestry practices introduced in at least 1 flood-prone and at least 1 drought-prone area 3.4. Diversified agriculture, livestock, fish, vegetables, NTF production, and alternative feasible off-farm activities demonstrated in target districts where farming communities are dependent on rain-fed crops 3.5. Rainfall capture, storage and adaptive irrigation and/or drainage management, and small-scale flood protection measures introduced in target drought-prone districts where rainfall is becoming more variable.					
Outcome 4 Adaptation Monitoring and Learning as a long-term process **(equivalent to activity in ATLAS)**	4.1. Replicability: Number of 'lessons learned' codified in a specific KM facility such as the Adaptation Knowledge Platform for South East Asia or the global Adaptation Learning Mechanism 4.2. Replicability: Number and type of relevant networks or communities through which lessons learned are disseminated to enable replication.	The current knowledge about successful and unsuccessful climate risk management approaches in the agricultural sector in Lao PDR is not systematically captured and analyzed. As there is presently no knowledge management mechanism that would allow the systematic capturing and dissemination of lessons learned from different climate change adaptation projects, there is no way for Government, provincial and district authorities, and sector planners to learn from the lessons learned or to scale up successful activities.	A project internal M+E system covering all components and all project locations systematically provides quantitative and qualitative data and information on coded 'lessons learned' and a website has been established linked to wider dissemination through regional and global networks (ALM, Wiki-adapt, Eldis and the Asia Knowledge Platform) By the end of the project 2 regional conferences on CC+AA are organized by NAFRI for GMS member states (in collaboration with partner organizations) for SE ASIA (UNEP, SID, SEI, UNDP, ADB)	Project reports and publications Website Conference conclusions	Risks: Very diversified stakeholder groups with wide range of different needs, interests and capacity Complex communication of technical issues, combined with day-to-day experience High-tech process with low impact on ground reality Assumptions: Active engagement of partners, especially MAF and UN
Outputs supporting Outcome 4: 4.1. Project lessons captured in systematic monitoring, and periodically disseminated through, the Adaptation Learning Mechanism (ALM) 4.2. Project knowledge shared with other countries in the Greater Mekong Sub-region facing climate-induced drought and flooding hazards to agricultural production through conferences and workshops at NAFRI 4.3. Project knowledge incorporated into national flood and drought prevention and agricultural training programmes in Lao PDR					

4. Total Budget and Workplan

Award ID:	00060492				Project ID(s): 00076176						
Award Title:	Lao PDR: Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts										
Business Unit:	LAO10										
Project Title:	Lao PDR: Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts										
PIMS no.	3868										
Implementing Partner (Executing Agency)	Ministry of Agriculture and Forestry (MAF), Lao PDR, through the National Agriculture and Forestry Research Institute (NAFRI)										
SOF (e.g. GEF) Outcome/Atlas Activity	**Responsible Party/ Implementing Agent**	**Fund ID**	**Donor Name**	**Atlas Budgetary Account Code**	**ATLAS Budget Description**	**Amount Year 1 (USD)**	**Amount Year 2 (USD)**	**Amount Year 3 (USD)**	**Amount Year 4 (USD)**	**Total (USD)**	**See Budget Note:**
OUTCOME 1: Knowledge base on Climate Change impacts in Lao PDR on agricultural production, food security and vulnerability, and local coping mechanisms strengthened.	**Lead: NAFRI** **NLMA**	**62160**	**LDCF**	71200	International Consultants	92,000	15,000	27,000	15,100	149,100	1A
				71300	Local Consultants	0	5,400	5,400	0	10,800	1B
				72100	Contractual services	50,000	20,000	10,000	10,000	90,000	1C
				71600	Travel	45,000	34,000	25,000	21,280	125,280	1D
				72200	Equipment and Furniture	11,250	0	0	0	11,250	1E
				72300	Material+Goods	11,000	8,000	8,000	8,000	35,000	1F
				72500	Supplies	11,660	11,660	11,660	11,660	46,640	1G
				74200	Audiovisual & Print Production Costs	0	4,000	4,000	2,000	10,000	1H
				74500	Miscellaneous	5,000	5,000	5,000	5,000	20,000	
					LDCF Sub-total 1	**225,910**	**103,060**	**96,060**	**73,040**	**498,070**	
			UNDP		**UNDP Sub-total 1**	**193,750**	**193,750**	**193,750**	**193,750**	**775,000**	1i
			GoL		**GoL Sub-total 1**	**330,000**	**330,000**	**330,000**	**330,000**	**1,320,000**	1k
					Total Sub-total 1	**749,660**	**626,810**	**619,810**	**596,790**	**2,593,070**	
OUTCOME 2 Capacities of sectoral	**Lead: NAFRI** **NDMO** **NAFES**	**62160**	**LDCF**	71200	International Consultants	98,100	17,000	17,000	17,000	149,100	2A
				71300	Local Consultants	20,000	20,000	16,600	16,600	73,200	2B
				72100	Contractual services	80,000	70,000	60,000	60,000	270,000	2C

planners and agricultural producers strengthened to understand and address climate change – related risks and opportunities for local food production and socio-economic conditions				71600	Travel	45,280	45,000	33,000	34,000	157,280	2D
				72200	Equipment and Furniture	10,550	0	0	0	10,550	2E
				72300	Material+Goods	11,000	8,000	8,000	8,000	35,000	2F
				72500	Supplies	11,660	11,660	11,660	11,660	46,640	2G
				74200	Audiovisual & Print Production Costs	10,000	10,000	0	0	20,000	2H
				74500	Miscellaneous	5,000	5,000	5,000	5,000	20,000	2J
					LDCF Sub-total 2	**291,590**	**186,660**	**151,260**	**152,260**	**781,770**	
			UNDP		**UNDP Sub-total 2**	212,564	212,565	212,565	212,565	850,259	2k
			GoL		**GoL Sub-total 2**	402,117	402,117	402,117	402,118	1,608,469	2l
					Total Sub-total 2	906,271	801,342	765,942	766,943	3,240,498	
OUTCOME 3: Community-based adaptive agricultural practices and off-farm opportunities demonstrated and promoted within suitable agro-ecological systems	**Lead: NAFRI, NAFES** **Technical Departments in MAF and WREA (agriculture, livestock, fisheries, irrigation, off-farm etc)** **Others UN, NGOs, INGOs, private sector,**	**62160**		71200	International Consultants	164,100	135,000	135,000	135,000	569,100	3A
				71300	Local Consultants	17,250	17,250	17,250	17,250	69,000	3B
				72100	Contractual services Operations	367,450	465,000	385,000	265,000	1,482,450	3C
				72100	Contractual Services M+E Framework	35,000	35,000	15,000	35,000	120,000	3C/M+E
				71600	Travel	50,000	50,000	50,000	45,020	195,020	3D
				72200	Equipment + Furniture	15,500	0	0	0	15,500	3E
				72300	Material+Goods	21,000	18,000	18,000	18,000	75,000	3F
				72500	Supplies	18,280	18,280	18,280	18,280	73,120	3G
				74200	Audiovisual & Print Production Costs	10,000	20,000	10,000	0	40,000	3H
				74500	Miscellaneous	15,000	15,000	15,000	15,000	60,000	3J
					GEF Sub-total 3	**713,580**	**773,530**	**663,530**	**548,550**	**2,699,190**	
			UNDP (parallel)		**UNDP Sub-total 3**	**118,750**	**118,750**	**118,750**	**118,750**	**475,000**	**3k**

			GoL (parallel)		**GoL Sub-total 3**	**378,250**	**378,250**	**378,250**	**378,250**	**1,513,000**	**3l**
					Total Sub-total 3	**1,210,580**	**1,270,530**	**1,160,530**	**1,045,550**	**4,687,190**	
OUTCOME 4: Adaptation Monitoring and Learning as a long-term process	**Lead: NAFRI**	**62160**	**LDCF**	71200	International Consultants	15,000	9,900	0	15,000	39,900	4A
				71300	Local Consultants	4,500	4,500	4,500	4,500	18,000	4B
				72100	Contractual services	8,000	10,000	10,000	12,000	40,000	4C
				71600	Travel	12,700	12,700	12,700	12,700	50,800	4D
				72200	Equipment and Furniture	6,100	0	0	0	6,100	4E
				72300	Material+Goods	1,250	1,250	1,250	1,250	5,000	4F
				72500	Supplies	3,900	3,900	3,900	3,900	15,600	4G
				74200	Audiovisual & Print Production Costs	5,000	5,000	5,000	10,000	25,000	4H
				74500	Miscellaneous	2,880	2,500	2,500	2,500	10,380	4J
					LDCF Sub-total 4	**59,330**	**49,750**	**39,850**	**61,850**	**210,780**	
			UNDP (parallel)		**UNDP Sub-total 4**	**118,750**	**118,750**	**118,750**	**118,750**	**475,000**	4k
			GoL (parallel)		**GoL Sub-total 4**	**80,875**	**80,875**	**80,875**	**80,875**	**323,500**	4i
					Total Sub-total 4	**258,955**	**249,375**	**239,475**	**261,475**	**1,009,280**	
Project Support	**NAFRI**	**62160**	**LDCF**	71200	International Consultant	0	0	0	0	0	PS1
				71300	Local Consultants	0	0	0	0	0	PS2
				71400	Contractual services Individual	57,700	57,700	57,700	57,700	230,800	PS3
				72100	Contractual services	0	0	0	0	0	PS4
				71600	Travel	2,160	2,160	2,160	2,160	8,640	PS5
				72200	Equipment & Furniture	7,800	0	0	0	7,800	PS6
				72500	Office Supplies	2,100	2,100	2,100	2,100	8,400	PS7
				74200	Audiovisual & Print Production Costs	0	0	0	0	0	PS8

				74500	Miscellaneous	0	0	0	0	0	PS9
					LDCF Sub-total 5	**69,760**	**61,960**	**61,960**	**61,960**	**255,640**	
			UNDP (parallel)		**UNDP Sub-total 5**	**0**	**0**	**0**	**0**	**0**	
			GoL (in Kind)		**GoL Sub-total 5**	**94,580**	**94,580**	**94,580**	**94,580**	**378,320**	
					Total Sub-total 5	**164,340**	**156,540**	**156,540**	**156,540**	**633,960**	
				PROJECT GRAND TOTAL (LDCF)		**1,360,170**	**1,174,960**	**1,012,660**	**897,660**	**4,445,450**	
				PROJECT GRAND TOTAL (UNDP)		**643,814**	**643,815**	**643,815**	**643,815**	**2,575,259**	
				PROJECT GRAND TOTAL (GoL)		**1,285,822**	**1,285,822**	**1,285,822**	**1,285,823**	**5,143,289**	
				PROJECT GRAND TOTAL (LDCF+UNDP+GoL)		**3,289,806**	**3,104,597**	**2,942,297**	**2,827,298**	**12,163,998**	

Analysis

C1	498,070	11%
C2	781,770	18%
C3	2,699,190	61%
C4	210,780	5%
PSU	255,640	6%
	4,445,450	

Summary of Funds: [4]

	Amount Year 1	**Amount Year 2**	**Amount Year 3**	**Amount Year 4**	**TOTAL Y1-Y4**
LDCF	**1,286,375**	**1,190,725**	**1,108,445**	**859,905**	**4,445,450**
Government of Lao PDR	**1,300,000**	**1,300,000**	**1,300,000**	**1,243,289**	**5,143,289**
UNDP	**646,259**	**643,000**	**643,000**	**643,000**	**2,575,259**
TOTAL	**3,232,634**	**3,133,725**	**3,051,445**	**2,746,194**	**12,163,998**

[4] Summary table should include all financing of all kinds: GEF financing, co-financing, cash, in-kind, etc...

Note	Description of cost item
	OUTCOME 1:
1A	Component 1 share long-term ITA for complete project period (total 40 person-months), 3 short-term ITA missions: land-use planning, hazard information and warning system, scenario analyses, share for set-up M+E system
1B	1 CC Scenario Analyst, part-time
1C	Database establishment, training DB management, monitoring framework (max 2 contracts)
1D	Per diem GoL 30 US$, consultant 60 US$, international travel
1E	Computer sets plus server, 2 laser printer, 1 photocopier/scanner/fax, 1 LCD projector and screen, telephone and IT, server, workplace furniture, share meeting room furniture
1F	GIS, analyses, documents, digital files, records, software, materials etc. from other projects
1G	Stationery, power, water, communication, office amenities, fuel, small office equipment
1H	Printing maps, plans, climate risk scenarios Lao PDR
	OUTCOME 2
2A	Component 2 share long-term ITA for complete project period (total 40 person-months), 4 short-term ITA missions : CC training need analysis, CC institutional development, CC training curricula development, training community based extension, share for set-up M+E system
2B	1 Coordinator Capacity Development CC, 1 CC Policy Development Specialist (part-time), 1 M+E/Reporting Officer, 1 Project Assistant (50% of staff female)
2C	CC training, workshops, CC extension curricula development, CC land use planning target districts, monitoring framework (max 4 contracts)
2D	Per diem GoL 30 US$, consultant 60 US$, lunch allowances trainees, leasing one 4x4 pickup, international travel
2E	1 motorcycle, 3 computer sets, 2 laser printer, 1 photocopier/scanner/fax, 1 LCD projector and screen, telephone and IT, workplace furniture, share meeting room furniture
2F	GIS, analyses, documents, digital files, records, software, materials etc. from other projects
2G	Stationery, power, water, communication, office amenities, fuel, small office equipment
2H	Training materials in Lao language
	OUTCOME 3
3A	Component 3 share long-term ITA for complete project period (total 40 person-months), 4 short-term ITA missions: agro-extension/farming systems: crops, livestock, fisheries; farmer organizations; water management, supply chain management, share for set-up M+E system
3B	C3 Coordinator, Agro-Economist, Agro-Ecologist, M+E/Reporting Officer, Assistant Project Officer (50% of staff female)
3C	The following 6 contracts: Supply chain development, small infrastructure water management, extension service modules for resilient farming practice, farming inputs,

Note	Description of cost item
	off-farm livelihood adaptation, district training hall
3C/M+E	International consultants, local consultants, travel, audio-visual materials, print productions, audits
3D	Per diem GoL 30 US$, consultant 60 US$, lunch allowances trainees, leasing two 4x4 pickups, international travel
3E	2 motorcycles, 6 computer sets, 2 laser printer, 1 photocopier/scanner/fax, 1 LCD projector and screen, telephone and IT, server, workplace furniture, share meeting room furniture
3F	GIS, analyses, documents, digital files, records, software, materials etc. from other projects
3G	Stationery, power, water, communication, office amenities, fuel, small office equipment
3H	Extension materials, village posters in Lao / ethnic languages
	OUTCOME 4
4A	Component 4 share long-term ITA for complete project period (total 40 person-months), 1 short-term ITA missions: innovative media products development
4B	1 Media/Publication Officer
4C	Annual/bi-annual conference AA2CC NAFRI conference GMS partners, annual national professional workshops (max 2 contracts)
4D	Per diem GoL 30 US$, consultant 60 US$, international travel
4E	2 computer sets, 1 laser printer, 1 photocopier/scanner/fax, 1 LCD projector and screen, telephone and IT, workplace furniture
4F	Photos, media, documents, digital files, records, software, materials etc. from other projects
4G	Stationery, power, water, communication, office amenities, fuel, small office equipment
4H	Publications adaptation lessons: prints, radio, www, ALM, others
	Project Support
PS1/2	n/a
PS3	Assistant Project Manager, Senior M+E Officer, Senior Finance and Admin Officer, Interpreter, Finance and Admin Officers for 3 project locations (50% female)
PS4	n/a
PS5	Per diem GoL 30 US$, consultant 60 US$
PS6	6 computers, 1 printer, workplace furniture sets
PS7	Stationery, power, water, communication, office amenities, fuel, small office equipment
PS8/9	n/a

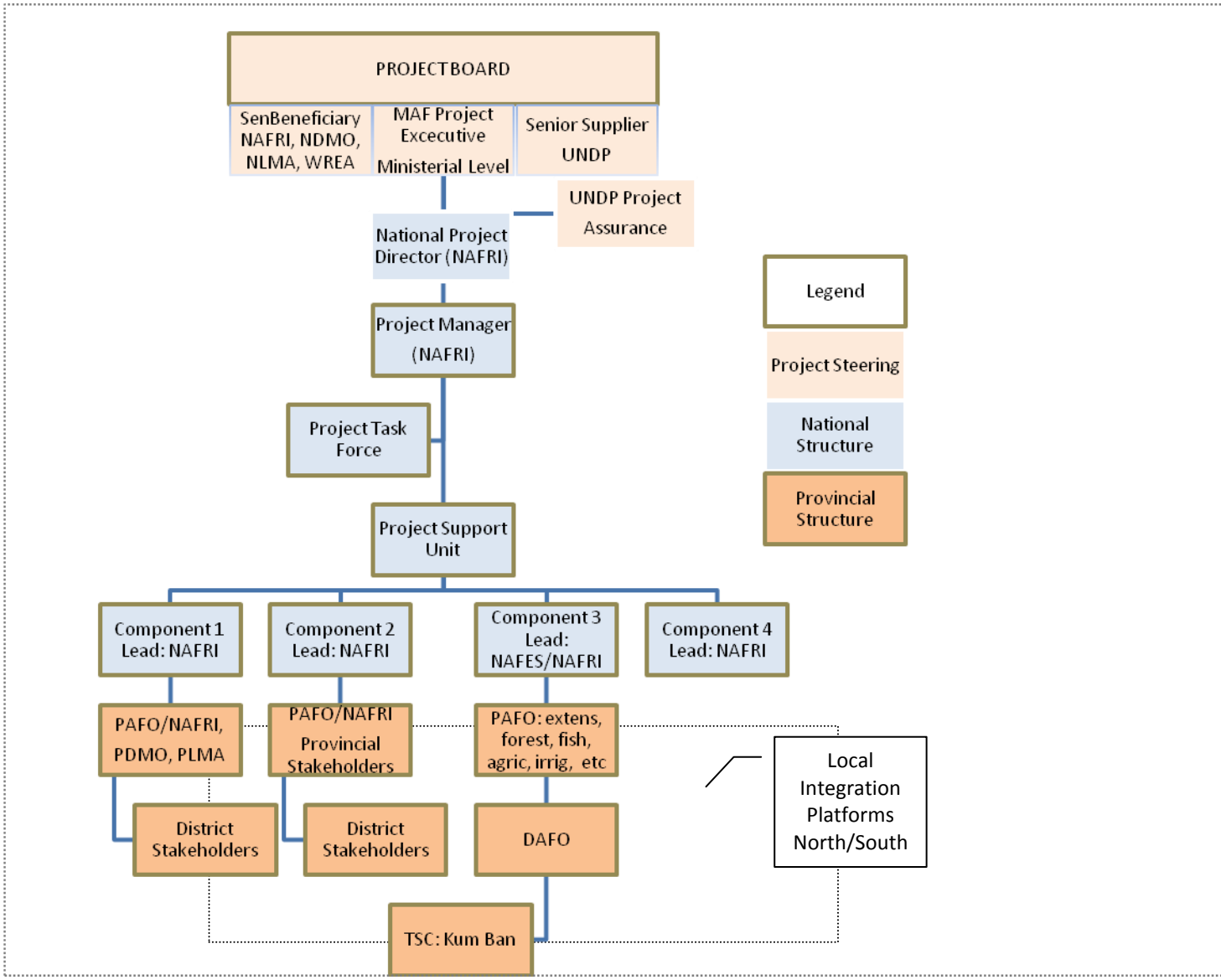
5. Management Arrangements

5.1 Project executive and implementing partner (GoL):

The project will be implemented under the UNDP National Implementation Modality (NIM), which for GEF corresponds to national execution of the project by the Government of Lao PDR. Specifically, MAF will act as the Project Executive given its formally acknowledged role as lead institution for climate change adaptation of the agricultural sector in Lao PDR.

NAFRI has been assigned by GoL/MAF as Implementation Partner in charge for overall implementation of the project (4 components). The project is involving several other departments of MAF, especially NAFES, as well as other institutions/ministries (WREA, NLMA, NDMO), and will also include participation of these, for example through their membership in the Project Board, ongoing support for project management, the provision of technical backstopping, and the participation of their technical staff in activities related to agricultural adaptation to climate change. The project is co-financed by GoL and UNDP with $. 7,340,228. LDCF resources will fund the project support unit posts and costs both at national level including sub PSUs in two target provinces. The Project Manager will be provided by NAFRI at no cost to the project.

5.2 Project organogram:



Project Board is responsible for making management decisions for a project in particular when guidance is required by the Project Manager (NAFRI). The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

Potential members of the Project Board are reviewed and recommended for approval during the L-PAC meeting. Representatives of other stakeholders can be included in the Board as appropriate. The Board contains three distinct roles, including:

1) **An Executive**: individual representing the project ownership to chair the group.
    - *This will be a most senior official from the ministerial level MAF, Lao PDR*
2) **Senior Supplier**: individual or group representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project.
    - *This will be a Representative from UNDP*
3) **Senior Beneficiary**: individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries.
    - *These will be the DG of NAFRI (MAF)and representatives from other ministries: WREA,NLMA and NDMO (MLSW)*

Specific responsibilities:

Defining a project

- Review and approve the Initiation Plan (if such plan was required and submitted to the LPAC).

Initiating a project

- Agree on Project Manager's responsibilities, as well as the responsibilities of the other members of the Project Management team;
- Delegate any Project Assurance function as appropriate;
- Review the Progress Report for the Initiation Stage (if an Initiation Plan was required);
- Review and appraise detailed Project Plan and AWP, including Atlas reports covering activity definition, quality criteria, issue log, updated risk log and the monitoring and communication plan.

Running a project

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Address project issues as raised by the Project Manager;
- Provide guidance and agree on possible countermeasures/management actions to address specific risks;
- Agree on Project Manager's tolerances in the Annual Work Plan and quarterly plans when required;

- Conduct regular meetings to review the Project Quarterly Progress Report and provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans.
- Review Combined Delivery Reports (CDR) prior to certification by the Implementing Partner;
- Appraise the Project Annual Review Report, make recommendations for the next AWP, and inform the Outcome Board about the results of the review.
- Review and approve end project report, make recommendations for follow-on actions;
- Provide ad-hoc direction and advice for exception situations when project manager's tolerances are exceeded;
- Assess and decide on project changes through revisions;

Closing a project

- Assure that all Project deliverables have been produced satisfactorily;
- Review and approve the Final Project Review Report, including Lessons-learned;
- Make recommendations for follow-on actions to be submitted to the Outcome Board;
- Commission project evaluation (only when required by partnership agreement)
- Notify operational completion of the project to the Outcome Board.

Executive

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

Specific Responsibilities (as part of the above responsibilities for the Project Board)

- Ensure that there is a coherent project organisation structure and logical set of plans
- Set tolerances in the AWP and other plans as required for the Project Manager
- Monitor and control the progress of the project at a strategic level
- Ensure that risks are being tracked and mitigated as effectively as possible
- Brief Outcome Board and relevant stakeholders about project progress
- Organise and chair Project Board meetings

The Executive is responsible for overall assurance of the project as described below. If the project warrants it, the Executive may delegate some responsibility for the project assurance functions.

Senior Beneficiary

The Senior Beneficiary is responsible for validating the needs and for monitoring that the solution will meet those needs within the constraints of the project. The role represents the interests of all those who will benefit from the project, or those for whom the deliverables resulting from activities will achieve specific output targets. The Senior Beneficiary role monitors progress against targets and quality criteria. This role may require more than one person to cover all the beneficiary interests. For the sake of effectiveness the role should not be split between too many people.

Specific Responsibilities (as part of the above responsibilities for the Project Board)

- Ensure the expected output(s) and related activities of the project are well defined
- Make sure that progress towards the outputs required by the beneficiaries remains consistent from the beneficiary perspective
- Promote and maintain focus on the expected project output(s)

- Prioritise and contribute beneficiaries' opinions on Project Board decisions on whether to implement recommendations on proposed changes
- Resolve priority conflicts

The assurance responsibilities of the Senior Beneficiary are to check that:

- Specification of the Beneficiary's needs is accurate, complete and unambiguous
- Implementation of activities at all stages is monitored to ensure that they will meet the beneficiary's needs and are progressing towards that target
- Impact of potential changes is evaluated from the beneficiary point of view
- Risks to the beneficiaries are frequently monitored

Where the project's size, complexity or importance warrants it, the Senior Beneficiary may delegate the responsibility and authority for some of the assurance responsibilities.

Senior Supplier

The Senior Supplier represents the interests of the parties which provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring, implementing). The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. The Senior Supplier role must have the authority to commit or acquire supplier resources required. If necessary, more than one person may be required for this role. Typically, the implementing partner, UNDP and/or donor(s) would be represented under this role.

Specific Responsibilities (as part of the above responsibilities for the Project Board)

- Make sure that progress towards the outputs remains consistent from the supplier perspective
- Promote and maintain focus on the expected project output(s) from the point of view of supplier management
- Ensure that the supplier resources required for the project are made available
- Contribute supplier opinions on Project Board decisions on whether to implement recommendations on proposed changes
- Arbitrate on, and ensure resolution of, any supplier priority or resource conflicts

The supplier assurance role responsibilities are to:

- Advise on the selection of strategy, design and methods to carry out project activities
- Ensure that any standards defined for the project are met and used to good effect
- Monitor potential changes and their impact on the quality of deliverables from a supplier perspective
- Monitor any risks in the implementation aspects of the project

Project Assurance

Overall responsibility: Project Assurance is the responsibility of each Project Board member, however the role can be delegated. The Project Assurance role supports the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed.

Project Assurance has to be independent of the Project Manager; therefore the Project Board cannot delegate any of its assurance responsibilities to the Project Manager. A UNDP Programme Officer typically holds the Project Assurance role.

The implementation of the assurance responsibilities needs to answer the question "What is to be assured?". The following list includes the key suggested aspects that need to be checked by the Project Assurance

throughout the project as part of ensuring that it remains relevant, follows the approved plans and continues to meet the planned targets with quality.

- Maintenance of thorough liaison throughout the project between the members of the Project Board.
- Beneficiary needs and expectations are being met or managed
- Risks are being controlled
- Adherence to the Project Justification (Business Case)
- Projects fit with the overall Country Programme
- The right people are being involved
- An acceptable solution is being developed
- The project remains viable
- The scope of the project is not "creeping upwards" unnoticed
- Internal and external communications are working
- Applicable UNDP rules and regulations are being observed
- Any legislative constraints are being observed
- Adherence to RMG monitoring and reporting requirements and standards
- Quality management procedures are properly followed
- Project Board's decisions are followed and revisions are managed in line with the required procedures

Specific responsibilities would include:

Initiating a project

- Ensure that project outputs definitions and activity definition including description and quality criteria have been properly recorded in the Atlas Project Management module to facilitate monitoring and reporting;
- Ensure that people concerned are fully informed about the project
- Ensure that all preparatory activities, including training for project staff, logistic supports are timely carried out

Running a project

- Ensure that funds are made available to the project;
- Ensure that risks and issues are properly managed, and that the logs in Atlas are regularly updated;
- Ensure that critical project information is monitored and updated in Atlas, using the Activity Quality log in particular;
- Ensure that Project Quarterly Progress Reports are prepared and submitted on time, and according to standards in terms of format and content quality;
- Ensure that CDRs and FACE are prepared and submitted to the Project Board and Outcome Board;
- Perform oversight activities, such as periodic monitoring visits and "spot checks".
- Ensure that the Project Data Quality Dashboard remains "green"

Closing a project

- Ensure that the project is operationally closed in Atlas;
- Ensure that all financial transactions are in Atlas based on final accounting of expenditures;
- Ensure that project accounts are closed and status set in Atlas accordingly.

The National Project Director (NPD) The NPD will be the NAFRI DG responsible for overseeing overall project implementation on regular basis and ensuring that the project objective and outcomes are achieved. This function is not funded through the project. The NPD, assisted by the Project Manager, will report to the Project Board on project progress. The NPD will be responsible for coordinating the flow of results and knowledge from the project to the Project Board.

Project Manager (PM): The Project Manager will be a senior GoL staff appointed by NAFRI and confirmed by the Project Board. The Project Manager has the authority to run the project on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

The function is not funded by the project. The Project Manager will be supported by an Assistant Project Manager (APM) recruited full-time under a local technical assistance contract.

The PM will be responsible for the day-to-day management, administration, coordination, and technical supervision of project implementation. S/he will provide overall operational management for successful execution and implementation of the programme. S/he will be responsible for financial management and disbursements, with accountability to the government and UNDP. The PM will ensure provision of high-quality expertise and inputs to the project.

In carrying out her/his responsibilities, s/he will advocate and promote the work of adaptation to climate change in Lao PDR and will also closely work and network with the relevant government agencies, UN/UNDP, the private sector, NGOs, and civil society organizations.

Prior to the approval of the project, the Project Developer role is the UNDP staff member responsible for project management functions during formulation until the Project Manager from the Implementing Partner is in place.

Specific responsibilities would include:

Overall project management:

- Manage the realization of project outputs through activities;
- Provide direction and guidance to project team(s)/ responsible party (ies);
- Liaise with the Project Board or its appointed Project Assurance roles to assure the overall direction and integrity of the project;
- Identify and obtain any support and advice required for the management, planning and control of the project;
- Responsible for project administration;
- Liaise with any suppliers;
- May also perform Team Manager and Project Support roles;

Running a project

- Plan the activities of the project and monitor progress against the initial quality criteria.
- Mobilize goods and services to initiative activities, including drafting TORs and work specifications;
- Monitor events as determined in the Monitoring & Communication Plan, and update the plan as required;
- Manage requests for the provision of financial resources by UNDP, using advance of funds, direct payments, or reimbursement using the FACE (Fund Authorization and Certificate of Expenditures);
- Monitor financial resources and accounting to ensure accuracy and reliability of financial reports;
- Manage and monitor the project risks as initially identified in the Project Brief appraised by the LPAC, submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the Project Risks Log;
- Be responsible for managing issues and requests for change by maintaining an Issues Log.
- Prepare the Project Quarterly Progress Report (progress against planned activities, update on Risks and Issues, expenditures) and submit the report to the Project Board and Project Assurance;
- Prepare the Annual review Report, and submit the report to the Project Board and the Outcome Board;
- Based on the review, prepare the AWP for the following year, as well as Quarterly Plans if required.

Closing a Project

- Prepare Final Project Review Reports to be submitted to the Project Board and the Outcome Board;
- Identify follow-on actions and submit them for consideration to the Project Board;

- Manage the transfer of project deliverables, documents, files, equipment and materials to national beneficiaries;
- Prepare final CDR/FACE for signature by UNDP and the Implementing Partner.

Project Support: The Project Support role provides project administration, management and technical support to the Project Manager as required by the needs of the day-to-day operations or by the Project Manager. The project support functions are available through the Project Support Unit (PSU). NAFRI will provide office space for the PSU and the professional staff. The NAFRI will provide the standard logistical services available on the NAFRI compound for the PSU. PSU staff will be funded by the project to ensure delivery of results as specified in the Strategic Results Framework. The PSU will ensure project implementation proceeds smoothly through effective work plans and efficient administrative arrangements that meet donor requirements. To facilitate and assure smooth and quick provision of services and support in the regions, the PSU will set up two small branches, one for the North, one for the South, in the PAFOs of Savannakhet and Xayaboury provinces. The PAFOs will provide office space for these branch PSUs.

The PSU will be composed of the following core staff: Assistant Programme Manager, Senior M+E Officer, Senior Finance and Admin Officer, Translator/Interpreter, Administrative Assistant, South: Finance and Admin Officer Savannkhet Finance/Admin Assistant Savannakhet, North: Finance/Admin Officer Xayaboury, Finance/Admin Assistant Xayaboury.

Specific responsibilities: Some specific tasks of the Project Support would include:

Provision of administrative services:

- Set up and maintain project files
- Collect project related information data
- Update plans
- Administer the quality review process
- Administer Project Board meetings

Project documentation management:

- Administer project revision control
- Establish document control procedures
- Compile, copy and distribute all project reports

Financial Management, Monitoring and reporting

- Assist in the financial management tasks under the responsibility of the Project Manager
- Provide support in the use of Atlas for monitoring and reporting

Provision of technical support services

- Provide technical advices
- Review technical reports
- Monitor technical activities carried out by responsible parties

Project Task Force (PTF, a National Technical Working Group): Given the large number of technical stakeholders from within MAF, and partial implementation of activities through other third parties, as well as complex technical coordination arrangements, the Project Task Force will include technical staff from departments, provinces, districts, groups as required by the actual phase of technical project implementation. The PTF role will provide auxiliary technical support and advice to the Project Manager and the PMU to ensure smooth collaboration among all technical partners. The PTF will include all potential MAF departments engaged in the implementation of the project, professionals from other departments providing inputs, receiving outputs, or having technical links to some activities. It will include representatives from INGOs (e.g. IUCN, WWF) and Lao PDR mass organizations (e.g. women, youths), and other groups or individuals (e.g. private sector) that may have a specific interest in some activities or outputs. The PTF as a National Technical Working Group will in principle

provide a pool of additional expertise that can be utilized by PM and PSU to improve quality of project implementation and enhance meaningful stakeholder engagement on the level of project planning. The meetings of the PTF will be bi-monthly, and the participants will be invited according to the actual phasing of the project (work plan, status of activities), and the technical issues on the agenda. DSA for this purpose has been included in the project budget.

Local Integration Platform (LIP, a Provincial / Sub-provincial Technical Working Group): The structure and approach of the PTF is replicated on provincial and sub-provincial level through the "Local Integration Platform", a technical working group of local stakeholder. The integration of activities on local level (province, district, kum ban) is most essential for the success of the project, especially for component 3 (coordinated through NAFES). A LIP Coordinator will be jointly assigned / recruited by NAFRI/NAFES and work through the existing PAFO, DAFO and the Technical Service Centres (TSC). The LIP will provide coordination and guidance to relevant local stakeholders, implementers, beneficiary groups. The meetings of the LIP will be monthly, and the participants will be invited according to the actual phasing of the project on-site (work plan, status of activities), and the technical issues on the agenda. The Governor's office will be requested to chair the meeting quarterly. There will be one LIP for the North and one LIP for the South. DSA for the LIP has been included in the project budget.

Technical Service Centers (TSC): The Technical Service Centres are a comparatively new structure of the GoL to deliver administrative and technical services on the Kum Ban level. Kum Bans are comparable to Communes in the local government structure. They are operating in a perceived administrative-operative vacuum between village and district levels. TSCs are supposed to be equipped with agricultural extension staff, which potentially makes them an important pillar for the implementation and long-term sustainability of the project. The project will activate this structure for its own outcomes, at the same time contributing to institutional strengthening of this entity.

Contractors: The implementation of the components of the project will be supported by contractors, selected according to UNDP procurement rules. The Government Implementing Partner may contract other entities, defined as Responsible Parties, to undertake specific project tasks through a process of competitive bidding. However, if the Responsible Party is another government institution or a United Nations agency, competitive bidding will not be necessary and direct contracting will be applied. Confirmation of direct contracting will need to comply with criteria, such as comparative advantage, timing, budgeting and quality. If direct contracting criteria cannot be met the activity will be open to competitive bidding.

Administrative Implementation Manual: Based upon UNDP's Project Operations Manual, further details on project internal functions, processes and procedures will be outlined in an Administrative Implementation Manual to be produced during the inception period, and the first Annual Work Plan and Budget of the project.

Parameters for the Capacity Assessment (CA) and the implementing partner:

The highest risks for failing to achieve the "agriculture adaptation to climate change objective" are:

- Fragmentation of project into usual standard operations implemented by different agencies (missing the strategic CC objective and the core problem, see also chart below), and
- Inconsistent management structure caused by too many stakeholders on several levels.

To counterbalance those risks, the Capacity Assessment of Key Stakeholders (see Annex), and as a subsequence, the organizational structure, too, is considering these management parameters:

- Creation of a solid strategic and operational backbone with a decisive and distinct vertical management structure from national level to kumban / village level through a single line agency (MAF).
- Overall implementation responsibility under one institution only (NAFRI) to ensure and maintain a conclusive overall strategic and operational implementation (AA to CC) during the lifetime of the project.
- Establishment of a meaningful technical inclusion of partners and stakeholders on all levels (Board, Project Task Force, Local Integration Platform).

- Combination of the most resourceful national agricultural research institution (strongest possible institutional analytical capacity) in the country with the most resourceful national agricultural extension service (strongest possible institutional outreach capacity) in the country.
- Provision of technical inputs through an extension service / community development approach addressing increased climate variability issues (as identified in the regional consultation workshops).

5.3 Audit arrangements

Audits will be conducted in accordance with the UNDP NIM Audit policies and procedures, and based on UN Harmonized Approach to Cash Transfer (HACT) policy framework. Annual audit of the financial statements relating to the status of UNDP (including GEF) funds will be undertaken according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by a special and certified audit firm. UNDP will be responsible for making audit arrangements for the project in communication with the Project Implementing Partner. UNDP and the project Implementing Partner will provide audit management responses and the Project Manager and project support team (PSU) will address audit recommendations. As a part of its oversight function, UNDP will conduct audit spot checks at least two times a year.

5.4 UNDP support services

As per the Letter of Agreement (LOA) between the Government of Lao PDR and UNDP with respect to the provision of support services by the UNDP Country Office for nationally implemented programmes and projects, the UNDP Country Office may provide, at the request of the Implementing Partner, the following support services for the activities of this project, and recover the actual direct and indirect costs incurred by the Country Office in delivering such services as stipulated in the LOA:

a. Payments, disbursements and other financial transactions
b. Recruitment of staff, project personnel, and consultants
c. Procurement of services and equipment, including disposals
d. Organization of training activities, conferences, and workshops, including fellowships
e. Travel authorization, Government clearances ticketing, and travel arrangements
f. Shipment, custom clearance, and vehicle registration

UNDP CO will recruit one additional staff to support the project. All relevant project staff will be trained by UNDP during the early implementation phase (early 2011) on administrative issues, financial matters, procurement etc.

5.5 Collaborative arrangements with other projects

The Planning Department of MAF has provided on overview of projects operating in the same target area or close by. Close collaboration with relevant projects will be facilitated by MAF / Planning Department.

NAFRI management has analysed existing projects and activities of the NAFRI divisions to identify potential thematic and already existing practical 'docking points' for the CC project. The wide range of knowledge and experience available through NAFRI and projects at NAFRI will be pro-actively engaged on relevant technical matters. Qualified inputs into all 4 components should be expected.

Operational links can be established with the recently designed UNDP Project "Institutional Strengthening and Capacity Development on Disaster Risk Management in Lao PDR By 2011", which aims to enhance the livelihoods of poor, vulnerable and food insecure populations are through sustainable development. Especially *Outcome 2* offers linkage potential: 'Strengthened national capacities, including the participation of women, to prevent, reduce, mitigate and cope with the impact of the systemic shocks from natural hazards'. The project is implemented through the National Disaster Management Office (NDMO), Ministry of Labour and Social Welfare (MLSW).

Important exchange of experiences with selected cooperation on certain topics is possible with the UNDP's "Poverty Reduction and Environment Initiative" (PEI) through thematic inclusion of issues like

- Changing agro-ecological systems and poverty reduction (adaptive subsistence or small-holder farming),
- Climate change related environmental hazards (floods, drought, erosion, etc) and effects on poverty, subsistence farming, small holder farming and other forms of livelihood in rural Laos,
- Climate Change adaptation as a part of "sound environmental management" with a specific orientation towards future possible CC scenarios,
- Review of GoL Strategies and processes in the light of mainstreaming CC adaptation. This is also encouraged in the new Lao CC Strategy.
- Changes and modifications in ecosystems made by human beings as part of economic analysis. In the context of AA2CC this would refer to different Agro-Ecological Systems / Zones, related farming systems (in a wider context of natural resources management), and the destruction or (full or partial) replacement of such systems.

Active collaboration on the ground can be pursued through the "Small Grants Programme / AusAID Mekong and Asia Pacific (MAP), Community-Based Adaptation (CBA) Programme (August 2009 – June 2014) to improve the adaptive capacity of communities, thereby reducing their vulnerability to the adverse effects of climate change risks. This SGP aims to provide countries with concrete ground-level experience on local climate change adaptation, and to provide clear policy lessons.

Implementation details will be outlined in the Administrative Manual to be drafted during the inception period, which probably will include a number of MoUs, or proposals for exchange of letters, between some of the projects.

5.6 Intellectual property rights

These will be retrained by the employing organization of the personnel who develops intellectual products, either Government or UN/UNDP in accordance with respectively national and UN/UNDP policies and procedures.

6. Monitoring Framework and Evaluation

Three UNDP corporate tools are to be used in project monitoring and evaluation: ERBM which is linked to ATLAS, UNDP Evaluation Resource Centre.

Given the complexity of the project and to foster quality delivery and performance on the ground, the project will contain an internal Monitoring and Evaluation Group (3 local consultants, one in each project location). Each consultant will daily monitor the effectiveness and efficiency of delivery of services in his/her location. The system will be set-up in early 2011 by an international expert who will check functioning of the system in 2012.

The project will be monitored through the following M&E activities The M&E plan of the project will be closely aligned and harmonized with monitoring and reporting systems of the GoL, namely MPI, MAF, WREA, NAFRI. The M&E budget is provided in the table below.

6.1 Project start and implementation

A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

The Inception Workshop should address a number of key issues including:

a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of GoL agencies, UNDP CO and UNDP RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. Basic goals in the Terms of Reference for project staff and for sub-contracts will be discussed as needed.
b) Based on the project results framework and the relevant SOF (e.g. GEF) Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled in line with M&E framework of GoL agencies and TWG for Agriculture.
d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
e) Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.
f) Review and discuss essentials for a communication strategy and a gender mainstreaming strategy of the project.
g) Discuss initial outline and table of content for the Project Administrative Manual.

The Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.

- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits:

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

6.2 Mid-term of project cycle

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (October to December 2012). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC). The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

6.3 End of Project

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing:

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

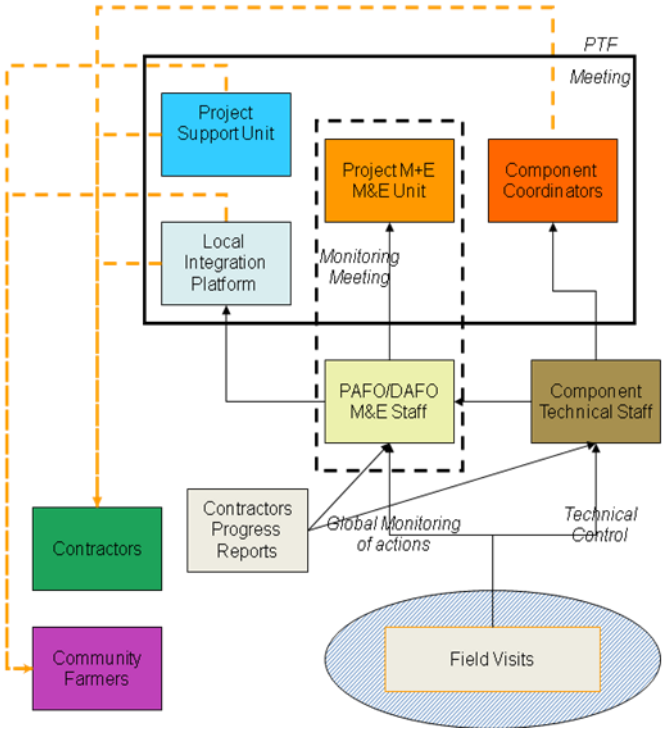
Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

6.4 M&E workplan and budget

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Inception Workshop and Report	▪ Project manager NAFRI ▪ MAF, NAFRI, UNDP CO, UNDP CCA ▪ Project Board	Indicative cost: **10,000**	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ MAF, NAFRI, UNDP CCA RTA/Project Manager will oversee the hiring of specific studies and institutions (project baseline), and delegate responsibilities to relevant team members.	1 international, x National consultants for 4 weeks each Indicative costs: **25,000** plus project team	Start, mid and end of project (during evaluation cycle)
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by NAFRI Project manager ▪ Project team	National consultants Indicative costs: **10,000** plus project team	Annually prior to ARR/PIR and to the definition of annual work plans
APR/PIR	▪ NAFRI Project manager and team ▪ Project Board ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG ▪ MAF / NAFRI ▪ Project Task Force	Operational budget	Annually
Periodic status/ progress reports	▪ NAFRI Project manager and team ▪ Project Board ▪ Project Task Force ▪ Local Integration Platforms	Operational budget	Quarterly
Mid-term Evaluation	▪ GoL: MAF, NAFRI, MPI ▪ Project Board ▪ NAFRI Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ Project task Force ▪ Local Integration Platforms ▪ External Consultants (i.e. evaluation team)	Indicative cost: **22,000** plus project team	At the mid-point of project implementation.
Final Evaluation	▪ GoL: MPI, MAF, NAFRI ▪ Project Board	2 International, x National Consultants	At least three months before the

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
	▪ NAFRI Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ Project Task Force ▪ Local Integration Platforms ▪ External Consultants (i.e. evaluation team)	Indicative cost : **40,000** plus project team	end of project implementation
Project Terminal Report	▪ Project manager NAFRI and team ▪ UNDP CO ▪ Project Board ▪ GoL, MAF, MPI ▪ local consultant	National consultant(s) Indicative cost: **3,000** plus project team	At least three months before the end of the project
Audit	▪ UNDP CO ▪ NAFRI Project manager and team ▪ Project Board	Indicative cost per year: 2,500 **Total 10,000**	Yearly
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives ▪ NAFRI Project manager ▪ Project Board ▪ Project staff ▪ Project Task Force ▪ Local Integration Platform	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		**US$ 120,000** (+/- 5% of total budget)	

To ensure quality delivery on the ground the project will establish an internal monitoring system, including three local consultants and one international consult (2 short-term missions) helping to set up the system. The suggested work flow for the project's internal monitoring system (draft) is charted below:



7. Legal Context

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

- put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP/GEF hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

The UNDP Resident Representative in Lao PDR is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP Regional Coordination Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

a) Revision of, or addition to, any of the annexes to the Project Document;

b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;

c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and

d) Inclusion of additional annexes and attachments only as set out here in this Project Document