



United Nations Development Programme
Country: Lao PDR
PROJECT DOCUMENT¹



Project Title: Effective Governance for small-scale rural infrastructure and disaster preparedness in a changing climate

UNDAF Outcome(s): By 2015, the Government and communities better adapt to and mitigate climate change and reduce natural disaster vulnerabilities in priority sectors (Outcome 8).

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Strengthened capacities of developing countries to mainstream climate change adaptation policies into development plans.

UNDP Strategic Plan Secondary Outcome: National, regional and local levels of governance expand their capacities to manage the equitable delivery of public services and support conflict resolution.

Expected CP Outcome(s): By 2015, better climate change adaptation and mitigation implemented by government and communities and natural disaster vulnerabilities reduced in priority sectors.

Implementing Partner: Government of Lao PDR, Ministry of Environment and Natural Resources

Responsible Partners: United Nations Capital Development Fund (UNCDF)

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Agreed by Government of Lao PDR (Executing Entity/ Implementing Partner)
 Ministry of Natural Resources and Environment



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Date/Month/Year 06 MAY 2013

Agreed by (UNDP):

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Date/Month/Year May 8, '13



¹ For UNDP supported GEF funded projects as this includes GEF-specific requirements

Brief Description

Lao PDR is one of the poorest countries in the world and according to IPCC findings particularly vulnerable to the effects of climate change. Low productive agriculture, poor infrastructure development and according low-levels of service delivery jointly contribute to low adaptive capacity of livelihood systems, which are already affected by impacts deriving from existing climate variability. Stresses on livelihoods will further increase due to expected climate change. The available climate science indicates increasing minimum, mean and maximum temperatures by 2050 and that dry seasons are likely to increase in length while wet season rainfall will occur in shorter, more intense intervals. Analysis of historical rainfall data for the country indicates a trend towards more high intensity events when comparing the period from 1901 to 1953 with the period from 1953 to 2006. Recent vulnerability and adaptation analysis indicates that there has been an increase in the number of climate hazard related events (such as floods) over the past 20 years as opposed to the preceding 30 years. Annual precipitation for the Mekong region as a whole is projected to increase by 13.5% by 2030, with most of this occurring during the wet season (May – September). The provinces of Sekong and Saravane in the South of Laos will be heavily affected by these changes. During recent years, changing rainfall and temperature patterns have caused regular storms leading to flash flooding and landslides, as well more frequent and persistent dry periods and droughts. These climate threats have differing impacts on physical infrastructure and ecosystems, depending on location and topography. Amongst the most severe are the regular destruction of rural roads and small-scale irrigation schemes, as well as water scarcity for household and agricultural consumption. These climate induced threats are further affected by slow-onset disappearance of the protective and water storage functions of ecosystems, caused by drivers such as slash and burn agriculture, monoculture, mining and hydropower investments. The combination of climate change related pressures and these other drivers mean that village water supply systems dry out more often, and that baseline physical infrastructure, which is not protected from irregular and intense water flows, is degrading more rapidly. Underlying causes contributing to this situation include basic geographical factors (soil type, topography and land use practices), poor application of infrastructure construction standards and maintenance practices, and a social and ethnic context that increases the vulnerability of certain groups to climate risks. The desired situation that the project seeks to bring about is that the genuine needs of communities vulnerable to climate variability and change are fully reflected in local planning and budget processes, so that the development prospects of these communities are secured in face of increasing climate risks. Barriers to remove in achieving this situation include weaknesses in climate change analysis and planning at sub-national level, financial constraints in resourcing the additional costs of building greater redundancy into rural infrastructure, a silo approach to local planning whereby ecosystem functions and services are not taken into account, and the limited incentives that exist to encourage local officials and decision makers to address climate related risks. LDCF funds will be used by the Government of Lao PDR to address these barriers through 3 components. Capacity building measures for climate sensitive planning targeting sub-district, district and provincial decision makers and planners will demonstrate the features and advantages of integrated ecosystems management and climate resilient physical infrastructure solutions. Socially inclusive tools of project identification will ensure that the different vulnerabilities of target populations in a changing climate are tackled and climate sensitive district budgets are elaborated and their execution monitored. This newly acquired expertise will facilitate the delivery of grants to implement climate resilient small scale infrastructure, benefitting 50,000 people, linked to the well-established UNDP/UNCDF supported block grant mechanisms (District Development Fund). This will further strengthen local governance and administrative systems for better planning, budgeting and implementation services. Environmental sustainability and project integration will be achieved through measures to protect ecosystem functions in the immediate vicinity of physical infrastructure covering 60,000 hectares, enhancing capacities to regulate water flows and ensuring greater financial viability and social impact overall.

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List of Acronyms

ADB	Asian Development Bank
AMAT	Adaptation Monitoring and Assessment Tool
APAN	Asian Pacific Adaptation Network
APR	Annual Project Review
BTOR	Back to Office Report
CBO	Community-based Organization
CC	Climate Change
CCA	Climate Change Adaptation
CFCCA	Community Forest Cover and Change Analysis
COP	Conference of Parties
CPAP	Country Program Action Plan
CPD	Country Program Document
CRVA	Community Risk and Vulnerability Analysis
DDF	District Development Fund
DDSC	District Development Support Committee
DONRE	Department of Natural Resources and Environment
DPH	Department of Public Health
DPWT	Department of Public Works and Transport
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EbA	Ecosystem-based Adaptation
EIRR	Economic Internal Rate of Return
ELAN	Ecosystem and Livelihoods Adaptation Network
ESCO	Energy Service Company
EWS	Early Warning System
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GOL	Gift of Life International
GPAP	Governance and Public Administration Reform
HDI	Human Development Index
IISD	International Institute for Sustainable Development
INGO	International Non-governmental Organization
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
KfW	Kreditanstalt für Wiederaufbau/German Development Bank
Lao PDR	Lao Peoples Democratic Republic
LDC	Least Developed Countries
LDCF	Least Developed Countries Fund
LuxDEV	Luxembourg Agency for Development Cooperation
M&E	Monitoring and Evaluation
MAF	Ministry of Agriculture and Forestry
MCTPC	Ministry of Communication, Transport, Post and Construction
MDG	Millennium Development Goal
MOE	Ministry of Education
MOH	Ministry of Health
MOHA	Ministry of Home Affairs
MONRE	Ministry of Natural Resources and Environment
MPWT	Ministry of Public Works and Transport
MRC	Mekong River Commission
MWD	Mekong Water Dialogue
NAFRI	National Agriculture and Forestry Research Institute
NAMA	National Appropriate Mitigation Action
NAPA	National Adaptation Program for Action
NBSAP	National Biodiversity Strategy and Action Plan
NCSA	National Capacity Self Assessment
NDMC	National Disaster Management Committee

NDMO	National Disaster Management Office
NGO	Non-governmental Organization
NPA	National Protected Area
NSEDP	National Socio Economic Development Plan
NTFP	Non-timber Forest Product
NTPC	Nam Theun II Power Company
PAFO	Provincial Agriculture and Forestry Office
PBSAP	Provincial Biodiversity Strategy and Action Plan
PIF	Project Information File
PIMS	Project Information Management System
PIR	Project Implementation Reports
PMU	Project Management Unit
POHA	Provincial Office of Home Affairs
PONRE	Provincial Office of Natural Resources and Environment
PPG	Project Preparation Grant
PPR	Project Progress Report
PRF	Project Results Framework
RBC	River Basin Committee
RBD	River Basin District
REDD	Reducing Emissions from Deforestation and Degradation
SBAA	Standard Basic Assistance Agreement
SCCF	Special Climate Change Fund
SDC	Swiss Agency for Development and Cooperation
SEI	Stockholm Environment Institute
SIDA	Swedish International Development Cooperation Agency
SNC	Second National Communication Project
TVET	Technical and Vocational Education and Training
UN HABITAT	United Nations Human Settlements Program
UNCDF	United Nations Capital Development Fund
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNDP CO	UNDP Country Office
UNDP EEG	UNDP Environment and Energy Group
UNDP ERC	UNDP Evaluation Resource Center
UNDP PEMSEA	UNDP Partnerships in Environmental Management for the Seas of East Asia
UNDP RCU	UNDP Regional Coordination Unit
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations International Children's Emergency Fund
V&A	Vulnerability and Adaptation
WATSAN	Water and Sanitation
WB	World Bank
WHO	World Health Organization
WREA	Water Resources and Environment Administration

1 SITUATION ANALYSIS

1.1 Climate Change induced problem

1.1.1 Country context

Lao People's Democratic Republic (PDR) is amongst the poorest and Least Developed Countries (LDC) in Asia and in the World. The UNDP Human Development Report 2011 ranked Lao PDR at 138 out of 187 countries in the Human Development Index (HDI) in terms of comparative measure of life expectancy, literacy, education, and standards of other countries worldwide. A major factor contributing to this high ranking is that more than 80% of Lao PDR's population depend on natural resources, agriculture and forestry production as a main source of income¹, while the productivity of that sector, which accounts for only 30% of Lao PDR's Gross Domestic Product (GDP)² remains low.

Poor infrastructure development in agricultural production, accessing markets, the supply of water for irrigation and domestic purposes, poor access to education and health facilities collectively contribute to high poverty rates and low development progress in Lao PDR. Only 17% of national rice production is derived from irrigated fields along the main streams. There is potential to increase the production of irrigated rice, especially through small-scale irrigation in uplands, which currently plays a minor role. 31% of the rural population still have no road access to markets and public utility services³. The World Health Organisation estimates that since 1995 there has been a significant increase in the percentage of the rural population with access to water from an improved source – from 37% to 51% in 2008. Access to both education and health facilities by 84% of the population is showing improvements in development standards⁴. However, the low quality of associated services continues to contribute to poverty and remains to be improved.

Good and effective governance is a precondition for changing the service delivery situation and for achieving equitable and sustainable economic growth as laid out in the 7th National Socioeconomic Development Plan. It is expected that, with the support of the UN system, especially the poor and vulnerable will benefit from improved delivery of public services and greater participation in transparent decision-making by 2015⁵. This participatory approach applies also for initiatives that link climate change adaptation, disaster risk reduction and public service delivery.

Such an integrated approach is required since service delivery in MDG relevant sectors such as public health, education, water supply, sanitation and agricultural production has been a great challenge in the past due to existing current climate variability's between dry and wet seasons. As an example, the flow of the Mekong at Pakse in Southern Laos is characterized by a mean difference in monthly discharge between driest and wettest seasons which is almost 15 fold. Therefore local communities and the public investments that support them already have to deal

¹ UNDP 2012, page 17

² MPI (2011), page 21

³ See Warr (2010) for an econometric analysis of road access and poverty in Laos.

⁴ 84% of the rural population is able to reach a health centre in less than 1 hour and 90% can access primary schools in less than an hour (Messerli et al, 2008).

⁵ UNDP Laos 2012, page 15.

with a challenging water resource context, in which localized natural disasters linked to flooding, landslides and drought are common.

Stresses on livelihoods within current climate variability will further increase due to climate change. The available climate science indicates that dry seasons are likely to increase in length in Lao PDR while wet season rainfall will occur in even shorter, more intense intervals. Analysis of historical rainfall data for the country indicates a clear trend towards more high intensity events when comparing the period from 1901 to 1953 with the period from 1953 to 2006. Recent vulnerability and adaptation analysis indicates that there has been an increase in the number of climate hazard related events (such as floods) over the past 20 years as opposed to the preceding 30 years. This is confirmed by MRC data which has identified a clear increase in the number of extreme flooding events across the country when comparing pre and post 1986 data. Further Lefroy (2010) states that while the incidence of tropical storms and hurricanes is very variable, there is evidence that the number and intensity of storm events has increased significantly in the last few decades of the 20th Century and that this trend appears likely to continue and increase. For the future annual precipitation for the Mekong region as a whole is projected to increase by 13.5% by 2030, with most of this occurring during the wet season (May – September). While projected changes in dry season precipitation are likely to be smaller, significant decreases are possible in February and March as well as in November. The drier extremes of current projections indicate decreases of up to 25% against historical values. Use of macro-scale hydrological models for a range of emission scenarios for Lao PDR indicate that, in the future, many of its sub-basins are likely to experience higher discharge (NAPA, 2009).

1.1.2 Focus on the South

Overview

As acknowledged in the NAPA findings, the Southern provinces of Lao PDR are particularly vulnerable to drought (Figure 9, Page 33, NAPA report, 2009) and the severity and frequency of this risk highly likely to increase as a result of climate change (Joint MAF, WREA, IUCN Studies, 2005). More recent analysis carried out by the Ministry of Natural Resources and Environment (MONRE) points towards future delays in the onset of Monsoon events. Furthermore the South is judged to become increasingly vulnerable to flooding over time resulting from the effects of climate change. The following summarises the main characteristics of likely climate change related risks which are already becoming more evident in the Southern Provinces:

- Temperature increase – annual minimum, mean and maximum temperatures are projected to increase significantly (Lefroy, 2010) throughout the country, but particularly in the south.
- Flash flooding – intensive rainfall on steep slopes leading to intensive runoff. Flash flooding is normally associated with upland areas but will occur in lower and middle catchment areas also where requisite topographical conditions occur.
- Extreme flooding – resulting from a combination of intensive rainfall storms and flash flooding. This type of flooding as illustrated by the Ketsana (2009) storm but is becoming more frequent.
- Extreme drought – caused by periods of unusually low rainfall. Climate projections suggest that there will be less rainfall during the dry season increasing the likelihood of drought, and also increasing the risk of periodic drought during June to July. The last major drought in Sekong was in 2010-2011 and in Saravane in 2009-2010 (Lefroy, 2010).

The Ministry has produced a composite index for village level vulnerability and adaptive capacity in Lao PDR⁶. This analysis indicates that Sekong is one of the most vulnerable provinces nationally with more than 75% of villages with an index of between 0.5 and 1.0. For these reasons MONRE proposed a focus on the south during the early stages of project identification. Further consultations with project stakeholders during the PPG has confirmed the prevalence of climate change related risks, as further described in the following sections.

Target provinces

Within the four Southern provinces of Saravane, Sekong, Champasak and Attapeu, a more specific target area was identified during the design phase, divided geographically into the Se Done Catchment, the Sekong Catchment, the catchment of Se Bang Nuan, and the lower catchment area along the Mekong River. The four catchment areas can be further classified as Lower catchment (floodplains), Mid Catchment (sloping hills) and Upper Catchment (hilly and mountainous terrain). The lower catchment zone covers areas below 140m above Mean Sea Level (MSL) and the mid catchment zone is between 140m to 750m above MSL. The upper catchment zone is from the levels above 750m MSL to ridge tops and the area mainly comprise Se Done, Upper Sekong, Upper Selanong and Sepone, all under customary ownership. The four catchments drain in a north east direction.

Four river systems drain the catchments. The Sekong River (approximately 76km in length) originates in Vietnam and flows through Sekong province. The Sedon River originates in Bolaven Plateau and flows through the Saravane province. The third is the tributary of Se Bang Hieng in the North of Saravane province. The fourth is the Mekong river in Western Saravane. The major rivers create natural wetlands, peat swamps and perennial streams and ponds along the river banks and flood plains which provide an important valuable wildlife habitat.

Climate situation

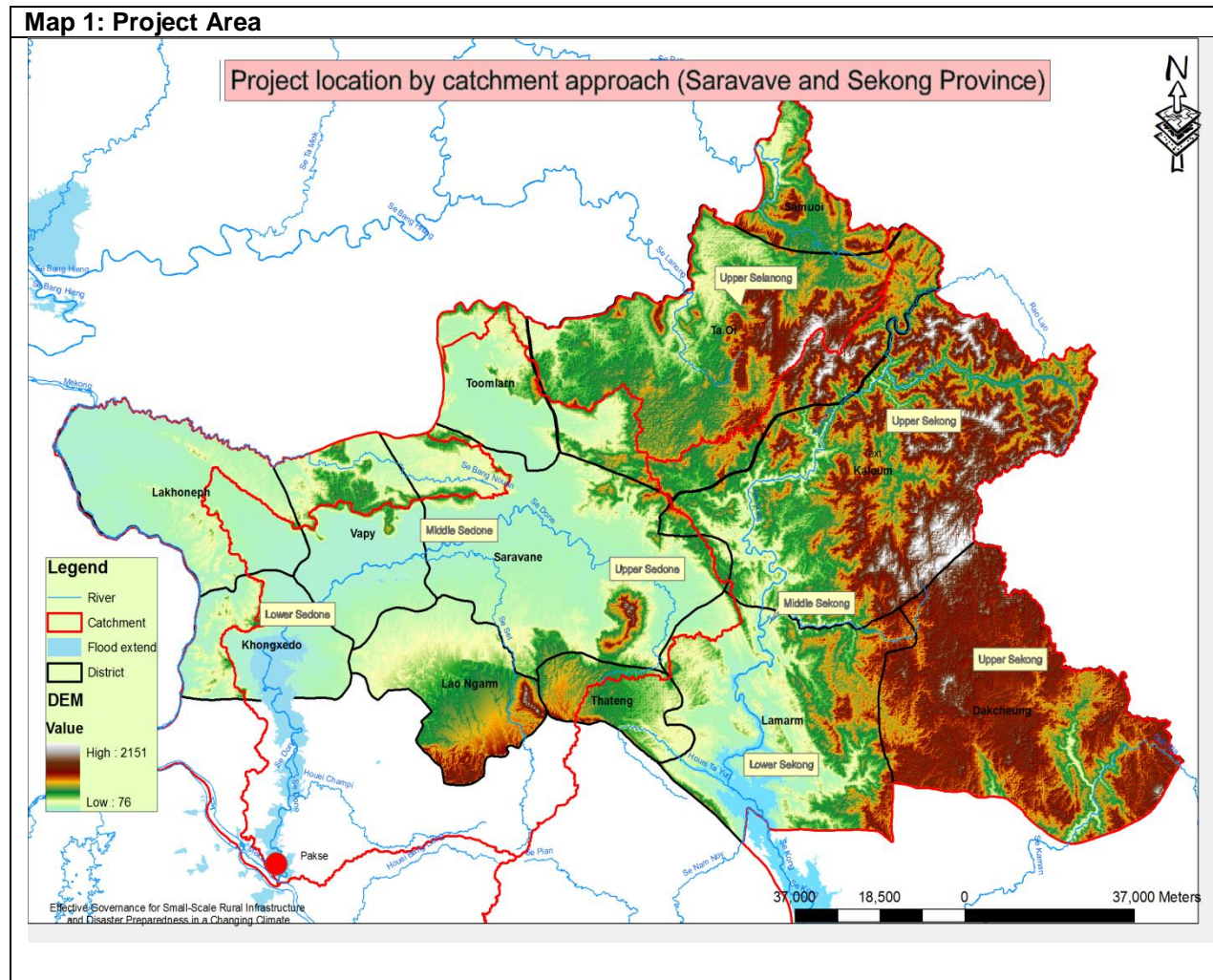
The climatic condition of Saravane and Sekong provinces is influenced primarily by the seasonal southwest and northeast monsoons. The southwest monsoon impacts on all catchment areas, but particularly on the lower catchment of the project area, specifically from June to November when the heaviest rainfall usually occurs. The average annual rainfall distribution over the two provinces varies from 2207mm in Pakse (in Champasack) to 3978mm in Paksong⁷. The seasonal mean temperature change in the lower catchment and lower reaches of the mountains of the Lower Mekong is modest, reflecting the tropical and sub-tropical nature of the climate. There are however, significant changes both seasonally and annually at higher altitudes in the upper catchments where temperate climates dominate the Northern parts of each province.

During wet season between mid-May to early October when atmospheric pressure is low over Asia, the southwest monsoon climate is typically characterized by periods of heavy and continuous rainfall causing increases of surface and ground water flows within the mid to lower catchment areas. During the latter part of the wet season between July and October rainfall becomes more frequent, as temperature and humidity rises, causing the development of tropical

⁶ MONRE's approach to developing vulnerability indices is explained in national communications documentation.

⁷ The daily rainfall data of 3 representative stations, which are Pakse, Paksong and Saravane, was collected from the Department of Meteorology and Hydrology of Lao PDR.

cyclones in the region. Most tropical cyclones occur during September to November. Heavy flooding of the mid and lower catchment frequently occurs when two or more of these storms occur in succession.



Rainfall data from 3 relevant meteorological-hydrological stations at Pakse, Saravane and Paksong shows that while there is a general increase in annual rainfall (see Annexes 7.2 – 7.6), trends over the past 12 years indicate shorter periods of rain, both during wet and dry season and an increase severity of rainfall events. The shorter periods of rain have led to increased drought incidences, but equally more intensive rainfall events, in Laos, particularly in the target areas.

These findings as reflected in Table 1 indicating that 6 of a total of 9 previous major droughts have affected the Southern parts of Laos. The droughts and extended dry periods that affect the livelihoods and agriculture production of farmers to the largest extent are those that occur between June and July, causing delays in rice planting and affecting and destroying nursery crops. Drought susceptibility maps of the National Hazards Profile for Laos (see Annex 5.3) indicate that especially during these months the target area is susceptible to drought.

Table 1: Summary drought occurring over in the past 40 years

S. No	Year	Type of Damage	Damage cost (USD)(,000)	Place of Damage
1	1967	Drought	5,120	Central and southern
2	1975	Drought	N/A	Central
3	1982	Drought	N/A	N/A
4	1983	Drought	50%	N/A
5	1987	Drought	5,000	Central and Southern
6	1988	Drought	40,000	Southern
7	1989	Drought	20,000	Southern
8	1998	Drought	5,762.70	Northern and Southern
9	2003	Drought	16,500	Central And Southern

Source: WREA: NAPA 2009

According to reports from Sekong and Saravane PAFO office severe droughts in the recent past occurred during 2009-2011, with the most damaging occurrence in Saravane during 2009-2010. This specific event damaged 1352 ha of low land rice, 2106 ha upland rice and 2376 ha of vegetable crops (see Annex 6.9). Drought and extended dry periods affect especially the functionality of water storage infrastructures for domestic supply and agriculture, since supply streams dry up and so do the storage facilities.



Pictures 1 and 2: Irrigation of Huay Lai in Sekong province: lack of water (16 March 2012)⁸

Climate related threats

⁸ Pictures 1 and 2 show drought impacts on an open storage pond provisioning an irrigation system at Huay Lai village in Lamarm district (Sekong province).

The project area has been established through the NAPA process as one likely to be most heavily affected by drought (all zones); erosion due to increased run-off caused by land use change; floods along the Mekong, Sedon, Sekong and their major tributaries (lower catchments); and flash floods and landslides in the upper catchment and parts of the middle catchment zones. Expected increases in mean temperatures together with decreasing dry season rainfall will very likely lead to longer and more severe drought events. The observed trends include: an increase in the number of drought and flood events over the past three decades; and an average increase in temperatures of 0.1 to 0.3 degrees C per decade for at least the past 5 decades (World Bank Climate Knowledge Portal). These trends also lead to an increased risk of fires likely to affect all forest and forest agro-ecosystems and contribute to food insecurity due to a loss of NTFPs, grazing area, cash crops and staples. However, the way these threats are brought to bear will be highly localised, depending on the topography of the sub-catchment zones (lower middle and upper catchment zones, see map 1), soil characteristics (6.6 and 5.4), land use and land cover in those zones, as well as changing rainfall and temperature patterns. For example areas of monoculture cropping of rubber trees on acrisols (about 45.34% of the project area) on slopes of the mid catchment in the Bolaven plateau are most prone to increased rill and gully erosion as a combined effect of increased occurrence of heavy rains and longer dry periods on unprotected soils. Similarly, slash and burn practices on highly erosive soils in narrow valleys of the upper catchment zones lead to an estimated 40% higher rate of run-off during heavy rain events, than would be the case for secondary forest areas. The complexity of these various factors points to the need for detailed climate vulnerability analysis to be carried out in specific localities as part of the detailed planning associated with introducing climate change adaptation interventions on the ground.

Climate impacts on small-scale irrigation infrastructure

The infrastructure baseline analysis⁹ has shown that in recent years significant investments have been made in domestic water supply and sanitation, irrigation, rural roads, education, health and small scale agricultural irrigation. Irrigation is the largest water user (82%), while the remainder is used by industry (10%) and domestic purposes (8%). In Sekong province all large, medium and small-scale irrigation schemes use gravity to direct the flow of water from the various sources, due to the steep topography and for cost saving reasons. Up to 2011, in Sekong province 235 irrigation projects were constructed over a total area of 3956.63ha for wet season rice, 1429.88 ha for dry season rice and for other crops covering the remaining area of 457.70ha (see 5.5, 5.6, 6.1, 6.2 and 6.8 for a full list of irrigation projects implemented by the government). Among these 235 projects, 103 large and small scheme projects were constructed by the GOL with support from external donors. The other projects are small schemes and were constructed by local communities. The community irrigation schemes are particularly vulnerable due construction type (i.e.: wooden weir, gabion weir, intake, earth canal, on farm and off farm ponds), generally constructed without government or donor support, using basic techniques and standards. Most of these structures are located in the remote districts of Dakcheung, Khaleum and Thateng.

Climate threats affect different types of water related infrastructure in different ways. Over the last 3-4 years many of these small irrigation schemes have not been in operation due to drought and damage caused by flood and storm impacts during typhoon Ketsana in 2009. For example, most of the main and tributary canal networks are constructed of reinforced bamboo earth mounds which have failed following flooding events. The Province plans to upgrade earth

⁹ Part of the PPG phase was to conduct two baseline analyses; one in the infrastructure sector and one on ecosystems. The main findings are summarized throughout the Prodoc and provided in full in Annex 8.

irrigation canals using concrete or brick lining on important irrigation schemes to enable a more efficient control and use of water to increase efficiency of such structures. The list of existing and operational irrigation schemes in the Sekong Province by district and type is provided in Annex 6. Stakeholder consultations during the preparatory phase revealed that traditional earth-type construction standards together with poor maintenance practices were the major challenges leading to irrigation infrastructure failure.

Saravane has a better potential for rain-fed agricultural production particularly for rice in lowland areas and short duration and permanent crops on the higher lands of the Bolaven plateau. The total number of irrigation schemes is lower, at 153, although supplying a much larger irrigated area (16500 ha in wet season and 13500 ha in dry season)¹⁰. At present only 100 are operational and include: 2 large scale weirs, 5 medium scale schemes, 39 small scale schemes and 5 traditional as well as 49 pump irrigation schemes. The main climate induced threat to irrigation schemes are floods and flash floods. Although there is insufficient damage assessment data on these schemes the overall economic losses caused during typhoon Ketsana give some indication of scale of the risk to irrigation compared to other infrastructure sectors:

Table 2: Economic losses (US\$ millions) in Sekong and Saravane caused by typhoon Ketsana in 2009

Province	Education	Roads	Water Supply	Health	Irrigation
Sekong	42.170	790.705	123.454	174,588	231,441
Saravane	60.969	1.814.022	101.946	19,295	2,375,000

Climate impacts on water supply infrastructure

Rural domestic water supply and sanitation uses the third largest amount of water (after agriculture and industry) ranging around an estimated 8% of total water consumption. However this 8% is as crucial as the 80% used for agriculture, given the fact that only 49% of the rural population are supplied with enough safe water from an improved source. There are two government entities responsible for rural water supply and sanitation in the provinces and districts. These are: (1) Department of Public Health (DPH) responsible for small scale clean water supply for communities and villages; (2) Department of Public Works and Transport responsible for larger scale water supply for towns and districts, including water and treatment systems guided by national water supply standards. The baseline analysis regarding rural water supply and sanitation infrastructure revealed the following for Sekong province: During the past ten years, in Sekong province the DPH has received funding for water supply and sanitation at the level of administratively aggregated villages clusters. Amongst the donors of past and on-going initiatives are: SIDA, UNICEF, CARE, World Concern, UNDP, Red Cross, CFCCA, WB, and the Poverty Reduction Fund (PRF).

The projects were implemented in all four districts (Lamarm, Thateng, Dakcheung and Khaleum) of the province achieving the installation of 5720 household toilets, 149 toilets at schools and 103 spring water supply and sanitation schemes for households and public buildings such as health centres. However, according to the information collected during interviews with the provincial and district officers, almost 50% of health centres lack water during the dry season. The main implementing agency regarding water infrastructure in Saravane in the past recent years has been UNDP and UNCDF. The two agencies have worked

¹⁰ The larger irrigated area compared to Sekong is explained by a larger proportion of lowlands in Saravane, better suitable for irrigation.

together, through the Governance for Public Administrative Reform project (GPAR), which provides small-scale infrastructures according to identified district needs as shown in map 2. Water supply projects implemented under GPAR include: Gravity spring flow systems, deep wells, and water tanks. The detailed list of projects is provided in Annex 6.



Picture 3: Village Head in Dakcheung District showing a parachute container from the Vietnam war used today as a water carrier.



Picture 4: The only water supply point for a village of 600 people in Dakcheung village. The tap is currently damaged and the population supply themselves with water from a nearby stream.

Map 2: GPAR projects built under the DDF in the target region (2006 – 2011)

As the overview of climate impacts on rural infrastructure (table 5) shows, the main risk is increasing drought and dry periods, while few coping mechanisms or adaptation measures have been put in place to address this risk. Stakeholder consultations revealed that shallow aquifers can no longer provide for the needs of the population in the dry season. Furthermore natural springs, providing several villages with water along a gravity fed water supply scheme, are also insufficient to cover these needs. During the dry season water is sometimes only available for the first village along the supply chain and even then on an intermittent basis. Very little storage capacity exists for water collection and storage that might provide a buffer against drought events. Water flows provided by simple gravity systems are not utilised at night-time and consequently simply run away instead of being retained. Most significantly no water availability or water consumption assessments have been carried out at local level which might inform the introduction of appropriate adaptation measures. In addition to the issue of drought, direct exposure of water supply schemes to flash-floods were mentioned as a significant threat.

Climate impacts on rural roads

According to the 2008 road survey¹¹ there were in total 35,558 km of road network in the provinces of Saravane and Sekong, of which 4,846 km are unpaved, and therefore particularly vulnerable to climate related hazards. Furthermore both provinces have significant areas classified as highly susceptible to landslides, as identified in the UNDP support National Hazard Profile (2010). The climate impacts on rural roads are mainly related to flooding and landslides which, based on PPG consultations, are believed to be increasing. Increasing incidence of landslides is being observed in the upper catchments of the Sedon and Sekong rivers, while increased flooding is being observed in the lower catchments and along the Mekong river. These impacts have caused paved roads to fail due to silt and debris build up causing localized flooding of the surrounding access roads and communities, leading to disruption of traffic. Constructed drains also become blocked as an aggravating issue. This inconvenience may cause transport delays of up to one or two days. For unpaved roads the situation is worse, causing damage to road access and surrounding property leading to delays of several weeks and, if unattended, sometimes months. Very little funding is allocated to maintaining or improving rural roads. These tasks tend to be left to communities themselves or international donor assistance. Transport delays also disrupt access to commercial markets affecting the livelihoods of districts connected to external resources¹².

Climate impacts on education and health facilities

Education and health facilities are important users of domestic water in rural areas and therefore merit inclusion in baseline analysis of climate related risks and impacts. Furthermore they offer the potential for shelter and other services during disaster related events. Detailed information about the condition of education and health infrastructure in Sekong province is not well recorded. Stakeholder consultations with the education department revealed that there are 230 primary schools and 32 secondary and high schools in Sekong province. Table 3 below shows a summary of school types per districts.

Table 3: Summary of School in Sekong province

District	Number of villages	Population	Number of schools		Construction Method
			Elementary	Secondary	
Lamarm	42	29,709	42	12	40 percent of the schools wooden structure
Thateng	55	34,399	55	12	35 percent of the schools wooden structure
Dakcheung	80	19,804	80	4	More than 50 percent of the elementary schools wooden structure
Khaleum	58	14,569		4	40 percent of the schools wooden structure

¹¹ Ministry of Public Works and Transport (2008)

¹² Also private investments in rural road infrastructure from mining and hydropower companies occur in both provinces for the reason of CERS strategies and, most important, access to the respective concessions. The Nam Theun II power company, as an example supported the maintenance of 50km rural roads in years 2009-2010 and of 42km in years 2011-2012. With regards to future donor support, ADB was the biggest player in the past and KfW will be supporting rural road construction in Dakcheung district for a total length of 200km (4,000,000 EUR budget) as part of the government's strategy of improving road connectivity to all neighbouring countries to allow transit.

The school buildings are not resilient against extreme weather events, because the buildings were constructed and tied together using simple wooden and bamboo walls. As a consequence of the Ketsana storm, 32 schools were destroyed or damaged. In Saravane the construction standards of schools can be distinguished according to sub-catchment zones. Schools buildings in low land districts have a stronger structure, mostly built of hard wood and concrete, although if located near the Sekong River they are regularly affected by flooding. By contrast, schools in hilly areas (such Ta Oi, Samoi, Laongam and Samoi) are constructed with poorer materials with simple structures which do not include water harvesting and storage features, and are consequently more vulnerable to drought and high temperature events.

Field observations showed that the construction standards in Saravane Province are similar to those observed in Sekong province. Poor infrastructure design has led to the damage and destruction of 32 schools by storm Ketsana. Schools and, to a lesser extent, health centres are of importance to the people living in this region due to their potential role as water harvesting and storage facilities, as well as centre of refuge during disaster events. At the moment these buildings are not designed with multiple purposes in mind. In most cases, water harvesting on roofs is even installed for the purpose of serving the users of the facility itself, let alone the wider community.



Picture 5: School infrastructure in Dakcheung district without water harvesting and storage facilities. This could be rectified providing a measure of increased community resilience to drought events.

During stakeholder consultations that took place during the project development phase, a list of the major climate threats on key inventory and assets of the small-scale rural infrastructure sector emerged. This was partially built on the outputs of two provincial workshops where each line ministry presented their perceived climate threats and damages¹³, as summarised in Table

¹³ There is no clear distinction between small-scale, mid- and large scale infrastructures. Usually infrastructure investments over a budget threshold of 500.000 USD are monitored by the central government. Below that threshold government support in terms of guiding the district and villages depends on the availability of budget. The notion of small-scale is thus most often used as a synonym for infrastructures that have been constructed under the responsibilities of the communities without support

5 below. This analysis indicates the prevalence of drought and extended dry periods as a threat impacting primarily on small scale irrigation and related water storage systems, which will only increase given the observed trend of increasing drought events and mean temperature rise over

Table 5: Climate threats on water related infrastructure		
Location	Key Inventory and Assets	Climate Threat
Sekong Province		
District: Lamarm, Village: Ban Mo (Huay Thon River), Lower catchment of Sekong,	Community water supply plant. Village Irrigation scheme at Ban Mo School facilities at Ban Mo	Flash floods Drought Extreme Floods
District: Lamarm, Village: Ban Lavy Fang Deng (Huay Mak Nao), Lower catchment of Sekong	Irrigation scheme at Ban Lavy Fang deng	Flash floods and drought
District: Thateng, Village: Ban Nong Lao (Huay Ta Yeun), Upper catchment of Sedone river,	Village water supply and sanitation at Ban Nong Lao	Drought
District: Thateng, Village: Ban Nong Lao (Huay Ta Yeun), Upper catchment of Sedone river,	Head irrigation intake and canal	Drought and Severe Drought
District: Thateng, Village: Ban Hua Xe (Huay Sai), Upper catchment of Sedone river,	Village water supply and sanitation at Ban Hua Xe	Drought
District: Thateng, Village: Ban Kam Kok (Huay TaYun), Upper catchment of Sekong river,	Village water supply and sanitation at Ban Kam Kok, Huay Tayun river	Drought
District: Dakcheung, Village: Dak Bong, Dak Treup and Dak Seng, along 16 B, from Lamarm to Dak Chung	Village water supply and sanitation at Dak Bong, Dak Treup and Dak Seng, along 16 B, from Lamarm to Dak Chung.	Drought
District: Dakcheung, Village: Dak Pam,	UNDP-GPAR village water supply project.	Drought
District: Dakcheung, Village: Tang Ta Lang,	UNDP-GPAR existing small irrigation scheme.	Flash floods and drought
District: Dakcheung, Village: Tang Lou,	UNDP-GPAR existing small irrigation scheme.	Flash floods and drought
District: Dakcheung, Village: Dak Euy,	UNDP-GAPR existing small irrigation scheme.	Flash floods and drought
District: Dakcheung, Village: Dak Ta Ok Noi,	Existing small traditional irrigation scheme.	Flash floods and drought
District: Khaleum, Village: Songkhone,	UNDP-GPAR existing village water supply project at Ban Songkhone village	Drought
District: Khaleum, Village: Songkhone,	Existing irrigation scheme & head work and canals on Huay Alak (4ha), Huay Tat Cha Ngeu (9ha), Huay Tat Bouy (6a) and Huay Tat Chieu (5ha)	Flash floods and drought
District: Khaleum, Village: Ban Loi,	UNDP-GPAR existing village water supply project at Ban Songkhone village	Drought

the past decades (World Bank, Climate Knowledge Portal).

in terms of technical design or maintenance.

District: Khaleum, Village: Ban	New irrigation head work and canals at Ban Kalo for 25 ha of irrigated area	Flash floods and drought
Saravane Province		
District: Saravane, Village: Nong deng	Existing irrigation system	Extreme floods and drought
District: Saravane, Village: Huay Lat	Existing Huay Lat Weir and irrigation scheme.	Extreme floods and drought
District: Saravane, Village: Nakhoisao	Existing Nakhoisao Weir and irrigation scheme.	Extreme floods and drought
District: Saravane, Village: Soutavaly	Existing Soutavaly Weir and irrigation system	Extreme floods and drought
District: Ta Oi, Village: Pho Beui	New water supply and sanitation of Pho Beui village	Drought
District: Ta Oi, Village: Thetsaban	Existing spring water at head intake for Thesaban	Drought
District: Ta Oi, Village: Pha Tem	UNDP-GPAR existing irrigation scheme at Ban Pha Tem	Flash floods and drought
District: Vapi, Village: Ban Keng Noi	Existing community bridge crossing Huay Keung at Ban Kang Noi	Floods & Flash Floods
District: Vapi, Village: Ban Kha Nao	Existing traditional Weir and irrigation scheme at Ban Kha Nao	Drought and high temperatures
District: Vapi; Village: Ban Sian (New water supply (Provide water tanks) at Ban Sian	Drought
District: Vapi; Village: Ban Na La Ong, Ban Tan Soum, Ban Alan Khok	Existing check dam at Beung Ae wetland	Drought and high temperatures
District: Khongsedone, Village: Oudomxay, Khok Hin Kok, Kud Hin, Kud Heua, Naphoxay, Nakok, Hintang, Nanong, Phonsaat, Xaymon, Huay Sao	Community access road 6km (unsealed).	Extreme and localized flooding.
District: Khongsedone, Village: Ban Hang Heng	Existing irrigation scheme at Ban Hang Heng	Extreme floods and drought
District: Khongsedone, Village: Ban Hang Heng	New dike for wetland reservoir at Ban Bang Heng	Drought
District: Lakhonpheng, Village: Ban Naprabang noi	New water harvesting tanks at Ban Naprabang noi	Drought
District: Lakhonpheng, Village: Ban Naprabang Yai	New water harvesting tank at Ban Naprabangnyai	Drought
District: Lakhonpheng, Village: Ban Lakhonsy	Existing community reservoir	Flash floods and drought
District: Laongam, Village: Ban Lao Nong Noi	UNDP-GPAR existing irrigation scheme	Drought

Climate impacts on ecosystems

Site specific scientific data or an administrative record on the status of ecosystems, especially smaller ecosystems supporting or supplying water related infrastructures, is not available in the target provinces. At the same time, during stakeholder consultations and field visits, it became clear that the combined effect of extended dry periods and droughts and increased temperatures have resulted in a perceived higher risk of forest and bush fires, which regularly

destroy livelihood assets such as agro-forestry areas and NTFPs. Even though the forests have undergrowth canopy that provides some resilience to drought (water retention capacity), there is still a potential increase in the probability of wildfire incidences. This is concerning because uncontrolled and unmanaged wildfire has the effect of reducing the forest area and changing species composition by affecting temperature sensitive plants, such as epiphytes, for the benefit of less fire resilient invasive species (see Annex 6 for species in the target region). Loss of the undergrowth also means less slope stabilization during the rainy season. Flash flooding in valleys of degraded upper catchment forests leads to greater erosion as a result, which affects food production systems downstream through the destruction of small scale irrigation infrastructure.



Picture 6: Consumption and sale of NTFPs, such as wild animals (Saravane province) is an important local income source and a local coping mechanism regarding food insecurity.

With regard to combined non-climate induced threats to livelihoods and assets, most of the smaller ecosystems that serve as water recharge and retention areas for water supply or which could prevent flash floods are degraded or not protected from further degradation. This regularly leads to the destruction of small scale irrigation schemes, since the runoff from degraded ecosystems in upper catchments of narrow valleys in all the mountainous districts is up to 40% higher, compared to undisturbed upper catchment forest zones. In the same sense, lower retention capacities of small scale sub-catchments providing village water supply schemes significantly affects availability and can lead to schemes drying up entirely. As a result affected communities are forced to spend longer periods transporting water or are force to use less water, resulting in health and sanitary impacts.



Picture 7 and 8: Degraded forest area surrounding one of two major water supply and treatment systems of Sekong town. The reservoir also provides water for small-scale irrigation in downstream villages. Regular flashfloods destroy the pipes and lead to water shortages during the irrigation periods.

The following table provides critical ecosystem services by asset and sub-catchment zone¹⁴.

Table 6: Catchment Zones, ecosystems and services

Catchment Zone	Assets	Ecosystem Services
Lower Catchment Zone	Forests	The grasslands and few remaining plants and trees spread out throughout the Bolaven Plateau have to be hardy to handle the harsh conditions of the sun, wind, and being inundated under water. These grasslands plants and trees have important functions – they hold the ground and soil together, prevent soil dispersal, provide food and shelter for native wildlife, and prevent surface erosion.
	River Bank Vegetation	Prevent river bank erosion. The presence of this different variety of river bank vegetation indicates their tolerance to wind, inundation and also preventing erosion of river banks.
	Wetland section connected to the rivers.	They provide goods and services essential for the survival of humans such as carbon and other nutrient stores or sinks, flood and storm control, groundwater recharge and discharge, organic matter or sediment export, routes for animal and plant migration, landscape and waterscape connectivity and recreational services. These all contribute to human health and wellbeing.
Mid- Catchment Zone	Land and grassland	Part of the vegetation prevents soil erosion and reduce surface runoffs
	River gravels	This is part of the river system that can be replenished.
	Re-growth Forests	It protects soil erosion, reduces runoffs, and it help protects the forest biodiversity
Upper Catchment Zone	Primary Forest	Act as the water management, reduces runoff, and prevents soil erosion and landslides

¹⁴ For climate threats and adaptation options see V&A analysis in Annex 8.9

1.1.3 Summary climate induced problem

The existing climate in the target area is already characterised by high rainfall variability, a tendency which the available climate science suggests will be amplified by future climate change. The major climate related threats are higher temperatures and changing intensity and periodicity of rainfall patterns. Increasing incidence of drought is one major likely consequence, together with increased incidence and intensity of flooding and landslides. All catchments within the project area are likely to be affected, although to varying degrees, placing stress on ecosystem functions in water provisioning and flood protection. Increasing bush fires and the migration of invasive species are also likely consequences of increasing mean temperatures further increasing soil erosion and the incidence of landslides and flash-flood events.

As a result of this physical context and due to a combination of poor application of building standards and limited investment in operation and maintenance, more than 50% of small scale irrigation schemes in the project area are already failing within the first few years. Furthermore, housing, agricultural land and public service buildings nearby rivers are frequently being damaged or lost altogether. Invariably the rebuilding of lost assets tends to occur in the same exposed locations, while alternative adaptation options, such as migrating to higher elevations or building in a more climate-resilient manner, are not considered through lack of access to suitable land or funding.

The capacity assessment carried out during the PPG has confirmed that the institutional and financial capacity of districts and communities to adapt to the situation is weak. This includes the ability of district planning officials and decision makers to identify areas that are critical vulnerable to climate hazards, to draw the links between ecosystems management and infrastructure development, and to prioritise, design and 'budget in' greater resilience measures.

In summary the climate induced problem that the project seeks to address is that local administrations, particularly in drought prone areas of the south, are finding it increasingly difficult to supply and maintain critical small scale rural infrastructure for rural communities in the face of more frequent flood and drought events. As the following section will demonstrate, there are a number of underlying causes which further influence the climate induced problem.

1.2 Underlying Causes

The underlying causes of the problem are multiple and encompass both climate and non-climate related factors. The analysis below provides the ground for the identification of those aspects of the problem complex that the new project will be able to influence, as further described in section 1.3. The analytical framework used for this approach is the "UNDP toolkit for designing climate change adaptation initiatives (2010)". The principle drivers of the climate induced problem including existing land use practices, soil geography, the poverty, gender, and ethnic context, local administrative practices and broader rural development policy.

Land cover and land use change

A detailed, current land use map of the project areas is shown in Annex 5. Annex 6 provides an overview of the profile of the different natural systems per catchment zone and their status. Around 22% of the target area is part of the National Protected Area System, which offers important ecosystem services to the population and contributes to natural water regulation (map of NPA in the target area, see Annex 5; brief description of NPAs in Annex 6). But despite

this, these areas remain poorly managed and subject to continuous land use pressures and change. The poorest populations depending on low production upland rain-fed farming systems are particularly vulnerable, often facing rice shortages¹⁵. National agriculture and land use policies are seeking to address this through improved planning approaches, including land titling and the introduction of permanent cropping systems to stabilize shifting cultivation. However these policies are not easy to reconcile with other major land use change trends in the region¹⁶.

Currently an estimated 20% of the country is leased under concessions for mining, hydropower and large scale timber and cash crop plantations¹⁷. Southern Laos is a particular hot spot for land concessions. Currently two new dams are under construction along the Sekong River and an unknown number of mining companies are undertaking feasibility assessments for their operations. Although the proportion of concessions in the target area is unknown, the following map gives an indication on the dimension of this driver of land use and land cover change (see Annex 7 for historical changes of forest cover in Laos). 87 land concessions shown as yellow dots were leased up to 2010 for agricultural production, mainly including coffee, rubber tree and other cash crops¹⁸.

Since there is evident competition between smallholder land uses and large scale investments, which contributes to food insecurity and other social and environmental impacts, the government has recently endorsed a decree to stop the issuance of new concessions. Some districts, such as Dakcheung, have even begun to implement this decree through improved monitoring and supervision of private sector interests – an effort which (if sustained) could significantly strengthen adaptive capacity through improved physical planning. However, for the present, it is the interests of the larger investors that continue to drive decision making on land use while the interests of the rural poor remain marginalised by comparison. Climate induced risks serve to further highlight this marginalisation but the main driver is a deeper one related to broader governance issues, including the visibility of poor rural community concerns within province and district planning processes.

Soil geography

The project area contains eight major soil groups with Acrisols covering 45.34% and Cambisols covering 34.49%. They are highly erodible and provide insufficient nutrients for many types of agricultural uses (see erosion vulnerability analysis in Annex 5.4 6.6). The same holds true for the anamite and loamy soils that dominate the hilly target districts bordering Vietnam. Non-appropriate agricultural uses of those soils, such as increasing monoculture plantations, shortened cycles of shifting cultivation of any crop pattern and intensified rice farming further enhances the vulnerability to erosion. Poor soil quality provides a historical explanation for the

¹⁵ A detailed analysis of specific vulnerabilities of different farming and livelihood systems in the catchment zones of the target area is provided in Annex 8.7.13.

¹⁶ For integrated models of large scale investments with smallholder livelihoods (e.g. through contract farming) see UNDP/ UNEP (2010/04).

¹⁷ Information gathered from GIZ LM RED project

¹⁸ Accumulated foreign direct investment in the Lao plantation sector has increased substantially in recent years, from US\$18.6 million in 2001 to almost US\$665 million in 2007, representing 11% of total foreign investment in the period (2001-2007). In 2010 an estimated 263 mining operations were documented in Laos. While the sector contributes to 10% of GDP (2010), large scale companies, such as Sekong and Phoubiah mining being amongst the most important tax payers of the country, many of the smaller to mid-scale operation are illegal or informal and only contribute to the income of few individuals (UNDP/ UNEP 2010/08 and UNDP/ UNEP 2010/04).

development of formerly sustainable swidden agriculture (upland rain-fed farming system), which remains a major land use type in all kinds of forest ecosystems. However it has become an increasingly difficult system to sustain in face of being crowded out and constrained by competing land uses such as hydropower, mining and commercial tree plantations. The deforestation that is now occurring as a result of these competing and increasingly unsustainable land use systems lies as the root of a problem that increasing in scope and intensity as a result of the added factor of climate variability and change.

Poverty, gender and ethnic groups

Ethnicity is an important dimension to prevailing poverty and vulnerability to climate change. Within the target provinces the main ethnic groups are Mon-Khmer and Lao Thai. 80% of the population belong to Mon Khmer minorities. Among the group of the Mon-Khmer 54% of the population are ranked as poor compared to 25% among the Lao-Thai. While the group of Lao-Thai mostly inhabit the valleys and traditionally practice paddy rice cultivation, the Mon-Khmer are predominantly settled in upland areas. Closely associated with ethnicity is the small average size of agricultural land holdings, with less than 2 ha and in many parts even less than 1 ha per household regardless of geographical distribution. Annex 5.1 shows a relatively even distribution in plot size despite that fact that some face more challenging topography and less soil fertility, contributing significantly to their vulnerability to climate change.

A root cause for inequitable distribution of land is the past history of relocation programs (Chamberlain 2007) which attempted to organise people into village clusters (Khumbans) in order to improve access to basic infrastructure and services. Many decided to resist and have remained relatively marginalised as a result. Since then they have lived in fear of being relocated, there have been less individual incentives to invest in improving the land and other assets. Linked to this is the phenomenon of chain migration whereby pioneers of a given ethnic group were able to acquire a first mover advantage leaving late movers less access to fertile land and key services, such as water supply schemes (GTZ 2004, Lestrelin 2011). There remains much to be learned about socially differentiated vulnerability, particularly in relation to climate related threats. More understanding of the nature of this problem is necessary when identifying and planning climate resilient small-scale rural infrastructure and associated ecosystem management solutions.

Political and administrative systems

Despite the Government's strong commitments in making public administration more effective and transparent as underpinned by its 7th NSEDP, existing local planning, budgeting and execution systems are still not sufficiently developed and flexible in dealing with the emergence of new issues, such as climate and natural disaster related risks. The government has endorsed a "National Climate Change Strategy" (2010) and the "National Adaptation Programme of Action to Climate Change" (2009), yet climate change planning and implementation is still in its infancy in Lao PDR. This holds especially true for provinces, districts and communities, since the on-going capacity development efforts in line with the national climate change agenda, currently only address the central level. This follows a general pattern of top down capacity development, planning, budgeting and execution processes in Lao PDR, which places vulnerable local communities at risk in the face of a changing climate because they are unable to access the type of support that they need to secure their assets and livelihoods. Programs that promote participatory bottom-up mechanisms, such as the UNDP/UNCDF supported delivery of block grants, have been in place for several years, with financial resources transferred directly to districts to implement prioritized small-scale community projects. However such initiatives have yet to address climate hazards, and specifically the different levels of vulnerability that may exist to such hazards due to gender or social status. Men as an example are traditionally more

involved in cash crop production and irrigation systems, while women traditionally are responsible for the provision of food and water to the household. The introduction of agro-forestry systems, as a technological innovation to support ecosystem based adaptation, would tend to benefit men with the use of specific measures to include women, such as the establishment of women user groups and associated land tenure arrangements.

Rural development policy

Rural development in Lao PRD remains relatively fragmented by sector such as agriculture, forestry, water management, and infrastructure development. Climate change adaptation as a mainstreaming task across all those sectors suffers from this situation. Designing stand-alone adaptation options in one sector might lead to maladaptation or to missed adaptation opportunities in another sector. An example is to build more weather resilient schools without using these infrastructures for water harvesting and storage serving nearby villages that suffer from seasonal water shortages. The lack of an integrated rural development policy also contributes to a low understanding on interdependencies between different ecosystems, landscapes and catchments. The knowledge on what effects upstream interventions, e.g. deforestation of forests, will have downstream is only slowly emerging. This is due to the fact that alongside the absence of a rural development framework, there are no exchange opportunities for local planners to discuss upstream-downstream policy issues. While at province and district level, planning committees exist, this is not the case with regards to platforms across administrative boundaries. River basin committees would provide such exchange opportunities, but are currently not yet well established in the target provinces.

1.3 Long term solution and barriers to achieving the solution

1.3.1 Long term solution

The key to adaptation in most instances is competent, capable, accountable local administrations that understand how to incorporate adaptation measures into most aspects of their works and departments (after Satterthwaite, D. 2007). This requires improved knowledge of climate risks together the ability to analyse the nature of that risk and to develop solutions, both from technical and managerial perspective. For example, local communities and local planners need to have a shared understanding of how drought is already affecting livelihoods and assets, as well as capacity to project forward how such risk may evolve over time. Vulnerability assessment and local risk mapping approaches need to be combined with standard annual development and investment planning processes.

Furthermore local knowledge needs to be effectively brought to bear on the planning process. Much of the time local communities are the best informed about risks that affect them on a day to day basis. They need improved channels to communicate their needs and concerns effectively through an informed and iterative discussion which can contribute visibly to the local planning process. Currently, this first-hand information from local communities is not sufficiently taken into account. As an example communities are well aware of seasonal water scarcity, but the adaptive capacities to respond to the problem and the technical solutions are in many cases unknown. Instead of building additional water storage capacities to offset longer or more intense dry periods, communities continue to supply themselves with surface water from streams, which puts heavy workloads on women. This indicates the need for improved dialogue between local government and climate vulnerable communities, supplemented by both technical and financial support, leading to agreed measures and options for climate resilient rural infrastructure (as well as related investment).

In addition, an understanding of critical ecosystem services and functions in sustaining this infrastructure needs to be integrated into local planning and budgeting (see chapter 2.6). While an awareness of the provisioning services of ecosystems exists amongst local stakeholders, these services are not sufficiently well valued, particularly as a means of coping with climate change. An example is the provision of NTFPs through all kinds of ecosystems during times of seasonal stress, such as extended drought periods. Upper catchment forests also protect small scale irrigation from failure as a consequence from flash floods and landslides and, as a result, can contribute more towards the local economy than some monocultures or even swidden agriculture. On a micro-level 'green infrastructure', such as dykes or flood protection walls "naturally" stabilised with crops, can also be cost effective and should be combined with bricks and mortar based solutions. The complementary nature of physical infrastructure and ecosystem-based adaptation solutions is an essential principle that needs to become a much more common and intuitive element in local development and investment plans.

The local planning process, with its emphasis on villages as 'implementing units' and districts as 'planning and budgeting units' and provinces as 'strategic planning units' (Prime Ministerial Instruction 01/PM, 2000) provides the framework for a progressive integration of climate change considerations into local governance. Lessons learned on the implementation of effective adaptation actions need to be codified, shared and replicated more widely within Lao PDR through multiple channels including the country's expanding governance reform programmes.

1.3.2 Barriers

There are a number of individual, informational, financial, regulatory, technological and institutional barriers that prevent the desired situation from emerging.

Capacities in climate resilient planning

Local planning capacities are in their infancy in Lao PDR, yet have made progress in recent years with the support of the UNDP GPAR programme, among others, in more transparent forms of participatory planning. This programme is now being scaled up by the Government nationally. However the ability to address additional risk factors, such as increasing climate variability, has not yet been built in as a set of core tools, procedures and skills. An assumption is being made by local authorities that historical climate trends will continue and that, in relation to rural infrastructure, improved build quality and better maintenance alone can ensure the viability and long term sustainability of the investments being made. Risk information is not systematically collected and fed back into the annual planning process. The different levels of vulnerability to climate risks from one geographical location to another or from one social group to the next are not yet analysed, even at a very basic level. The role of natural systems in sustaining built infrastructure is understood at a very conceptual level but the ability to turn principles into practical solutions that can be designed, budgeted and implemented has yet to be developed. Furthermore local planners have yet to engage with their constituents (local people) in joint analysis of risks being faced on the ground, as well as how the nature of those risks may be changing with time.

The proposed LDCF project will address critical barriers mentioned above through Outputs 1.1, 1.2 and 1.4, respectively. Output 1.1 will involve the design and delivery of a capacity development programme on climate resilient planning for 250 national and local officials. Output 1.2 will support the actual integration of climate resilient measures into annual planning processes, helping to justify the need for additional resources for adaptation solutions. Output

1.4 will support the development of related tender documents at local level also helping to build the necessary skills for the future.

Climate knowledge and information

Effective planning for climate resilient development at local level requires access to climate risk information which is site specific. This information is not yet available in a form that can be readily used, but rather compiled in a range of non-specific national level documents and analyses. Local officials and other local stakeholders are not sufficiently familiar with basic scenario-based planning approaches as a means of dealing with uncertainty. Scenario-based planning requires a set of disaggregated climate related baseline data, such as the hydrology of sub-catchments, which is not available. Simplified tools to gather proxy data to fill in these data gaps, such as simplified V&A tools, are unknown. In addition, on-going local adaptation efforts are not recognized as such and therefore the experience and knowledge gained from these initiatives cannot be effectively channelled to inform future adaptation strategies. What already works well should always be used as a starting point for local planning. The linkages between climate change induced trends, such as the tendency towards more intense rainfall events, and the consequences on baseline infrastructure and livelihoods, are not made. The effects of increasing climatic variability and change on ecosystems and their functions in sustaining local livelihoods, have yet to be assessed. Information on the social dimensions to climate vulnerability have yet to be collected and analysed, and methods for the identification and appraisal of appropriate engineering options including data on surface and ground water availability have yet to be applied. Moreover, the tools necessary in carrying out all of these analyses need to be adapted and translated in order to be applied in the Lao context.

The proposed LDCF project will address critical barriers mentioned above also through Outputs 1.1, 1.3, 1.4 and 3.2, . The capacity development programme to be delivery under Output 1.1 will be equally important to putting in place an effective climate risk information system, supported by a specific activity on introducing related data systems at the province level in both Sekong and Saravane. Output 1.3 will provide detailed planning information through 48 Climate Risk and Vulnerability and Adaptation Assessments (CRVA) informing the design of site specific investments. Output 1.4 will ensure that knowledge and learning on practical aspects of climate resilient planning are shared through regular field excursions for both local officials and community representatives. Output 3.2 will help to develop and disseminate best practice guidance based on experience on the ground.

Infrastructure codes and standards

As the infrastructure baseline analysis has shown¹⁹, there are construction standards in each infrastructure sector that falls under the mandate of different government agencies. However standards are not always rigorously applied for small-scale infrastructure due to budgetary constraints, which are often traditionally designed and managed as a result²⁰. Stakeholder

¹⁹ See footnote 16.

²⁰ While infrastructure projects over 500,000 USD fall under the mandate of the central government agencies and standards are theoretically always applied, there is no budget threshold which defines, when provincial and district line agencies will help communities to implement standards or not. Villages submit their development plan to the higher levels as explained in chapter 2.6. If an infrastructure investment as a part of the plan gets approved then sub-national agencies will help to implement the infrastructure according to existing standards. These exist for roads, water supply, schools, health centres and other public buildings, but not for small-scale irrigation. Yet even where these standards exist, where

consultations at district and village level revealed that as a consequence up to 50% of traditional community irrigation schemes regularly fail. Examples of non-climate resilient infrastructures are shown and described below demonstrating their high level of vulnerability to climatic variability and change. Furthermore, the existing standards do not take into account potential multiple services that can be provided by a single infrastructure category. For example, integrated thinking on water harvesting and storage, using public buildings or multipurpose water ponds for household consumption, sanitation, fish raising and agriculture has not been explored or applied.

In addition, there are no best practice examples on integrating ecosystem management with small-scale infrastructure development to show to sub-national decision makers, planners and local contractors. Formerly implemented ecosystem management approaches are only partly suitable to demonstrate, for example, the linkages to the protection of infrastructures or the water supply functions of ecosystems for small-scale water schemes. The importance and advantages of integrated solutions can only be understood, when best practices in the new policy field are shared on a inter district and province level. Finally, local level contractors and engineers work to stand-alone non climate resilient standards and norms. In most cases they do not have the tools and necessary experience to ‘design-in’ additional allowance margins, for example, high volumes of additional run-off, more frequent and severe localized flooding and storm events, or to increase storage capacities to ensure access to water during an extended dry season. Moreover local companies are reluctant to offer more expensive solutions to clients that only pay-off in the long-term, due to reasons of competitiveness.

The proposed LDCF project will address critical barriers mentioned above primarily through Output 1.5 which will involve development of climate resilient construction guidelines for several rural infrastructure sectors, together with orientation and training for local contractors.



Picture 9: Culvert over an irrigation channel is unstable due to flash flood scouring the channel banks downstream from the culvert. The culvert foundation needs to be tied back and channel re-lined with concrete.

Picture 10: Irrigation channels have overgrown vegetation that damages the concrete lining of the channels and impedes flow of water to the irrigation plots. Regular clearing of vegetation of channels is required.

there is insufficient budget available standards tend not to be applied rigorously.

Understanding of the benefits for ecosystem based adaptation measures

There is a significant knowledge gap with regards to combined ecosystem-based management and infrastructure development and maintenance solutions. Some understanding of the issue is beginning to evolve as a result of initiatives like the “Ecosystem and Livelihoods Adaptation Network (ELAN)”, which aims to promote an EbA approach. Most EbA type projects in the region, like “Mangroves for the Future (MFF)” or Building Coastal Resilience in South East Asia (BCR) focus on coastal adaptation, which does not provide a showcase for landlocked countries like Lao PDR. In Lao PDR only two economic valuations of wetland area have been undertaken and some studies on the economic value of NTFP’s have been carried out²¹. Two recent reports on climate change vulnerability on wetlands are also close to completion. However it will take some years before this new knowledge can be mainstreamed amongst decision makers and planners²². At present, the way in which ecosystems protect small-scale rural infrastructure, both directly and on a wider landscape scale, remains largely under-valued. Therefore ecosystem services are not factored into local development planning processes. Related to this is a typically low level of awareness among investors and managers of the interdependencies inherent in sound environmental management and adaptation. For example it may make more sense at lower elevations within in a given catchment to invest in reinforcing irrigation canals and water storage facilities with robust, permanent fixtures that are better able to withstand the expected increase in flash floods. By contrast in the upper elevations of the same catchment, it may make more sense to invest in ecosystem-based adaptation (EbA), consisting of reforestation and other land use changes, to improve the retention capacity of soils, reduce runoff, and reduce erosion, thereby limiting the severity of flash floods downstream. Yet both upstream and downstream levels of adaptation must be implemented together in order to reduce the overall vulnerability of critical irrigation infrastructure to acceptable levels. One reason influencing the limited awareness of government officials of EbA may be that the linkages between CCA and Integrated Water Resources Management have not been made, because the current IWRM projects were planned several years ago, before CCA policies reached the national agendas of developing countries. At the community level traditional understanding of environmental issues and according planning skills with regards to livelihoods usually takes only into account near environment and day to day tasks, rather than broader landscape concerns.

The proposed LDCF project will address critical barriers mentioned above primarily through Outputs 3.1 and 3.2. Output 3.1 will support the development and implementation of ecosystem management and action plans linked geographically with investments in climate resilient infrastructure projects. Output 3.2 will help to strengthen awareness and understanding of the benefits of improved ecosystem management as an means of ensuring the longer term sustainability of rural infrastructure solutions.

Budgetary constraints At local level the requisite discretionary funds are not available that could be used to cover the additional costs of designing-in the necessary redundancy into built infrastructure to offset climate related risks, or to apply EbA approaches. Most of the public resources are provided via earmarked sectoral budgetary allocations made at national level, or through donor supported programmes which are not equipped to address the need for additional expenditures on climate resilience. The limited discretionary funds that are available, for example through local development funding mechanisms such as the UNDP/UNCDF

²¹ See e.g. Foppes, J.& Ketphanh (2004) for NTFP’s.

²² Phiapalath et al (2012a, 2012b) and ICEM 2012.

supported block grant mechanism, are for baseline development only against historically/community derived climatic information and experience. It is important to know that these block grant projects form only a small part of overall district investment plans, which usually range between USD 1-2 million per year. Only about 25% of these amounts are usually secured from national budgetary resources with the investment gap either filled by donors or unfilled. However this investment gap does not take into account the additional costs of climate change.

The proposed LDCF project will address critical barriers mentioned above through Outputs 2.2 and 3.1. Output 2.2 will ensure that additional resources for climate resilient rural infrastructure are effectively delivered starting with bi-annual transfers from the Ministry of Finance to district accounts and the alignment of these accounts with district development plans. Output 3.1 will ensure that additional resources are also provided to implement complementary ecosystem based management actions that will strengthen the long term sustainability of infrastructure investments.

CCA district incentive mechanism

With regards to the allocation of development funds of the government and donor projects, there are no incentive mechanisms in place aimed at rewarding districts performing well regarding budget implementation. The UNPD/UNCDF supported local development fund mechanism is working on the establishment of incentives for good governance and financial management, based on the introduction of a set of minimum standards that will influence the subsequent year allocations. An annual performance audit will be used as a basis for analysis and decision making. However there are no plans to introduce climate resilience related criteria, which means that while the system may incentivise improved accounting or more participatory approaches, the end result will still be rural infrastructure investments that are vulnerable to climate change.

The proposed LDCF project will address critical barriers mentioned above through Output 2.1. This will entail the design, field testing and implementation of a mechanism that provides additional climate funds as an increment to baseline development budgets and rewards good performance through an annual audit process.

1.4 Stakeholder analysis

As has become evident throughout the chapter, while the climate induced problem and its underlying causes can be addressed by a comprehensive set of project actions, there are a number of wider change processes also implied, such as changes in patterns of land use, which can only be addressed through collaborative approaches with other government and donor funded programmes. This emphasises the need for harmonised policy action between the new project and existing baseline initiatives. The project addresses this need through identifying synergies with the UNDP/UNCDF supported GPAR programme as well as other initiatives relating to Integrated Water Resources Management, Disaster Risk Management, land use planning and ecosystem management.

During the PPG phase extensive stakeholder consultations with national and sub-national government agencies, development partners, INGOs and NGOs, research bodies as well as representatives of the target groups and local organisations have taken place. The aim was to ensure a maximum fit of the project with government priorities, to capture the local views and sometimes differing needs in that regard and to align and harmonise the project with the efforts

of all concerned development partners. The consultations between December 2011 and June 2012 were conducted by the PPG team comprising of an international project development consultant as team leader, one national expert on infrastructure development and one national ecosystems specialist. From April to June the PPG team received additional support through an international expert provided by USAID ADAPT-ASIA programme on climate resilient infrastructure development, cost benefit analysis and the linkages between natural and built systems regarding climate resilient infrastructure development. This fruitful cooperation resulted in the development of a detailed V&A analysis tool as part of the Prodoc, ready to use for project implementation. The methodologies used for stakeholder analysis were:

- A national inception workshop of the PPG phase in Vientiane
- Bilateral consultations with main stakeholders from national government agencies, subnational government agencies, target group representative, local organisations, development partners, INGOs and NGOs as well as research institutes
- Two regional consultation workshops in Sekong and Saravan province
- Two fieldtrips to Sekong and Saravan province
- A final national consultation workshop in Vientiane.

Prior to commencement of stakeholder discussions, a review was undertaken of existing policies, projects and legal frameworks with relevance to the proposed project as outlined in the Council approved PIF. This involved information gathering on similar CCA initiatives in other countries, as well as relevant baseline data collection of relevance to the project (e.g. on quantity and quality of infrastructures and ecosystems, CCA related and participatory planning tools, block grant mechanisms etc.)

Outcome: Important parts of the baseline data, needed for Prodoc development and a better idea how to structure bilateral discussions to fill in remaining information gaps.

National inception workshop, Vientiane, 17/01/2012

The national inception workshop aimed at presenting the project idea in the framework of the LDCF and GEF mechanism and to draw linkages to other related initiatives. Important project concepts, such as local governance support, EbA and the linkages between ecosystem management and infrastructure development in a changing climate, the project framework and additional cost reasoning approached were explained and discussed. Major focuses were discussions on management arrangements between MOHA, MONRE, UNCDF and UNDP.

Outcome: Discussions on Management arrangements were initiated, MONRE was agreed as lead agency of the PPG phase and a roadmap for the PPG phase was agreed. Overall support of the whole PPG process by MONRE, MOHA and other concerned line agencies as well as support from development partners was also consented.

Bilateral consultations during the PPG phase

Bilateral consultations with all stakeholders aimed at identifying synergies, at exchanging data and information and in the case of some donors at negotiating and concluding co-financing arrangements and amounts. The following table shows the major stakeholders met and the respective issue of consultation. Approximately 250 professionals were involved in the process. More detailed information on cooperation issues during the PPG phase is provided in Annexes 6.4 and 6.5.

Table 8: Stakeholder involvement during PPG phase

Institution / Stakeholder Group	Cooperation during PPG Phase
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Institution / Stakeholder Group	Cooperation during PPG Phase
MONRE: Department of National Disaster Management and Climate Change	<ul style="list-style-type: none"> • Climate change office lead agency of PPG phase • Data and information about ongoing CC projects • Identify future needs to implement the national CC agenda, such as a CC decision support system • Participation in meetings and workshops • Organize workshops and fieldtrips • Liaise with MOHA, UNDP, UNCDF on management arrangements • National Communication on CC • Other NRM and environment issues
MONRE: Department of Water Resources	<ul style="list-style-type: none"> • Data and information about IWRM projects, watershed management, River Basin Management Committee's mandates and roles and on according CB programs • Participation in workshops and meetings
MAF: Different departments	<ul style="list-style-type: none"> • Data on agricultural irrigation • Information about NAPA 1 and other related projects • Participation in workshops and meetings • Lessons learned and experience made
MPI:	<ul style="list-style-type: none"> • Potential for cooperation and collaboration in the field of CC related planning tools at provincial and district level as currently developed under the new GIZ LM RED project
NAFRI	<ul style="list-style-type: none"> • Participation in workshops and meetings • Exchange on NAPA 1 project
Ministry of Public Works and Transport:	<ul style="list-style-type: none"> • Data on rural road infrastructure and associated projects, including construction standards • Participation in workshops and meetings
Ministry of Public Health	<ul style="list-style-type: none"> • Data on rural water and sanitation infrastructure and associated projects, including construction standards • Participation in workshops and meetings
Ministry of Education	<ul style="list-style-type: none"> • Data on rural school infrastructure and associated projects, including construction standards • Participation in workshops and meetings
UNDP, UN Habitat, UNCDF, UNICEF	<ul style="list-style-type: none"> • Data • Information • Thematic support • Logistical support • Guidance in PPG matters • Participation in workshops and meetings
Donors ADB, WB, EU, GIZ, SDC,	<ul style="list-style-type: none"> • Data • Information • Potential for collaboration, cooperation and funding support • Participation in workshops and meetings
NSAs / INGOs IUCN, others	<ul style="list-style-type: none"> • Data • Information • Thematic support • Assurance on collaboration in the field • Participation in workshops and meetings
GoL Mass Organizations	<ul style="list-style-type: none"> • Participation in workshops and meetings
Different national and international experts	<ul style="list-style-type: none"> • Data • Information

Institution / Stakeholder Group	Cooperation during PPG Phase
	<ul style="list-style-type: none"> • Participation in planning workshops • Technical opinions and advice •
Other GoL institutions and private individuals	<ul style="list-style-type: none"> • Data, information, logistical support, etc

Stakeholder Consultation workshops in Sekong (19-20/03/2012) and Saravane (21-22/03/2012)

The consultation workshops were attended by 45 provincial and district officials in Sekong and by 93 officials in Saravane of the sectors agriculture and forestry, environment and natural resources, public works and transport, education and health. After introductory remarks of the provincial governors, respectively their representatives, by UNDP and the CCO, the PPG team presented baseline information regarding the project. This was followed by detailed presentations of government officials of each sector to inform the audience about the infrastructure and ecosystem baseline situation, on-going change processes, especially due to climate change, climate risks and impacts, including damages to infrastructures caused by heavy weather events such as the Ketsana storm. Subsequent group discussions were guided by the following set of questions:

- What are the climate change impacts on small scale infrastructures in your sector, province and districts?
- Why does infrastructure fail (poor design, poor maintenance...)?
- How does climate induced infrastructure failure affect the livelihoods of people?
- What were the damages on infrastructures caused by extreme weather events?
- What is the link between ecosystems and infrastructures in your sector?
- What kind of measures must be carried out to climate proof small infrastructure?
- What kind of baseline infrastructure needs to be upgraded and what new projects would you suggest in terms of climate resilience?

Outcome: Important baseline information on infrastructure and ecosystems status, on linkages between natural and built systems, on on-going related government and donor initiatives, on climate impacts on infrastructures, ecosystems and livelihoods and on already ongoing adaptation as well as on risk mitigation measures was gathered. Further, bilateral consultations were scheduled, support for data gathering (report and file sharing) and the fieldtrips was consented. Future stakeholder involvement arrangements were also discussed, all concerned agencies showing a high interest as acting as future stakeholders, e.g. through their membership in District Development Support Committees.

Fieldtrips to Sekong and Saravane provinces (14-24/03 and 02-09/03/2012)

The information gained by stakeholders at national and sub-national levels was cross-checked through field visits to get a sense for the climate induced problems on the ground and to confirm or adapt the project priorities. This was done through site observations of small scale ecosystems and infrastructures, guided by local officials and target groups, which provided important background information.

Outcome: The most important outcomes of the fieldtrips were:

- A significant match and endorsement of the initial project idea, the ensuing project design and on the ground realities in general; water management and related ecosystem

management was a challenge at all sites visited. Everywhere climate resilience was not or very little built in the management of natural and infrastructure systems.

- Simple methodologies and standards to build in climate resilience in combined ecosystems-infrastructure solutions is possible in most cases using existing knowledge or innovations to be brought in, such as multi purpose water storage and water harvesting,
- Of big importance to the future project are especially the areas: small scale agriculture irrigation, village level water supply schemes using multiple purpose water harvesting and storage facilities, increasing water retention capacities of micro-catchments through ecosystems management, flashflood and flood protection through combined protection infrastructure and ecosystems management solutions
- The need to integrate gender and ethnic group considerations in a participatory project identification and design process was confirmed
- Data on major development trends, such as land use change and on existing planning approaches was gathered.
- The identification of 48 potential combined infrastructure development and associated ecosystems management projects. They are all part of existing district development with almost half upgrading existing infrastructure built through the UNDP/UNCDF supported District Development Fund mechanism (DDF).
- The DDF was highly appreciated as a governance and delivery mechanism by decision makers from village to district levels and thus provides also the right delivery framework for component 2 of the project

National planning workshop in Vientiane, 19/06/2012

The national planning workshop's aim was to present the Prodoc findings to the government and development partners and to suggest the project for approval through the concerned ministries. All stakeholders were asked to provide final contributions and comments.

Outcome: The main result of the national planning workshop was that the invited decision makers approved the project approach as suggested in the Prodoc, including the management arrangements between MONRE, MOHA, UNDP and UNCDF. UNCDF will be responsible party to MONRE and will support MOHA to deliver outcome 2, including the introduction of a CCA incentive mechanism, based on the minimum performance criteria to be introduced under NGPAR.

Consultations with NGOs

The CBOs consulted are drawn mainly from the Lao Mass Organisations; the women and youth unions. They are target groups of the project (since they part of the District committees) and are influential, having a national to local structure including representatives down to the village level. Prominent women, such as the Head of Dakcheung District in Sekong Province, tend to be members of the Women's Union and well aware of the needs of communities with respect to climate hazards and risks. CARE, WWF and WCS, as the major INGOs in the area of natural resource management in Laos, were closely consulted during the PPG. IUCN (an IGO) and WCS offer a wealth of relevant experiences in the area of ecosystems management and wetlands management (especially IUCN). WWF is implementing the REDD+ project CARBI (Carbon and Biodiversity Project) in both provinces. It has natural resources components which will be relevant to the ecosystems management component of the project. CARE is conducting food security/disaster preparedness projects in selected districts within the target Provinces. Altogether 17 INGOs are active in Saravane Province with 34 projects, as well as 18 INGOs

with 34 projects in Sekong. They intervene mainly in the sectors health, education and community development. They cover mostly several villages or selected districts.

2 STRATEGY

2.1 Project rational and policy conformity

The Project Objective is *to improve* local administrative systems affecting the provision and maintenance of small scale rural infrastructure (including water and disaster preparedness) through participatory decision making that reflects the genuine needs of communities and natural systems vulnerable to climate risk. LDCF funds will enable the Ministry of Natural Resources and Environment (MONRE) to work towards realizing the preferred situation by: providing incentives for local administrative institutions to integrate climate risks into participatory planning and financing of small scale rural water infrastructure provision; by protecting and diversifying small scale rural infrastructure against climate change induced risks (e.g.: droughts, dry periods, floods, erosion and landslides) and by managing natural assets (such as wetlands, forests and other ecosystems in sub-catchments) to ensure maintenance of critical ecosystem services, especially water provisioning, flood control and protection under increasing climate change induced stresses.

The overarching goal of the project is to safeguard development benefits for rural communities from future climate change induced risks. This goal is consistent with and underpinned by, a number of important policies and strategies governing Lao PDR's national development and its specific response to climate change. The 7th National Socio Economic Development Plan (NSED 2011-2015) promotes "Growth with Equity", stressing the need for continued strong economic growth while also promoting dynamic change in rural development and people's livelihoods. Continued public administration reform is seen to be an essential ingredient promoting accountability, transparency and efficiency, as further detailed in Lao's PDR's Strategic Plan on Governance (2006-2010)²³ which includes four pillars including: enhancing people's participation; public service improvement; sound public financial management and rule of law and access to justice.

The National Climate Change Strategy, published in 2010, outlines both adaptation and mitigation measures to be taken in several key sectors including agriculture, food security, forestry, land use and water resources, among others. An important element of proposed approaches in the water sector is the integration of climate risks into planning processes as well as the downscaling of climate and hydrological models to the river basin scale. MONRE will use LDCF resources to address this issue by integrating downscaled hydrological and meteorological data into climate risk, vulnerability and adaptation analysis at project level and will enhance the planning skills of government officials to replicate this task on a regular basis within their district level action plans.

The Strategic Plan for Disaster Management (2003) which sets out strategic goals up to 2020 is now beginning to be operationalised with the strengthening of the National Disaster Management Committee (NDMC) and establishment of the National Disaster Management Office (NDMO) which acts as the secretariat for the NDMC. These agencies have been integrated in 2012 into the new Department of National Disaster Management and Climate Change (DNDMCC) within MONRE, which also hosts the Climate Change Office (CCO). This is an important step forward to integrate DRM and CCA at the national institutional level. Provincial DRM strategies have been produced for Sekong and Saravane Provinces, although

²³ A new SGP for 2011 to 2020 is currently under preparation.

implementation plans have yet to be put in place. The project will address this action gap by building in climate resilience into existing and new small-scale rural infrastructure as suggested in the strategic plan.

The country completed its First National Communication to the UNFCCC in 2000 which reported that Lao PDR was a net sink for CO₂ at that time. The Second National Communication is now underway and due to be submitted during 2012. The National Adaptation Programme of Action (NAPA) was published in 2009, totalling USD 85 million focusing on four priority sectors, including agriculture, water resources, forestry and health. The main objective of the NAPA is to put in place a country driven programme to address immediate and urgent needs relating to key development sectors. Follow up activities in each of the broad NAPA areas were identified and further classified into 'Priority One' and 'Priority Two' type initiatives. A first LDCF funded NAPA follow up project focusing on climate resilience and agriculture is now under implementation by the Ministry of Agriculture and Forestry, with support from UNDP (see NAPA, Section 3.2.1 on Agriculture).

Through this project, LDCF resources will be used to address NAPA priorities linked to water and water resources including, specifically the following priority one and priority two type activities:

NAPA Priority One

- Awareness raising on water and water resources management – LDCF resources will be used to enhance technical capacity of province, district and village level officials to understanding and integrate climate risk information in the context of water, water resources and land use management.
- Mapping of flood prone areas – LDCF resources will be used to prepare climate and disaster risk assessments in two provinces that will inform the process of mapping flood prone areas.
- Establishing an early warning system for flood prone areas – LDCF resources will be used to operate a functional EWS in districts and provinces that are also benefitting from a WB/ADB supported Integrated Water Resources Management (IWRM) programme. This programme will strengthen early warning systems through improved water resources modeling and upgrading of the national hydro-meteorological network. Project investments will be closely aligned within this baseline work so that, for example, village shelters, assembly points and evacuation channels as prioritised out of a list of options suitable to each catchment zone actively relate to and support the implementation of an effective early warning system.
- Strengthen institutional and human resource capacities related to water and water resources management – LDCF resources will be used towards local governance reform programmes to strengthen the quality of district level planning, budgeting and implementation with a specific focus on water related infrastructure and improved management of related ecosystem services.
- Survey underground water sources in drought prone areas – LDCF resources will be used by MONRE to prepare climate risk assessments and introduce resilience measures to increase groundwater infiltration and promote aquifer recharge.
- Study design and build multi use reservoirs in drought prone areas – LDCF resources will be used by MONRE to introduce climate resilient water harvesting, storage and distribution systems in drought prone provinces.

NAPA Priority Two

- Conservation and development of major watersheds – MONRE will use LDCF funds to work in four priority river basins to ensure the maintenance of critical ecosystem services under climate change induced stresses, such as water provisioning, flood control and flood protection services.

The project is fully in line with LDCF/SCCF focal area Objective 1 to “reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level. Related expected outcomes include mainstreaming of adaptation into broader development frameworks and increase adaptive capacity within relevant development sectors and natural resources.

2.2 Country ownership: country eligibility and country driven-ness

Consistent with the Conference of Parties (COP-9), the Ministry of Natural Resources and Environment (MONRE) will use LDCF resources to implement priority interventions addressed in Lao PDR’s NAPA, therefore satisfying 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 Government requests the LDCF to finance the additional costs of achieving sustainable development imposed on Lao PDR by the impacts of climate change. The project concept was identified as a priority for Lao PDR with the GEF and the Government has submitted an endorsement letter through its national Operational Focal Point as per GEF policy. The project is highly relevant to national priorities and was developed through extensive stakeholders’ consultations including two national and two provincial stakeholders’ workshops, numerous donor stakeholder meetings and various interviews with local, district and provincial officials during two fieldtrips in Sekong and Saravane provinces of altogether 14 days.

The project is country-driven, cost-effective, and focused on immediate needs of vulnerable people, especially women and ethnic groups. It will contribute to integrating climate change risk considerations into province and district planning associated with the provision of critical village level rural infrastructure through the medium of improved local governance approaches, as well as strengthening natural systems to continue to provide flood protection and water provision services in the context of a changing climate. The project focus is therefore 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 fully harmonised with the priorities of the current UNDP Laos country programme (CPD 2012-2015) which is in line with the 7th NSEDP. The CPD analysis recognizes that strong progress was made in recent years in terms of economic growth and poverty reduction. At the same time the benefits of high economic growth are not being distributed evenly. Poverty remains widespread in rural areas with a large proportion of the population still living a subsistence existence, providing a focus for UNDP’s programming work over the next 4 years. These same people are also recognized to be particularly vulnerable to global climatic change and recurrent natural disasters.

Measures to support effective climate change adaptation, community based natural resource management and transparent decision making are called for. More specifically the CPD sets out four programming priorities, three of which are closely aligned to the proposed LDCF project. These include: (i) inclusive and sustainable growth; (ii) enhancing good governance; and (iii)

ensuring sustainable natural resources management and adaptation to climate change. Within the third programming area a specific focus on water resources management and addressing local climate adaptation needs is provided. Integration with DRR preparedness and response provides a further practical entry point for the use of LDCF resources.

LDCF resources will contribute to these priorities in the following ways:

- i) Sustainable growth and MDG achievement will be achieved through promoting additional income through small-scale agricultural irrigation, environmental protection through better management practices of ecosystem supporting water regulation and protecting infrastructures, better service delivery through provision of more climate resilient infrastructures.
- ii) Effective governance will be supported through providing the combined infrastructure and ecosystem adaptation options through the already existing and well established District Development Fund (DDF) as introduced by the GPAR project.
- iii) The project is the first climate change adaptation initiative in Laos that from the design phase directly aims at integrating ecosystem-based management approaches with small-scale infrastructure development. Lessons learnt will help to design future CCA initiatives based on best practices.

The Country Programme Document operates within the broader framework of an UNDAF and Action Plan (2012-2015) which also provides the MDG Acceleration Strategy. UNDAF, by design, is set out to address the Government's development priorities and thus high degree of conformity can be found between the proposed LDCF project and UNDP's overall guiding framework. More specifically, UNDAF Outcome 7 addresses sustainable natural resources management through improved governance and community participation while Outcome 8 covers the capacity of government and communities to better adapt to and mitigate climate change and reduce vulnerability to natural disasters. UNDP is playing a leading role, among other UN country team members, in both of these areas.

Legal frameworks

Laws and regulations on civil service, public administration reform and local governance

The Government of Lao PDR has endorsed a number of laws and regulations aiming at improving service delivery and on de-concentrating government mandates and services to the local level in order to strengthen overall and gradually improve local participation in strategic planning, financing, management and monitoring. The project supports this process, which is being by UNDP/UNCDF, WB, SDC, LuxDEV and other development partners, through using the existing District Development Fund (DDF) block grant mechanism as a means of delivering climate resilient infrastructure grants, with supporting TA.

Decree on the establishment of river basin committees

The Government of Lao PDR has endorsed the decree on the establishment of river basin committees in 2008. Follow-up actions by donors include the Mekong Water Dialogue project (IUCN), the 3 S project (IUCN), the UNDP PEMSEA programme targeting the Sedon catchment, and the WB supported IWRM programme with a focus on river basins in the south. Members of RBCs are considered as an important target group of climate change related awareness raising and capacity building to integrate CCA planning with transboundary (sub-national administrative boundaries) IWRM issues. The current IWRM projects under the Department of Water resources (WB and ADB) do not yet take climate change considerations into account (see details of future cooperation issues in stakeholder involvement plan of chapter 2.10 and in Annex 6.4).

Land law

The land law endorsed in 1997 and lately updated by several decrees, e.g. the Decree No 135 on State Land Lease or Concession to allow land titling for individuals and communities. The actions undertaken by MONRE through this initiative will support the enforcement of this decree by helping to identifying small scale ecosystems zones required for protecting infrastructures and regulating water. This can be combined with agro-forestry uses on an individual or community level.

Forestry law

The Forestry Law (2007) provides principles, regulations and standards for the use of forest land and resources. It defines the responsibilities and roles of authorities on various levels for forest management, control and inspection. Primary responsibility over all type of forest resources (production forest, conservation of forest and unclassified forest/land, agricultural land including forest patches or agro-forestry, see details on classification of forests in baseline section of component 3 in chapter 2.6) was given to MAF and its line agencies at provincial and district level, but also to village organizations. This was aligned with village-level consultations on land use planning and villagers were involved in defining to a certain extent, in which forest areas which land and resource use types were allowed, through being involved in the delineation process. After the restructuring process of the government in 2011, conservation forests were handed over to MONRE and will be the responsibility of PONREs and DONREs at sub-national level to further implement and enforce the activities related to land use planning and conservation, which are the most important baseline framework for envisaged EbA activities of the project (see 2.6).

Agriculture law

The Agriculture Law, dating back to 1998, determines 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, and the promotion of agricultural production, e.g. through expansion of small-scale irrigation. The Law does not consider additional threats from climate change however it is currently undergoing a process of revision, to which the existing LDCF project on agriculture and climate change is contributing. One of the additional issues under consideration is the necessary alignment with other sectoral policies, such as the land law, forest law and new environmental law.

2.3 Design principles and strategic considerations

Links to GEF supported adaptation portfolio

The Project is associated 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 sets clear priorities for urgent and immediate adaptation activities as identified by GoL / MONRE / MOHA. LDCF resources are already financing the first NAPA project on enhancing agricultural resilience implemented by the Ministry of Agriculture. While the two projects are working in different provinces (there is no overlap), it will be very important for both to come together at the level of knowledge generation, awareness raising and policy influencing. For example both are concerned with the issue of climate resilient small-scale irrigation infrastructure, as well as in the improved management of upland ecosystems. MONRE is a Project Board member of the NAPA-1 project, while MAF will be a project board member of this project. This will provide an opportunity for sharing knowledge and stimulating policy relevant discussion. At the same time respective project managers will be encouraged to meet regularly and will be included in relevant training programmes and events for both projects.

Links to national policy

Lao PDR has also completed a National Capacity Self-Assessment (NCSA) for global environmental management and is now engaging in follow up activities to strengthen both national and local capacity to implement natural resources legislation, with a focus on issues most relevant to the Rio Conventions. LDCF resources will be used by MONRE to increase awareness nationally of Rio Convention obligations and help to strengthen national natural resource management legislation accordingly. At the local level, the NCSA follow up project will be working in three provinces helping to roll out a compliance strategy including introducing a range of operational tools such as model village based agreements for natural resources management. This process will inform the proposed NAPA-2 project, since agreements between villagers, district administrations and MONRE need to be made regarding the management of ecosystems in line with the ecosystems management and action plans that will be developed under outcome 3 to support infrastructure development.

The Government has developed a draft National Water Resource Policy and Action Plan (2011 to 2015) with support from ADB providing a comprehensive set of programs and activities linked to 9 major policy statements. Program 7 covers the Management of Floods, Drought and Climate Change, also ensuring coordination with the elements of the National Climate Change Strategy covering adaptation and water resources management. Through its component 1 MONRE will inform the water resource policy and action plan on how to build resilience against droughts through combined ecosystem management and small-scale water irrigation and domestic water supply solutions.

The Government is preparing a National Strategy for Rural Water Supply and environmental health (2011-2015) with a focus on rural communities in remote areas, which links to the 7th NSEDP. The project results will serve as a major resource for that strategy by providing a tested set of climate resilient adaptation options for rural water supply and related ecosystems management options. Some options are directly linked to sanitation as well, such as water harvesting on public buildings and associated water provision for sanitation purposes, such as at schools.

The National Biodiversity Strategy and Action Plan (NBSAP) of Laos for the period 2012-2015 is currently being revised and downscaled to provincial levels in Attapeu and Sengkouang provinces. The project supports the adoption of future Provincial Biodiversity Strategies and Action Plans (PBSAP) in the target provinces by providing baseline information on the integration of water related small-scale infrastructure development with supporting ecosystems management and establish a set of associated policy recommendations.

A draft National Agricultural Strategy to 2020 is currently under preparation with contributions from the Laos NAPA 1 project “Enhancing climate change resilience of the agriculture sector”. The strategy will contribute to minimize food insecurity resulting from climate change in Lao PDR and reduce the vulnerability of farmers to extreme flooding and drought events. MONRE will contribute to this objective by demonstrating integrated solutions of ecosystem based management and small scale agriculture irrigation and building the best practice results into CCA sensitive district planning cycles, provincial strategies and into national level policy recommendations.

Supported by various donors the government establishes and implements land use planning practices based on the various laws and decrees mentioned above. These target and promote objectives such as land security, REDD readiness, stabilisation of shifting cultivation, and increasing agricultural production and food security through the introduction of permanent

cropping systems. The actions undertaken by MONRE and its partners through the project will add value to this process mainly through its micro zoning approach as part of project site CRVA analysis to integrate complementary infrastructure with ecosystem management solutions.

Planning in all fields of climate policy (CCA, CDM, REDD, NAMA) requires long term capacity building of national stakeholders under the guidance of lead agencies. Currently this is mainly done at the central level, while related planning skills at the sub-national level are lacking. LDCF resources will help to address this gap through its capacity development component 1. Field tested adaptation options can be up-scaled to the national level as a set of policy recommendations.

Due to the enormous amount of surface water in Laos and associated upstream - downstream challenges caused by mainstream development projects including large scale plantations, mining operations or hydropower dams, the government is establishing Trans-boundary River Basin Management Processes based on principles of Integrated Water Resources Management (IWRM). Yet, climate change considerations are only partially integrated into approaches of IWRM. MONRE and its partners will work with members of new established river basin committees in the South to include climate change into trans-boundary management, such as considering the combined effects of changing rainfall patterns and land use change caused by large scale development projects in their efforts to balance between the needs of several administrative units concerned. The project intends to access and apply use sub-catchment modelling results and results on groundwater assessments that the ADB/ WB supported initiatives provide, in order to estimate water availability in catchments and identify appropriate adaptation options.

Links to National to local planning

Following the Prime Minister's Decree 135/PM 2002, local development planning is undertaken at provincial, district and village cluster (khumban) levels. Development plans for provinces, districts and khumbans (groups of villages) shall be elaborated on a medium- and short term basis.

The Five-Year Provincial and District Socio-Economic Development Plans are strategic documents which list 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 into consideration the five-year development plans for districts within the province. The Provincial Planning Department is responsible for the production of this plan in coordination with provincial sector departments and mass organization representatives. The plan is approved by the Provincial Governor.

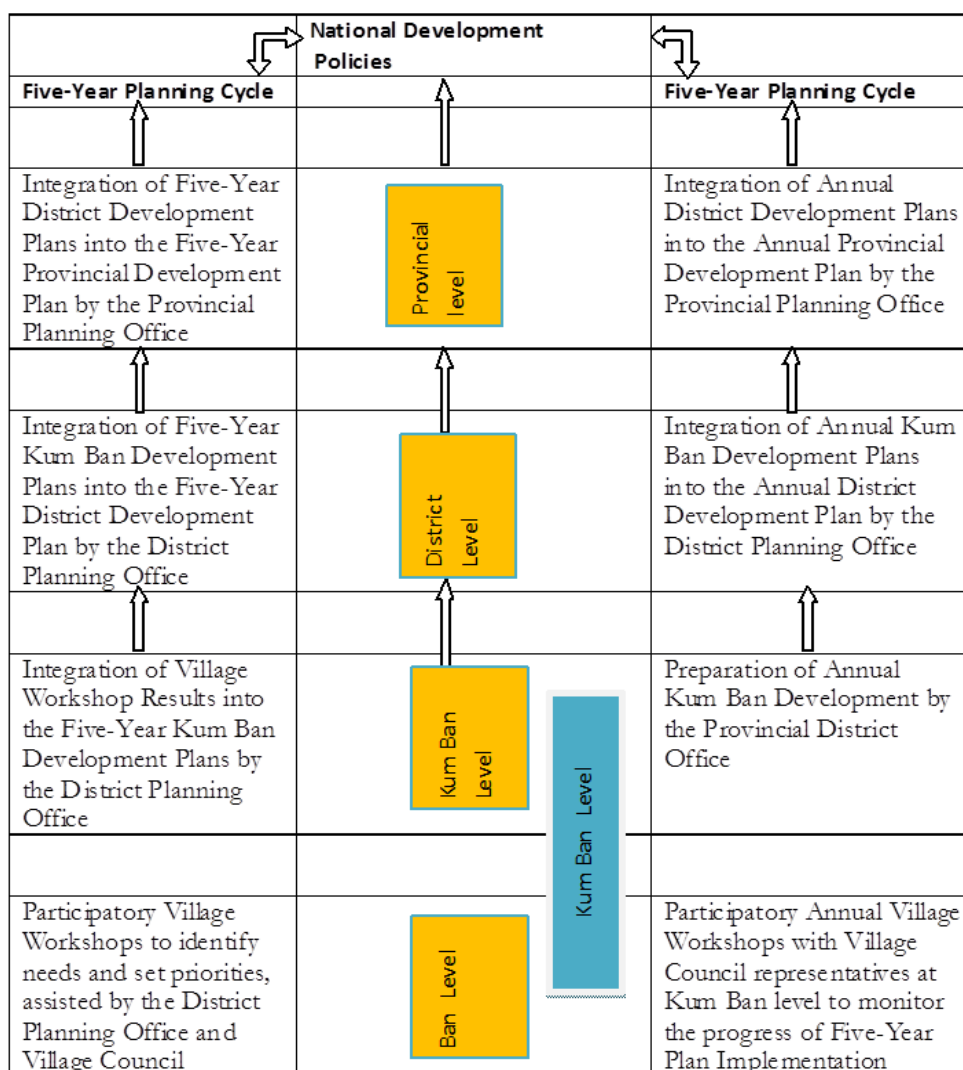
Five-Year District Development Plans take into consideration the Five-Year Kum Ban (grouping of villages) Plans, and are prepared by District Planning and Statistics Offices, in coordination with district sector officials and mass organization representatives. The Five-Year Plan is composed of the following sections: (i) Implementation work done in the past five years; (ii) guidelines, duties and targets for the next five years; (iii) measures for implementation and (iv) attached tables showing socio-economic data and planned projects.

Annual development plans are produced to implement and monitor the delivery of Provincial and District Five-Year Plans. They include detailed information on the status of projects and other development activities and aim to integrate national policies with local needs and priorities. Annual Development Plans consist of the following sections: (i) Review of

implementation activities during the past year, (ii) development plan for the current year; and (iii) attached tables showing socio-economic information and Provincial Investment Programme (PIP) projects in the areas.

Annex 6.15 provides a detailed overview of a district development plan of Vapi district. Only around 25% of the budgets are allocated by the government, while the other projects are planned in perspective of getting budgets from donors. Since the plan covers the period 2011 to 2014, some major donors which implement projects in the target area during that period are already known. But the amount of future funding is part of on-going negotiations between projects provinces and districts.

Graph 2: The local planning process in Lao PDR



Links to past, on-going and initiatives

Lao PDR experiences high levels of development partner support and engagement across a range of sectors, including the critical development sectors of water, agriculture, land, transportation and power. All of these are vulnerable to climate related risks and there is an

increasing focus on addressing these additional risks through policy reforms targeting district planning procedures. This reform process is currently guided by the GIZ “Land management – Rural Economic Development (LM-RED) project. The project aims at revising the national guidelines for district planning under the MPI and specifically takes climate change considerations into account. An on-going project supported by the government of Finland supports this process focusing on developing related principles on land use planning at local level. Therefore both guidelines will be important to the project. MONRE will build on and help to deliver on these existing reform initiatives. This will be done by developing ecosystems management and action plans in line with the new land use strategies and plans. Climate change planning capacities as delivered under outcome 1 will inform the district planning guideline process, especially in the area how to integrate CC into planning, budgeting and M&E as well as in the area of setting up CC incentive mechanism for districts.

During the PIF development phase and the PPG phase the following further key initiatives were identified that are most closely linked including both GEF and non-GEF funded support.

Under the ADB’s Capacity Development for Climate Change project 8 sectoral, technical working groups have been established, including on agriculture, forestry, infrastructure and water resources. The project is informing these working groups on climate change planning and on best practice implementation examples, provide training and advocacy tools and thus facilitate the capacity enhancement process of these groups. Further the Climate Change Office (MONRE) has expressed the interest in establishing a decision support and information management system for informing decision making and planning of climate policies, strategies and projects. The tools developed during the PPG phase, field tested and improved during the project, and the tools, materials and results delivered during the project itself will be an ideal starting point of developing such a decision support and information management system.

The World Bank and Asian Development Bank are supporting the Department of Water Resources of MONRE to establish national integrated water resources management in Lao PDR including a mix of national policy and river basin specific interventions with a specific focus on the South. This involves promoting sustainable floodplain management (balancing livelihood support for the local communities with enhancing regional ecological and biodiversity values in wetlands). The ADB component has been included as project co-financing and is already underway. The LDCF project support unit will liaise closely with the ADB support project since both are located in the same Ministry. During the initial stages of project implementation monthly progress meetings will be held. By contrast the World Bank component has not yet been finalised with the Government of Lao and therefore could not be included as formal cofinancing at this stage.

IUCN and UNDP are supporting the establishment and capacity development of River Basin Committees in the Sedon catchment. The LDCF project will be implemented in close coordination with the National IWRM and the RBC programmes. Members of RBCs are considered an important target audience to integrate CCA issues into river basin management and IWRM approaches. Examples of training modules relevant to RBCs are CCA related up-stream - downstream issues, as for example catchment forest protection through EbA or EbA type of flood plain management.

The ADB is developing a flood and drought risk management and mitigation programme covering 3 countries, including a total of USD 20 million for Lao PDR. Linkages with the Project are on information sharing on risk prone zones in order to strengthen and support the V&A tool. In a reciprocal manner, information gathered by the Project on micro zones suitable for

infrastructure development accompanied by EBA solutions will feed into the flood and drought risk mapping tool of the ADB programme.

The project will complement on-going UNDP assistance to the former National Disaster Management Office (NDMO) through its Institutional Strengthening and Capacity Development on Disaster Risk Management in Lao PDR. This office has been integrated as division into the Department of National Disaster Management and Climate Change, which is the lead department of the project. Thus awareness raising and training tools of components one and three on climate change planning and on ecosystem-based adaptation will also address DRM officials, which will be able to explore the linkages between DRM, CCA and EbA.

The UNDP supported LDCF project through the National Agriculture and Forestry Research Institute (NAFRI) under the Ministry of Agriculture is improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts. This major new adaptation initiative covers rural development activities for enhancing the capacity of the agriculture sector and rural communities, including flood and drought preparedness in two provinces, including Savannakhet in the South and Xayaboury in the North. The same project also works on improving small scale agricultural production infrastructure. Ready to use designed adaptation options and lessons learnt in the field of small scale irrigation schemes will be shared.

Information on land use as gathered during the CRVA analysis will contribute to the on-going government effort of introducing provincial level land use plans started by SIDA in the past and currently supported by FinAid to enforce these plans. Concretely, information on identified micro-zones for managing water flows in sub-catchments through suitable land uses, such as agro-forestry, and thereby protecting infrastructures can provide further detail and improve those provincial land use plans.

The GIZ supported “Climate Sensitive Flood Management Project” which focuses on the lower Mekong, will provide local authorities with skills which are highly complementary to those being provided under Outcome 1 of the LDCF project, specifically Output 1.1. Cooperation between the two projects will be particularly useful, over and above standard sharing of training and awareness raising materials, if the GIZ project decides to work specifically in the two LDCF target provinces of Sekong and Saravane. This decision has not yet been made but if it is then local flood risk mapping work provided by GIZ could be used in a very direct sense to help inform climate resilient district planning support provided by the LDCF project. According to the GIZ project manager this work would not realistically be carried out before 2014 though.

Further opportunities for sharing experience and information, specifically on climate resilient local planning, exist with two other projects including GIZ’s Climate Change Adaptation Initiative (CCAI) which operates in 4 Mekong countries, and KfW’s Sustainable Watershed Management in the Lower Mekong Basin project which is working mainly in Vientiane Province. While neither of these projects are active in the LDCF focus provinces they are addressing similar issues and therefore sharing information between projects will be critical. This has already happened as part of the inception and wrap up meetings associated with the PPG phase and will continue into the full implementation phase also.

National and Local benefits

Investments in small scale rural infrastructure, particularly water supply infrastructure, and in disaster preparedness can yield high economic returns²⁴, while also helping to build on and

²⁴ “Every \$1 invested in safe water and sanitation yields an economic return of between \$3 and \$34”.

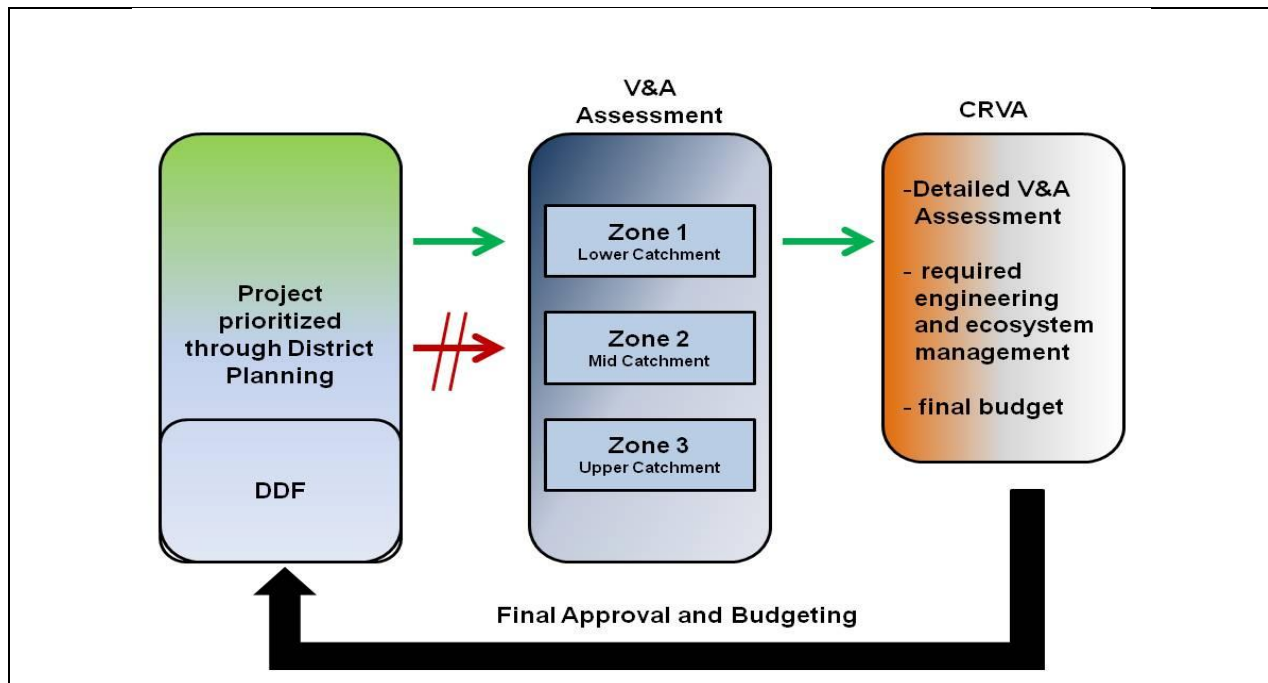
sustain the MDGs (particularly MDGs 1, 3, 4, 5 and 7). Physical investments in climate resilient rural infrastructure made under Component 2 will be expected to achieve high Economic Internal Rate of Return (EIRR) and in this way the project can be expected to deliver measureable socioeconomic benefits to at least 120 villages in 12 districts out of a total of nearly 2,500 villages in Sekong and Saravane provinces. The total population of those directly benefitting from LDCF resources will be more than 80,000 based on an estimate of 700 persons per village. In these villages climate resilience will be built into existing or new small scale rural infrastructure critical both to agriculture and domestic water supply. To ensure a maximum fit of matching local needs with standardised investment feasibility, project selection will be guided by an *Adaptation Options Matrix Tool*, as described in Annex 8 of the Prodoc. This decision tool lists the combined ecosystem based management and infrastructure development options suitable for a given catchment zone on one hand, together with the GPAR supported demand based planning approach on the other. Once a project is prioritised, a site specific CRVA analysis will be carried out to catch the location specific particularities appraise for feasibility. The following graph explains how district planning and the planning approaches of the new project relate to each other.

Direct village level infrastructure investment and complementary physical measures to better manage small-scale ecosystems for their protective functions will be supplemented with wider measures to improve the resilience of larger natural systems in different catchment zones and their capacity to buffer essential infrastructure from flooding and drought. This approach will strengthen the likelihood of high EIRRs as well as wider community level economic impacts. This, together with measures targeting small-scale ecosystems, will involve physical works in strengthening and sustaining the hydrological process covering an area of at least 60,000 Ha across sub-catchments which directly affect water availability in target villages.

At the national level the project is expected to make a definitive contribution towards better understanding how to use national systems to strengthen local capacities to respond to climate risks. By aligning climate resilient grants with ongoing local governance reform mechanisms it will provide one of the first examples of its kind, with the potential to inform and educate across the South East Asia region. Through proposed investments in the design and implementation of climate resilient infrastructure MONRE and its partners will show case very practical ways in which this critical infrastructure can be strengthened and sustained over longer periods, ultimately contributing towards the definition of new climate resilient construction standards. By specifically focussing on ecosystem functions, the project also seeks to achieve clear linkages between natural systems and build infrastructure at several levels, including national policies, local budgeting and planning and local community co-management. The following graph presents the basic logic that will be used to link local planning procedures with climate vulnerability analysis that is situated within the context of natural systems.

Graph 3: District planning, DDF planning and LDCF project selection and planning of a project in the lower catchment zone

Water for the Poor Act, Report to Congress (Washington DC: Bureau of Oceans, Environment and Science, US Department of State, 2009).



2.4 Gender and ethnic group considerations

Gender and ethnic group issues, especially the specific access patterns to infrastructure and ecosystem services and roles and responsibilities in the use and maintenance of village and household level infrastructure, is of special importance to the project with regards to inclusiveness and sustainability. The project intends to address gender equality and minority group issues at district and village level. The following gender and ethnic group considerations will be taken into account during project implementation, especially when designing and implementing CRVA analysis at project site level, which shall ensure gender equal access to project resources that address the vulnerabilities and adaptation needs of all ethnic groups.

- Many ethnic groups have been relocated during past decades and/or are characterised by high mobility patterns. Changing location for livelihood security always involves changing the rights, roles and responsibilities within emerging land and resource tenure regimes, evolving between in-migrants and “host”-populations, or people having moved there at an earlier stage (early movers vs. late comers). This also affects the access to infrastructures and associated services. Mobility patterns and migration cycles as a consequence can lead to differing levels of vulnerability to climate change and related adaptation needs. Late comers as an example might settle at some distance from existing water supply schemes and would thus not benefit from upgrading that scheme through the project. Therefore more inclusive solutions addressing all social layers within local community will need to be identified, and this will be based on the additional layer of analysis provided by the detailed location specific CRVA approach.
- Within the different ethnicities of Sekong and Saravane there exists a system of labor-division between men and women (see Annex 10). In the case of fetching water for the households it is a question of women’s responsibilities. Therefore an improvement in water supply would primarily benefit women and the time saved could be used for additional income generating activities to further reduce vulnerability to climate change. This will

provide a strong argument for the prioritisation of investments to be made with additional LDCF resources.

- The Mon-Khmer women practice traditional swidden agriculture. If swidden is limited or decreases through the introduction of new land-use practices under project outcome 3, such as agro-forestry, women may be affected through a perceived reduction in their role in the community. “When swidden systems are eliminated or damaged (...) female power may pass into oblivion together with biodiversity and the ecosystem” (Chamberlain 2007, page 74). Therefore the project needs to ensure through appropriate inclusive project approaches, e.g. land use contracts with women user groups, that women are not left behind through the introduction of new land use strategies.
- Due to the fact that the Mon-Khmer primarily settled in upland areas the collection of NTFP’s builds another important source for food production. There are examples of shared forest areas with open access for every villager. However the villagers are usually only allowed to gather NTFP’s for subsistence purposes (Chamberlain 2006). The labor of gathering NTFP’s is a women’s duty. Improved land management such as agro-forestry, which is a potential adaptation option to be introduced by the project, could affect livelihoods in different ways. One consequence could be that not every group gets access to the forests as before and this creates social inequalities, in the area CC policy also referred to as maladaptation. Some community members would have to look for other ways of generating the food and income that they need, particularly during times of climate related stress. Again women are particularly vulnerable as explained in related analysis that “... changes brought on that affect niches and the environmental settings these rights are in danger of being lost to more patriarchal forces in the name of economic development” (Klein-Hutheesing 1995). Thus the implementation of management strategies through the project needs to assure continued access to forests as food and income sources through socially inclusive land and resource access and management contracts in order to prevent maladaptation.

The specific concerns and needs of women and ethnic groups will be addressed initially through the use of existing participatory project identification and formulation procedures introduced with support from GPAR/DDF. The voting process for new project priorities (see baseline section of outcome 1, chapter 2.6) during village level consultations (one male and one female household member) will be complemented by further CRVA assessments at potential project sites to ensure gender balance by using gender sensitive survey techniques, such as interviewing females separately without the presence of men who could bias the process. The CRVA assessment will disaggregate male and female’s information from each household and will collect an inventory of family assets, data on main sources of income, and other socio-economic information in order to analyse patterns of socially differentiated access to infrastructure and other livelihood assets. Focus interviews will be conducted with all ethnic minority groups and other local organisations active in the village to identify those climate risks and vulnerabilities most affecting their lives. An emphasis will be put on different rights, roles and responsibilities of individuals and what contributions can be made in the construction, maintenance and management of water resources, intake and supply. For examples: “late comers” of one ethnic minority might be associated in a hamlet, located in a small-scale upper catchment, upland from the existing water intake scheme of the main lower villages. Their willingness to protect the upper catchment that supplies the lower water supply scheme will be crucial in maintaining a reliable source. The CRVA results will help to distinguish and identify dual benefit for the various groups. An example of this dual benefit will be the introduction of multipurpose adaptation solutions (e.g. water harvesting and storage for both agricultural and household consumption), which will help to address different needs. A specific technical guideline is planned under Outcome 1 on gender, climate change and rural infrastructure for wider dissemination and

replication. Participation of women and equal voice with men will be integral to the approaches taken to facilitate discussions on climate risks during CRVA consultations and addressing these risks, in line with the principles underlying the GPAR process.

2.5 Project objective, outcomes and outputs/activities

The project requests the LDCF to finance the additional costs of enhancing the resilience of small rural infrastructure and ecosystem services to climate risks, within the context of inclusive local planning and investments in some of the poorest districts of Lao PDR. The impacts of climate change will affect small scale rural infrastructure through the increased risks associated with more frequent and severe droughts and dry periods, floods, landslides and extreme weather events, as well as more fundamental shifts in the hydrological regime undermining the ecosystem services that provide a buffer between the climate and the built infrastructure.

Project Objective: Local administrative systems affecting the provision and maintenance of small scale rural infrastructure will be improved through participatory decision making that reflects the genuine needs of communities and natural systems vulnerable to climate risk.

Outcome 1: Capacities provided for local administrative institutions to integrate climate risks into participatory planning and financing of small scale rural water infrastructure provision.

Co-financing: \$14,498,368

LDCF grant requested: \$799,716

Baseline: Local planning, budgeting and service delivery in Lao PDR remains relatively centralized as compared to some other countries in the region. The country has, over the past two decades, evolved a model of de-concentrated local governance whereby sectoral ministry structures are replicated at local level, remaining accountable primarily to the centre. At the same time there is a strong willingness to promote and redistribute growth more equitably across the nation, as well as recognition that this requires improved public administration and robust organization from the centre down to the village level. There is also an acceptance that the government cannot take responsibility for local development on its own and that other actors need to be involved. These could include 'Not for Profit' Associations but ultimately it is the local population that needs to be more directly engaged in the delivery and monitoring of public services.

Governance and Public Administration Reform Programme (GPAR)

The Governance and Public Administration Reform Programme has been helping to develop and strengthen the district planning process, with support from UNDP/UNCDF. Within the context of the existing planning process (as elaborated above), a District Development Fund (DDF) mechanism has been piloted by GPAR in Saravane province since 2005 and further expanded to 4 additional provinces, namely Oudomxay, Houaphanh, Xiengkhouang and Sekong. The DDF provides financial incentives for districts to address strategic developmental priorities at the local level. At present it supports expansion of infrastructure to improve service delivery at khumban and district levels. The DDF facility in Lao PDR is conceived to be delivered in a variety of forms: Basic Block Grants (BBGs), Operational Expenditure Block Grant (OEBGs) and Social Protection Block Grants (SPBGs). In all of its forms, the DDF facility is intended to operate as a stimulus and foundation for inter-governmental fiscal transfers (IGFTs). The DDF modality aims to build and strengthen the capacity of village and district authorities for

participatory planning, local budgeting/financing and project and financial management. It aims to ensure effective, accountable and transparent public service delivery through participatory monitoring and evaluation in the governance system. Thus, DDF serves as a strategic capacity development tool, and is more than an investment tool for poverty reduction. However it does not take into account climate related risks to the investments it supports which is now widely recognised as a major additional factor affecting the effective and long term sustainability of these funds. Aggregated Basic Block Grant allocations from the DDF are made for each province and these provincial allocations are then further broken down into district allocations. Annex 6 provides an example based on the district of Vapi. Annual allocations to selected provinces are calculated on the basis of a population based formula, such that each province will be allocated a maximum annual allocation of USD 1.50 per capita. BBG annual allocations to districts within each province are determined as a function of their population size, their relative poverty and equal share. The larger the population of a district and the poorer it is, the larger will be the share of the total provincial BBG funding pool that is allocated to it.

The National Integrated Water Resources Management Support Program

The Asian Development Bank and its partners are providing support to MONRE in strengthening capacities for IWRM. Water is a critical and strategic resource for Lao and its effective and sustainable management has been national and regional implications. Current management is fragmented across multiple agencies and functions with insufficient policy coordination at national level. Environment assessment and management also remains weak. Consequently the main outcome of this project is that human resources and institutional capacities for IWRM are established within MONRE, river basin committees and their secretariats, and other key agencies. This is being achieved through the following elements: (i) establish gender-responsive professional development programs for WREA staff; (ii) implement appropriate governance systems for project management, monitoring, and evaluation; (iii) establish institutional arrangements for river basin management; (iv) provide updates on the inventory of water resources and their utilization; and (v) assist the development of formal university education in IWRM at the National University of Lao (NUOL). While climate change is acknowledged by this project, particularly as an element in the development of river basin management plans, the issue has not been scoped out in detail. A few pilot projects may be implemented but these will not be in the LDCF Project area. Sekong River Basin, which coincides with the LDCF project area, is one of 3-5 IWRM plans being developed, providing an important starting point for the Project. The Sekong IWRM provides a key audience for capacity development on climate resilient planning as well as a vehicle promoting knowledge and learning that can be embedded within national IWRM policy. It will also provide critical information that will help to strengthen the V&A and CRVA analysis, specifically through the provision of research on groundwater availability and sub-catchment run-off regimes.

Adaptation Alternative: Building on the district development planning process supported by GPAR/DDF, MONRE through its local presence will help to integrate assessment of climate risks into the regular planning and budgeting mechanism in 12 districts in the two provinces of Sekong and Saravane. The climate-resilient planning, budgeting and implementation process to be established local planning authorities (with support from MONRE and MOHA) will guide and provide an enabling environment for the implementation activities of Outcomes 2 and 3. This integration will be expressed specifically through the development and implementation of annual climate resilient district level investment plans and budgets that meet additional climate change related Minimum Criteria to be developed, field tested and revised by the project. The establishment of the MCs is largely a matter of adjusting the District led existing financial management procedures of the District Development Fund and will be completed under

Outcome 2 with support from UNCDF which specialises in Public Financial Management tasks. These adjustments will need to take account of a number of important climate dependent principles which will be further developed under this Outcome, and will include the following:

- Climate Change Additionality: Under this initiative districts will only fund activities that meet criteria of climate change additionality. There are four types of projects that can be supported by LDCF: a) the upgrade of existing DDF infrastructure to meet climate resilience standards, b) the upgrade of other existing infrastructure within district investment plans to meet climate resilience standards, c) new DDF infrastructure that meets climate resilience standards and d) other new infrastructure within district investment plans that meets those standards.
- Alignment with the district planning process: Districts will exclusively fund CCA interventions that have been identified through the district planning process as outlined above. The 48 potential project interventions identified during the PPG phase (see V&A analysis in Annex 8) fulfil this criterion and provide a starting point for the identification of suitable CCA investments.
- Compliance with the findings of the V&A analysis: The V&A tool (see Annex 8) lists adaptation options that correspond to the natural and socio-economic setting of three different catchment zones (lower, middle, upper catchments). This tool gives a first indication if it makes sense or not to carry out an additional and more detailed CRVA analysis with regards to the feasibility of a project. As an example is agro-forestry for slope stabilization clearly not a feasible adaptation option in lowland rice areas. The basic V&A tool was been developed based on a combination of information gathered through interviews and expert judgement.
- Compliance with the findings of the micro-CRVA analysis at project site level: Once a potential project meets the V&A criteria, it will be subject to more detailed CRVA analysis focusing on institutional, gender and ethnic minority concerns. This will allow the project to determine who the key beneficiare are for a particular intervention and how it would be operated and managed. The major design principles of a CRVA tool to be developed are outlined under activity 1.3.1.

Associated capacity development activities under Outcome 1 will be supported by regular planning dialogues, organised back to back or parallel with annual DDF planning dialogues and support activities, for district officials and local community groups. This will provide the necessary space and technical advice to translate the analysis and assessment of climate risks into practical adaptation actions on the ground through the district planning cycle. Approximately 250 individuals from 12 districts, mainly members of district planning committees, provincial line agencies, river basin management committees and other national agencies, will be engaged in this exercise leading to the agreement of annual investment plans as well as proposed changes to relevant national, province and district level planning guidelines, such as the Ministry of Planning's newly developed participatory planning guidelines.

This work will also involve those benefiting from ADB's National IWRM support project providing policy relevant experience to inform wider integration of climate risk issues into water resource planning. Engagement will be provided through regular meetings with the Department for Water Resources within MONRE, arrangement of joint field missions and training events, sharing of data, sharing of policy relevant studies and publications, and technical inputs and advice provided by the Project to the National IWRM support program's key deliverables which will include an IWRM plan and related water resource use agreements for Sekong in the South. Hydrological data provided through the IWRM support program will feed specifically into the CRVA analysis (output 1.3) under Outcome 1 but equally into the development of ecosystem

management plans (Output 3.1) under Outcome 3. Coordination arrangements will be arranged at the level of relevant Project Support Units since both the LDCF project and the ADB project will be managed from within the same Ministry. During the initial stages of implementation, monthly joint progress meetings will be held.

Output 1.1: Technical capacity in climate resilient planning, focusing on links between improved ecosystem management and sustainability of investments in small scale rural water infrastructure, enhanced for at least 250 national, province, district and village officials, as well as other community stakeholders. This output is designed to enable all other project Outcomes and Outputs by building in the necessary understanding of climate risks to strengthen local development planning from the project outset. The approach taken will be to build directly on the initial capacity assessment carried out during the PPG phase, and convert this into a detailed and fully costed capacity development plan. It will also provide a key collaboration point with the baseline ADB supported IWRM programme which is providing capacity development for IWRM at both national and province levels, largely the same audience of individuals. **In response to recommendations from the Environmental and Social screening, environmental and social risk considerations and assessment methods will also be incorporated into the government capacity development and training plans.**

Indicative Activities:

Activity 1.1.1: Develop training materials based on the initial capacity assessment (see Annex 4) of the Prodoc, the V&A tool of the Prodoc, and the CRVA tool, also building on similar materials being developed under the ADB-IWRM project. MONRE with support from subcontractors will develop the training materials dealing with the following topics necessary to understand for local planners and decision makers to be able to integrate CC in their daily work (for details see Annex 10): Analysis of existing CC datasets for the subnational level, filling data gaps through V&A and CRVA analysis, data translation and visualisation.

Activity 1.1.2: Develop a 4 year detailed climate change capacity development plan for District Development Support Committees based on the findings of the initial capacity assessment carried out during the PPG phase (see Annex 4). **Per recommendations from the project Environmental and Social Screening report, the capacity development plan should include training on environmental and social risk considerations, assessment processes and mitigation actions to ensure environmental and social risks are properly considered when identifying and evaluating infrastructure and ecosystem-based projects for implementation..**Developing a capacity development plan starts with asking the question “what mandate has the District Development Support Committee to fulfil and which are the capacities needed to perform the according tasks?” While the mandate of the District Development Support Committees with regards to general baseline local development has been successfully established during the past GPAR project cycles, the overall climate planning capacities of the involved sub-national government agencies have been assessed as low during the PPG phase.

Activity 1.1.3: Conduct initial and follow-up training and awareness raising workshops at province and district level in all 12 districts, in collaboration with the ADB-IWRM project. MONRE will organise initial trainings comprising of the above outlined modules in the first project year, after the materials have been developed and pre-tested. The training will be divided into awareness-raising sessions for all target audiences (with a focus on climate resilient district planning), specific sessions aimed at decision makers and technical modules for mid-level and technical staff.

Activity 1.1.4: Provide on the job coaching of target institutions in conducting CRVA assessments. It is estimated that districts will opt for between one and four climate resilient infrastructure projects per year. Since CRVA analysis at the local level is new to Lao PDR and participatory field-level assessment tools in general are also not widely applied, the relevant provincial, district and sub-district officials will be provided with on the job guidance in applying all steps (two days per project site) for all investments in the first year. In subsequent years, at least one project per year will be guided to monitor progress. **Per recommendations from the project Environmental and Social Screening report, the CRVA tool and associated training should address environmental and social impacts considerations, screening and mitigation.**

Activity 1.1.5: Engage GIS database specialists to develop a simple climate change adaptation information databank at PONREs in Sekong and Saravane. There is currently no coherent approach at district level for managing data. Data in all fields is fragmented amongst different agencies and projects, which hampers an integrated understanding and analysis of those data in the light of climate change. LDCF resources will be used by MONRE to integrate data gathered for the project purpose (re-analyzed data, CRVA data) into a GIS based databank. The PPG team recommends to use the “Quantum GIS tool” (www.qgis.org) since this tool, recently introduced by a GIZ Land management and rural economic development project (LM-RED), has been adopted by the Ministry of Planning (MPI) to support .

Output 1.2: Village level water harvesting, storage, and distribution infrastructure adaptation solutions (with associated ecosystem management options) identified, prioritised and integrated into district development plans. This output supports the annual planning exercise carried out by the District Development Support Committees. It will provide technical and organisational inputs to be arranged and delivered by MONRE and its province and district level structures. It will help districts to secure an additional financial envelope for climate resilient investments, which will be delivered annually to districts bank accounts set up under Outcome 2. It will also provide the starting point for more detailed subsequent field analysis through CRVA, to be carried out under Outputs 1.3 and 1.4. Annex 8 already provides an initial list of potential adaptation solutions derived from the macro V&A analysis exercise carried out during the PPG. While these are not mandatory investments they demonstrate the most likely areas for climate resilient investment and districts may choose for some to be carried forward into detailed design, as presented.

Indicative Activities:

Activity 1.2.1: Develop a priority list of at least 4 projects per district including at least one initial investment project per district, with a priority focus on the water sector and climate change adaptation. The development of the priority list will use the V&A methodology presented in Annex 8, for which training and orientation will have been provided under Output 1.1. The forum to develop the priority list is the regular DDSC meeting. It is recommended that one initial investment project is selected per district as listed in the V&A Annex. This is because those project identified are already part of the district planning process and have also benefited from a quite detailed level of analysis during the PPG phase.

Activity 1.2.2: Develop indicative budgets for each project. During the regular meetings of the District Development Support Committees, members will develop indicative budgets per project according to their knowledge gained under the capacity building activities of activity

1.1.3. The process will be driven by the district office for planning and investment. This office gathers the sectoral plans of other line agencies' offices at the district level and develops the budgets together with technical inputs from the sectoral line agencies to be submitted to the district mayor. The budgets are indicative only at this stage since additional information deriving from detailed CRVA analysis (see below) might lead to necessary changes being made, particularly if further site specific technical or analytical work is required.

Activity 1.2.3: Approval of priority list of climate resilient investments by the respective District Development Support Committee. During its regular meetings, the DDSCs will approve the priority list for integration into the annual investment plan, which will be executed with financial management support provided by UNCDF under Outcome 2.

Output 1.3: Climate risk, vulnerability and adaptation assessments (CRVA) carried out at 48 project sites in 12 districts of Sekong and Saravane provinces and proposed climate resilient investments adjusted to take account of site specific adaptation concerns. This will support the detailed engineering design of the approved climate resilient investment projects. A fundamental premise is that adaptation solutions are location specific. While there is some value in generic or 'model' solutions they will always need to be fine-tuned to physical, environmental and social realities on the ground. In some cases this will lead to an adjustment upwards in financial resources. In all cases the process of introducing and revising an approach via CRVA, will increase local ownership and ultimately the long term sustainability of the investment. **Environmental and social screening questions should be incorporated into the CRVA process and tools used to review the small infrastructure projects as they are developed to ensure project impacts are properly considered and also take into consideration the cumulative impacts in the context of wider activities in the area.**

Indicative Activities:

Activity 1.3.1: Develop and field test the CRVA tool. There are currently a number of tools to identify climate risks, vulnerabilities and adaptation options at the local level²⁵ which will be reviewed and adapted to capture key information on socially derived vulnerability to climate change, particularly with regard to gender and ethnicity, as well as other vital physical and geographical factors. **Environmental and social screening considerations should be incorporated in the CRVA tool and process to ensure impacts of local infrastructure projects are properly evaluated, taken to account in decisions, and mitigated where appropriate.**

Activity 1.3.2: Carry out CRVA analysis for at least 48 potential project sites and provide final recommendations to the District Development Support Committees on feasibility and relevance to CCA. The CRVA analysis will be carried out for an average of two days at each project site. The CRVA team will comprise of members of the PSU, an expert from PONRE/DONRE, an expert from POHA/DOHA, one from PAFO/ DAFO. The process will be community driven, since village stakeholders are the main source to inform the CRVA analysis. At the start of every CRVA analysis village stakeholder will be informed through an awareness-raising session about the objectives of the exercise and how the CRVA can strengthen habitual village level planning exercises, visualised in local languages.

Activity 1.3.3: Integrate information gathered from CRVA into awareness-raising and training materials. Findings from completed CRVA cycles will be integrated in updated awareness raising material and be used in upcoming training events. This activity will lead to an

²⁵ As an example of an CRVA tool see <http://www.iisd.org/cristaltool/>

increased understanding of the relevance of the tool, since it uses on the ground truth information that reflects the daily work and life context of the targeted stakeholders.

Activity 1.3.4: Integrate CRVA findings into CCA information databank. The findings of the CRVA at each project site will be regularly integrated into the CCA information databank held at province level through the appointed data manager of each respective district and merged through a data manager at province level. This activity will be closely guided and monitored by the PSU. After a critical amount of data has been integrated into the databank, the data managers will be able to support activity 1.1.1 and 1.3.1 by producing comparative analysis and visualised materials.

Output 1.4: Detailed climate resilient project investments finalised and tender documents prepared in 12 districts, as well as associated dialogues to facilitate the implementation of annual district investment plans in 12 districts. Following on from fine tuning and building local acceptance and ownership, so investments will need to be tendered to contractors for which additional professional technical services will be required. In order cases this expertise will be found at the community level and the resources can be channelled directly from the district level against an agreed workplan and set of deliverables.

Indicative Activities:

Activity 1.4.1: Integrate the CRVA tested projects as an agenda item for regular meetings of the province planning and investment departments, the District Development Support Committees and the village-level planning consultations. The Project will provide briefings to the District Development Support Committees, which usually meet twice a year and to the province level planning committees which meet also twice a year.

Activity 1.4.2: According to CRVA findings, support district officials to develop detailed budgets for each selected climate resilient investment project, including in-kind community contributions. The process should follow the climate resilient construction standards, the findings of V&A analysis of the Prodoc and CRVA results at the respective project site. In the first year a fast start approach is recommended from which future learning and refinement will be derived.

Activity 1.4.3: Provide technical support and advice to District Development Support Committees in reviewing and approving climate resilient infrastructure investments. The regular DDSC meetings will be attended by the PSU to advice on final approval of each investment. This step is particularly important, since the budgets as developed under 2.1.1 might be considerably higher or lower than estimated based on initial V&A findings.

Activity 1.4.4: Support development of tender documentation and procedures for climate resilient infrastructure investments and oversight of construction company selection processes. The PSU will advise the DDSCs on procurement processes based on climate resilient construction standards and experiences of the GPAR project with the local construction sector.

Activity 1.4.5: Organise two day excursions (4 per year) to best practice project sites for district and provincial officials as well as community representatives to promote learning and facilitate climate resilient planning. The PSU will support DONREs and PONREs in organising these excursions.

Output 1.5: Guidelines for climate resilient construction for small-scale rural infrastructure sectors (irrigation, water supply, rural roads, education, and health) developed, applied and revised. These guidelines will be presented in various policy forums with the intent of contributing to future adjustments to national standards that are applicable. The reform of national standards are seldom made on the basis of the outcomes of a single project, however successful that project may be. The success of this output will therefore depend upon the extent to which a broad range of experience can be gathered together, and national champions can be identified to support a reform process.

Activity 1.5.1: Develop climate resilient construction guidelines for each sector of small-scale rural infrastructure development. Based on existing national construction standards and guidelines concerning the irrigation, education, water supply, health and transport sectors, the project will develop climate resilient guidance for application and further revision.

Activity 1.5.2: Conduct trainings for local construction companies in the area of climate resilient construction. The PSU and short term consultants will raise awareness and train local construction companies on how to apply climate resilient construction standards. Special attention will be given to budget development (upfront investments might be higher). Part of the capacity development activity will include cost-benefit analysis to convince potential district clients that cc resilient investments pay off over the longer term.

Activity 1.5.3: Presentations and discussion of guidelines to national and provincial levels of the Ministry of Infrastructure and other relevant ministries as an input to wider discussions on necessary revisions to national standards and guidelines.

Outcome 2: Incentives in place for small scale rural infrastructure to be protected and diversified against climate change induced risks (droughts, floods, erosion and landslides) benefiting at least 50,000 people in the 12 districts of Sekong and Saravane provinces.

Other co-financing sources: \$ 9,741,696
LDCF project grant requested: \$ 2,145,000

Baseline: Most vulnerable rural communities in Lao PDR engage in subsistence farming, much of which is dependent on rain-fed crops. Many communities do not have access to improved water supply (49% according to WHO estimates from 2008). Household and village level water infrastructure typically includes household- or community-level bore wells, simple gravitational water distribution systems, and some small-scale communal water tanks. Infrastructure in other sectors, such as rural roads, education, health and agriculture are regularly affected by floods and flash-floods and are also damaged or do not function properly or at all due to droughts (especially lack of water supply). Many small-scale village level solutions such as irrigation schemes or water supply for domestic consumption are built using traditional knowledge, which do not take into account increasing climate risks either due to lack of knowledge of insufficient local budgets. Government and donor lead infrastructure development programs (see chapter 1) follow construction standards that apply business as usual climate scenarios. In many cases this existing investment is already being degraded through increasing climate variability combined with aggravating baseline factors. Given the predicted changing rainfall and temperature patterns in a changing climate this situation will worsen leading to further infrastructure failure, negative effects on livelihoods and the potential to reverse MDG gains. The PPG team has identified the most important players in the area of small-scale rural

infrastructure development in all MDG relevant sectors, which do not yet take climate change considerations into account (see Annex 6). The most important baseline project providing co-financing in the area of small-scale infrastructure to the project is the National NGPAR programme which has recently been launched, but which does not yet take climate change considerations into account in planning and implementing small-scale rural infrastructure.

National GPAR (NGPAR)

Pre-existing local development financing guidelines developed under the precursor to NGPAR (GPAR – 5 provinces only) are currently being reviewed during the on-going phase of NGPAR (2011-2015), in order to introduce a new performance based assessment system. In the past a set of 17 administrative and management Minimum Criteria (see Annex 6) were applied to measure performance. If not met by a certain district in a particular year, this could lead to a reduction in the next year's budget. This methodology was not fully put into practice, since it was perceived as a punishment of districts not performing well in budget execution. Poor performance, according to their argumentation, was related to systemic capacity issues in planning, budgeting and implementation rather than the more prescriptive Minimum Criteria (MCs). Furthermore many of the MCs have proved to be difficult (and expensive) to track from an M&E perspective. Therefore NGPAR is reducing the number of MCs to 2 in the first project year (2013/2014) and will introduce altogether 5 MCs from the second project year onwards. Good/ poor performance will typically give 5-15% more or less of the baseline budget. This provides the entry point for the development of an incentive mechanism for climate resilient planning and investment.

Adaptation Alternative: In Outcome 2, additional climate funds provided by LDCF will be channelled to the districts, with financial oversight provided by UNCDF, to efficiently provide the necessary grants to fund climate resilient infrastructure on the ground using national systems. These grants will benefit at least 50,000 vulnerable rural people across 12 districts. This Outcome is primarily about the public financial management elements of delivering additional climate finance at local level and is one of the first efforts of its kind in the Asia Pacific region. The vehicle for the delivery of the climate resilient grants will be the existing local development fund mechanism (DDF) that has been implemented in the past in both Sekong and Saravane Provinces to support the local planning process, and that is being carried forward in these provinces with support from NGPAR. Based on detailed technical inputs and capacity development provided under Outcome 1 to establish and strengthen climate resilient planning, districts will be empowered to channel these additional climate resources into the local planning and investment process in ways that also support the wider governance objectives of NGPAR. As envisaged under Outcome 1, the additional resources can be used to: a) upgrade existing DDF infrastructure to meet climate resilience standards, b) upgrade other existing infrastructure within district investment plans to meet climate resilience standards, c) build new climate resilient DDF infrastructure, or d) build other new climate resilient infrastructure within district investment plans. The selection will be informed by the technical expertise and analysis provided under Outcome 1 but will be embedded within the guiding documents that inform the district planning process. This will be achieved through the introduction of a positive list of adaptation investments (see adaptation options matrix in V&A analysis, Annex 8) focusing on small scale rural infrastructure. The DDF has a high degree of buy-in from local communities and very closely matches with perceived needs at this level, while benefiting also from a maximum level of local knowledge and expertise. During Year 1 of the project, the existing incentive mechanism for rewarding districts performing well will be adjusted to reflect the integration of CCA expenditures. Necessary audit, monitoring and reporting requirements will also be defined and tested. One important element of this process will be to make adjustments to the

evolving MCs being developed under NGPAR and progressively rolled out to all Provinces and Districts.

Output 2.1: An incentive mechanism, rewarding districts performing well in planning, budgeting and implementation of climate resilient, ecosystem based small-scale water infrastructure is developed, tested and under operation to drive the delivery of LDCF climate resilient infrastructure grants. This output will result in the tailoring and extension of a pre-existing local development fund mechanism (the District Development Fund) to incorporate all the necessary skills, and capacities to channel and report on additional climate adaptation funding through national systems. Through this approach the project seeks to ensure that the project can be easily replicated in other districts and can provide a means to access and channel other public resources in the future, both national budgetary resources and international funds.

Indicative Activities:

Activity 2.1.1: Establish an incentive mechanism based on the principle of an additional 25% increment to baseline development budgets to fund climate resilient investments. This will be done by MOHA/UNCDF, in close coordination with province and district officials, using climate change TA provided under Outcome 1. The mechanism will be developed and agreed in Year 1, applied in Year 2 and further updated as necessary in the subsequent project years. Adjustments to the existing MOU between UNCDF and the GoL to enable to channelling of additional climate grants will be led by UNCDF/MoHA with technical support and advice carried out under Outcome 1.

Activity 2.1.2: Develop an audit methodology to annually track district performance in the area of climate resilient, ecosystem based small-scale water infrastructure. UNCDF will adjust the existing annual auditing methodology based on additional minimum conditions, which will be developed with specialist climate change TA support provided under outcome 1, as detailed above.

Activity 2.1.3: Adjust annual budgetary envelopes for district investment plans to include CCA grants according to measured district performance. The annual climate audit methodology will be applied against established MCs which will determine performance and allow future allocations to be made. This activity will be carried out by MOHA staff with support from UNCDF.

Activity 2.1.4: Amend standard local development funding operating manuals, instructions and regulations to include climate resilient infrastructure, in order to fully mainstream climate financing into existing systems. The main intent will be to secure the possibility for future sources of climate financing to use the same channels as those established with LDCF resources in order to maximise the potential to long term sustainability and to leverage additional resources.

Activity 2.1.5: Codify lessons learned from a climate finance and public expenditure management perspective. This will include the development of new policy briefs on integration of climate financing into local budgetary processes, supported by learning events for MOHA, MONRE and Ministry of Finance officials.

Output 2.2: At least 48 small-scale infrastructure investment projects (1 per district per year), including components of water harvesting, storage, distribution and/or irrigation of the priority lists that have been CRVA assessed are implemented benefiting 50,000 people. Output 2 will follow a phased approach. In the first year 12 infrastructure investments will be selected from

the V&A report (Annex 8) for further analysis and funding, applying the detailed CRVA approach. From the second year onwards the selection of investments will follow the same technical approach (V&A and CRVA) but influenced also by the newly established performance based mechanism leading to differing levels of financial allocation from one district to the next.

Indicative Activities:

Activity 2.2.1: Support and ensure establishment of district level bank accounts in line with Ministry of Finance rules. Specific accounts will need to be established by each district to handle climate grant financing and for ease of tracking of ensuing expenditures and replenishments. In time these accounts may be consolidated with the existing accounts for local development funding but in the initial stages it is important that they remain separate to ensure maximum oversight.

Activity 2.2.2: Deliver climate resilient infrastructure grants to district accounts, aligned with existing local development funding. The delivery mechanism is established under an existing MoU between UNCDF and the Government of Lao PDR, which will have been amended to reflect the need to channel the additional grants. Disbursements are made on a biannual basis in line with the budget cycle which begins in October of each year against approved district annual investment plans and budgets, and a workplan for the first quarter of the coming fiscal year.

Activity 2.2.3: Track, monitor and report on fiscal transfers for climate resilient infrastructure. This activity will involve the deployment of PFM specialists on a quarterly basis to be deployed by MOHA with support from UNCDF. It will include the delivery of certified annual expenditure assessments for each district, supporting the delivery of the incentive mechanism developed under 2.1.1. These assessments will also facilitate standard financial report to the GEF through the annual PIR exercise.

Activity 2.2.4: Evaluate and report on climate resilient grant performance against relevant MCs standards on an annual basis. Technical reporting will also need to be carried out in order to support project delivery against project indicators and targets. These technical assessments will engage climate specific TA delivered under Outcome 1 but equally the strengthened capacities in climate monitoring and evaluation to be provided to PONRE and DONRE staff.

Outcome 3: Natural assets (such as wetlands, forests and other ecosystems in sub-catchments) over at least 60,000 ha are managed to ensure maintenance of critical ecosystem services to sustain critical rural infrastructure, especially water provisioning, flood control and protection under increasing climate change induced stresses, in Sekong and Saravane provinces.

Other co-financing sources: \$3,818,000
LDCF project grant requested: \$1,381,764

Baseline: The rural poor in Lao PDR are heavily dependent on the services that ecosystems provide in moderating and sustaining the flow of surface and ground water. Currently forestry and agro forestry ecosystems are under pressure from a range of factors such as habitat change, slash and burn agriculture, overgrazing, establishment of monoculture plantations as well as from mining concessions as well as from mining activities. The Government of Lao PDR has been strengthening the management of its ecosystems by enacting natural resource legislation to maintain the country's forestry and water resources. The forthcoming *National*

Water Resources Policy and National Water Resources Strategy and Action Plan as well as the *Decree of the Establishment of River Basin Committees* are examples of recent progress in this regard, with support from a range of donors including the World Bank's IWRM project. River Basin Committees are being established in all of Lao's 12 major river basins²⁶, with an initial focus on the drought prone south and specifically the river basins and floodplains of Xe Bang Fai and Xe Bang Hiang rivers in Sekong. The Committees will consist of district governors, district level sectoral agencies, and private sector representatives. By bringing a wide range of agencies and functions together under one platform, providing better access to information as well as technical support, better planning for water resources management is expected. However the Committees, together with their operational institutions and structures which also to be established, will have limited access to climate risk information, specifically the likely impacts of increasing climate variability and change on hydrological regimes and related ecological systems. The river basin committee structure and mandate, which is trans-boundary by nature, presents an ideal opportunity to introduce climate risk analysis and impact management tools. IUCN has been supporting a range of water dialogues at sub-national level over the past 5 years which have provided a process for identifying priority investments to support integrated water resources management. Ecosystem management and action plans have been developed for NPAs and wetlands and the importance of livelihood assets for the success of management efforts are being taken into account through sub-projects like "Rights based approaches to conservation" in wetlands. The Government is also increasingly realising the importance of more effective forest management and conservation approaches outside of NPAs and this has led to the promotion of landscape approaches such as those supported by the SUFORD project in the major timber producing provinces, including Saravanne.

Adaptation Alternative: LDCF resources will be used to plan and implement specific physical measures to enhance and sustain the critical ecosystem functions that can reduce vulnerability to climate-induced floods, extended dry periods and droughts, in Sekong and Saravane's 12 districts. Measures to increase surface water retention capacity in order to encourage gradual control and release of water during the dry season and extend to year round supply, will be designed and implemented. These measures will include: (i) de-silting and unblocking of wetlands and water courses; (ii) protection of water sources through afforestation activities and natural fencing to control stock; (iii) protection of streams and river banks through natural regeneration, terracing, and construction of check dams of gully plugs; and (iv) encouraging aquifer recharge through specific drainage works. The 48 small scale infrastructure projects to be implemented under Outcome 2 will benefit directly from these measures because the selection of specific sites for EBA type measures will need to be coherent with the district planning process, including the annual investment planning. For example, physical works in the provision of an improved water storage scheme for a specific village under Outcome 2 will be made more financially viable by complementary erosion control measures to be provided under Outcome 3 which will be carried out in the same sub-catchment area. Therefore the siting of the respective investments under these two Outcome areas will be critical to ensure coherence. This coherence will be provided through the District Development Support Committees (DDSCs) and will be the specific responsibility of District Environment Officers sitting on these Committees, backed up by technical and management assistance provided with LDCF resources. The proposed investments in better land management will be grouped within the specific landscapes that were identified during the project preparation phase, selected on the basis that they hold the potential to provide complementary services to help sustain critical rural

²⁶ The Government of Lao PDR identified the following 12 major river basins: Nam Ou; Nam Tha; Nam Suang; Nam Ma; Nam Khan; Nam Ngum; Nam Ngiap; Nam Kading; Xe Bang Fai; Xe Bang Hieng; Se Dong; and Se Kong.

infrastructure. The minimum number of beneficiaries from these activities will be 60,000 individuals (approximately 15% of the total population of the two target provinces). Therefore the main intent under Outcome 3 is to demonstrate the inter-dependencies that exist between natural environments and built environments and to apply a systematic approach in strengthening resilience to climate risks at village, district and wider landscape levels. This latter element will be achieved by building on and informing the ongoing IWRM work on landscape management at the Sekong river basin level. The IUCN water and wetland dialogues and the IUCN protected areas programme will be used as a starting point for the development and implementation of these management plans, which will benefit from already established networks of informed individuals and organisations with the potential to bring to bear their considerable expertise. This includes the following existing capacities which LDCF resources will be able to build upon: (i) delineation of ecosystem sites and zones through group discussion and transect walks; (ii) site based ecosystem assessments through group discussion and field survey methods, including assessment of key threats; (iii) identification of water use conflicts including conflict resolution approaches; (iv) development and brokering of local contracts for hunting, fishing and NTFP harvesting between communities and local authorities; (v) local area patrolling schemes with cash back or asset based payments for local communities; and (vi) local conservation actions for priority species and priority sites implemented by local management groups. This body of knowledge and expertise provides the project baseline which LDCF resources will be able to use for Outcome 3. Lessons learned from Outcome 3 will be codified and fed into Outcome 1, which will provide inputs to revising relevant province and district level planning regulations and guidelines, as well as informing the development of IWRM principles at the river basin level. Lessons learned will also help to inform newly established river basin management structures for Sekong river basin on critical issues such as flood management and water retention practices in a changing climate.

Output 3.1: Up to nine ecosystem management and action plans with a coverage of at least 60,000 Ha to protect 48 small-scale climate resilient rural infrastructure projects are designed, implemented and monitored for effectiveness. The management and actions plans, which will include budgeted field based activities, will be developed during Year 1 and progressively implemented from Year 2 onwards through specific interventions on the ground, which will be selected and designed using the existing local planning dialogues and structures. This work will be carried out in close coordination with the ADB-IWRM planning being carried out for Sekong River Basin in the South.

Indicative Activities:

Activity 3.1.1: Prepare tender documentation for the delivery of up to nine climate resilient ecosystem management and action plans. The PSU will advise the DDSCs through DONREs on the technical content of the documents which will draw from experience from existing IUCN baseline ecosystem management projects on-going in the project area.

Activity 3.1.2: Develop ecosystem management and action plans that support climate-resilience of rural infrastructure in up to nine locations building on the existing ADB-IWRM approach for Sekong, as well as the location specific interventions and capacities provided under the IUCN baseline projects, as indicated above. The project will use a contractual services modality to procure the necessary technical and organisational expertise to support PONRES and DONREs in leading this activity area, which will be largely community driven. The completed action plans, including project baselines, budgeted activities (field assessment, consultation, training, capacity development, and physical measures) and a monitoring and evaluation system will be presented, reviewed and approved by the DDSCs in line with existing local planning and budgeting procedures. A key element of this review

and approval will be 'coherence' between the ecosystem management measures and the specific physical investments in climate resilient infrastructure that they are supposed to support.

Activity 3.1.3: Implementation of up to nine ecosystem management and action plans through community driven measures with contractual service support. This may involve hiring of local community coordinators to organise and implement public works, as well as the provision of technical advice, equipment and materials. Specific measures will include: (i) de-silting and unblocking of wetlands and water courses; (ii) protection of water sources through afforestation activities and natural fencing to control stock; (iii) protection of streams and river banks through natural regeneration, terracing, and construction of check dams of gulley plugs; and (iv) encouraging aquifer recharge through specific drainage works.

Activity 3.1.4: Apply the ecosystem management monitoring and evaluation system on a regular basis. The DONREs, with support from contractors, will monitor and evaluate progress in implementing the community driven ecosystems management and action plans. The results will be compiled into annual assessments which will be presented to the district planning and investment units and made widely available at district, province and national levels, also feeding into the project central M&E and reporting system.

Output 3.2: Awareness-raising activities implemented, learning materials developed and disseminated and regular dialogues held between communities and tiers of the local administration on the linkages between ecosystems management and small-scale climate resilient infrastructure solutions. The main aim of this output will be to provide clear guidance and direction on how ecosystem based approaches can be integrated into local development planning, using infrastructure investments as a starting point. The opportunities for achieving this are likely to vary considerably from one district to the next depending on prevailing land use and management practices. This Output will need to be delivered in parallel with Output 3.1 since it underpins the development of the ecosystem management and action plans. Much of the work will involve motivating local officials and other stakeholders to visit specific sites, view problems on the ground, and jointly identify solutions. The frequent repetition of this approach each year of the project will induce behavioural changes in the way planning is carried out, through the integration of more evidenced based information and through the involvement of a wider range of stakeholders in formulating and agreeing local plans. This work will build directly on the national water dialogues that have been carried out by MONRE with support from IUCN.

Indicative Activities:

Activity 3.2.1: Develop and disseminate best practice guidelines based on M&E reports provided under output 3.1. MONRE, with support from subcontractors, will develop best practice guidelines for the area of small-scale ecosystem management that support or protects small-scale rural infrastructure. The guidelines may explain: how water retention capacities are maintained or increased through ecosystem management in a given catchment, how ecosystem management contributes to the regulation of run-off and thus protects small-scale infrastructures from flash floods and landslides, how ecosystem management surrounding water points leads to water purification effects, how ecosystem management contributes to food security (e.g. through agroforestry or the protection of NTFP's), and how ecosystem management and action plans can be designed to be socially inclusive.

Activity 3.2.2: Organise site visits for district, provincial and national officials. The initial investment projects implemented under output 3.1 will be visited by district, provincial and national officials as part of the capacity development activity 1.1.3. This will be organised by MONRE and the concerned districts, with support from the PSU. These will be arranged as learning events contributing to the development of greater awareness and understanding, as well as specific knowledge products including short movies, public broadcasts, news stories as well as broader awareness raising products.

Activity 3.2.3: Organise roundtable meetings to share experiences on EbA infrastructure solutions building on existing networks and capabilities provided by the IUCN baseline projects. The project will organise at least one national roundtable meeting per year to mainstream knowledge on EbA infrastructure solutions and strengthen information sharing and linkages with other baseline programs. These could be linked with environment related events relevant to the project such as the World Water Day, the World Environment Day or others, or held back to back with annual Project Board meetings. The roundtable meetings will be organised by the PSU and lead by MONRE and could be located both at the Province and National level.

2.6 Key indicators, risks and assumptions

The project indicators rely largely UNDP's "Monitoring and Evaluation Framework for Climate Change Adaptation", and are aligned also with the LDCF Adaptation and Monitor Tool (AMAT). The Project Results Framework in Section 3 details indicators, baseline, targets and sources of verification at the Objective and Outcome level. At the level of the Project Objective, the indicators are as follows:

Indicators:

- Percentage change in the number of district development plans including specific climate change adaptation actions in the target provinces and districts (AMAT 1.1.1)
- Percentage change in the level of active local community participation in climate risk related planning in target provinces and districts.

At the level of the three outcomes, the indicators, risks and assumptions are the following:

Outcome 1: Capacities provided for local administrative institutions to integrate climate risks into participatory planning and financing of small scale rural water infrastructure provision.

Indicators:

- 1.1 Percentage change in the ability of local officials to apply methodologies to analyse climate risks and to identify CC vulnerabilities in 12 districts.
- 1.2 Procedures are in place to integrate climate change resilient advice and investment for small-scale rural water infrastructure into district planning (YES/NO) (AMAT 1.1.1.1)
- 1.3 Number of district development plans reflecting costs of adaptation in the water sector available.

Outcome 2: Incentives in place for small scale rural infrastructure protected and diversified against climate change induced risks (droughts, floods, erosion and landslides) benefitting at least 50,000 people in 12 districts of Sekong and Saravane provinces

Indicators:

- 2.1 Number of districts routinely investing in climate resilient measures to improve village level water harvesting, storage and distribution systems.
- 2.2 Number of people benefitting from investments in small-scale irrigation systems made to increase their resilience against climate change risks.(AMAT 1.2.3)
- 2.3 District level fiscal and administrative incentives introduced that incorporate climate resilient measures for small scale rural water infrastructure (YES/NO) (AMAT 1.1.1.3)

Outcome 3: Natural assets (such as wetlands, forests and other ecosystems in sub-catchments) over at least 60,000 ha are managed to ensure maintenance of critical ecosystem services, especially water provisioning, flood control and protection under increasing climate change induced stresses, in Sekong and Saravane provinces.

Indicators:

- 3.1 Number of management /action plans developed and under implementation, which protect natural assets through local scale ecosystems based adaptation measures, in order to improve the resilience of small-scale rural infrastructure against floods and drought. (AMAT 1.2.1.9).
- 3.2 Percentage of key project stakeholders aware of links between improved ecosystem management and sustainability of investments in small scale rural water infrastructure.

Key assumptions that underlie the project design include:

- a willingness for horizontal information sharing and learning exists between districts within the two target provinces, as well as between provinces nationally.
- that baseline district development funds continue to be available in all three target provinces over the project period.
- a willingness on the part of local communities to set aside time and other resources to support elements of the construction and routine maintenance of climate resilient rural infrastructure investments.

Key risk factors and countermeasures are presented in the risk log matrix included in Annex 1.

2.7 Cost-effectiveness

The target Provinces, Sekong and Saravane, are among the poorest in Lao PDR, A high proportion of the population in both Provinces live in extreme poverty, have markedly low access to markets and social services, and are therefore largely dependent on their own subsistence output for survival. CCA options to be implemented under Outcomes 2 and 3 will produce measurable economic benefits for the beneficiary communities, largely in the form of avoided costs from losing access to irrigation and water supply infrastructure services. Loss of irrigation and water supply/storage infrastructure due to climate impacts will lead to increasing dependency on the state (or other forms of support), potentially accelerated out-migration of working-age people, an increasing nutritional deficit among the population and a corresponding increasing in emergency food-aid into the region. More frequent repairs or replacement of vulnerable infrastructure damaged by extreme events will also be required.

In selecting the proposed project approach two alternative approaches were discussed with government during the early design phase. These included:

- Implementation of hard adaptation measures only, without the implementation of complementary EBA type measures – This option would have provided a simpler implementation model but was rejected by the government (MONRE) which was keen to integrate physical investments with improved wetland management measures, many of which are already underway in the South of the country. Best practices from the region indicate that complementary hard and soft measures, if appropriately coordinated, achieve greater financial viability and long term sustainability for rural infrastructure.
- Standard project delivery mechanism, without introduction of a district financial incentive mechanism – This option was initially the preferred implementation modality, whereby additional resources for strengthening the resilience of rural infrastructure would be provided directly to districts annually based on climate vulnerability assessment only. However further discussions with local governance advisers as well as the Ministry of Local Government alerted the design team to the opportunities in promoting a more cost effective delivery mechanism linking good adaptation performance with higher payments (premiums) aligned with the government’s existing district block grant mechanism which operates in a similar way. While this approach is more complex and will require a greater investment in capacity development at the outset, the longer term pay back in term of cost effectiveness and integration of climate finance into government systems was deemed by all stakeholders to be highly significant.

The selected alternative will deliver significant financial and economic benefits to target communities by preserving the capacity of the region to support subsistence livelihoods and ultimately by maintaining the habitability of the affected areas. In both Provinces, the economic consequences of an increasing nutritional deficit among the population due to climate change can be measured in terms of the need for increasing emergency food-aid into the region. The economic analysis provided in Annex 11 presents an assessment of the economic cost of an increasing nutritional deficit across the region, with a significant proportion of these costs being borne by individuals and families (rather than the public sector). Key factors analysed include higher rates of nutrition-related disease, higher death rates among adults, higher infant and maternal mortality, and forced out-migration that would ensue from projected levels of climate change and related risk. By contrast, the irrigation and water supply CCA projects proposed for Sekong Province have an economic internal rate of return (EIRR) of 26.4% and a net present value (NPV) of US\$2.9 million over a 20-year lifetime. The benefit/cost ratio of the proposed projects is 2.21 (i.e., the present value of the benefits of CCA is 2.2 times the present value of CCA related costs). In Saravane Province, the irrigation and water supply CCA projects have an EIRR of 26.1% and a net present value (NPV) of US\$6.2 million over a 20-year life time. The benefit/cost ratio of the proposed projects is 2.67.

In terms of overall approach, project expenditures will be focused mainly on direct community-level impacts. Administrative and other overhead costs, including meetings and workshops, will be kept to a minimum.

2.8 Sustainability

Financial

As the cost benefit analysis at the macro and micro-level has shown, the project produces high returns and is financially sustainable. Although compared to macro-level mainstream

development trends, such as mining, hydropower, or plantations, the direct impact of the project on national income is low, the project benefits at the individual and household level exceed those that may be produced by such mainstream investments. In particular, livelihoods will be protected, the costs of forced out-migration will be avoided, and the habitability of an area of homeland for a significant segment of the population will be preserved. The project will directly contribute to the achievement of MDG objectives (e.g., health and nutrition) in the target areas.

Institutional

At the institutional level the project will help to support and sustain on-going government efforts to strengthen sub-national capacities in planning, budgeting and implementation. At the organisational level, the sustainability of the project is dependent on functional government agencies and departments at the sub national level such as the de-concentrated branches of MAF (PAFO, DAFO) and MONRE (PONRE, DONRE), as well as planning structures such as the district planning committees. MONRE is undergoing a significant institutional reform process which includes establishing a more visible presence at sub-national level. The project will help to establish and orientate these offices in the target provinces and districts within a key area of MONRE's overall mandate. It is highly relevant therefore to MONRE's mandate and comes at an opportune time for strengthening its institutional presence nationally. In other respects the project will work through existing institutions and mechanisms, also within the existing mandates of these institutions. To some extent MOHA officials at all levels may be required to develop new skills given the particularities of channelling additional climate finance through national systems, but in the main these skills will be primarily PFM driven, rather than substituting the role of MONRE which has the lead role in addressing climate change.

Environmental

Environmental Sustainability is ensured through the whole project design which links the fields of local governance, infrastructure development and ecosystem management. The project is guided by the emerging field of ecosystem based adaptation with strong linkages to community based adaptation. The underlying idea is that ecosystem services used by communities must be sustained through sound management practices in order to ensure livelihood security. The associated project activities will counteract the prevailing land use change trends which are driven by investments in monocultures, mining and hydropower. Although these trends cannot be stopped, the project will demonstrate over an area covering at least 60,000 Ha that investments in ecosystems pay off more in the long-term, since they protect important livelihood assets and infrastructures which are important for rural service delivery. A beyond project lifetime sustainability option worthwhile to explore during the project implementation phase is to look at the activities deriving from the recent conference "Bonn Challenge on forests, climate change and biodiversity". World decision makers in the area of climate change and forestry have founded their political claim to restore 150 billion hectare of degraded forests until 2020 on linking the policy recommendations of the CBD and UNFCCC. This new initiative might lead to fast track finance for afforestation and reforestation outside a complicated REDD+ mechanisms, which might be of importance for the sustainability of the ecosystem management component.

Social

Overall the project will improve the service delivery in MDG relevant sectors, mainly water supply, by building climate resilient small-scale rural infrastructure or climate adapting existing ones. This will benefit an estimated 50,000 people. The same proportion of the population will equally benefit from the sustaining of ecosystem services, e.g. NTFP's. Women will benefit from improved water supply schemes for domestic consumption and sanitation, given their major role in water provision of families. The time saving effect of better water supply will contribute to

enhanced income generating activities of those women. The same holds true for ethnic groups, which currently are disproportionately affected from shortages in water supply for domestic and agricultural use. In addition they depend to a greater extent on ecosystem services as the average population.

Both the social and environmental sustainability of the project is much strengthened by the completion, during the PPG phase, of a thorough baseline assessment of climate vulnerability and adaptation options (see Annex 8) within the two target Provinces. The approach taken was based on a methodology developed by the International Centre for Environmental Management (ICEM), and approach which assesses geographical scope, baseline conditions, vulnerability, and proposed response measures in an eleven step process. From an environmental and physical perspective the approach recognises that differences in the natural or receiving environment affect climate vulnerability and the types of adaptation options to be considered. Therefore the target area was divided into three distinct zones: the lower catchment (floodplains), the mid catchment (sloping hills) and upper catchment (hilly and mountainous terrain). From a social perspective different poverty levels across the 12 target districts are recognised as well as other key criteria, such as ethnicity, gender and institutional conditions. More detailed CRVA analysis is proposed as a second step to deepen social analysis, once climate resilient adaptation investments have been selected and integrated into district development plans. The initial V&A work, presented in this document, was expertly drawn together through use of an impact matrix tool. The data collected in support of the work provides critical baseline information from which the overall impact of the project will be measured.

2.9 Replicability

The project has a high potential for replicability. Firstly it is strongly linked to the NGPAR programme which is one of the central pillars of the government's support for administrative reform at sub-national level. The district block grant mechanism, which is integral to the GPAR approach, is currently being prepared for national up-scaling. Therefore all field tested project activities in the field of capacity development for improved management of climate risks hold the potential to be up-scaled as well. Secondly the project it addresses issues which are prevalent not just in the target provinces of Sekong and Saravane, but in equally in other Provinces also facing evidence and associated of the impacts of increasing climatic variability. Furthermore the methods being applied to strengthen the quality and climate resilience of local planning and budgeting so that it can take into account additional costs are relatively intuitive, simple in approach and dependent on community knowledge and understanding. Thirdly the project has identified a number of clear gaps in existing practices and procedures for the provision of rural infrastructure, specifically in the area of construction standards and guidance which are currently based on business as usual climatic variables. This provides the project with a clear niche for work on policy influencing, with the potential to impact on similar types of infrastructure investment more widely, both nationally and in the South East Asia region. A key element which the project will promote is the importance of building climate resilience also using EbA solutions to help manage critical ecosystems where rural infrastructure is located. Finally the project will put in place a CCA database and GIS system to collate and consolidate project information at the level of the district, which will be critical for longer term planning purposes and secure the project's institutional memory. This planning tool will be presented to planners and decision makers in other provinces and districts as part of a programme of outreach. This will also include use of the UNDP supported ALM to ensure that lessons learnt can inform regionally and internationally.

2.10 Stakeholder Involvement Plan

A wide range of other government institutions and partners, beyond the lead ministries, will be involved particularly for their organisational, scientific and technical inputs as well as for project outreach. It is important that the various outputs that will be delivered under the project outcomes build on relevant expertise already available in the country and improve upon what is presently available. These linkages will also provide platforms for knowledge exchange and mutual learning. The following table reflects the findings of stakeholder consultations carried out during the PPG phase, with key project related roles identified and agreed in each case.

Table 10: Stakeholder involvement plan

Stakeholder	Role in Project
MONRE, National Disaster Management and Climate Change Department	<ul style="list-style-type: none"> • Lead Agency components 1 and 3 • Executive member in Board • Appoints National Project Director • Appoints National Project Manager • Organises awareness raising and training events
MOHA	<ul style="list-style-type: none"> • Lead government agency component 2 with implementation support provided by UNCDF • Executive Member in Board • Lead agency with responsibility for local governance reform in Lao PDR
MAF	<ul style="list-style-type: none"> • Executive Member of Project Board • Review recommendations on CC resilient construction standards in their sectors
MPI	<ul style="list-style-type: none"> • Executive Member of Project Board • Provides recommendations on planning procedures.
PONREs and DONREs, POHAs and DOHAs of target provinces	<ul style="list-style-type: none"> • Main Target Group of capacity development activities • Implementation of contracted activities (CRVA assessments, trainings)
District Development Support Committees	<ul style="list-style-type: none"> • Main Target Group of capacity development activities • Approves EbA infrastructure projects and determines budgets • Develops annual climate-resilient investment plans
River Basin Committees	<ul style="list-style-type: none"> • Main Target Group of capacity development activities on linking CCA and IWRM to address upstream downstream district transboundary issues in the target area
Local decision makers (village heads, deputy heads, head of local mass organisations)	<ul style="list-style-type: none"> • Facilitates project identification and CRVAs • Facilitate the development of ecosystems management and action plans • Target Group of trainings and awareness raising on infrastructure maintenance and ecosystem management
Development Partners (WB, ADB, UNDP, UNCDF, GIZ, Government of Finland)	<ul style="list-style-type: none"> • Co-financing • Exchange of data, methodologies and tools • Co-organisation of capacity development activities
Lao Womens Union	<ul style="list-style-type: none"> • Facilitation of stakeholder consultations with women's groups • Refinement of CRVA methods • Capacity development and awareness raising on climate change and women. • National outreach on implications of climate change for lives and livelihoods of rural women
INGO's, NGOs, Consulting Companies	<ul style="list-style-type: none"> • Implementation of contracted services (Development of training and

	awareness raising materials, give inputs to training and awareness raising events, development of CRVA tool, provide on the job coaching on CRVA, develop ecosystems management and action plans)
Construction Companies	<ul style="list-style-type: none"> • Implement infrastructure components of projects • Target group of trainings on construction standards of climate resilient rural infrastructure

More detailed information on future cooperation issues is provided in Annexes 6.4 and 6.5.

3 PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: By 2015, better climate change adaptation and mitigation implemented by government and communities and natural disaster vulnerabilities reduced in priority sectors.					
Country Programme Outcome Indicators: No. of priority sectors with a plan explicitly including climate change mitigation and adaptation; Average population affected by natural disasters per million people per decade.					
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): Promote climate change adaptation					
Applicable GEF Strategic Objective and Program: Least Developed Countries Fund (LDCF)					
Applicable GEF Expected Outcomes: n/a					
Applicable GEF Outcome Indicators: n/a					
	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective²⁷ Local administrative systems affecting the provision and maintenance of small scale rural infrastructure will be improved through participatory decision making that reflects the genuine needs of communities and natural systems vulnerable to climate risk. (equivalent to output in ATLAS)	Percentage change in number of district development plans including specific climate change adaptation actions in the target provinces and districts (AMAT 1.1.1)	No CC adaptation actions are in place or budgeted for in district development plans in Sekong or Saravane.	50% of district development plans in the project area include at least 3 specific CCA actions by mid project and at least 5 CCA actions by end of project.	Sample of district development plans, available through GPAR project records	Strong horizontal information sharing and learning exists between districts within all target provinces.
	Percentage change in the level of active local community participation in climate risk related planning in target provinces and districts.	Although local communities in GPAR supported districts are aware of climate risks and taking part in planning decisions, there is no structured process in place for analysis and integration of these risks.	60% of District Development Support Committees in the target districts and provinces record specific climate related concerns emerging from community level annual planning consultations.	District planning records available through the GPAR project	Other risk areas may emerge that are perceived as more important than climate related risks in some localities. Overall quality of consultations associated with district planning may not be sufficiently high to ensure key issues emerge.
Outcome 1²⁸					

²⁷Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR

²⁸All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

<p>Capacities provided for local administrative institutions to integrate climate risks into participatory planning and financing of small scale rural water infrastructure provision. (equivalent to activity in ATLAS)</p>	<p>1.1 Percentage change in the ability of local and some national officials to apply methodologies to analyse climate risks and identify CC vulnerabilities in 12 districts</p> <p>1.2 Procedures are in place to integrate climate change resilient advice and investment for small scale rural water infrastructure into district planning (YES/NO) (AMAT 1.1.1.1)</p> <p>1.3 Number of district development plans available, reflecting costs for adaptation in the water sector.</p>	<p>Currently no climate risk analysis is carried out made at sub-national levels. Some macro level V&A work has been carried out (eg through the SNC process) but this analysis is not applicable for local level planning purposes</p> <p>No existing mechanism for climate resilient planning/ monitoring used for district development planning. There are no linkages made between the failure of water infrastructure and the inappropriate management of ecosystems.</p> <p>CCA in the water sector currently not budgeted.</p>	<p>50% of sub-national officials and 10% of national officials are able to analyse climate risks for their districts on a macro level (V&A analysis) and are able to identify specific vulnerabilities and adaptation options at village level (CRVA).</p> <p>All 12 target districts are applying a climate resilient planning mechanism including project identification, site assessment, approval, execution and M&E.</p> <p>All annual district investment plans include evidence of incremental CCA costings for water sector projects by year 4 and at least 4 provide this evidence by Year 2.</p>	<p>District development plans and documented mechanism available from project records and other media sources</p> <p>Interviews with district officials and review of district planning guidelines and practices</p> <p>Sample of district investment plans.</p>	<p>The 12 districts of two provinces continue to replicate conventional non climate resilient planning procedures, since they are cheaper and thus a larger part of the population can be claimed to be addressed.</p> <p>High quality materials can be produced in Lao language, which do not rely simply on printed media.</p> <p>Baseline district development funds available in all three target provinces over the project period.</p>
<p>Outputs Supporting Outcome 1:</p> <p>1.1 Technical capacity in climate resilient planning and managing climate risks, focusing on links between improved ecosystem management and sustainability of investments in small scale rural water infrastructure, enhanced for at least 250 national, province, district and village officials, including watsan committee members and disaster management committee members..</p> <p>1.2 Village level water harvesting, storage and distribution infrastructure adaptation solutions and related ecosystem management options identified, prioritized and integrated into district development plans.</p> <p>1.3 Climate risk, vulnerability and adaptation assessments (CRVA) carried out at 48 project sites in 12 districts of Sekong and Saravane provinces and proposed climate resilient investments adjusted to take account of site specific adaptation concerns.</p> <p>1.4 Detailed climate resilient project investments and tender documents finalized as well as associated dialogues to facilitate implementation of annual investment plans in 12 districts.</p> <p>1.5 Guidelines, codes and best practices for climate resilient construction developed, applied and revised for small-scale rural infrastructure sectors (irrigation, water supply, rural roads, education, and health), including technical training in climate resilient design for local engineers and contractors.</p>					
<p>Outcome 2 Incentives in place for small</p>	<p>2.1 Number of districts routinely investing in</p>	<p>Existing village level water related infrastructure is</p>	<p>By the end of the project all target districts are investing</p>	<p>District annual progress reports,</p>	<p>Design of suitable infrastructure is not based on sufficient local</p>

<p>scale rural infrastructure to be protected and diversified against climate change induced risks (droughts, floods, erosion and landslides) benefitting at least 50,000 people in 12 districts of Sekong and Saravane (equivalent to activity in ATLAS)</p>	<p>climate resilient measures to improve village level water harvesting, storage and distribution systems.</p> <p>2.2 Number of people benefitting from investments in small-scale irrigation systems to increase their resilience against climate change risks. (AMAT 1.2.3)</p> <p>2.3 District level fiscal and administrative incentives are introduced that incorporate climate resilient measures for small scale rural infrastructure (YES/NO). (AMAT 1.1.1.3)</p>	<p>poorly maintained and not designed to cope with increasing incidence of drought, flood or flash flood events.</p> <p>Climate change resilience not built-into existing or new small-scale irrigation infrastructure. Infrastructure poorly maintained and options often not appropriate to address the real situation.</p> <p>No fiscal and administrative incentives and structures are in place to promote climate resilient planning at sub-national level. The existing DDF mechanism has the ability to channel baseline development funding only.</p>	<p>at least 2 projects per year in village level climate resilient water harvesting, storage and distribution systems, which are informed by CRVA.</p> <p>At least 50,000 people across 12 districts are benefitting from climate change resilient small-scale irrigation infrastructure, which has been informed by CRVA.</p> <p>At least 25% in additional CCA funds (annual average) expended over and above baseline District Development Funding in at least 12 districts, based on a system that rewards districts that perform well against predetermined criteria.</p>	<p>LDCF project annual progress reports, GPAR annual progress reports.</p> <p>District annual progress reports, LDCF project annual progress reports, GPAR annual progress reports.</p> <p>Annual audits and climate expenditure reviews</p>	<p>consultations and is not valued and used as a consequence.</p> <p>CC vulnerability assessments are sufficiently detailed to help identify most at risk rural infrastructure.</p> <p>Communities are prepared to set aside time or funds for routine maintenance of the irrigation system.</p> <p>Local resistance occurs to the introduction of new water management techniques on socio-cultural grounds.</p> <p>Existing government decentralisation policies and approaches are significantly delayed during the project period.</p>
<p>Outputs supporting Outcome 2:</p> <p>2.1 An incentive mechanism, rewarding districts performing well in planning, budgeting and implementation of climate resilient, ecosystem based small-scale water infrastructure is developed, tested and under operation.</p> <p>2.2 At least 48 small-scale infrastructure investment projects (1 per district and year), including components of water harvesting, storage, distribution and/ or irrigation of the priority lists that have been CRVA assessed are implemented.</p>					
<p>Outcome 3 Natural assets (such as wetlands, forests and other ecosystems in sub-catchments) over at least 60,000 ha are</p>	<p>3.1 Number of management /action plans developed and under implementation, which protect natural assets through local scale ecosystems based adaptation measures to improve</p>	<p>Land use and management procedures and plans supporting climate change resilience of sub-catchments and small-scale rural infrastructures do not exist or if so are poorly implemented.</p>	<p>At least 6 management and action plans covering at least 48 climate resilience small-scale infrastructure investments under implementation across both Sekong and Saravane provinces.</p>	<p>District annual progress reports, Project reports</p>	<p>Land ownership issues in the vicinity of built infrastructure restrict possibilities in introducing new ecosystem based land management approaches.</p> <p>A reduction of swidden agriculture systems</p>

<p>managed to ensure maintenance of critical ecosystem services, especially water provisioning, flood control and protection under increasing climate change induced stresses, in Sekong and Saravane provinces. (equivalent to activity in ATLAS)</p>	<p>the resilience of small-scale rural infrastructure against floods and drought. (AMAT 1.2.1.9)</p> <p>3.2 Number of key project stakeholders aware of links between improved ecosystem management and sustainability of investments in small scale rural water infrastructure.</p>	<p>Local planners and decision makers do not make the linkages between infrastructure investment and local land management practices. There is little or no information available to planners providing a reference point or practical experience in this area.</p>	<p>At least 250 national, provincial and district planners have received knowledge and learning approaches and materials produced by the project on ecosystem based management linkages to infrastructure provision.</p>	<p>Surveys to be carried out at mid and final evaluation stages</p>	<p>(traditionally practiced by ethnic minority women) as a result of the introduction of new practices, may erode their authority and role.</p> <p>High quality materials can be produced in Lao language, which do not rely simply on printed media.</p>
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Outputs Supporting Outcome 3:

3.1 Up to 9 ecosystem management and action plans to protect the 48 small-scale infrastructure projects (including physical measures to increase natural water retention and storage, as well as increase ground water infiltration and recharge) are designed, implemented and monitored for effectiveness.

3.2 Awareness-raising activities implemented, learning materials developed and disseminated and regular dialogues established between communities and all local administrative tiers on linkages between ecosystems management and small-scale infrastructure solutions.

4 TOTAL BUDGET AND WORKPLAN

Award ID:		Project ID(s):	
Award Title:	PIMS 4710 FSP LDCF: Effective governance for Small Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate		
Business Unit:	LAO10		
Project Title:	Lao PDR: Effective governance for Small Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate		
PIMS no. _____	4710		
Implementing Partner (Executing Agency)	Ministry of Natural Resources and Environment (MONRE)		

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: Capacities provided for local administrative institutions to integrate climate risks into local planning and financing of small scale rural water infrastructure provision	MONRE	62160	UNDP	71200	International Consultants	11,000	33,000	33,000	11,000	88,000	1A
			LDCF	71200	International Consultants	60,000	102,000	84,000	24,000	270,000	1B
				71300	Local Consultants	19,956	18,228	18,228	6,132	62,544	1C
				71600	International Travel	5,000	5,000	5,000	2,500	17500	1D
				71600	Local Travel	28,250	28,250	26,250	6,250	89000	1E
				72100	Contractual services	111,000	82,000	72,000	59,500	324,500	1F
				72300	Materials and Goods	3,800	1,000	1,000	1,000	6,800	1G
				74200	Audio visual & Print Production	8,000	8,000	5,000	0	21,000	1H
				74500	Miscellaneous	2,000	2,000	2,000	2,372	8,372	1I
					Sub-total UNDP	11,000	33,000	33,000	11,000	88,000	
					Sub-total LDCF	238,006	246,478	213,478	101,754	799,716	
				Total Outcome 1	249,006	279,478	246,478	112,754	887,716		
	UNDP		71300	Local Consultants	20,736	20,736	20,736	20,736	82,944	2A	

OUTCOME 2: Incentives provided for small scale rural infrastructure to be protected and diversified against climate change induced risks benefitting at least 50,000 people in Sekong and Saravane Provinces	UNCDF	62160	LDCF	71600	Local Travel	6,000	6,000	6,000	7,000	25,000	2B
				72100	Contractual Services	35,000	35,000	25,000	25,000	120,000	2C
				72600	Grants	0	550,000	600,000	850,000	2,000,000	2D
					Sub-total UNDP	20,736	20,736	20,736	20,736	82,944	
					Sub-total LDCF	41,000	591,000	631,000	882,000	2,145,000	
					Total Outcome 2	61,736	611,736	651,736	902,736	2,227,944	
OUTCOME 3: Natural assets over at least 60,000 ha are managed to ensure maintenance of critical ecosystem services in Sekong and Saravane Provinces	MONRE	62160	UNDP	71200	International Consultants	11,000	33,000	33,000	11,000	88,000	3A
			LDCF	71200	International Consultants	48,000	72,000	72,000	48,000	240,000	3B
				71300	Local Consultants	13,824	20,736	20,736	10,368	65,664	3C
				71600	Local Travel	10,320	11,760	11,760	11,760	45,600	3D
				72100	Contractual services	44,000	223,000	425,500	239,500	932,000	3E
				72200	Equipment and furniture	67,500	4,000	3,000	3,000	77,500	3F
				74200	Audio visual & Print Production	2,000	5,000	5,000	3,000	15,000	3G
				74500	Miscellaneous	1,500	1,500	1,500	1,500	6,000	3H
					Sub-total UNDP	11,000	33,000	33,000	11,000	88,000	
				Sub-total LDCF	187,144	337,996	539,496	317,128	1,381,764		
	Total Outcome 3	198,144	370,996	572,496	328,128	1,469,764					
PROJECT MANAGEMENT (not to appear as an Outcome in the Results Framework and should not exceed 10% of project budget)	MONRE	62160	UNDP	71600	Local Travel	5,000	5,000	5,000	6,056	21,056	4A
			LDCF	71300	Local Consultants	56,394	79,578	58,842	56,798	251,612	4B
				71600	Local Travel	4,500	4,500	4,500	4,500	18,000	4C
				72200	Equipment and furniture	19,000	5,000	2,000	2,000	28,000	4D
				72500	Office Supplies	9,000	5,000	1,000	1,000	16,000	4E
				DPS	Direct Project Services	15,319	15,319	15,319	13,950	59,908	4F

				Sub-total UNDP	5,000	5,000	5,000	6,056	21,056	
				Sub-total LDCF	104,213	109,397	81,661	78,248	373,520	
				Total Management	109,213	114,397	86,661	84,304	394,576	
				UNDP TOTAL	47,736	91,736	91,736	48,792	280,000	
				LDCF TOTAL	570,363	1,284,871	1,465,635	1,379,130	4,700,000	
				PROJECT TOTAL	618,099	1,376,607	1,557,371	1,427,922	4,980,000	

Summary of Funds:²⁹

	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Total
LDCF	570,363	1,284,871	1,465,635	1,379,130	4,700,000
UNDP-TRAC	47,736	91,736	91,736	48,792	280,000
UNDP-GPAR	16,563,496	2,647,200	2,647,200	0	21,857,896
ADB-IWRM	1052500	1052500	1052500	1052500	4210000
IUCN	1900000	750000	750000	750000	4150000
GOL	75,000	75,000	75,000	150,000	375,000
TOTAL	20,209,095	5,901,307	6,082,071	3,380,422	35,572,895

Table 11: Cost items

Note	Description of cost item
	OUTCOME 1
1A	UNDP TRAC resources for share of costs of International Technical Advisor
1B	Provides for two international posts including 16 months for the International Technical Adviser (@ USD12,000/month) to support the delivery of all Outcome 1 related outputs including supervision of contractors and other consultants, as well as a further 6.5 months for an International Infrastructure Specialist (@ USD 12,000/month) to support the delivery of Outputs 1.4 and 1.5 specifically. The total amount required for the two positions is USD 270,000.
1C	Provides for 22 months for a national Infrastructure Specialist (@ USD 1,728/month) to support the delivery of Outputs 1.4 and 1.5. Provides also for 12 months of the Assistant Project Manager post (@USD 2,044/month) for services specific to the implementation of Outcome 1 activities and spread across all related outputs.
1D	Seven international flights and flight transfers (@USD 2,500/event) for the International Technical Adviser and International Infrastructure Specialist.

²⁹ Summary table should include all financing of all kinds: GEF financing, co financing, cash, in-kind, etc...

Note	Description of cost item
1E	Local travel costs (including local DSA and transportation) to be used in the following way: Output 1.1 – DSA and travel costs for 300 government officials and others in support of climate resilient planning twice per year (@ USD30/person/day) for 3 years. An additional USD 13,000 is allocated for fuel costs for the project team to support this work. Output 1.2 - Vehicle hire and fuel costs for International Technical Adviser to carry out 12 field missions (@ USD1,000/trip) over the project period. Output 1.4 – Vehicle hire and fuel costs for Infrastructure Advisers to carry out 6 field missions (@USD1,000/trip) over the project period. Output 1.5 - Vehicle hire and fuel costs for Infrastructure Advisers to carry out 4 field missions (@USD1,000/trip) over the project period. The total amount required to support local travel costs is USD 89,000
1F	Contractual services to support implementation of: Output 1.1 - design and delivery of a capacity development programme in climate resilient planning for 300 government officials and others (USD87,500) Output 1.3 - delivery of CRVA analysis for 48 subprojects, development of a database and provision of related awareness raising and training (USD 162,000). All Outputs – design and delivery of project M&E system (USD 75,000)
1G	GIS related software, materials and related consumables (USD 6,800).
1H	Training and awareness raising materials (in Lao, Mon, Khmer, English): USD 16,000 Production of guidance documents: USD 5,000
1I	1% of the total Outcome 1 budget during Y1-Y4 is allocated for contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials
	OUTCOME 2
2A	UNDP TRAC resources for costs of a full time national PFM Adviser.
2B	Local travel costs (transportation) to carry out 6 field missions per year (@USD 1,000/trip) over the project period. The total amount required is USD 25,000.
2C	Contractual services to support implementation of: Output 2.1 – design and implementation of an incentive mechanism to reward districts carrying out climate resilient planning and budgeting alignment to the existing District Development Fund (DDF) (USD 120,000). The funds will be used to support the following activities: - agree funding envelope with MOHA for climate resilience in 12 districts - develop and agree addendum to existing UNCDF MoU on the DDF mechanism with the Government of Lao PDR - develop specific procedural and management measures to integrate additional climate finance into the DDF mechanism. - provide training and operational oversight to local officials in applying these new measures - provide technical support and oversight to the local planning process on budgeting and financial management - codify lessons learned.
2D	Output 2.2 – once the incentive mechanism is operational, climate resilient infrastructure grants with a total value of USD 2,000,000 over 4 years will be channelled through existing DDF channels to 12 districts to finance the implementation of climate resilient district investment plans, with support from UNCDF in public financial management, monitoring and reporting on these grants.
	OUTCOME 3
3A	UNDP TRAC resources for share of costs of International Technical Advisor
3B	Provides for 20 months for the International Technical Adviser (@ USD12,000/month) to support the delivery of all Outcome 3 related outputs including supervision of contractors and other consultants. The total amount required for this position is USD 240,000.
3C	Provides for 38 months for a National Ecosystems Specialist (@ USD 1,728/month) in support of the development of EBA management and action plans under Output 3.1. The total amount required for this position is USD 65,664.

Note	Description of cost item
3D	Local travel costs (including local DSA and transportation) to be used in the following way: Output 3.1 – DSA and travel costs for 48 district officials in support of the development of 9 EBA management and action plans once a year (@USD30/person/day) for 4 years. An additional USD 10,000 is allocated for fuel costs for the project team to support this work. Output 3.2 - DSA and travel costs for 144 government officials and others in support of local dialogues and capacity development of ecosystem based management and planning once a year (@USD 30/person/day) for 3 years. An additional USD 14,000 is allocated for fuel costs for the project team to support this work.
3E	Contractual services to support implementation of: Output 3.1 - Nine ecosystems management and action plans and associated field works and equipment (USD 720,000) Output 3.2 – Technical services to support 18 local dialogues on the development of EBA management and action plans (@USD9,000 per dialogue) over 4 years, as well as the design and delivery of EBA training materials (USD 60,000) and the development of best practice and learning materials (USD 44,000).
3F	Purchase of three project vehicles (USD 22,500/vehicle), maintenance costs (USD 2,000), stationery, power, water, communication, province office amenities (USD 8,000).
3G	Training and awareness raising materials (in Lao, Mon, Khmer, English): USD 15,000
3H	1% of the total Outcome 3 budget during Y1-Y4 is allocated for contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials
	PROJECT MANAGEMENT
4A	UNDP TRAC resources to support staff monitoring visits to project sites.
4B	Provides for 32 months of the Assistant Project Manager (@USD 2044/month), 18 months of a national Senior M&E Officer (@ USD1,728/month), 24 months of a national Senior Finance and Admin Officer (@ USD1,728 USD/month), two provincial finance and admin assistants for 45 months each (@ USD 1,114/month), and a translator for 12 months (@ USD 1,114/month).
4C	Local travel costs for DSA and transportation for the core team at USD 4,500/year for 4 years.
4D	Equipment and furniture for project offices including: 9 laptops (@USD 1,000/item), 5 printers (@USD 400/item), 3 scanners (@USD 300/item), and 3 projectors (@ USD 500/item), 12 motorcycles (@ USD 1,200/item), other items @ USD 1200. The total amount required for this equipment is USD 28,000.
4E	Costs of stationery, power, water, communications, office amenities, fuel, small office equipment at USD 16,000, with the majority to be dispersed during Year 1.
4F	Direct project services refers to project 'execution services' which UNDP provides at the request of government to support the procurement of goods and services. The services are charged on an item by item basis against UNDP's Universal Price List (UPL). The main categories of services are provided in section 5.2 of this project document. An initial analysis of the likely cost of these services has been completed during the PPG phase. Based on this analysis the likely costs to be charged to the project budget will be approximately USD 15,000 per annum overall, with some variation from year to year.

5 MANAGEMENT ARRANGEMENTS

The newly established Ministry of Natural Resources and Environment (MONRE), previously the Water Resources and Environment Administration (WREA), will act as Implementing Partner (IP) with overall responsibility for the project and reporting to UNDP Lao PDR according to standard NIM procedures. MONRE has assigned the newly established “Department of National Disaster Management and Climate Change (DNDMCC)” to undertake day-to day implementation activities including responsibility for the implementation of all project components, in partnership with the Ministry of Home Affairs (Component 2³⁰).

The DNDMCC will establish a National Project Support Unit with a full time Assistant Project Manager and other core project staff, to be located in Vientiane. The National PSU will liaise with the existing GPAR-SCSD Secretariat, located in MOHA, which will support the implementation of Component 2.

On the instruction of the IP (MONRE), UNDP will channel LDCF resources in two ways. For Components 1, 3 and for the project management component, resources will be channeled directly to MONRE in line with standard UNDP budget implementation procedures. For Component 2, at the request of the IP, UNDP will channel funds directly to UNCDF which will be aligned with existing District Development Fund procedures and resources. The specific operational arrangements for fund flows relating to Component 2 will be set out in a separate Letter of Agreement between the IP and UNCDF, based on NIM guidelines and an agreed annual workplan with the IP and UNDP³¹.

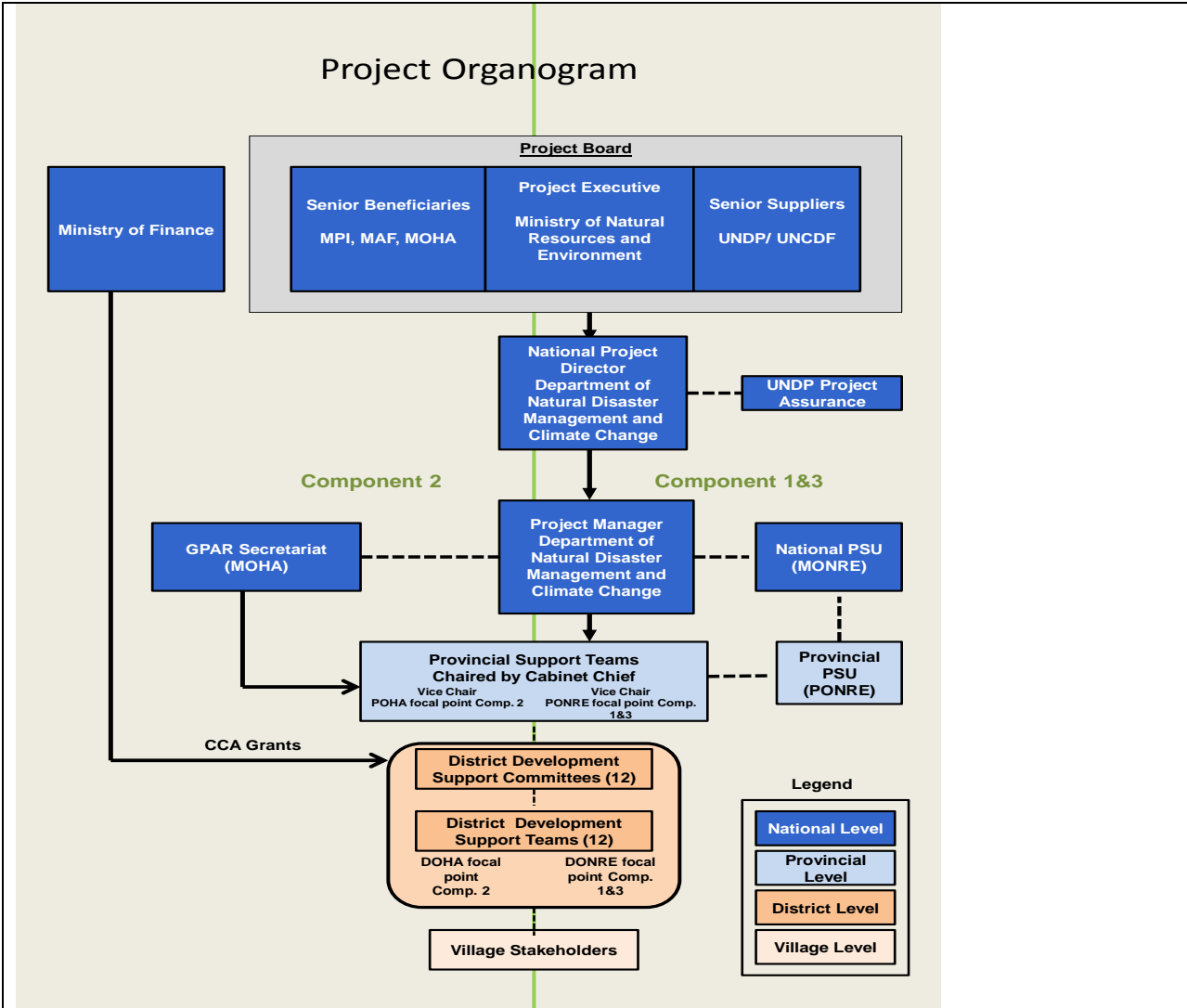
At Provincial level the National PSU and the GPAR Secretariat will work through the Provincial Support Teams chaired by the Provincial Cabinet Chief. The Heads of the Provincial Office of Home Affairs (POHA) and the Provincial Office of Natural Resources and Environment (PONRE) will be the Vice Chairs of the Provincial Support Teams, acting as focal points for their respective components. MONRE will also establish Provincial Project Support Units (PPSUs) within the PONREs of Sekong and Saravane to support the administration and delivery of the project.

At the District level the Project will work through District Development Support Committees, Chaired by the District Vice Governor, previously established by MOHA. These Committees bring together all key agencies to facilitate local planning, budgeting and budget execution. They play a central role in this process, identifying community needs and integrating their findings in annual and five year action plans, as further described below. As with the Province level, the District offices of Home Affairs (DOHA) and Natural Resources and Environment (DONRE) will act as project focal points at this level.

The main elements of the project management arrangements and funding flows are illustrated in the following organogram, with further details on the make-up, roles and responsibilities of each functional part of the system in the following sections.

³⁰ Component 2 is aligned with the Government's National Governance and Public Administration Reform Programme (NGPAR) which is being implemented by MOHA with support from UNCDF.

³¹ An additional legal instrument between UNDP and UNCDF may also be required to facilitate this transfer of funds.



Abbreviation	Full Name	Comments
Central Level		
MONRE	Ministry of Natural Resources and Environment	Vice Minister: Executive of the Project Board
MPI	Ministry of Planning and Investment,	Senior Beneficiary of the Project
MOHA	Ministry of Home Affairs	Senior Beneficiary of the Project, lead agency for GPAR and hosts the GPAR secretariat with support from UNCDF.
MAF	Ministry of Agriculture and Forestry	Senior Beneficiary of the Project
PSU	Project Support Unit	Located in MONRE. Hosts the Project Manager, Assistant Project Manager, National Senior M&E Officer, National Senior Finance and Admin Officer, National PFM adviser (linking to GPAR Secretariat) and Translator. Although not funded from the project management

		budget additional project technical staff will also be co-located, including: International Technical Advisor, International Infrastructure Specialist, Short-term International and National Consultants.
Provincial Level		
PST	Provincial Support Team	Chaired by Provincial Cabinet Chief, relevant Provincial Offices are members
PONRE	Provincial Office of Natural Resources and Environment	Vice Chair PST (focal point for components 1 and 3)
POHA	Provincial Office of Home Affairs	Vice Chair PST (focal point for component 2)
PPSU	Provincial Project Support Unit	Hosts 2 Provincial Finance and Admin Assistants. Although not funded from the project management budget additional project technical staff will be co-located including: 1 National Ecosystems Specialist covering two provinces, 1 National Infrastructure Specialist covering two provinces.
District Level		
DDSC	District Development Support Committee	Chaired by District Vice Governor, relevant District Offices are member
DDST	District Development Support Team	Technical Officers of relevant District Government Offices are member, team lead by District Planning and Investment Office
DONRE	District Office of Natural Resources and Environment	Focal point for implementation of components 1 and 3
DOHA	District Office of Home Affairs	Focal point for implementation of component 2

The Project Board is responsible for making management decisions for a project in particular when guidance is required by the Project Manager (DNDMCC). 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. The Project Board approves the Annual Work Plan and Budget and 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:

An Executive: individual representing the project ownership to chair the group. This will be a most senior official from the ministerial level MONRE, Lao PDR.

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 that is held

accountable for fiduciary oversight of LDCF resources in this initiative. UNCDF, given its role in xx, will function as a senior supplier with respect to the XX resources.

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. Most important party in this group will be a high level representative of MOHA to ensure that the two processes of local governance and public administration reform are actively linked. Other ministries are mainly concerned due to their gaps in the area of CCA planning at sub national level. Of special importance is the introduction of standards for CCA'ed infrastructure in rural areas, which need to be reviewed and endorsed by the beneficiaries.

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 also 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 DG of Department of National Disaster Management and Climate Change 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 MONRE 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 a National Project Support Unit (PSU) and up to 2 Provincial Project Support Units (PPSUs). MONRE will provide office space for the PSU at central level and PONRE at the provincial level. The DDRMCC will provide the standard logistical services available at MONRE for the PSU. PSU staff will be funded by the project to ensure delivery of results as specified in the Project 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 or PPSUs, one for Sekong and one for Saravane. The PSU will be composed of the following core staff: Assistant Programme Manager, Senior M+E Officer, Senior Finance and Admin Officer, two Provincial Finance and Admin Assistants, and a translator. The PSU offices, both at national and regional levels will also provide a 'home' for technical consultants supporting the delivery of specific project outputs.

Specific responsibilities: Some specific tasks of the Project Support Team 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

District Development Support Committees: The District Development Support Committees are planning units initiated under previous GPAR cycles. They comprise of members of all line agencies that have a presence in the respective district. The mandate of the DDSPs is to identify projects and services according to village needs and merge the findings in annual and five year action plans for the districts. These need endorsement from the planning unit at provincial level and final endorsement of a harmonized provincial strategy through the GOL. Part of the district priorities are expressed under a separate DDF investment plan, according to GPAR requirements and the maximum funding ceiling per district. The work of the DDSPs is facilitated by District Development Support Teams providing a principle focal point for the provision of capacity development and TA for this project.

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, Inter Governmental Organisation 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.

5.1 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.

5.2 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:

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

All relevant project staff will be trained by UNDP during the early implementation phase (early 2013) on administrative issues, financial matters, procurement etc.

5.3 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.

5.4 Communications and visibility requirements:

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final

[0.pdf](#). Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

6 M&E WORK PLAN AND BUDGET

The project will be monitored through the following M& E activities. The M& E budget is provided in the table below. The M&E framework set out in the Project Results Framework in Part III of this project document is aligned with the AMAT and UNDP M&E frameworks.

Project start:

A Project Inception Workshop will be held within the first 3 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:

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and 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. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the LDCF related AMAT set out in the Project Results Framework in Section III of this project document, and finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- 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.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule PB meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first PB meeting should be held within the first 12 months following the inception workshop.

An **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

Periodic Monitoring through site visits:

UNDP CO and the UNDP GEF region based staff 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.

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation expected to be in December 2014. The Mid-Term Review 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 review will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term review will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The LDFC/SCCF AMAT as set out in the Project Results Framework in Section III of this project document) will also be completed during the mid-term evaluation cycle.

End of Project:

An independent Terminal Evaluation will take place three months prior to the final PB meeting and will be undertaken in accordance with UNDP-GEF guidance. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term review, if any such correction took place). The terminal 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-GEF. The LDFC/SCCF AMAT as set out in the Project Results Framework in Section III of this

project document) will also be completed during the terminal evaluation cycle. 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).

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.

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

Audit:

The Project will be audited in accordance with UNDP Financial Regulations and Rules and applicable audit policies.

Table 13: M&E Plan Overview

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	Project Manager Project support unit UNDP CO, UNDP GEF	Indicative cost: 4,000	Within first two months of project start up
Project baseline, measurement and means of verification of project results (objective and outcomes).	M&E adviser/Project Manager will oversee the hiring of specific institutions (for baseline studies), and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop. Indicative cost: 20,000	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	Oversight by Project Manager Project support unit, esp M&E adviser Implementation teams	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	Project manager Project support unit UNDP CO UNDP RTA UNDP EEG	None	Annually
Periodic status/ progress reports	Project manager and team	None	Quarterly
Mid-term Evaluation	Project manager and team UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost: 20,000	At the mid-point of project implementation.
Terminal Evaluation	Project manager and team,	Indicative cost : 25,000	At least three months

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
	UNDP CO UNDP RCU External Consultants (i.e. evaluation team)		before the end of project implementation
Project Terminal Report	Project manager and team UNDP CO local consultant		At least three months before the end of the project
Audit	UNDP CO Project manager and team	Indicative cost: 6,000	Yearly
Visits to field sites	UNDP CO UNDP RCU (as appropriate) Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly for UNDP CO, as required by UNDP RCU
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US\$ 75,000 (+/- 5% of total GEF budget)	

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 Standard Basic Assistance Agreement (SBAA) 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:

- Revision of, or addition to, any of the annexes to the Project Document;
- 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;
- 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
- Inclusion of additional annexes and attachments only as set out here in this Project Document

Annexes

See separate document