

# Opportunities for Vertical Integration Related to Low Emission Urban Development Strategies in Lao PDR

Accelerating climate action through the promotion  
of Urban Low Emission Development Strategies  
( Urban-LEDS II)

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## Contents

Contents.....	i
List of Figures .....	ii
List of Tables .....	ii
Abbreviations.....	iii
1. Background, scope and purpose.....	1
1. 1. Urban-LEDS II .....	1
1. 2. Scope and Purpose.....	1
2. NDC implementation and the system of MRV reporting.....	2
2. 1. GHGI and emissions reduction.....	2
2. 2. Key points of the NDC .....	2
2. 3. NDC implementation and coordination.....	3
2. 4. Measurement, Reporting and Verification (MRV).....	4
2. 5. Projects to support NDC implementation.....	4
2.5.1. UNDP project funded by the Global Environment Facility (GEF).....	4
2.5.2. Readiness Support to Enhance Green Finance in the area of Green Cities.....	5
2.5.3. Strengthening Lao PDR's institutional capacity to comply with the enhanced transparency framework under the Paris Agreement.....	6
2. 6. Issues and Potential Solutions .....	6
3. Climate Planning and Finance.....	7
3. 1. Lao PDR levels of government .....	7
3. 2. Climate Change Institutional Framework .....	8
3. 3. Climate Change Policy Framework .....	12
3. 4. Climate Finance.....	13
3.4.1. Domestic Financing Mechanisms.....	14
3.4.2. External Financial Support .....	14
4. Other ongoing initiatives, sectors, local context .....	16
4. 1. Related projects .....	16
4.1.1. GGGI: Readiness support to enhance green finance in the areas of green cities in Lao PDR .....	16
4.1.2. Ecosystems and Urban Adaptation in Lao PDR.....	16
4. 2. Sectors at the national level .....	16
4.2.1. Forestry sector .....	16
4.2.2. Industry sector .....	17

4.2.3.	Energy sector .....	18
4.2.4.	Transport sector.....	18
4.2.5.	Urban Planning sector.....	19
4. 3.	The Local Context.....	20
4.3.1.	Existing initiatives in Kaysone Phomvihane .....	21
4.3.2.	Existing initiatives in Pakse .....	21
4.3.3.	PONRE .....	21
4.3.4.	Local government office .....	22
4.3.5.	Provincial Public Works and Transport .....	23
4.3.6.	Urban Development and Administration Authority (UDAA) .....	24
5.	Conclusions .....	26
6.	Recommendations .....	28
	Annex 1: List of persons interviewed.....	29
	Annex 2: List of documents collected .....	32
	Annex 3: List of focal points.....	33
	Annex 4: GCF Projects.....	34
	Annex 5: Guiding Principles of National Climate Change Strategy.....	35

## List of Figures

Figure 1: High level institutional arrangements for climate action .....	9
Figure 2: Climate change institutional setup .....	11
Figure 3: Environmental committees at three levels.....	12
Figure 4: Differing concepts of glass buildings.....	20
Figure 5: Electric tuk-tuks at PWT office.....	24

## List of Tables

Table 1: NDC mitigation objectives by sector.....	3
Table 2: Lines of direction and reporting for line ministries and administrative offices.....	7
Table 3: GCF Readiness support projects .....	34
Table 4: Larger GCF proposals .....	34

## Abbreviations

ADB	Asian Development Bank
AE	Accredited Entity
ALACE	Association of Lao Architects and Civil Engineers
CBIT	Capacity Building Initiative for Transparency
CFC	Chlorofluorocarbon
COP	(UNFCCC) Conference of the Parties
DCC	Department of Climate Change
DDMCC	Department of Disaster Management and Climate Change
DEC	District Environmental Committee
EIA	Environmental Impact Assessment
EST	Environmentally Sustainable Transport
EV	Electric vehicle
GCF	Green Climate Fund
GEF	Global Environment Fund
GGGI	Global Green Growth Institute
GHG	Greenhouse gas
GHGI	Greenhouse Gas Inventory
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
GPC	Global Protocol for Community-Scale Greenhouse Gas Emission Inventories
ICLEI	ICLEI-Local Governments for Sustainability
INDC	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
IREP	Institute of Renewable Energy Promotion
JICA	Japan International Cooperation Agency
Lao PDR	Lao People's Democratic Republic
LUCF	Land use change and Forestry
MAF	Ministry of Agriculture and Forestry
MEM	Ministry of Mines and Energy
MIC	Ministry of Industry and Commerce
MOF	Ministry of Finance
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning and Investment
MPWT	Ministry of Public Works and Transport
MRV	Measurement, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Action
NAPA	National Adaptation Plan of Action
NDF	Nordic Development Fund
NDMC	National Disaster Management Committee
NEC	National Environmental Committee
NFMS	National Forest Monitoring System
NSCCC	National Steering Committee on Climate Change
NSEDP	National Socio-Economic Development Plan

PEC	Provincial Environmental Committee
PWT	Public Works and Transport
REDD+	Reducing emissions from deforestation in developing countries
SNC	Second National Communication
SDG	Sustainable Development Goal
SWG	Sector Working Group
TWG	Technical Working Group
UDAA	Urban Development and Administration Authority
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN-Habitat	United Nations Human Settlements Programme
Urban LEDS	Urban Low Emission Development Strategies

# 1. Background, scope and purpose

## 1.1. Urban-LEDS II

This report is an output from the *Promoting Low Emission Urban Development Strategies in Emerging Economy Countries* (Urban-LEDS) project. Eight countries are targeted in the second phase of the project (Urban-LEDS II) which runs for 48 months, beginning in 2018. The overall objective of the project is to “contribute to the reduction of greenhouse gas emissions by the promotion of Urban Low Emission Development Strategies (Urban LEDES) in cities / towns in emerging economies (Brazil, Colombia, India, Indonesia and South Africa), and Least Developed Countries (Bangladesh, Lao PDR and Rwanda).” One of the four specific objectives is to “enhance vertical and horizontal integration of climate action in support of National and Local Strategies and Policies.”

Urban-LEDS II is funded by the European Commission under its Global Climate Change Alliance Plus initiative and UN-Habitat and ICLEI-Local Governments for Sustainability (ICLEI) are jointly implementing the project. UN-Habitat, the UN agency for human settlements, promotes socially and environmentally sustainable settlements and is the key UN agency for urban issues. ICLEI works at the local level to address the impacts of global change, and to bring about sustainable, equitable development in urban areas. UN-Habitat’s and ICLEI’s complementary expertise and experience inform the Urban-LEDS II activities.

The Urban-LEDS II project is being implemented in the wake of the Paris Agreement signing at COP21 in 2015. There has been a growing awareness of the need for a coordinated effort from all levels of government to reduce greenhouse gas (GHG) emissions, as noted in the Paris Agreement<sup>1</sup>. Article 2 of the agreement includes the aim of “making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”.<sup>2</sup> The Urban-LEDS II project is in alignment with this aim. In order to determine reduction targets, each participating country requires an effective Measurement, Reporting and Verification (MRV) system. The Urban LEDES project aims to assist the integration of local governments into national MRV systems.

## 1.2. Scope and Purpose

The general objective of the vertical integration mapping exercise is as follows:

At the national level map the institutional/policy landscape, establish professional contacts, and identify possible opportunities for enhanced multi-level governance in support of low emissions urban development.

In Laos key sectors were identified from national climate change documents and consultations were held with representatives of relevant sectors and local governments. The geographical scope of this report extended from Vientiane Capital to the target cities of Kaysone Phomvihane and Pakse. Through the process of the vertical integration mapping exercise, connections have been established with key people in the climate change institutional setup both at the national level and at the local levels in the target cities. The report will inform the implementing agencies of the climate change institutional landscape in Laos and guide implementation activities.

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<sup>1</sup> Paris Agreement preamble para.15

<sup>2</sup> Paris Agreement (FCCC/CP/2015/L.9), Art. 2.1(c)

## 2. NDC implementation and the system of MRV reporting

MONRE led in the development of Lao PDR's first INDC, with assistance from UNDP and financial support from the British Embassy. From the beginning of 2015, consultations were held to determine areas of priority. A wide range of both international and national organisations were involved in this process, including the climate change Technical Working Group (TWG). In keeping with the Government's focus on mainstreaming sustainable development, the INDC was informed by the 7th and 8th National Socio-Economic Development Plans (NSEDPs), climate change planning documents and strategies from the forestry, renewable energy, and transport sectors. The INDC was put forward to the Government and was subsequently submitted to the UNFCCC in October 2015.

### 2.1. GHGI and emissions reduction

Lao PDR has carried out two national greenhouse gas inventories (GHGIs) in preparation for its two national communications, the second of which was completed with the year 2000 as the base year. The second GHGI was carried out in accordance with Intergovernmental Panel on Climate Change (IPCC) guidelines and all emissions factors were IPCC default values. The INDC identified mitigation actions and, using the resources available in 2015, estimates were made of the expected emissions reductions resulting from these actions. It was noted that the emission reduction estimates were preliminary and that there is a need to review and update them once technical capacity is increased and there is more reliable data available. The Second National Communication (SNC) identifies the following challenges faced in the preparation of the national GHGI: inadequate and inaccurate information and activity data for GHGI, data not disaggregated as categorised by IPCC guidelines; lack of local emissions factors; inadequate capacities of local researchers among local agencies; poor database to support inventory activities; insufficient coherence and coordination; development of regular inventory preparation programme.<sup>3</sup> It was also noted that Lao PDR had received very little technology transfer activities under the UNFCCC<sup>4</sup>.

### 2.2. Key points of the NDC

Key points of the NDC include the recognition of the importance of mainstreaming climate change action into development plans. Lao PDR is committed to both mitigating climate change and building resilience. Increased resilience is important in light of the country's high vulnerability to climate related hazards. In prioritising actions for mitigation, the main causes of future increases in emissions were taken into account as well as the development co-benefits that they offer. The key sectors identified and targets for action are shown in Table 1.

The prioritised sectors for adaptation are Agriculture, Forestry and Land Use Change (LUCF), Water Resources, Transport and Urban Development and Public Health. A key objective is to increase the resilience of infrastructure in urban development.

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<sup>3</sup> Lao PDR SNC, p. 109.

<sup>4</sup> See Lao PDR, Second National Communication pages 96-99 for an explanation of technology and capacity transfer through the UNFCCC.

Table 1: NDC mitigation objectives by sector

Sector	Objective	Target year
Forestry	Increase total forest cover to 70% of land area	2020
Renewable energy	To increase the share of renewable energy to meet 30% of energy consumption	2025
	To increase the share of biofuels to meet 10% of the demand for transport fuels	2025
Large-scale hydroelectricity	2.3GW will be added to increase total hydropower electricity production to approximately 5.5GW	2020
Rural electrification	Make electricity available to 90% of rural households	2020
Transport	Implement NAMAs to provide buses and develop the road network in order to cut down the vehicle kilometres travelled	
Climate change	Implement climate change action plans	

### 2.3. NDC implementation and coordination

At the time the INDC was written, it was envisioned that the National Disaster Management Committee (NDMC) would have responsibility for its implementation with MONRE acting as the secretariat. However, the institutional separation of climate change and disaster management has rendered this setup less than practical and discussions are currently underway to identify a more workable structure. The NDC focal point is Mr. Syamphone Sengchandala, Deputy Director General of the Department of Climate Change, and it is the DCC that is driving INDC implementation.

MONRE's responsibilities with regard to the NDC are specified as being:

1. **Overall strategy, coordination of implementation and a regulatory framework**, including setting up coordination arrangements amongst line ministries and development partners at national and local level, and strengthening the policy and regulatory framework.
2. **Capacity building** from central government to local levels and technical staff. Capacity needs related to mitigation include feasibility studies, mitigation analysis and policy development.
3. **Finance** involving eight steps from assessing finance needs to sourcing finance, formulating and implementing projects to access finance, and monitoring and evaluating climate finance.
4. **Monitoring, Reporting and Verification (MRV)** with an initial focus on readiness assessments and capacity building in order to develop processes for GHGI, NAMA monitoring, adaptation evaluation indicators, and climate finance tracking systems.

The Division of Climate Change Promotion has been active in promoting the NDC. In 2017 it organised training workshops with relevant sectors at the national level. Based on information gained from interviews of key sector stakeholders, it would appear that training has not been disseminated throughout each sector. MONRE's limited budget precludes in depth capacity building programmes and training usually consists of one-off workshops. Since systems are not yet in place for participants to practise what they have learnt, the knowledge gained from the workshops is not always retained. The Division of Climate Change Promotion has also updated development partners



of progress on INDC implementation. It has developed tools for sectors to update their progress and the appropriateness of the tools has been checked. However, the tools have not yet been disseminated to the sectors with the accompanying training so they are not yet in use. Other activities of the division include accessing funding and following up with monitoring reports. Currently, they are in the preparation stage and discussing the content of the next NDC.

#### 2.4. Measurement, Reporting and Verification (MRV)

An effective MRV system has not yet been developed but there is recognition within MONRE that this is a key need. In other sectors there is a varied level of understanding of MRV with the Forestry sector being the most advanced in terms of capacity building and the development of a sectoral MRV system. In other sectors, senior officials had either not heard of the concept of an MRV system, or else they had an awareness of the need for it but they don't have the implementation tools. This is exemplified by a Department of Transport staff member who commented that, "MRV is a new concept, it's just been introduced, it's not just local government that doesn't understand but central government as well ... it's quite important at the moment, for all the projects."<sup>5</sup>

Reporting channels are in place through line ministries. A key entity is the Provincial Office of Natural Resources and Environment (PONRE), who are the focal point for climate change at the sub-national level. The provincial offices of other sectors are expected to report to PONRE and PONRE will report to MONRE. At the same time, reporting will be carried out from provincial level sectoral offices to their own ministry, who will then report to MONRE. GHG emission reporting does not as yet operate at the sub-national level because there is no data. It is suggested that for the Urban-LEDS II project, PONRE would collect data from provincial sectoral offices and feed it to the project. The reporting mechanism which is in place is that the cities report to the province and the province reports to the central level. Although the reporting channels are in place, an issue of concern is the unavailability of data. The city level is described as having "no capacity" to carry out a GHG inventory.<sup>6</sup>

#### 2.5. Projects to support NDC implementation

The INDC clearly states that technical and financial support will be required in order for Lao PDR to implement its prioritised mitigation and adaptation actions. However, to date there has been very little technology and capacity transfer to specifically support NDC implementation and the development of an MRV system. The following projects have a focus on NDC implementation and are relevant to the scope and objectives of Urban-LEDS 2:

##### 2.5.1. *UNDP project funded by the Global Environment Facility (GEF)*

The project ran from March 2016 to June 2018 and was implemented by MONRE's Department of Climate Change (DCC). The project's objectives were to:

- 1: Identify and support the implementation of Lao PDR's contributions to the post-2020 global climate agreement (NDC).
- 2: To strengthen Lao PDR's engagement in the UNFCCC negotiation process leading to the post-2020 agreement.

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<sup>5</sup> Interview with Department of Transport, 13 August 2018.

<sup>6</sup> Interview with MONRE, 12 September 2018

The project activities included capacity building, policy advice, NDC dissemination, development of an implementation plan, identification of technical and financial resources, and institutional strengthening.

### *2.5.2. Readiness Support to Enhance Green Finance in the area of Green Cities*

Jointly developed by the Global Green Growth Institute (GGGI) and DCC, the project proposal was approved by the Ministry of Planning and Investment (MPI) in June 2018. Funding is through the Green Climate Fund's (GCF's) readiness support funding stream, and the project was approved by GCF in February 2018. The project runs for 18 months, ending in August 2019, and will target the five cities of Vientiane Capital, Luang Prabang, Pakse, Kaysone Phomvihane and Thakhek.

GGGI is an intergovernmental organisation that has its roots as a Korean non-governmental organisation. In 2012 it was converted to a treaty based international organisation and now has 28 member states, the 28th of which is Lao PDR. GGGI works in the sectors of green cities, renewable energy, land use, and water and sanitation. It's Refreshed Strategic Plan 2015-2020 includes the following six strategies:

1. GHG emission reduction.
2. Creation of green jobs.
3. Increased access to sustainable services, such as, clean affordable energy, sustainable public transport, improved sanitation, and sustainable waste management.
4. Improved air quality.
5. Adequate supply of ecosystem services.
6. Enhanced adaptation to climate change.

GGGI is a readiness delivery partner for the GCF. It has had four programs in Lao PDR, commencing in 2016 with an analysis and scoping study. In January 2017 Mr. Jason Lee arrived in the country and officially set up the GGGI country office, working with MPI and the Ministry of Public Works and Transport (MPWT) as well as with DCC

The main areas of the Readiness Support to Enhance Green Finance in the area of Green Cities project are:

1. A mechanism for monitoring climate finance.
2. A concept note for three target districts.
3. Identify and involve private sector actors in GHG emission reduction and in climate resilience.

An output relevant to the NDC is that of capacity building both of the focal point and also at the district level. GGGI was requested by MONRE to work on an MRV system and work on this commenced about July 2018. The target is to have a national framework system completed by the end of 2019. Capacity building will be carried out on MRV. GGGI is also developing a coordination mechanism for stakeholders who have a focus on cities. As part of this work, they will be hosting a meeting for stakeholders which is expected to take place in about October 2018.

### *2.5.3. Strengthening Lao PDR's institutional capacity to comply with the enhanced transparency framework under the Paris Agreement*

The concept for this Capacity Building Initiative for Transparency (CBIT) project was approved in June 2018. Implemented by UN Environment, the project's outcomes will be:

1. Enhanced institutional arrangements and technical capacities for systemizing data collection and reporting for transparency.
2. Strengthened institutional capacity for quantifying and reporting climate expenditures and support received for the implementation of Lao PDR's NDC.

The CBIT project is currently working on the 3rd National Communication as well as on the NDC. UNDP was asked by MONRE to update the Lao PDR GHG emission reduction targets by 2020. Activities on MRV are expected to focus on the energy sector and possibly cities.

## **2.6. Issues and Potential Solutions**

Although there have not as yet been concrete structures set in place, there has been a lot of discussion generated about the direction to take in implementing and coordinating the NDC.

One issue has been the coordination body, which was originally proposed to be the NDMC. One suggestion under discussion is to update the mandate of the existing Climate Change Technical Working Group to coordinate the NDC implementation in addition to all other climate change activities. Coordination with line ministries is important because different sectors are implementing projects independently with different development partners and there is a potential for duplication.

There is also a current focus on developing clear statutory reporting systems. The aim is to feed into the existing governmental coordination mechanisms in the Round Table and then to the NSEDP. The Round Table is chaired by MPI and co-chaired by the UN. It draws together government and national development agencies, United Nations and civil society organizations and the private sector to support the country's national development plans, providing a channel of communication for progress updates on the Sustainable Development Goals (SDGs) and other key indicators. This is the channel of communication that MONRE uses to report on their plans and strategies to the Minister and then to the (MPI). The Round Table process includes ten Sector Working Groups (SWGs) which have a coordination role amongst stakeholders in their sector. The Natural Resource Management & Environment SWG is chaired by MONRE and co-chaired by the Embassy of Germany and the World Bank. It comprises five sub-sector working groups, one of which is the Disasters, Climate Change and Environment Group. There is potential for the ongoing NDC implementation and development to be incorporated into the Round Table Process.

The implementation of Lao PDR's NDC is expected by MONRE to:

1. Help with advertising the Government's policy on sustainable development
2. Show that Lao PDR has joined the global community in fighting global warming
3. Honour the country's commitments to the UNFCCC
4. Attract technical support
5. Attract the necessary finance through the GCF
6. Lead to a strong document that sectors can follow in their sectoral implementation

### 3. Climate Planning and Finance

Lao PDR has been active in planning climate actions for many years, and it was the first country in South-East Asia to ratify the Paris Agreement. Despite having a climate change policy and institutional framework in place, the country is hampered from prompt implementation by limited resources and technical capacity.

#### 3.1. Lao PDR levels of government

The Lao PDR government operates according to the principle of democratic centralism, whereby responsibility is devolved to increasingly local administration levels. It is in this context that vertical integration with regard to climate planning operates. Sub-national levels are the province, district and village levels, with a small number of cities operating as a distinct entity. The government at each level is an extension of the level above, and administrative structures are replicated. According to the Law on Local Administration of the Lao PDR, “the local administration’s role is to represent the locality and be responsible to the government for administering...”<sup>7</sup> Directives come from the central level and each level has as much authority as is delegated from the level above, and must report to the one above.

Table 2: Lines of direction and reporting for line ministries and administrative offices

Administrative Level	Natural Resources and Environment	Administration
Central	MONRE Ministry of Natural Resources and Environment	Government
	↕	↕
Provincial or City	PONRE Provincial Office of Natural Resources and Environment	Provincial Governor
	↕	↕
District	DONRE District Office of Natural Resources and Environment	District Governor

The Lao People’s Revolutionary Party also has a structure which runs from central to village level. At high levels the two structures coalesce so that the President is also leader of the Party, and Provincial Governors are usually the head of the Party in their Province. The Provincial Governor is the head of the provincial government and is appointed to the role by the central level. The Mayor is the head of a city. The Governor or Mayor has a cabinet acting as their secretariat to manage administrative tasks. Line ministries are also part of the local administration and local offices have responsibilities to both their ministry and also to their local government as they manage the affairs of their sector. Table 2 shows the lines of direction and reporting for the Natural Resources and

<sup>7</sup> Law on Local Administration of the Lao PDR, 2003, p.2.

Environment Ministry, as being the counterpart ministry for the Urban-LEDS II project. Local governments have the authority to make decisions of impact in keeping with their level but major decisions are made at the central level and lower levels are directed to implement them. International development partners work through the appropriate national level division of a counterpart ministry and any activities with more local levels are carried out in partnership with and coordinating with the ministry at the central level.

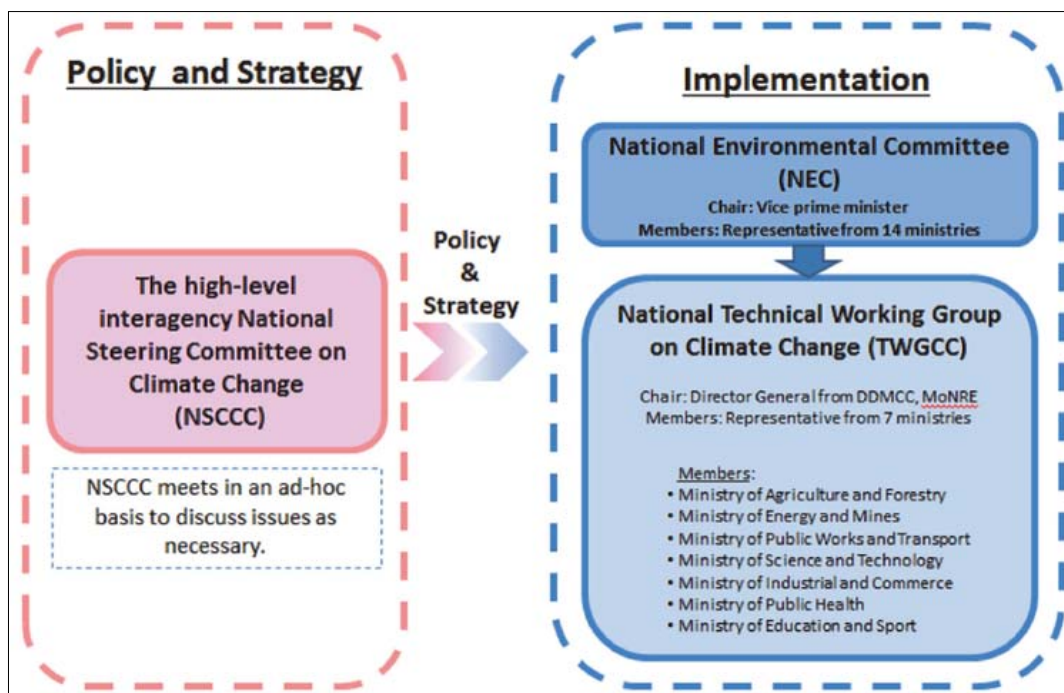
There have been efforts to build up local level administration. A resolution relating to decentralisation and local government involves the concept of Sam Sang (translated into English as *three builds*). In 2000, Prime Ministerial Instruction 01/PM aimed to decentralise to the sub-national levels the functions of development planning, budgeting, tax collection and implementation. Provinces were seen as strategic units, districts as budget planning units and villages as implementing units. The Sam Sang policy comprises three complementary dimensions, these being political, administrative decentralisation and development. The policy aims to enable local governments to effectively implement responsibilities devolved from higher levels and ministries were to manage the decentralisation process in their sector. After an update in the form of a 2012 Politburo Resolution, Sam Sang was piloted from 2012 to 2015, with outcomes of the pilot phase including strengthened village and district organisations, the preparation of village and district development plans, and devolved functions including revenue collection and investment approval. A 2015 study found that administrative decentralisation began well under Sam Sang in 15 targeted Ministries, but the required administrative budget had not yet been allocated to enable lower levels to carry out their new functions.<sup>8</sup> The policy is well known and discussed, despite many stakeholders still having only a vague understanding of it.

### 3.2. Climate Change Institutional Framework

The institutional and policy frameworks relating to climate change are closely intertwined, with institutions being created in order to develop policies. Climate change was initially dealt with under the umbrella of the environment but there has been an increasing focus on it as a standalone issue (albeit within the Environment arena). In 2002 a high-level National Environment Committee was established. In 2008 a National Steering Committee on Climate Change (NSCCC) was established, chaired by a Deputy Prime Minister and the Chairperson of the National Environment Committee. The NSCCC's role was to guide the formulation of climate change strategies, programmes and projects. Eight cross sectoral working groups were also established to assess climate change issues and to identify priority actions in preparation for a climate change strategy. In 2013 a Technical Working group on Climate Change was established to act as a secretariat for the NSCCC. Figure 1 shows the working relationship between the committees and TWG. Note that the Chair of the TWG is now the Director General of DCC. Over the past two decades there have been many institutional changes relating to the climate change sector but the current key ministry is the Ministry of Natural Resources and Environment (MONRE). In depth understanding of climate change and technical capacity is concentrated in MONRE, with staff at the Ministry of Agriculture and Forestry (MAF) also having capacity.

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<sup>8</sup> *Sam Sang* in practice: early lessons from pilot implementation, AusAid/Adam Smith International, December 2015.



Source: OECC (2015). *The NAMA Guidebook. 2nd. Edition. Published by OECC, Japan; p. 44*

Figure 1: High level institutional arrangements for climate action

There are fifteen departments within MONRE. The key department for climate change is the Department of Climate Change (DCC). Perhaps due to the climate-related disasters which have impacted Lao PDR in recent times, there is often a conflation of climate change and natural disasters. This has resulted in institutional changes. When the Climate Change Office was upgraded to a department of MONRE in 2011, it became the Department of Disaster Management and Climate Change. The Disaster Management mandate was moved from its previous place in the Ministry of Labour and Social Welfare (MLSW) to MONRE in 2013 but the decision was made for it to return to MLSW in 2017. It is only since this time in 2017 that an independent Department of Climate Change has existed, separate from disaster management, although Disaster Risk Reduction remains within DCC. DCC has the mandate to develop policy frameworks related to climate change but the responsibility for implementation rests with the relevant sectors. Other MONRE departments that have relevance to Urban LEDS are the Department of Planning and Cooperation (DPC) and possibly the Department of Water Resources. DPC scrutinises and approves projects for which MONRE acts as a counterpart. The Urban LEDS project needs approval by DPC first. DCC will then act as the government counterpart. DCC comprises six divisions as shown in **Error! Reference source not found.** .

The General Affairs Division is responsible for administration, external cooperation, coordination and climate finance. General Affairs is therefore the division with the role of coordinating and setting arrangements in place for the Urban LEDS project, before handing over to the Mitigation and GHGI Division. The Mitigation and GHGI Division is a technical division whereas the Climate Change Promotion Division is responsible for NDC policies. All three of these divisions, therefore, have a role to play in the Urban-LEDS II project.

The focal points for the UNFCCC and related organisations are to be found in DCC. A list of focal points is provided in Annex 3. There are officials who now have many years of experience in climate change activities at national, regional and international levels. Senior officials have many responsibilities including attending UNFCCC and other international meetings, coordinating with international development partners, and establishing procedures for the implementation of climate change policies.

The Provincial Office of Natural Resources and Environment (PONRE) has fewer people working on climate change than the central level does. Champassack PONRE has eight sections of which one is the Environmental and Climate Change section. Under this section are five units, namely Pollution Control, Climate Change, Environmental Quality Promotion, Natural Resources and Environmental Policy and a Natural Resources and Environment Research Institute. In the entire Environmental and Climate Change section there are eleven staff, so numerically just over two staff per unit. In Savannakhet PONRE there are 100 staff, of whom 19 work in the environmental section and three work on climate change. Environmental and Climate Change staff from Savannakhet include in their roles monitoring and evaluating chlorofluorocarbons (CFCs), collecting data and raising the awareness of other sectors including the private sector. However, the Environment and Climate Change Section is a new section. From 2016, there was a Disaster and Climate Change section in PONRE but after the moving of the Disaster Management mandate to Labour and Social Welfare in 2017, Climate Change was incorporated into the Environment section. The central government is still working on the mandate and role amendment of the section so when these have been clarified staff expect to be able to move forward in their role. PONRE are the focal point with other sectors for climate change. The other sectors will implement their own work but PONRE will coordinate with them. This includes promoting policy, collecting data and monitoring and evaluating. Vertical integration operates through an appointed official at PONRE who coordinates with the national level. Horizontally, PONRE report regularly to the provincial government, as well as coordinating with DONRE. This includes translating policy into the district level. PONRE work with DONRE on such activities as collecting data.

There are three divisions in DONRE. In Savannakhet these are administration, monitoring and environmental. In Pakse, there is a Director General, two Deputy Director Generals and eleven more staff spread across three divisions relating to administration and finance, land, and natural resources and environmental monitoring. The natural resources and environmental monitoring division looks after water resources, the environment, and disaster. Climate change comes under both the environment and disaster. Staff report that fourteen staff is not sufficient and there is a need for 25 staff in total. As a result of the understaffing, staff share many roles instead of being allocated specialist responsibilities. Therefore, there is no one person who is focussing on climate change. DONRE coordinate with the Governor's Office and vertically with PONRE.

Like the National Environmental Committee, there is an intersectoral environmental committee at both provincial and district level, as shown in Figure 3. The Provincial Environmental Committee (PEC) meets annually to discuss all environmental matters. In Savannakhet there are not defined committee members but rather a representative of each sector will attend the meeting and there may be a different attendee at the following meeting. The meeting often focuses on currently impacted areas, for example, issues of flooding. Some interviewees felt that in practice, sectors implement independently of one another and the PEC is not a key factor in their work.



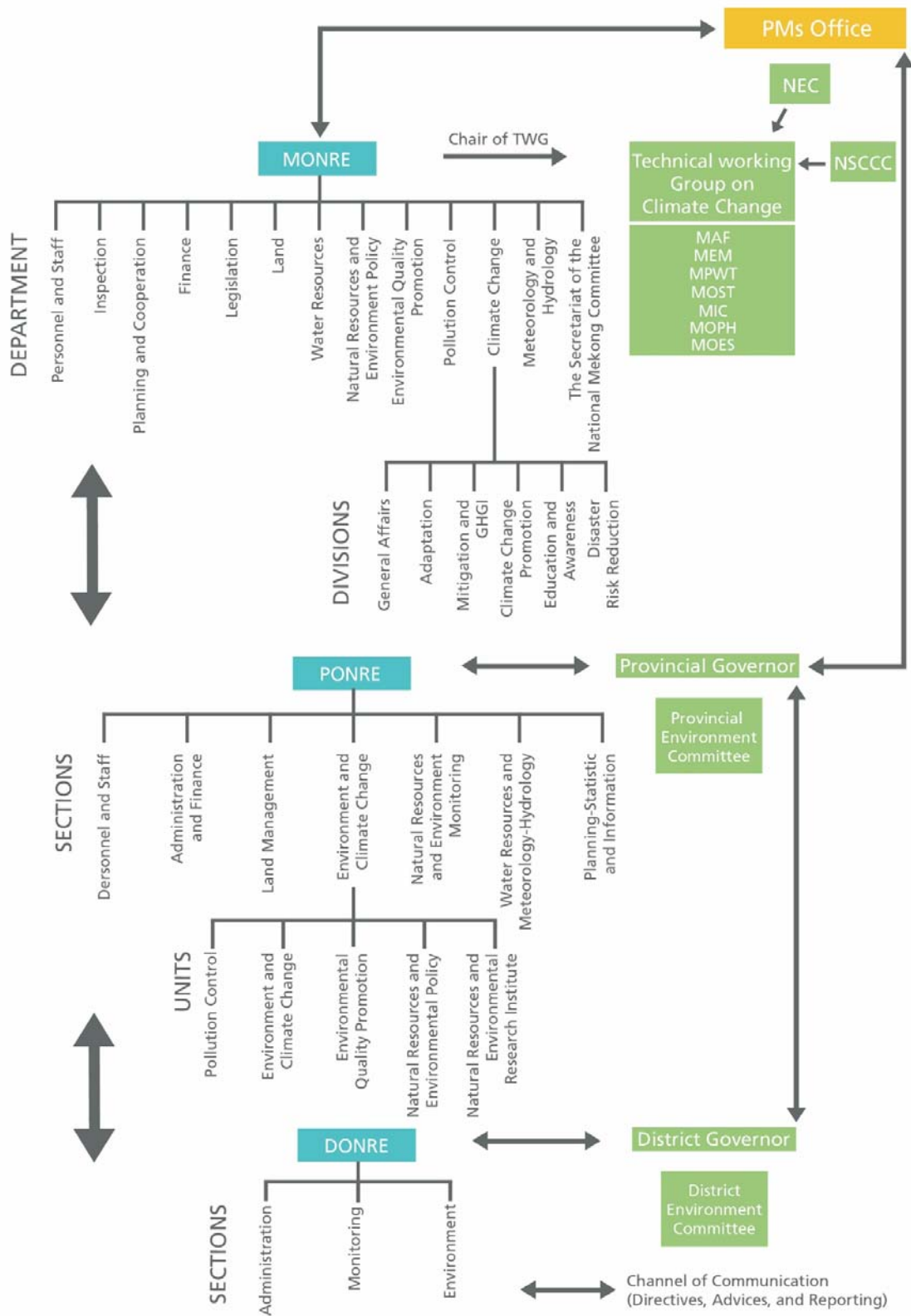


Figure 2: Climate change institutional setup



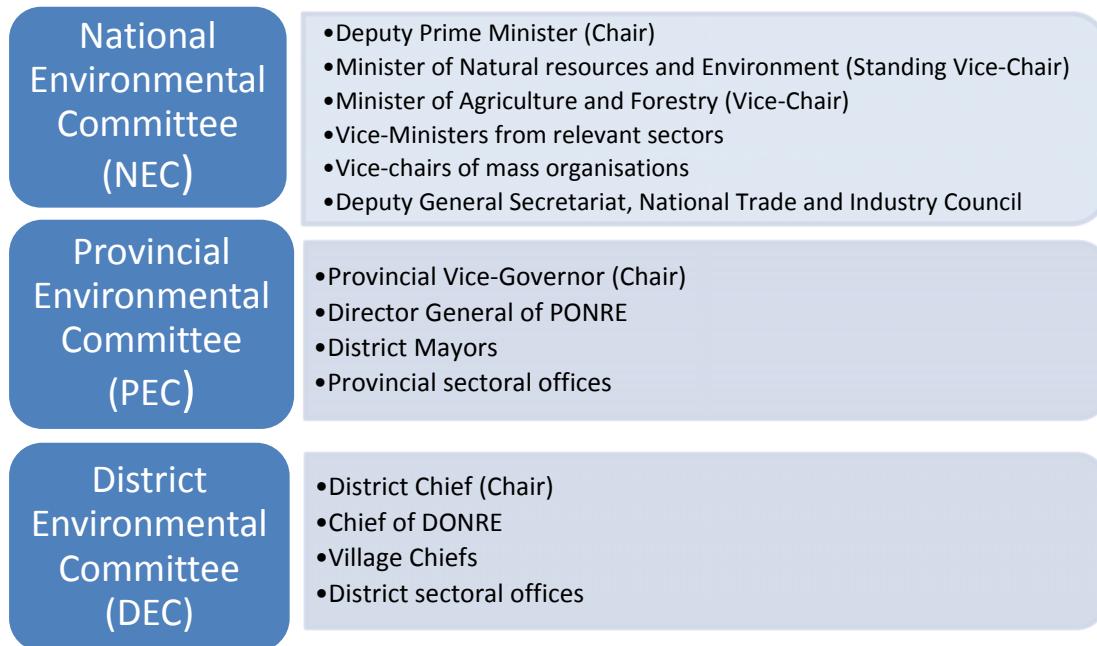


Figure 3: Environmental committees at three levels

### 3.3. Climate Change Policy Framework

The key development document in Lao PDR is the 8th National Socio-Economic Development Plan (NSEDP) 2016-2020. Climate change and other important development goals, such as the Sustainable Development Goals (SDGs), have been incorporated into the NSEDP and development activities must align with it.

Focused national climate change policy making began with the 2010 Strategy on Climate Change of the Lao PDR. This was developed to be integrated into the 7th NSEDP. The strategy identifies the vision as being

To secure a future where the Lao PDR is capable of mitigating and adapting to changing climatic conditions in a way that promotes sustainable economic development, reduces poverty, protects public health and safety, enhances the quality of Lao PDR’s natural environment, and advances the quality of life for all Lao people<sup>9</sup>.

The strategy notes six guiding principles as shown in Annex 5.

The strategy identifies key sectors for both adaptation and mitigation as agriculture and food security, forestry and land use change, energy and transport, industry and urban development while water resources and public health are key sectors for adaptation. Measures are outlined for all these sectors.

Following on from the climate change strategy, the Climate Change Action Plan of Lao PDR for 2013-2020 was developed to guide government agencies and other actors in “addressing climate change

<sup>9</sup> Strategy of Climate Change of the Lao PDR, Government of Lao PDR, WREA, 2010, p. 8.

mitigation and adaptation in a sustainable manner”.<sup>10</sup> In accordance with the guiding principles and goals of the climate change strategy, the action plan identifies actions to be taken in the sectors prioritised in the strategy, as well as actions to strengthen national systems related to climate change. The actions contribute to the following four key initiatives:

1. Strengthening institutional and human resource capacities on climate change;
2. Enhancement of adaptive capability for coping with climate change;
3. Climate change mitigation through the reduction of greenhouse gas emission;
4. Strengthening education and raising public awareness on climate change.

The action plan assigns roles to stakeholders, specifying MONRE as the prime authority and coordinating agency. As well as converting the actions for DCC into tasks for implementation, MONRE is tasked with coordinating with the other prioritised sectors to ensure the requisite understanding, capacity, planning, international funding mobilisation, monitoring and reporting to implement the actions identified for each sector.<sup>11</sup> Line ministries are responsible for integrating identified actions into their sector strategies, plans and budgets, in coordination with MONRE. At the local level, authorities are to plan and implement activities related to climate change within their designated area. This is to be done with MONRE’s support, which includes capacity building. Local authorities are to “consolidate various projects and focal tasks related to climate change, then integrate them into their SEDPs, followed by participation and reasonable involvement into executing, monitoring and reporting”.<sup>12</sup> Local authorities, together with mass organisations, have a role in disseminating to the public general climate change information as well as the national strategy and programme on climate change. International development partners are encouraged to incorporate key messages of the action plan into their cooperation with Government agencies. There are clear directives through the action plan to strengthen processes for combatting and responding to climate change and the current GGGI and UNDP projects link directly to the action plan. Sectoral progress will be described in Section 4. 2. of this report.

At the time of writing of the INDC, a Climate Change and Disaster Law was being developed which was to contain the overarching framework for climate change and disaster management. Since that time, the law was not approved by the Government and disaster management was separated from climate change. Work continued on a Disaster Law but the climate change document was changed from a law to a decree. The climate change decree is currently being drafted and is expected to be approved in early 2019.

While not a specific climate change strategy, there is a Green Growth Strategy which is currently being developed with the support of the World Bank and GGGI. This strategy is likely to have significant overlaps with the climate change plan.

### 3.4. Climate Finance

The INDC notes that technology transfer, capacity building and financial support are necessary in order for Lao PDR to implement its identified mitigation and adaptation actions. At the time the

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<sup>10</sup> Climate Change Action Plan of Lao PDR 2013 – 2020, MONRE, p.2.

<sup>11</sup> Climate Change Action Plan of Lao PDR 2013 – 2020, p. 17.

<sup>12</sup> Climate Change Action Plan of Lao PDR 2013 – 2020, p.18

INDC was developed, it was estimated that 1.4 billion USD was required to implement the mitigation component and 0.97 billion USD was required for the adaptation component. According to the INDC, the government had allocated 12.5 million USD for climate change, equivalent to 0.14% of the 2012 GDP. The annual budget is allocated based on sectoral plans. Currently, climate change does not have a separate funding stream in the government budget but is included in the environmental sector.

#### *3.4.1. Domestic Financing Mechanisms*

The ministries responsible for finance are the Ministry of Planning and Investment (MPI) and the Ministry of Finance (MOF). MPI works as the secretariat for the Government for planning and investment and for the NSEDP. Sectors submit annual plans to MPI and, based on the plans, budget is allocated and then transferred from the Ministry of Finance to the sector. Each sector reports their policy outcomes to MPI, where the outcomes are checked and indicators reviewed. The budget for cities is allocated in the same way, with the Mayor's office submitting the city's financial needs through an annual plan. Funding can also flow through line ministries for projects. There is not a check on funding as such, but Environmental Impact Assessments (EIAs) are carried out in order for projects to be approved. There is not, however, a consideration of GHG emissions in the EIA process.

#### *3.4.2. External Financial Support*

Since 1997, Lao PDR has received US\$14, 683,000 in climate finance, mainly from GEF but also from the Asian Development Bank (ADB), the Nordic Development Fund (NDF), UNDP and the UN Environment Programme (UNEP). In addition there has been support from the Least Developed Countries FUND (LDCF), the GCF and bilateral and multilateral partnerships. Since the INDC estimates of needed finance, the amount received is less than US\$5,000,000. Currently, with assistance from UNDP and GGGI, systems are being developed for accessing GCF funds.

At the present time DCC is the National Designated Authority (NDA) for the GCF. However, there is a question over which agency is the most appropriate focal point moving forward into the future. Once more finance is flowing through the fund, it may be better to have a financial ministry as the focal point rather than a technical ministry as at the present time the NDA cannot access funds directly but needs to go through MOF. Discussions will be held on this at a later date, with MOF playing a leading role in the process.

It is also aimed to improve the application process. The UNDP project which is currently under implementation is providing support for strengthening procedures and so these should be clarified by the time the project is complete. A proposal developed by UNEP has been before the GCF since February 2015. It is now in its third round and has so far cost over US\$500,000. A significant cost for many proposals is the charges from Accredited Entities (AEs) for assistance with developing proposals. There is currently, therefore, a proposal for the Environmental Protection Fund (EPF) to become a Direct Access AE. This process is being worked through in partnership with The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (GIZ). The EPF was established in 2005 "to strengthen environmental protection, sustainable natural resources management, biodiversity conservation and community development in Lao PDR."<sup>13</sup> In 2017 the scope was expanded to

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<sup>13</sup> Information on the EPF is drawn mainly from the readiness proposal for the project entitled *Support for the accreditation of the Lao PDR Environment Protection Fund to the GCF*, available online.

include, among other things, the building of white and clean development models, the reduction of climate-induced impacts and the improvement of clean production. The EPF operations are overseen by a Board of Directors which comprises the Minister of MONRE, Vice-Ministers from other line ministries and mass organisations, and the President of the Chamber of Commerce and Industry. A technical committee assists with the approval of subprojects while the MONRE-based EPF office acts as the secretariat responsible for administrative functions including reporting. Major donors to the EPF include the World Bank and GEF along with contributions from the Government. The funds are dispersed as sub-grants to beneficiaries including government organisations, businesses and private sector entities at central, provincial, district or village level. From 2005 – 2013 over 150 sub-projects were funded. A small proportion of the funding has been allocated for climate change action for such expenses as consultation meetings in development of the climate change decree. Local governments are able to request funding from the EPF for climate change action. In order to gain AE certification for the EPF, its regulation framework needs to be strengthened. GIZ is providing capacity building in this area. If the EPF gains AE certification, it will provide another option for GCF proposals and reduce the need for outside agencies to be involved in the process.

Currently there are six projects which have been approved for readiness support or are in development, as shown in Annex 4.

The lack of finance is a major barrier to Lao PDR's implementation of its climate change action plans. With the relatively recent commencement of the GCF and associated readiness support, procedures are being developed which it is hoped will enable readier access to funds. A second barrier from DCC's point of view is the workload in coordinating with all the relevant sectors. It is not feasible for DCC to support all sectors at once with the human and financial resources available to them.

## 4. Other ongoing initiatives, sectors, local context

### 4.1. Related projects

#### 4.1.1. *GGGI: Readiness support to enhance green finance in the areas of green cities in Lao PDR*

GGGI's work is the closest in scope to that of Urban LEDS and close coordination will be required with GGGI. Of particular note is GGGI's intention to carry out a city-level GHG inventory, preferably in Pakse, as they will be carrying out a waste management project there. This presents potential for complementarity. One idea floated by a MONRE official was that of the two projects working in different sectors for the GHGI. Regardless of how the coordination works, discussions will be necessary on the tools and processes each project is using, particularly since the idea is for the city to become a model for Laos.

Since GGGI is working on a national MRV system, there is a need for communication in order to know how the cities will feed into the national reporting system. The meeting for stakeholders working in cities that GGGI will host later in 2018 is expected to be the first of regular meetings. This coordination mechanism should provide a platform for ensuring that the projects complement one another and that there is no duplication.

#### 4.1.2. *Ecosystems and Urban Adaptation in Lao PDR*

Should the *Ecosystems and Urban Adaptation* project, *Building resilience of urban populations with ecosystem based solutions* be approved by the GCF, there are potential synergies with Urban-LEDS II. The project, to be delivered in partnership with UNEP, has selected Kaysone Phomvihane and Pakse as two of six target cities. City climate vulnerability assessments have been carried out as part of the preparation for the project. While the focus is ecosystems adaptation, there may be potential for synergy in awareness raising, capacity building and accessing climate finance.

### 4.2. Sectors at the national level

In determining the focus sectors for the Urban LEDS project, account was taken of the sectors prioritised in the climate change strategy and NDC, as well as the sectors which have an impact on GHG emissions in urban areas. The following section describes the current context of relevant sectors.

#### 4.2.1. *Forestry sector*

Although the Forestry sector does not seem directly relevant to urban low emissions development, forestry is a key sector in national climate planning. It has also attracted a great deal of finance through the programme, *"Reducing emissions from deforestation in developing countries"* (REDD+). As a result of REDD+, the forestry sector is more advanced than other sectors in terms of MRV. For these reasons, it was included in this mapping exercise.

A new Forestry Law is currently under development and a priority for the sector is to get the law adopted. There has been a Forestry Strategy since 2005 which covers the period up until 2020. With technical and financial assistance from the Japan International Cooperation Agency (JICA), work is about to begin on updating the strategy to accommodate emerging issues such as REDD+ and

climate change in general. REDD+ is a major factor in the coordination and implementation of Forestry sector policy. Regarding REDD+, the required Forest Reference Emission Level (FREL) and Forest Reference Level (FRL) were submitted to the UNFCCC in January 2018. This data is in advance of that collected by other sectors. The REDD+ strategy has been finalised and is expected to be approved by the Ministry of Agriculture and Forestry (MAF) in September 2018. The REDD+ strategy will feed into the Forestry strategy. The Department of Forestry is in the process of developing a National Forest Monitoring System (NFMS). Although there is still a considerable amount of work to do on this, an MRV road map is in place and the first MRV using the NFMS is planned for 2019. There are a number of forestry staff who are engaged with DCC so it is assumed that they will report the MRV findings to DCC.

Local level forestry offices have a responsibility to implement national policies and strategies. Senior forestry officials believe there is a role for local people in measuring emissions. The ideal scenario is that a monitoring method is developed and training on the method given to local people, who measure the emissions and report to local authorities, who in turn report to the national level. This system would also reduce the need for and cost of employing external people to do the measuring. Although this is the goal, it is recognised that it will take a lot of work to achieve and one official estimated that it might take five years to reach an effective level of functioning.

#### *4.2.2. Industry sector*

In contrast to the forestry sector, there has not been a large amount of international investment in the industry sector, which falls under the mandate of the Ministry of Industry and Commerce (MIC). In general, people at the national level understand climate change and some people at the local level have a good understanding. However, with a few exceptions, the private sector does not understand the issues. MONRE invite the MIC to climate change workshops but there are not funds for dissemination workshops for the private sector. An MIC official expressed, in discussion, the need for climate change experts in the industry sector and the need to disseminate information at the national as well as the local level. There is a lot of discussion with technical departments but there is no action taken due to a lack of funding. At the local level there are low staff numbers and staff have limited knowledge. The unavailability of funding extends to the area of policy. A Green Industry Strategy was being developed over the last two years with the aim of it feeding into the Green Growth Strategy. However, the development of the strategy has stalled and its completion is incumbent on the provision of finance. The Green Industry Strategy will encompass more climate change related aims than are present in existing policies and laws. The Manufacturing Law (in Lao only) makes one mention of green industry. As far as specific climate change issues are concerned, industry sector officials have heard of the NDC and MRV but they don't know a lot about either. Officials noted the need for capacity building related to climate change as they have only general training workshops as opposed to specific climate change trainings. The sector does not have a budget for climate change capacity building. There are a small number of pilot projects including one which is being implemented in partnership with the Ministry of Mines and Energy (MEM). This project is to change CO<sub>2</sub> from a concrete company into methane to be used for cooking. Another project looks at substituting a cleaner form of coal for fuel. These two projects are directly related to climate change mitigation whereas other activities in the industry sector have an environmental focus such as pollution.

### 4.2.3. Energy sector

In line with the NDC and relevant policies there is an energy sector focus on the construction of large hydropower schemes. The Policy Guidelines for the Implementation of Policy on Sustainable Hydropower Development in Lao PDR (2016) apply to hydropower projects having an installation capacity higher than 15 Megawatts. Another focus in the INDC is renewable energy and the third is rural electrification. The ministry responsible for all these forms of energy is the Ministry of Energy and Mines (MEM). For the purposes of developing urban low emissions development, renewable energy is the most relevant of the three types of energy.

A national energy policy has just been drafted and was about to be submitted to the government in August 2018. Two key current documents concerning energy are the *Policy Guidelines for the Implementation of Policy on Sustainable Hydropower Development* and the *2011 Renewable Energy Development Strategy*. The Institute of Renewable Energy Promotion (IREP) has a number of pilot projects but the technologies have not yet been implemented on a wider scale. The focus has recently shifted to concentrate more on non-hydropower renewable energies such as wind, solar, biomass and biogas along with a focus on energy efficiency and rural electrification. In Savannakhet Province there are two power plants producing biogas. They are privately run by the owners of the factories which they supply. IREP is working in partnership with other sectors including industry, transport and building and it provides an example of intersectoral coordination.

The Renewable Energy Strategy includes a Renewable Energy Fund which was established as a sub-account to the existing Rural Electrification (RE) Fund. This fund is now known as the Energy Promotion and Development Fund. The strategy lists a range of uses for the fund, including the development of a renewable energy and biofuel industry and market, demonstration activities, capacity building and promotional activities. An IREP source explained, however, that the fund is mainly used at present for rural electrification, often to provide a government contribution to grant projects.

Kaysone Phomvihane and Pakse are powered by hydropower which is operated through concession agreements. In line with decentralisation policies, local authorities are responsible for the internal investment or technical issues of any power project that is less than 5 Megawatts, although final approval for the project needs to be given by the central government. Local energy sector staff are being trained in technical and environmental aspects of power projects.

Although by nature the renewable energies under development will reduce GHG emissions, energy sector staff are not very familiar with the NDC or the necessity for an MRV system.

### 4.2.4. Transport sector

The Ministry of Public Works and Transport's (MPWT's) responsibilities include transport and urban planning. Lao PDR became a member of the Regional Environmentally Sustainable Transport (EST) Forum in 2004 and has benefited from working alongside other members. The key transport strategy will be the EST Strategy. Although the strategy has not yet been approved by the Government, the Department of Transport nevertheless follows it in their work. There are a number of transport projects aiming to reduce GHG emissions, including a NAMA with JICA, but they are concentrated in Vientiane Capital. A key focus is electric vehicles (EVs) with targets of:

1. 30% of cars being fossil fuel free or hybrid by 2030; and

2. The transportation sector being free of fossil fuels by 2050.

In addition to the Vientiane projects, JICA has a project with electric tuk-tuks in Luang Prabang. The electric tuk-tuks were also to be tested in Pakse over a three month period. In Lao PDR there are vehicle inspection centres which focus on pollutants from vehicles.

What is written in the NDC is what is already in place in the transport sector, for example, there are actions to improve public transport systems. Staff understand the need for reporting but don't know how to carry it out. A Department of Transport official described the current status of reporting by saying, "we're still struggling at the moment, we have to coordinate more with the DCC.... I think we are still in the process of gathering information."<sup>14</sup> Staff had tried to set up a committee with a focal point for each department that has an obligation to NDC implementation. They had previously met with DCC and were awaiting the minutes of the meeting and DCC's response to the idea of the committee. To date, there has been no training provided for reporting.

There is not currently a large role for local staff in the transport sector. New regulations are being developed relating to vehicle technical inspections, including emissions, and staff may have a role in carrying out the inspections.

#### *4.2.5. Urban Planning sector*

The 1999 Urban Planning Law was revised and approved in November 2017. There are also a number of ministerial regulations and some urban planning guidelines. All of these documents, including the law, are in Lao. The revised law has two articles relating to climate change. The first requires that risks posed by climate change must be taken into the consideration of any construction. The second relevant article concerns environmental impact assessments (EIAs). EIAs relate to the management of natural resources, which does not include consideration of GHG emissions. However, a further amendment to the law is currently being written and it is possible that this may refer more directly to climate change. There is also work underway on drafting a Land Use Law. Climate change has not been integrated into the building code but development of the building code is ongoing and officials believe it should be aligned with a green policy. Officials did not believe they had a detailed action plan which they were able to start implementing.

Climate change mitigation is integrated into project designs. For every project a study is carried out on how to prepare guidelines for the project, the design of all the sub-project components, and climate change impacts. For example, in ADB's Second Greater Mekong Subregion Corridor Towns Development Project a study was completed, after which the people were trained to consider potential climate change impacts and how to increase the budget to build resilience to climate change. Disaster risk management has also been mainstreamed into planning.

At the local level, provincial and district authorities carry out project implementations after the national government has approved the project, including the project design and coordination mechanisms. There has been some work on measurement in the urban sector at the ASEAN level. A German government project began three years ago with the installation of measuring equipment in some cities. MPWT don't have their own measurement of emissions however.

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<sup>14</sup> Department of Transport interview, 13 August 2018.



### 4.3. The Local Context

Settlements in Lao PDR are classified in a hierarchy according to set criteria. Vientiane Capital is at the top of the hierarchy and for some time there were four towns on the second level, known as secondary towns. In May 2018 Kaysone Phomvihane, Pakse and Luang Prabang were upgraded by prime ministerial decree from secondary town to city status. This is a significant move, affecting administration structures and there was hope expressed by local officials that the city status might attract a larger budget from the central government. To qualify as a city, a municipality must have a population of at least 60,000 and be financially self-sufficient with regard to administration. The cities of Kaysone Phomvihane and Pakse were selected for the Urban LEDS project after discussions amongst MONRE, UN-Habitat and ICLEI. The satellite settlements targeted by the project are Outhoumphone and Songkhone District in Savannakhet Province, and Phonthong and Sanasomboun in Champassack.

Kaysone Phomvihane is the capital of Savannakhet Province. It is located along the East-West Corridor through the Greater Mekong Subregion. As such, it is the recipient of ADB support to contribute to its transformation into an economic nucleus for economic activity, resulting in sustained development along the corridor.

Pakse is the capital of Champassack Province. It is experiencing rapid growth and is becoming a commercial hub for southern Laos. Growth has led to an expansion past the previous boundaries of the city and significant development will be required to cater to the increased population and area.

There were some common themes in discussions with local authorities. When asked about understandings of climate change, many people spoke about buildings. The Lao word for GHGs is *thad aye heuan keo*, the components of which mean chemical element, gas, house and glass. The two pictures in **Error! Reference source not found.** illustrate how the understandings that many Lao people have about greenhouse gases differ from understandings in other parts of the world. Whereas greenhouse gas refers to the effect of GHGs in trapping heat in the same way that a greenhouse traps heat, many Lao people are unfamiliar with greenhouses as exemplified in the first picture in Figure 4. Instead, the Lao word for GHGs evokes a picture of a modern building which is built of

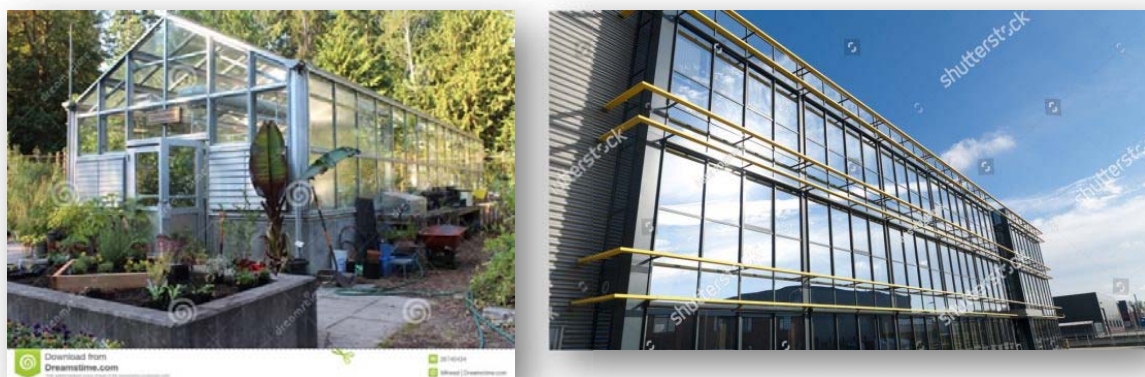


Figure 4: Differing concepts of glass buildings

glass. This leads to the understanding that glass buildings cause climate change in the area in which they are located. The idea of a unified global climate system is missing. Without this understanding of the global system and the potential impacts of changing it, there is much less motivation to reduce GHG emissions.

#### *4.3.1. Existing initiatives in Kaysone Phomvihane*

##### **Lao PDR: Greater Mekong Subregion East-West Economic Corridor Towns Development Project**

The project targets Kaysone Phomvihane, Phine and Dansavanh and aims to develop the transportation corridor in Laos into an economic corridor through investment in infrastructure development. This is linked to other developments in the Greater Mekong Subregion. In Savannakhet the project includes:

1. Upgraded solid waste management and sanitary landfill.
2. Improved drainage and flood protection.
3. Improved urban roads and drainage.

#### *4.3.2. Existing initiatives in Pakse*

##### **Pakse Urban Environmental Improvement Project**

The project began in 2012 and has an expected closing date of 2021. It aims to achieve sustainable and inclusive development by transforming the key urban growth area into a competitive and green urban centre. Project outputs are:

1. City-wide environmental improvements - improved solid waste management system.
2. City-wide environmental improvements - strengthened flood protection and drainage.
3. City-wide environmental improvements - reinforced riverbank protection along the Xedon River.
4. Community-driven urban environmental improvements - improved solid waste collection and management; improved household sanitation.
5. Strengthened Capacity for Provincial Urban Planning and Services.
6. Strengthened capacity for project management and implementation.

##### **Deforestation project**

#### *4.3.3. PONRE*

At the sub-national level PONRE is the focal point for climate change action. Staff have a more in-depth understanding of climate change than was found in other sectors. In both Savannakhet and Champassack provinces, staff referred to CFCs and other emissions as causing climate change.

Savannakhet PONRE climate change staff reported a lack of tools and technical expertise, and low capacity amongst staff. In the past they have had short workshops which didn't go into a lot of detail and some of the information was not clearly understood. One staff member attended national level workshops in the past but he has now moved to another division. Staff would like DCC to organise intensive training for them. Staff do not have a detailed knowledge of the NDC and have not attended dissemination workshops about it. They do not know about an MRV system for GHGs and their main monitoring is of water parameters. PONRE follows Green Growth and Sustainability policies and it appears that climate change is subsumed under the broader environment umbrella.

Staff feel that horizontal coordination with PWT doesn't work well and they haven't implemented a lot relating to transport and public works. Several projects have sent missions to Savannakhet for which PONRE is required to collect data.

Although the Champassack PONRE staff with whom discussions were held had an in-depth knowledge of climate change, they reported that some staff do not have a clear understanding as the documents are mainly in English and this creates a barrier for Lao speakers. Seven of the eleven staff have completed environmental study and two staff have attended two JICA workshops in Singapore. In the past coordination didn't work well. Staff have attended some NDC workshops with the national government but in the past they didn't have ownership of NDC implementation. Regarding data collection from other sectors, staff describe issues with human resources. They don't have time to collect data from other sectors and so they send a letter requesting data but this is not always successful. In order to receive the data, staff need to travel to collect it. This raises issues of travel costs and per diems. Staff believe they can coordinate well if they have financial support. It was noted that climate change data collection is quite technical and at the local level it is not yet implemented well. Staff have heard the theory but there has been no real practice. Staff at Pakse had never heard of an MRV system. They see priority tasks as raising climate change awareness in the community so that people have an understanding and develop an interest in climate change issues.

#### *4.3.4. Local government office*

##### *Savannakhet*

Kaysone Phomvihane is located in an area of higher elevation so there is a lesser risk of flooding and the impacts of climate-related disasters are less severe than in other places. The drainage system is impacted by floods and there is a project to discharge water from flooded areas to the Mekong River. There are no studies or projects related to GHG emissions. In general, local government officials do not demonstrate a good understanding of climate change but they emphasised the importance of gaining an understanding and building capacity so they can work effectively with projects. It was noted that there is not coordination between sectors in implementing projects. In discussion, officials spoke of developing green areas in the city.

Many missions come to Savannakhet to discuss climate change or collect data, for example, in the week prior to the Urban LEDS project's visit, GGGI went to Savannakhet as did MONRE's Department of Environmental Quality Promotion. The previous week IREP visited. The collection of data for government and development partners consumes a lot of PONRE's time, while they receive little input to assist them in carrying out their own mandate.

##### *Pakse*

The development of a clean, green city is a key focus in Pakse and discussion with the Governor turned to developing green areas in the city. Major environmental issues include wastewater management. Currently a lot of wastewater is released directly to the Mekong River. Solid waste management is problematic as there is almost 1,000 tons of waste produced daily. This is more than the city has the capacity to manage and there is no suitable landfill currently available to increase capacity. There are, therefore, many areas with uncontrolled waste disposal. The ADB-supported

waste management project has only been implementing for 3-4 months and implementation has been impeded by rain.

Local government officials have a good understanding of climate change. The stage of Pakse's development is such that it has not yet caused major environmental damage but it is important to develop in a manner that does not contribute to climate change. The city has brought in regulations for the construction of factories. Most policy is concerned with waste management, planting trees, and defining industrial zones which are separate from residential areas.

#### *4.3.5. Provincial Public Works and Transport*

##### **Savannakhet**

Staff from provincial PWT know about the big picture regarding climate change but they don't know the details. Urban planning takes disasters into consideration, particularly flooding. The Kaysone Phomvihane urban plan has been under revision by a Japanese company since 2014. Climate change is being integrated into the plan but staff don't know when it will be implemented. There is a general transport sector policy which mentions disaster prevention, readiness and preparedness. A budget has been allocated for emergencies and funding is provided in times of disaster. GHG emissions are not addressed in the policy.

PONRE has held a few climate change meetings supported by ADB. The Association of Lao Architects and Civil Engineers (ALACE) also held meetings in the past about climate change. From the meetings, PWT staff know a little about the NDC and MRV but there has been no capacity building on MRV and there is no system for reporting emissions. Staff reported that there has been a project at national level concerning carbon from vehicles. Although it was planned to apply this project at the provincial level this has not yet been implemented. Staff stressed their need for capacity building and tools.

##### **Champassack**

There are nine District PWT offices and one municipality office under the Champassack PWT office. The Housing and Urban Planning, and Transport sections are most directly related to climate change. The general public don't have a good understanding of climate change but PWT staff have a general understanding. However, there is a need for more expertise and there has been a lack of capacity building and financial support. Staff may have heard of the NDC and MRV but they don't know them well and there have been no dissemination workshops. Staff stressed the need for tools to measure GHG emissions and the lack of a framework for climate change.

PWT try to follow the national climate change policy but in practice it doesn't work well due to the lack of human resources and financial support. The local government is trying to reduce the impacts of climate change and is trying to improve public transport and reduce the number of private vehicles. EVs were trialled but the batteries didn't last long enough and so the trial was stopped and the electric tuk-tuks are sitting at the PWT office unused, as shown in Figure 5.



An urban plan was developed in 2000 but it has only recently [Figure 5: Electric tuk-tuks at PWT office.](#) been in use. There are plans to enhance urban planning capacity but the funding is not available. PWT has just this year become involved with the Green Growth Strategy.

#### 4.3.6. *Urban Development and Administration Authority (UDAA)*

PWT implement major projects whereas the UDAA's are responsible for the maintenance and repair of city infrastructure. The UDAA's in Kaysone Phomvihane and Pakse coordinate with the Provincial Governor's office but there is discussion over transferring their coordination to the city level, since they are both now cities. UDAA officials have not received training in climate change and have a general knowledge from sources such as YouTube and other websites. Climate change is a relatively new concept to the UDAA's.

##### **Kaysone Phomvihane**

The UDAA's mandate includes drainage and wastewater, road improvements, building consents and waste management. Waste collection is currently contracted to a private company. Currently there is a feasibility study being conducted for an Australian project which will seek to generate electricity from waste. The scheme will require 7,000 tons of waste per day to generate electricity for one district. It is estimated that six districts will need to contribute their waste in order to obtain the required amount.

UDAA officials recognise that climate change is an important issue but they don't feel that the local population understands the issues. They would be happy to assist in disseminating information to villagers. The UDAA has booked radio time for weekend talks about climate change and the environment. Staff would like to see a campaign to inform villagers and feel that such things as T-shirts with a climate change logo would be effective in disseminating knowledge.

##### **Pakse**

The UDAA has four main roles:

1. Administration and finance
2. Technical and design: The main activities are to manage building consents and to maintain the city's parks.
3. Project implementation: This involves looking after drainage and water systems, cleaning up roads and looking after street lighting.
4. City management: The main focus areas are solid waste collection and wastewater management.

Officials report that Pakse is developing fast and that, in practice, the city's urban plan is not followed. The UDAA has a low budget of 100 – 150 million kip<sup>15</sup> per year. This is very little to improve and maintain the city's infrastructure which is under the UDAA mandate. Waste disposal is a major issue. There is an emphasis on developing a green city, which involves planting trees and cleaning up rubbish.

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<sup>15</sup> At September 2018 rates, this is equivalent to approximately US\$11,700 – 17,600.



## 5. Conclusions

### **There are well established systems of vertical coordination**

With a centrally directed government, systems of vertical coordination are firmly set in place in Laos. Decisions are made at the central level and directives are given to the local level for implementation of the decisions. Authorities at all levels stressed that local levels need to follow national strategies and policies. Lines of coordination are through line ministries and through the provincial and district governments. Local governments are able to make lesser decisions within the parameters set by the central level. An example of a lesser decision is the introduction of small-scale renewable energy use.

### **Systems are currently being put in place for the access of climate finance**

The Government is working to access external funding for climate change action and national procedures are being increasingly refined. There is currently support and proposals being developed for the GCF. There is some funding channelled through the Environment Protection Fund which local authorities or other entities are eligible to access. The Energy Promotion and Development Fund is another fund which is worth investigating for energy related initiatives.

### **There is low awareness of the NDC**

External support for NDC implementation has increased recently. Systems are still being set up and other than Natural Resources and Environment and Forestry, the NDC is not well known in sectors at the national level. NDC understanding is more limited at sub-national levels and MONRE has limited resources for dissemination. There is a need to disseminate information at all levels.

### **A national MRV system has not yet been fully developed**

The Government is aware of the need to establish a national MRV system before obligatory reporting is introduced for implementation of the Paris Agreement. Therefore, preparation is underway. However, GGGI's target completion date is the end of 2019. At the present time then, details of the MRV system have not been decided. The timing presents an opportunity for the Urban LEDS project to participate, in coordination with the government and other agencies, in the dissemination and piloting of the system at the local level once the system has been finalised.

### **Concerns**

1. There is not an in-depth awareness and understanding of climate change issues. Particularly relevant to the Urban LEDS project is the low awareness of the global scale of climate systems. Without the understanding of the link between local GHG emissions and the climate changes that cause the disasters experienced by Laos, there is less motivation to reduce GHG emissions. This low understanding is at all levels of government. MONRE and some PONRE staff demonstrate a good understanding of the climate system.
2. Resources have not been sufficient for capacity building required to enable local staff to carry out technical tasks such as measuring GHG emissions, as well as to carry out administrative and coordination tasks.
3. There is predominance in Urban LEDS of strategizing and assessing. National level authorities are looking for concrete action in projects in addition to planning and strategies. It is not immediately clear from Urban LEDS documents whether concrete actions will be taken in

later stages of the project. The assurance of hardware support to implement the strategy would bring people on board and increase motivation to participate in the project. This is the case from national to local level.

**Alignment with the national policy framework is essential**

There is a climate change strategy and action plan in place. Issues arise with the unavailability of resources to disseminate and implement the action plan. It is imperative that projects align with the existing documents and with MONRE aims and objectives.

**Coordination mechanisms are being developed amongst stakeholders working in the urban sector**

It is only recently that the number of climate change projects has been increasing in Laos. Development partners have had ideas for projects which have overlapped with other projects. MONRE has responded by requesting GGGI to develop a coordination mechanism amongst entities involved in cities. This coordination mechanism is needed and has the potential to ensure complementarity rather than duplication. The coordination meetings will provide an opportunity to strengthen relationships with the government and with other stakeholders. Initial information suggests that particularly close coordination will be required with GGGI. Further consultation needs to take place about such aspects as the tools being used by each project and the means to ensure complementarity in the GHGI in Pakse, with one suggestion being for each project to focus on different sectors.

**Local level Natural Resources and Environment agencies are key stakeholders**

PONRE is the focal point for climate change at the local level and is a key agency in developing urban LEDS. DONRE has fewer staff and is more of an implementing office as opposed to the coordination and management roles of PONRE. Climate change staff welcome practical activities and responsibilities related to climate change.

**Capacity building resources are limited**

Sectors rely on MONRE to disseminate information, plans and tools relating to climate change, as well as to support in accessing finance and build climate change capacity. However, MONRE does not have the resources for sustained capacity building. This creates a barrier to disseminating climate change capacity from MONRE to other sectors and vertically to PONRE and DONRE.

**Local level climate tools are not well known**

MONRE are very familiar with IPCC tools. However, tools such as the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) are not well known. There is potential to raise awareness about local level tools in coordination with other agencies such as GGGI.



## 6. Recommendations

### Actions:

- 1) Focus on the transport, urban planning and energy sectors by building capacity in the DPWTs, DEMs and the UDAAs. For sub-national offices, provide ongoing, practical training with associated real tasks, rather than one-off theory-based workshops. It is recommended that training be provided in:
  - (a) Overall understanding and knowledge of the climate system and the causes and potential future impacts of climate change as these relate to the work of the specific entities.
  - (b) Understanding the responsibilities that the specific entities hold for NDC implementation, including MRV systems
- 2) Review transport, urban planning and energy sector policies at the national and sub-national levels in order to strengthen vertical integration and mainstream MRV into sectoral policies.
- 3) Localise the GHG indicators that have been developed for ASEAN countries to fit the Lao PDR context.
- 4) Assist the local governments to integrate climate change into local social-economic development plans.
- 5) Investigate the EPF and the Energy Promotion and Development Fund as potential domestic sources of funding for local initiatives and build capacity in local governments to access climate funding.

### **In addition to the actions recommended above, the following should be noted:**

- 6) Schedule activities to synchronise with the development of the national MRV system.
- 7) Participate fully in the meetings which will be held as part of the coordination mechanism which MONRE is setting up through GGGI.
- 8) Hold further consultations and closely coordinate with GGGI throughout the duration of the project.
- 9) Ensure the project activities align with the climate change action plan.
- 10) Clarify to national and local levels the type of pilot projects the project will support and the level of support provided.

## Annex 1: List of persons interviewed

NATIONAL GOVERNMENT					
NAME	DESIGNATION	E-MAIL ADDRESS	MOBILE	FAX	OFFICE
<b>Ministry of Natural Resources and the Environment (MONRE)</b>					
Amphayvanh Oudomdeth	Deputy Director, General Affairs Division, Assistant to NDA and NDE	<a href="mailto:amphayvanh.oudomdeth@gmail.com">amphayvanh.oudomdeth@gmail.com</a>	856 20 55503322		85621 265 017
Mr. Chanthavone Keomany	Technical officer		85620 2222 1927		
Mr. Bou Eua Khamphilavanh	Deputy Director of GHG Inventory & Mitigation Division		85620 2222 3849		
Mr. Souphasay Komany	Director of DCC PM	<a href="mailto:Komany.s@gmail.com">Komany.s@gmail.com</a>	85620 9798 5954		
Ms. Vathsouda Nilathsay	Technical Officer		85620 7799 9973		
<b>Ministry of Public Works and Transport</b>					
Mr. Vilayphanh Sayavong	DDG of Transport Department	<a href="mailto:vilayphan_sayavong@yahoo.com">vilayphan_sayavong@yahoo.com</a>	85621 55919948		85621 415 563
Ms. Xaysomnouk Souvanavong	Technical Officer, Transport Dept		85621 28955651		
Mr. Khamthavy Thaiphachanh	DG of Dept of Housing and Urban Planning	<a href="mailto:khamthavy@mpwt.gov.la">khamthavy@mpwt.gov.la</a>	85621 55676353	85621 911 333	85621 412 283
Mr. Bounthong Keohanam	Director of Division of Civil Construction Eng	<a href="mailto:bunthong2002@yahoo.co.uk">bunthong2002@yahoo.co.uk</a>	85620 2221 5361	85621 412 282	85621 454 652
Mr. Khamathideth Manikham	Technical officer, Transport Dept	<a href="mailto:kham-adeth@hotmail.com">kham-adeth@hotmail.com</a>	85620 5542 4948		85621 412 270
<b>Ministry of Agriculture and Forest</b>					
Mr. Phouthone Soplathilat	Director of Cooperation and Planning	<a href="mailto:phouthonesophathilath@gmail.com">phouthonesophathilath@gmail.com</a>	85621 5814 2666	85621 219 561	85621 219 561
Dr. Kinalone Phammasack	Deputy Director for REDD+		85621 5542 8168		
<b>Ministry of Energy and Mine</b>					
Mr. Vithounlabandit Thoumabout	DDG of Energy policies and planning	<a href="mailto:vithoun_depp@yahoo.com">vithoun_depp@yahoo.com</a>			85621 454 610

Mr. Chantho Milattanapheng	DG of Institute of Renewable Energy Promotion	<a href="mailto:greolaos@gmail.com">greolaos@gmail.com</a>	85620 5488 8813	85621 261 799	85621 413 013
Mr. Boualom Saysanavong	Director of Solar, Wind and Biomass Power Generation Promotion Division	<a href="mailto:boualom@gmail.com">boualom@gmail.com</a>	85620 2200 1709	85621 413 013	85620 413 013
<b>Ministry of Industry and Commerce</b>					
Mr. Somphong Soulivanh	DDG of Dept of Industry and Handicrafts	<a href="mailto:somsoulivanh@yahoo.com">somsoulivanh@yahoo.com</a>	85620 5549 9978, 99779701	85621 451 930	85621 452 425

<b>Kaysone Phomvihanh City &amp; Pakse City.</b>					
NAME	DESIGNATION	E-MAIL ADDRESS	MOBILE	FAX	OFFICE
<b>Provincial Office of Natural Resources and Environment of Savannakhet</b>					
Mr. Phouthone Nhotbounheuang	Director of PoNRE of Savannakhet	<a href="mailto:phouthone403@gmail.com">phouthone403@gmail.com</a>	856 20 2261 5403		
Mr. Khamphou Komthamixai	Technical Officer of PoNRE of Savannakhet		856 20 9749 3659		
<b>Governor Office of Kaysonephomvihan City, Savannakhet</b>					
Mr. Sommay Songvilay	Vice City Governor of Kaysonephomvihan		85620 5574 2883		
Mr. Sitha Songvilay	Director of Administration Office of Saysone City		85620 5574 2883	85641 212 009	85641 212 009
Mr. Phonephaseth Southivong	DoNRE of Saysonephomvihan City		85621 5564 3640		
Mr. Souchan	District Office of Public Works and Transport		85620 5564 2263		
<b>Provincial Office of Public Works and Transport, Savannakhet</b>					
Ms. Phavanh Boualouanglath	Deputy Director of PWT of Savannakhet		85620 5564 1661		
Mr. Phouvong Inthichack	PWT of Savannakhet		85620 5564 1111		
Ms. Phouthidavanh Chanthavong	Technical Officer, PWT of Savannakhet	<a href="mailto:phouthidavanh0033@gmail.com">phouthidavanh0033@gmail.com</a>	85620 2278 0456		
<b>Urban Development and Administration Authority, Savannakhet</b>					

Mr. Bountham Homsombath	Vice president of UDAA of Saysonephomvihan City	-	85620 2231 2292		
Mr. Khoun Khambounma	Vice president of UDAA of Saysonephomvihan City	khoun khambounma6@gmail.com	85620 2231 0759	856241 252 023	85641 212 141
Mr. Saykham Keoudoungsin	UDAA of Saysonephomvihan City		85620 2231 3188		
<b>Provincial Office of Natural Resources and Environment, Champasak</b>					
Mr. Khambai Vongghalean	DD of PoNRE of Champasak		85620 9178 5999		
Mr. Aloun Phengmany	Officer of PoNRE of Champasak		85620 2227 1692		
Ms. Vilay Heuangsy	Officer of PoNRE of Champasak		85620 2365 5353		
Mr. Thavone Xayyavongkhamne	Officer of PoNRE of Champasak		85620 2227 2275		
Ms. Thippachan Vongsena	Officer of PoNRE of Champasak		85620 5536 1698		
Ms. Malay Soukphommavong	Officer of PoNRE of Champasak		85620 9922 0097		
<b>Pakse Governor, Champasak</b>					
Mr. Sifong Siriphokham	Governor of Pakse		85620 9935 9444		
Mr. Souleevan	Director of DoNRE of Pakse		85620 5553 1252		
<b>Provincial Office of Public Works and Transport, Champasak</b>					
Mr. Khamsoy Phathoumthong	Deputy Director of PWT of Champasak	<a href="mailto:smartpan.2015@yahoo.com">smartpan.2015@yahoo.com</a>	85620 5573 0945	85631 212 340	85631 212 243
Mr. Lienthong Soutsakhone	Director of Transport section, Champasak		85620 5563 0625		
Mr. Khittisak Vongsa	Director of Urban Planning Section		85620 5526 3888		
Mr. Youthana Phetthany	Officer of Urban Planning Section		85620 5941 0919		
<b>Urban Development and Administration Authority, Pakse</b>					
Mr. Bounnath Soumpolpakdy	Vice President of Pakse UDAA	<a href="mailto:udaa_pakse@yahoo.com">udaa_pakse@yahoo.com</a>	85620 5565 4636	85631 213 938	85631 251 897
Mr. Bounpaeng Phothilath	Pakse UDAA		85620 5691 5326		
Mr. Mr. Vilayhong	Pakse UDAA		85620 5698 2161		
Mr. Saysamone	Pakse UDAA		85620 5563 0125		
Ms. Somphet Phommaluk	Pakse UDAA		85620 5563 6644		

## Annex 2: List of documents collected

Title	Year	Language	Format	
<b>Climate Change and UNFCCC documents</b>				
8 <sup>th</sup> Five-Year National Socio-Economic Development Plan (2016–2020)	Ministry of Planning and Investment	2016	English	Digital
Strategy on Climate Change of the Lao PDR	WREA, ADB, The World Bank	2010	Lao and English	Digital
Climate Change Action Plan of Lao PDR for 2013-2020	MONRE	2013	Lao and English	Digital
Lao PDR First National Communication on Climate Change	STEA	2000	English	Digital
National Adaptation Programme of Action to Climate Change	WREA, UNDP, GEF	2009	English	Digital
Lao PDR Second National Communication on Climate Change	MONRE	2013	English	Digital
Technology Needs Assessments Report: Climate Change Mitigation	DDMCC	2013	English	Digital
Intended Nationally Determined Contribution Lao PDR	MONRE	2015	English	Digital
<b>Sector documents</b>				
Forestry Strategy to the Year 2020 of the Lao PDR	MAF	2005	English	Digital
Law on Electricity	MEM	1997	English	Digital
Renewable Energy Development Strategy in Lao PDR	MEM	2011	English	Digital Hard
Policy Guidelines for the Implementation of Policy on Sustainable Hydropower Development in Lao PDR	MEM, IFC, World Bank	2016	English and Lao	Digital Hard
Energy Policy of Lao PDR (draft)	MEM	2017	Lao	Hard
National policy on energy saving and conservation	MEM	2016	Lao	Hard
Decree on Biodiesel		2016	Lao	Hard
Law on the State Budget		2006	English	Digital
Law on Local Administration of Lao PDR		2003	English	Digital
Law on Urban Plans*		1999	English	Digital
Law on the Processing Industry		1999	English	Digital
Law on Investment Promotion		2009	English and Lao	Digital

### Annex 3: List of focal points

	Name	Ministry or Organisation	Address	Phone	Fax	Email
UNFCCC	Mr. Syamphone Sengchandala, Deputy Director General	MONRE Administration	P.O. Box 7864, Sisavath Village, Chanthabouly District Vientiane	(856-21) 26-3799	(856-21) 26-3799	syamphone.s@gmail.com
Green Climate Fund	Mr. Syamphone Sengchandala, Deputy Director General	MONRE Administration	P.O. Box 7864, Sisavath Village, Chanthabouly District Vientiane	(856-21) 26-3799	(856-21) 26-3799	syamphone.s@gmail.com
	Mr. Amphayvanh Oudomdeth Deputy Director, Division of General Affairs, DCC	MONRE Administration	P.O. Box 7864, Sisavath Village, Chanthabouly District Vientiane			
GEF Political Focal Point	Mrs. Bounkham Vorachit	MONRE Administration	P.O. Box 7864, Nongbeuk Road, Sikottabong District Vientiane, Vientiane - Lao PDR	+856-21-263799		bounkham_v@yahoo.com
GEF Operational Focal Point	Mr. Khampadith Khammounheuang	Environment Protection Fund	P.O. Box 7647, building 100, Prime Minister's Office Compound Vientiane, Vientiane - Lao PDR	+856 21 252 739		kkhampadith@gmail.com
Adaptation Fund	Mr. Syamphone Sengchandala, Deputy Director General	MONRE Administration	P.O. Box 7864, Sisavath Village, Chanthabouly District Vientiane	(856-21) 26-3799	(856-21) 26-3799	syamphone.s@gmail.com

## Annex 4: GCF Projects

Delivery Partner	Project title or focus	Amount of funding (USD)	Proposal status
UNDP	GCF Readiness and Preparatory Support for Lao PDR	300,000	Approved 30 June 2017
GIZ	Support for the accreditation of the Lao PDR Environment Protection Fund to the GCF	488,000	Approved 1 July 2018
GGGI	Readiness support to enhance green finance in the areas of green cities in Lao PDR	476,485	Approved 9 Feb 2018
FAO	Incentive mechanisms for private sector engagement under REDD+ in the Lao People's Democratic republic	348,975	Approved 1 July 2018
UNEP	Energy sector	300,000	In the pipeline
UN-Habitat	Resilience in cities	313,364	Concept note

Table 3: GCF Readiness support projects

In addition to the Readiness Support proposals, there are five large project proposals at various stages of development, as shown in Table 4.

Table 4: Larger GCF proposals

Delivery Partner	Project title or focus	Amount of funding (USD)	Status of proposal
UNEP	Ecosystems and Urban Adaptation in Lao PDR	29,658,900	Full proposal submitted
UNDP	Resilient integrated food systems in rural Laos	31,452,910	Full proposal submitted
ADB	Climate-Friendly Agribusiness Value Chains Sector Project	30,000,000 (to add to 50,000,000 from ADB)	Full proposal submitted
GIZ	Climate protection through avoided deforestation (CliPAD)		Concept note approved and full proposal being developed*
WFP	School feeding programme	9,000,000	Concept note being developed

\*It is planned to use the CliPAD proposal as a test case for new procedures.

## **Annex 5: Guiding Principles of National Climate Change Strategy**

### **1) Climate Change Mainstreaming as Core Element**

Ensure that climate change adaptation and mitigation are incorporated as a priority into the next social economic development plan (7th NSEDP), strategies, programmes and projects at all levels of government, institutions, businesses and local communities, within the framework of sustainable development; with social and economic development and poverty eradication as overriding priorities.

### **2) International Partnerships**

Work with and seek support from international partners for capacity building, development and transfer of technology to support the implementation, adaptation and mitigation strategies and actions for low carbon growth.

### **3) Capacity Building as a Pressing Priority**

Build national capacities in government agencies, technical institutions, private sector and local communities in developing and implementing climate change adaptation and mitigation for policies and actions.

### **4) Integrated Solutions and Co-Benefits**

Develop and implement integrated adaptation and mitigation solutions that are low-cost, improve energy efficiency, promote cleaner production, build adaptation/mitigation synergy and generate economic, environmental and socioeconomic benefits.

### **5) Innovative Financial Instruments**

Elaborate appropriate financial packages to ensure optimal implementation of adaptation and mitigation action plans.

### **6) Awareness, Education and Community Participation Leading the Way**

Increase public awareness and understanding of climate change impacts and the need for mind-set transformation towards adaptation and mitigation to mobilize communities to implement climate change adaptation and mitigation actions.