

# BASIS OF SUBNATIONAL STRATEGY ON GREEN GROWTH FOR URBAN LOW-EMISSIONS DEVELOPMENT

Lao PDR  
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## Abbreviations and Acronyms

AFOLU	Agriculture, Forestry and Other Land Use
BUR	Biennial Update Report
CIRIS	City Inventory Reporting and Information System
GHG	Greenhouse gas
GHGI	Greenhouse gas inventory
GPC	Global Protocol for Community-Scale Greenhouse Gas Emission Inventories
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Process and Product Use
Lao PDR	Lao People's Democratic Republic
MoNRE	Ministry of Natural Resources and Environment
NAPA	National Adaptation Programme of Action
NCCS	National Climate Change Strategy
NDC	Nationally Determined Contributions
NGGS	National Green Growth Strategy
NSEDP	National Socio-economic Development Plan
SDGs	Sustainable Development Goals
SSGGULD	Subnational Strategy on Green Growth for Urban Low-Emissions Development

## 1. Background context

This strategy basis has been developed under the aegis of the Promoting Low Emission Urban Development Strategies in Emerging Economy Countries (Urban-LEDS) project which is funded by the European Union under its Global Climate Change Alliance Plus initiative and implemented by UN-Habitat and ICLEI-Local Governments for Sustainability (ICLEI). The strategy basis meets a need for guidance at subnational levels in Lao PDR to implement low-emissions development in the context of green growth. All development planning is required to mainstream the National Green Growth Strategy (NGGS), of which a key component is the reduction of greenhouse gas (GHG) emissions.

Green growth has been mainstreamed into the highest levels of Lao PDR's development planning since the 8th National Socioeconomic Development Plan (NSEDP) was adopted along with a Vision to 2030 and a Ten-year Socio-economic Development Strategy (2016–2025). The concept of green growth is evident in these documents. The Vision to 2030 begins with the statement that, "Lao PDR is ranked as a developing country with upper-middle income and with innovative, green and sustainable economic growth ..." The Ten-Year strategy comprises seven strategies, of which two highlight green growth. These are:

- i. Strategy on quality, inclusive, stable, sustainable and green economic growth; and
- iv. Strategy on sustainable and green environment with effective and efficient use of the natural resources.

The 8th NSEDP included 15 Green Growth indicators in multiple sectors, however, none was related to GHG emissions. The National Green Growth Strategy (NGGS) was endorsed in 2018, before the 9th NSEDP was developed, and so green growth was mainstreamed throughout the 9th NSEDP, according to the strategy. This can be seen in the first of three parts of the overall objective which is, "to continue the efforts to graduate from the Least Developed Country status, ensure employments for people, improved livelihoods and better well-being, maintain the social order, strive to realise the Sustainable Development Goals (SDGs) in 2030, and effectively translate the National Green Growth Strategy into actions."

The National Green Growth Strategy is a multisectoral, supplementary strategy with the purpose of strengthening sustainable development policies, strategies and mechanisms to achieve socio-economic development goals as identified in the NSEDPs. As such it is to be mainstreamed into planning in all sectors and at all levels of government. While clearly evident in national policy documents, at a local level there is less understanding of both green growth and low emissions development.

The NGGS provides the following definition for green growth, which clearly shows that GHG emissions is a focus of the strategy.

**National Green growth of the Lao PDR means the economic growth, poverty reduction and raising of living standards of the people in a comprehensive, inclusive and equitable manner by raising the efficiency, effectiveness and sustainability of the utilization of limited natural resources to ensure optimal benefits, decreasing the pollution, wastes and greenhouse gas emissions as well as minimizing the risks and vulnerability of the economy to natural disasters and global economic uncertainties.**

The national strategy focuses on seven key sectors, these being Natural Resources and Environment, Agriculture and Forestry, Industry and Commerce, Public Works and Transport Sector, Energy and Mines, Information, Culture and Tourism, and Science and Technology. While GHG emission levels are a consideration in the higher levels of the strategy, it is less prominent in areas relating to specific sectors.

## 2. Major sources of GHG emissions in urban areas

The most recent national GHG inventory (GHGI) was carried out with a base year of 2014 using the 2006 Intergovernmental Panel on Climate Change (IPCC) guidelines. Since there is a dearth of country-specific data, default emission factors were used. The inventory covered the Energy, Industrial Process and Product Use (IPPU), Agriculture, Forestry and Other Land Use (AFOLU) and Waste sectors. It calculated emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O. The inventory showed total net emissions of 24,099.98 GgCO<sub>2</sub>eq,<sup>1</sup> comprising 18,793.41 GgCO<sub>2</sub>eq from the AFOLU sector, 3,729.42 GgCO<sub>2</sub>eq from energy, 1,151.89 GgCO<sub>2</sub>eq from IPPU and 425.26 GgCO<sub>2</sub>eq from Waste.<sup>2</sup> At the national level then, the key net emitting sector was the AFOLU sector, suggesting that urban areas were not responsible for most of the emissions in Lao PDR.

To gain an understanding of emissions at the city level, GHGIs were completed in the cities of Pakse and Kaysone Phomvihane, with a base year of 2019. The 2006 IPCC guidelines were used, along with city level tools, namely the City Inventory Reporting and Information System (CIRIS) and the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC). Emissions from the stationary energy, transportation, waste, and AFOLU sectors were estimated. Three of these sectors were included in the national GHGI, however, there was inadequate data and minimal activity in the IPPU sector and so it wasn't included in the city inventories. A sector in the city GHGIs which wasn't in the national one is transportation.

Although the sectors in the two cities have different proportions of emissions by sector, it is clear that stationary energy is the highest emitter in both cities, followed by waste. In Kaysone Phomvihane there were higher numbers of livestock within the city boundary than those within the Pakse boundary, and this is one reason for higher emissions from the AFOLU sector than from the transportation sector in Kaysone Phomvihane. Emissions from the transportation sector were 9,380 tCO<sub>2</sub>e in Pakse and 9,373 tCO<sub>2</sub>e in Kaysone Phomvihane.

When comparing results from the national GHGI with those of the two cities, the AFOLU sector was responsible for a far larger proportion of the emissions in the national GHGI. This is logical, since there is a higher percentage of land which is used for AFOLU purposes outside city boundaries than in urban areas. The second highest sector in the national inventory, energy, corresponds to the highest emitting sector in the city inventories. Waste had a higher percentage of emissions in the cities than it did nationally. Again, this is logical, since urban areas have greater economic activity and denser populations, and therefore, produce more waste.

It cannot be assumed that every city in Lao PDR has the same emissions by sector as Pakse and Kaysone Phomvihane. For example, some cities have a higher amount of industrial activity than others so it would be expected that they would have more IPPU emissions. The city GHGI report also noted limitations in data and technical capacity. Specifically, "several data are missing, inconsistent and lacks update." However, since there is not widespread data available for urban emissions in Lao PDR, the 2014 national and 2019 city GHGI data have been taken into account and it is considered for the purposes of this subnational strategy, that the highest emitting sectors in urban areas are 1. Stationary energy, 2. Waste, and 3. Transportation. These findings have influenced the following strategy.

<sup>1</sup>GgCO<sub>2</sub>eq refers to Gigagrams of CO<sub>2</sub> equivalent emissions.

<sup>2</sup>Ministry of Natural Resources and Environment; Department of Climate Change, 'The First Biennial Update Report of the Lao PDR', 2020, [https://unfccc.int/sites/default/files/resource/The%20First%20Biennial%20Update%20Report-BUR\\_Lao%20PDR.pdf](https://unfccc.int/sites/default/files/resource/The%20First%20Biennial%20Update%20Report-BUR_Lao%20PDR.pdf).

## 3. Objectives and Methodology

### 3.1 Objectives

The Subnational Strategy on Green Growth for Urban Low-Emissions Development (SSGGULD) will align with relevant national and sectoral policies. It aims to raise the prominence of low-emissions development in urban areas and set ambitious yet achievable goals. This is done through making explicit the links between low-emissions development and green growth, thereby paving the way for low-emissions development to be mainstreamed into green growth planning and programmes. The purpose of the strategy document is to:

- Set out the strategic vision, goals and objectives for low-emissions development in Lao settlements through the lens of green growth;
- Identify the barriers and enabling factors for progressing low-emissions development;
- Identify priority sectors for low-emissions development; and
- Develop a specific set of strategic interventions and an action plan that can be implemented in the short, medium and long term.

### 3.2 Methodology

This strategy basis builds on research carried out for two earlier papers, and was developed based on a review of relevant national climate change policies, a review of international best practices, and consultation with relevant stakeholders. A literature review surveyed existing national and international literature to inform the development of the strategy. The review included several key relevant national policy documents including the National Green Growth Strategy, Revised Nationally Determined Contribution (NDC), the National Climate Change Strategy (NCCS), National Adaptation Programme of Action (NAPA), the National Climate Change Action Plan, the First Biennial Update Report (BUR) of the Lao PDR and the Urban Development Strategy. Outputs from relevant projects on urban development and climate action were also consulted.

Consultations were held with the Ministry of Natural Resources and Environment (MoNRE), which houses the Department of Climate Change.

## 4. Strategic Vision and Goals on Green Growth for Urban Low-emissions Development

### 4.1 The Vision of the Strategy

Inclusive, resilient human settlements that power green economic growth for sustainable low-emissions development.

### 4.2 Guiding Principles

- Low-emissions development should contribute to economic growth and the achievement of socioeconomic development goals.
- Low-emissions development requires the participation of all sectors as well as local government authorities, and the population at large.
- Capacity building, institutional strengthening and sound economic management are key to low-emissions development.

### 4.3 Goals of the strategy

#### **Institutional**

Improve vertical and horizontal coordination of low-emissions development, including the establishment of an effectively operating, cross-sectoral coordinating entity, or the integration of low-emissions development into the agenda of an existing effectively operating, cross-sectoral coordinating entity.

#### **Policy environment**

Mainstream green growth through low-emissions development into all local development plans, including sector plans.

#### **Education**

Raise the awareness of key stakeholders, business owners, and the general public so that 90% of the population understands the importance of low-emissions development, and the actions to take to achieve it.

#### **Capacity Building**

Build capacity in the public and private sectors to plan low-emissions development and to manage and measure emissions.

#### **Energy**

Increase by 70% the use of clean energy sources for domestic and industrial activity.  
Reduce GHG emissions in the transport sector by 50%.

#### **Transport**

Develop the required infrastructure to meet national target for emissions reduction and electric vehicle use.

#### **Waste management**

Increase solid waste management (SWM) to cover an additional 20% of the target area.  
Increase wastewater management to cover an additional 20% of the population in the target area.

#### **Carbon Sequestration**

Decrease emissions through increased carbon sequestration by sustainably managing land use.

## 5. Actions

Method of Implementation	Timeframe	Budget Estimation
<b>Institutional</b>		
Consult with national and local Green Growth and environmental sector to determine the appropriate coordination entity eg, local Green Growth Committee, local Environment Committee	2022 - 2023	100,000
Establish operational procedures for coordinating entity	2022 - 2023	
Provide trainings on EMS (ISO 14000 series) for city authorities, environment sector, coordinating entity and relevant key stakeholders	2023 - 2024	
<b>Policy Environment</b>		
Conduct an assessment of gaps through stakeholder consultations and review of current policy, and develop a plan for mainstreaming LEDS	2023 - 2024	165,000
Develop and implement a resource mobilisation plan	2023 - 2024	
Develop funding proposals to diverse donors	2023-2030	
Strengthen policy implementation and monitoring, especially in climate-related policies and interventions in relation to energy, public work and transportation, industry, agriculture, and forestry sector.	2025-2030	
<b>Education</b>		
Develop IEC materials and methodology for effective awareness-raising in communities	2024-2026	300,000
Develop and implement awareness-raising campaigns	2024-2030	
<b>Capacity building</b>		
Conduct capacity needs assessment, develop and implement capacity building programs on low-emissions development	2022-2023	800,000
Strengthen capacity on GHG inventory, mitigation assessment and information management	2023-2027	

Develop a measurement and reporting system	2023-2027	
<b>Energy</b>		
Conduct a needs assessment of existing technologies in use and develop a Low Emission technology database	2022-2025	800,000
Develop an action plan for the transition to low-emission technologies in building, industry, transport and other relevant sectors	2022-2025	
Promote the use of electricity as an alternative to the use of charcoal.	2024-2030	
Promote development and expansion of efficient cooking stoves which use clean energy	2024-2030	
Review town master plans and mainstream low-emissions development, including the consideration of spatial planning	2022-2024	
Review local building codes and mainstream low-emissions development	2022-2024	
Promote energy-saving and efficiency in the building sector, including alignment with building code, and the use of energy-saving appliances such as LED light bulbs and inverter air conditioners	2024-2030	
Promote the use of solar energy for lighting and water pumps	2024-2030	
Install solar panels on the rooves of government offices and other public buildings	2026-2030	
<b>Transport</b>		
Promote cycling and walking and enhance and develop infrastructure and facilities for cycling and walking	2025-2030	19,000,000
Improve and develop road networks, traffic management system and facilities to avoid and reduce traffic congestion and fuel use inefficiency	2025-2030	
Conduct a needs assessment of the infrastructure required for increasing the use of electric and other clean energy vehicles	2024 - 2025	

Install required infrastructure and promote and pilot the use of electric and other clean energy vehicles	2025 - 2030	
<b>Waste Management</b>		
Conduct a review and needs assessment of existing solid waste management systems	2023-2024	9,000,000
Conduct a review and needs assessment of existing wastewater management systems	2023-2024	
Develop a roadmap for solid waste and wastewater management, including financial mechanisms	2024-2025	
As required, upgrade and develop higher standard sanitary landfills, and management of solid waste.	2026-2030	
Build institutional capacity, promote of 3R (reduce, reuse, and recycle) adoption, promote innovative solid waste enterprise and access to finance	2023-2024	
As required construct wastewater management infrastructure	2025-2030	
Enhance capacity in wastewater management	2023-2025	
<b>Increase carbon sequestration</b>		
Protect and expand green areas and landscapes in the city and surrounding areas	2024 - 2030	5,000,000
As required, enhance forest restoration, rehabilitation, and enrichment	2024 - 2030	
As required, promote sustainable forest and non-timber forest product management	2024 - 2030	
Enhance organic, ecological and best agricultural practice cropping systems	2024 - 2030	
Promote agriculture plantations including orchards, perennial crops and integrated farming practices	2024 - 2030	
Enhance livestock and manure management, including feed and feeding improvements	2024 - 2030	
<b>TOTAL BUDGET</b>		

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