# **Transport and Climate Profile** Lao People's Democratic Republic Developed by: Asian Transport Outlook

Developed with the support of:













Introduction to the profiles: These "Transport and Climate Profiles" are part of the research work entitled "Transport NDC Gap Analysis for Low- and Middle-Income Countries (LMICs) in Asia and the Pacific" which is being implemented and builds on the work of the Asian Transport Outlook (ATO), a project initiated and supported by the Asian Development Bank (ADB). ATO is also being supported by the Asian Infrastructure Investment Bank (AIIB). The research is being co-funded by UKAID through the UK Foreign, Commonwealth and Development Office (FCDO) under the High-Volume Transport (HVT) Applied Research Program managed by DT Global International Development UK LTD (DT Global). The research is being implemented under HVT057 (Transport Decarbonisation Index - https://transport-links.com/funded-projects/transport-decarbonisation-index-tdi) whose lead research supplier is the Partnership on Sustainable, Low Carbon Transport. These profiles are designed to complement the main report of the research entitled *Bridging the Gap: A Deep Dive into NDCs and Transport Policy Landscapes in Low- and Middle-Income Asian Economies*. While intended as supplementary materials, they also function as standalone knowledge products. All the related knowledge products will be made available through https://asiantransportoutlook.com/analytical-outputs/ndc-analysis and https://asiantransportoutlook.com/analytical-outputs/transportclimateprofiles/

The Asian Transport Outlook (ATO) is an initiative that aims at strengthening the knowledge base on transport in the Asia-Pacific region. It supports the planning and delivery of transport-related assistance in Asia, supports wider transport policy making, and helps track global and regional processes related to sustainable development. For example, ATO is the monitoring mechanism for the Aichi 2030 Declaration on Environmentally Sustainable Transport – Making Transport in Asia Sustainable (2021-2030) which was adopted by more than 20 countries in Asia-Pacific through the High Level Environmentally Sustainable Transport Forum (EST) that is organized by the United Nations Centre for Regional Development (UNCRD)-DSDG/UN DESA, along with its partners. For more information, visit asiantransportoutlook.com

This profile is structured into two main sections: Data Insights and Policy Insights. Under "Data Insights", individual components at the intersection of transport and climate change are detailed. Similarly, the "Policy Insights" section outlines various policy documents, measures, and targets.

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Asian Transport Outlook (ATO). (2024). Transport and Climate Profile: Lao People's Democratic Republic, https://asiantransportoutlook.com/analytical-outputs/countryprofiles/

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Transport and Climate Profile: Lao People's Democratic Republic

2024

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# **Executive Summary**

Lao People's Democratic Republic (Lao PDR) is a lower-middle-income Southeast Asian country.

#### **CO2 Emissions:**

• In 2023, the transport sector emitted 2.6 million tonnes of CO2, accounting for 10% of the country's total emissions. Although emissions grew by 8% annually before the Paris Agreement, the growth rate has since slowed to 2% annually. Historically, the sector experienced annual increases of 21% between 1990-2000 and 7% between 2000-2010. Even with the significant CO2 reductions during COVID, transport emissions still grew by 2% annually from 2019-2023, surpassing the Asia-Pacific average of 1%. The road sector remains the dominant contributor, accounting for 100% of domestic transport CO2 emissions in 2022 and approximately 13% of total economy-wide emissions. Lao PDR's transport sector CO2 emissions intensity has decreased from 79.5 gCO2 per USD in 2000 to 37.7 gCO2 per USD in 2023, which is still higher than the Asia-Pacific average of 32.0 gCO2 per USD.

#### **Energy Consumption:**

- Transport sector energy consumption was 42,799 terajoules in 2021.
- Energy intensity with GDP was 0.67 megajoules per USD, higher than regional averages.
- The road sector accounts for 99% of energy consumption, primarily from oil products.
- The grid emission factor was 284 gCO2 per kWh in 2022, significantly increasing since 2015.

#### **Adaptation and Resilience:**

• The Lao People's Democratic Republic (Lao PDR) is expected to face an average annual loss of 5.34 million USD due to climate-related hazards impacting its transport infrastructure, representing 0.01% of its GDP. This loss primarily affects roads (85%), followed by rail (14%) and airports (1%). The road network in Lao PDR is relatively vulnerable, ranking 187th out of 208 countries in terms of national road vulnerability, indicating a lack of redundancies in the face of disruptions. However, the country is not susceptible to sea-level rise as none of its population resides in low-elevation coastal zones.

#### **Vehicle Fleet:**

• Between 2017 and 2023, the Lao People's Democratic Republic (Lao PDR) imported 108.3 million USD worth of electric vehicles (EVs). Most of these imports were electric light-duty vehicles (LDVs) at 67%, followed by electric two-wheelers at 29%. Electric buses and trucks each constituted a small percentage, both at 2%. This demonstrates a significant shift towards EV adoption, as in 2017, no road vehicle imports were electric. However, by 2023, this figure had risen to 8.0%. Despite this growth, Lao PDR still lags behind the Southeast Asia subregion, which had a 16.1% share of electric vehicle imports by 2023. Lao PDR's E-Mobility Readiness Index score of 66/100 in 2024 indicates a moderate level of preparedness for the transition to electric mobility. This score is comprised of 12 points for access to technology, 15 for EV policy support, 23 for access to clean energy, and 16 for financial instrument availability.

#### **Urban Transport:**

• Urban rapid transit infrastructure is underdeveloped, hindering efficient and sustainable urban mobility.

#### **Investments:**

- Lao PDR received significant official development assistance (ODA) for the transport sector, mainly for roads.
- Public-private partnership (PPP) investments focused on rail transport.

#### **Policy:**

- Lao PDR has several policy documents related to transport, with some addressing climate change mitigation and adaptation.
- The latest NDC (2021) does not include specific transport sector emission targets.
- Policy measures focus on biofuels, e-mobility, renewable energy, and infrastructure improvements.
- There is a need for more policies addressing adaptation and resilience.
   Only 21% of the transport sector climate change-related measures have an adaptation and resilience component.

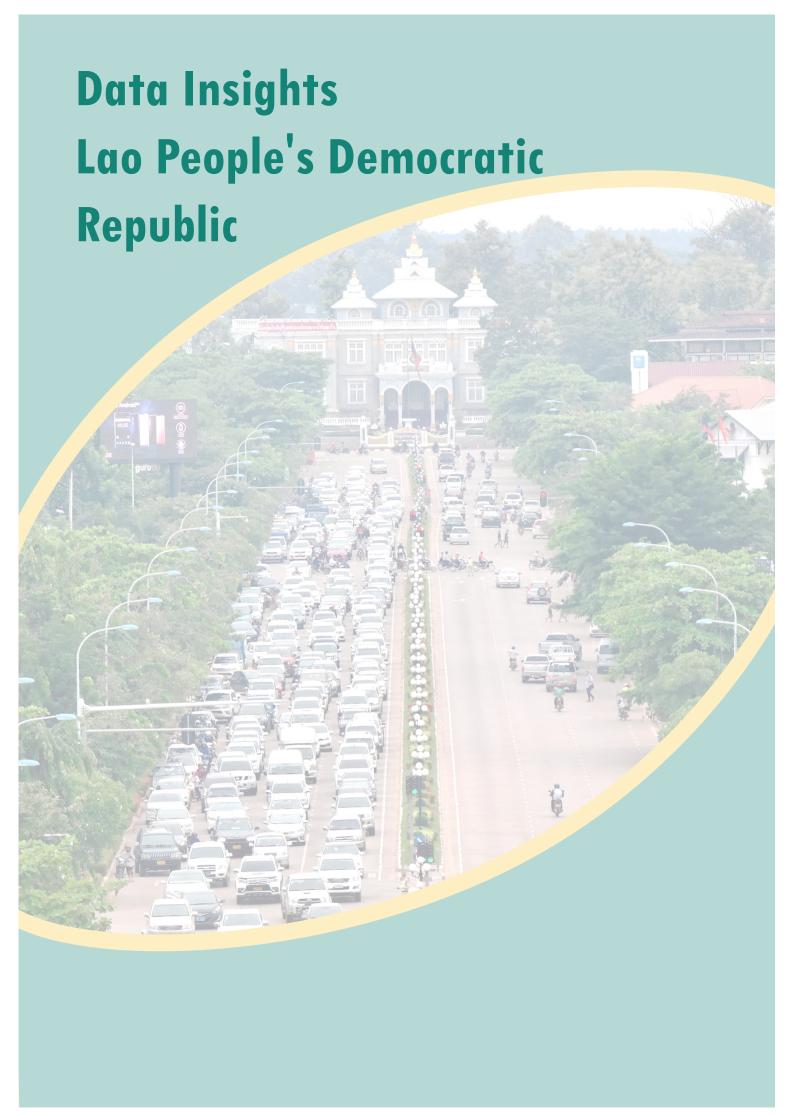
#### **NDC Gaps and Alignment:**

- The NDC lacks specific targets for transport sector emissions and adaptation measures.
- Alignment with broader transport policies is limited, with only 21% of policy measures originating from the NDC or LTS.

## **Policy Opportunities:**

- Develop specific targets for the reduction of emissions in the NDC transport sector.
- Strengthen policy measures for adaptation and resilience in the transport sector.
- Increase investments in public transport and electric mobility.
- Enhance integration of climate change considerations into broader transport policies.

In conclusion, Lao PDR's transport sector presents a complex picture of growth, challenges, and opportunities. While emissions have increased, the growth rate has slowed, and there are signs of progress in energy intensity and electric vehicle adoption. However, vulnerabilities in infrastructure, underdeveloped urban transport, and policy gaps highlight the need for further action. By setting specific emission reduction targets, investing in sustainable transport options, and integrating climate considerations into broader policies, Lao PDR can pave the way for a more resilient, low-carbon transport future.



# Lao People's Democratic Republic

Subregion

**South East Asia** 

Gross domestic product

materials that are exported.

# **Transport and Climate Profile**

Population (2024) **7.7 million** 

Urban population

39%

Below 18 y.o. 38%

Population density

33 persons per sqkm

Rural population

**61**%

Above 60 y.o.

8%

) (GDP PPP, 2023) 9,326 USD (1,2)
71.19 billion USD (2)

Domestic consumption per capita, tonnes (2024)
15.2 tonnes (3)

Domestic consumption is the total amount of materials directly used

(1,2) in the economy (used domestic extraction plus imports), minus the

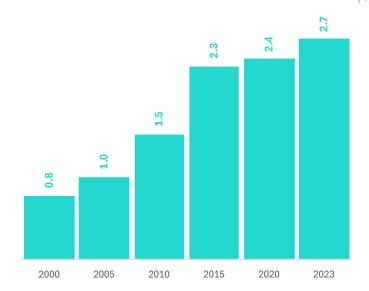
Income class

Low and lower middle income

GDP per capita (PPP, 2023)

I. Transport and Climate Change

Transport fossil CO2 emissions, million tonnes



In 2010, transport contributed 51% of total fossil CO2 emissions. By 2023, transport contributed 10%.

Share of transport CO2 emissions by mode (2022)

Navigation and aviation only includes domestic transportation

Between 2000-2015, road transport contributed 99% in transport fossil CO2 emissions. Between 2016-2022, road transport contributed 100%.

Road transport CO2 emissions (well-to-wheel), share by mode (2022)

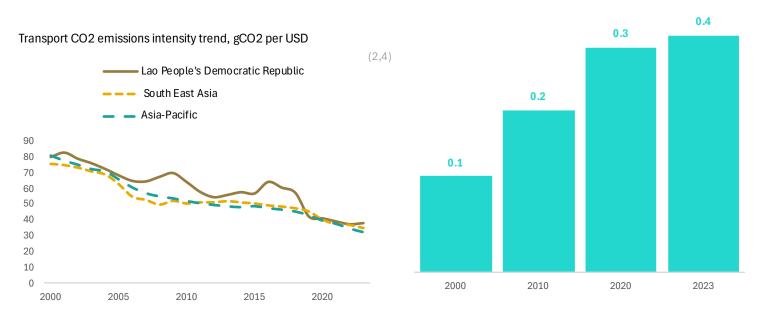
2/3W, 14%
LDV, 66%

# Transport CO2 emissions intensity (2023) 38 gCO2 per USD

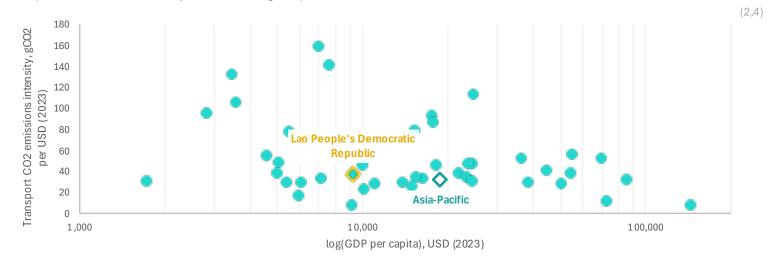
Asia-Pacific average is 32 gCO2 per USD

# Transport fossil CO2 emissions per capita, tonnes



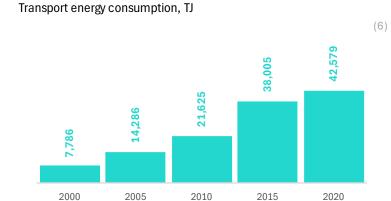


## Transport CO2 emissions intensity in Asia-Pacific, gCO2 per USD



(6)

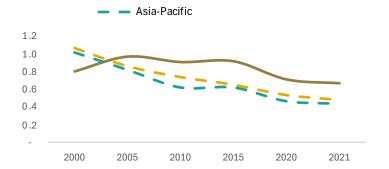
# **II. Transport Energy Consumption**





Asia-Pacific average is 0.4 MJ per USD

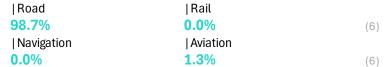
#### Transport energy intensity trend, MJ per USD



South East Asia

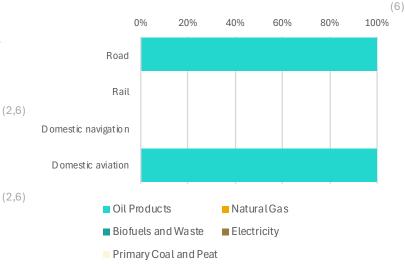
Lao People's Democratic Republic

#### Share of transport energy consumption by mode (2021)



Navigation and aviation only includes domestic transportation

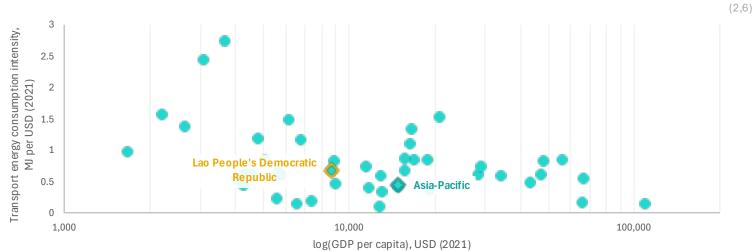
#### Share of transport energy consumption by source (2021)

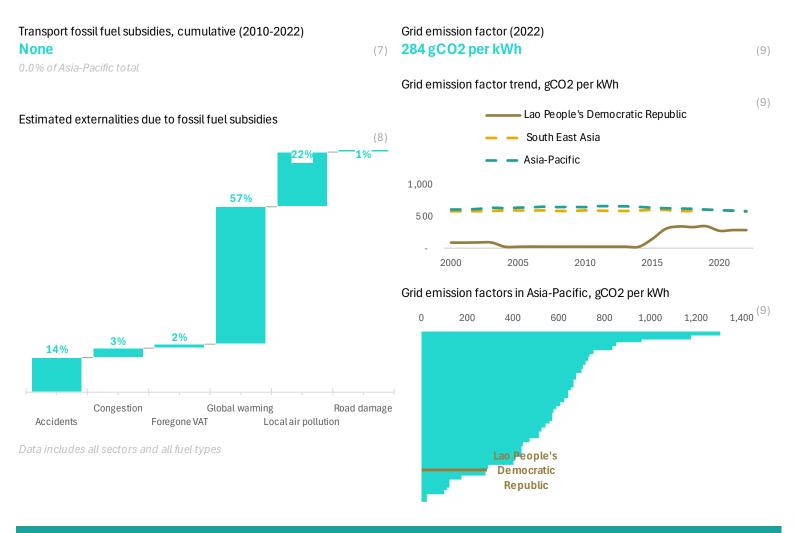


#### Share of transport in renewable energy consumption

2000	0%
2010	0%
2020	0%

## Transport energy intensity in Asia-Pacific, MJ per USD





# III. Adaptation and Resilience

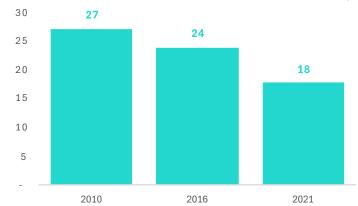
Average annual losses to transport infrastructure due to hazards Average annual losses to transport infrastructure due to hazards, (2023)as a share of GDP, in Asia-Pacific (2023) 0.5% (10) 5 million USD (10)0.0% 0.1% 0.2% 0.3% 0.4% |Road | Rail **85**% 14% | Ports | Airports 0% 1% National road vulnerability index ranking (2023) Lao People's 187th out of 208 countries (11)Democratic Republic Share of population in low elevated coastal zones (2018) n.d. (12)

# IV. Other Externalities

#### Road crash fatalities (2021)

1.2 thousand deaths

Road crash fatality rate per 100 thousand population



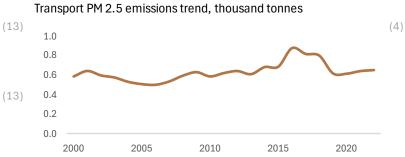
Asia-Pacific average is 16 fatalities per 100 thousand population

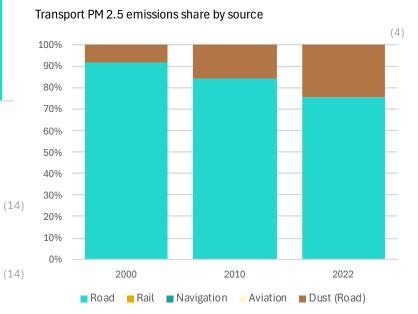
# Rural access index (2023)

**70**%

Rural population without access to all-season roads (2023)

1.4 million





# V. Vehicle Fleet

# Road vehicles (2022)

3.2 million vehicles

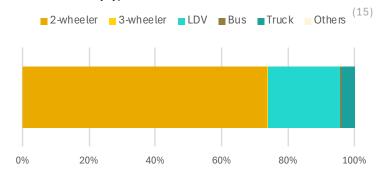
Road vehicle motorization rate (2022)

424 vehicles per thousand population

Road vehicles include 2- and 3-wheelers, LDVs, buses and other informal public transport, trucks, and other unclassified types

In 2000, Lao People's Democratic Republic had 60 vehicles per thousand population. By 2022, this has increased to 424 compared with Asia-Pacific average of 577 in 2022.

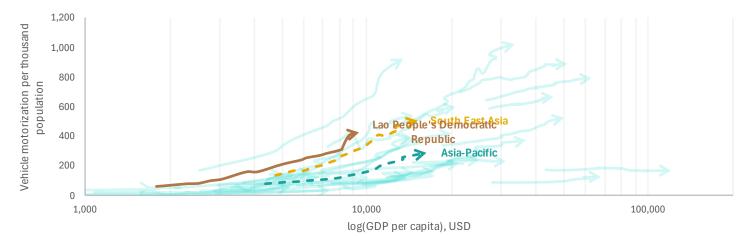
#### Share of vehicles by type



(15)

(1,15)

#### Vehicle motorization per thousand population in Asia-Pacific (2000-2022)



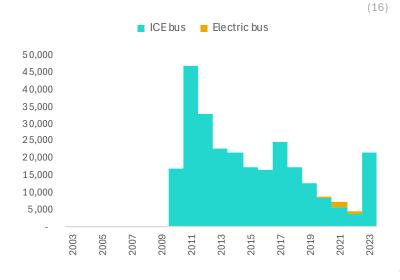
Bus import value (2015-2023)

126.6 million USD

#### Bus vehicle production, units

(16)

#### Bus import value, thousand USD



Electric road vehicle import value (2017-2023)

108.3 million USD

E-mobility Readiness Index (2024)

| Overall | 66/100

(16)

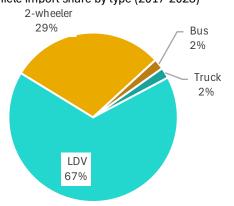
(16)

Electric road vehicle share in total road vehicle import value trend

(18)

(16)

Electric road vehicle import share by type (2017-2023)





# VI. Urban Transport

Urban rapid transit length (2021)

|BRT |LRT |None |None

None None (19)

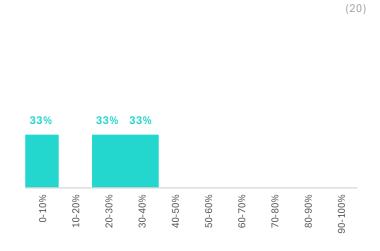
None (19)

Urban rapid transit ratio (2021)

**NA** (1,19)

Urban rapid transit ratio, kilometers per million urban population (2000-2021)

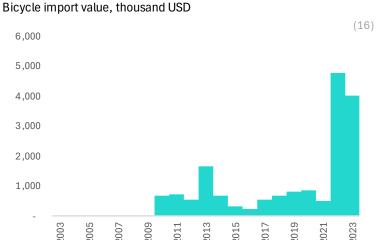
Share of cities by level of access to public transport (out of 3 cities)



urban population (2021)

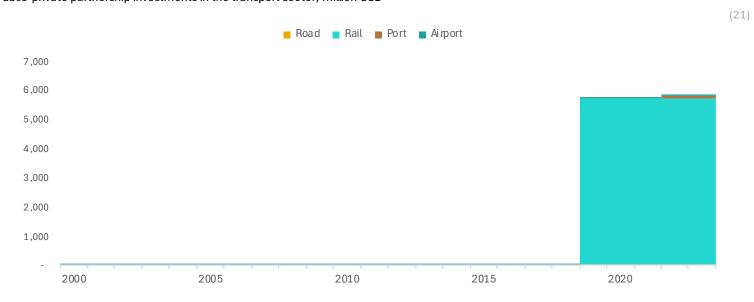
Urban rapid transit ratio in Asia- Pacific, kilometers per million

(1,19)

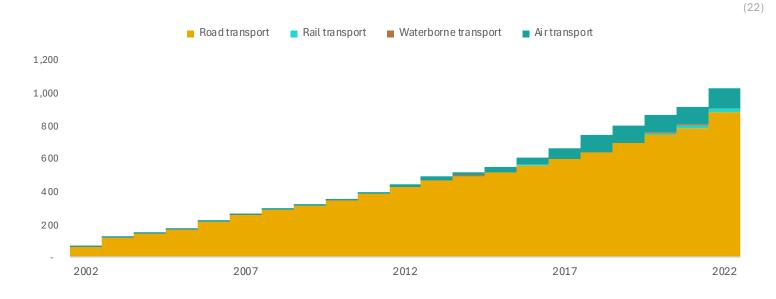


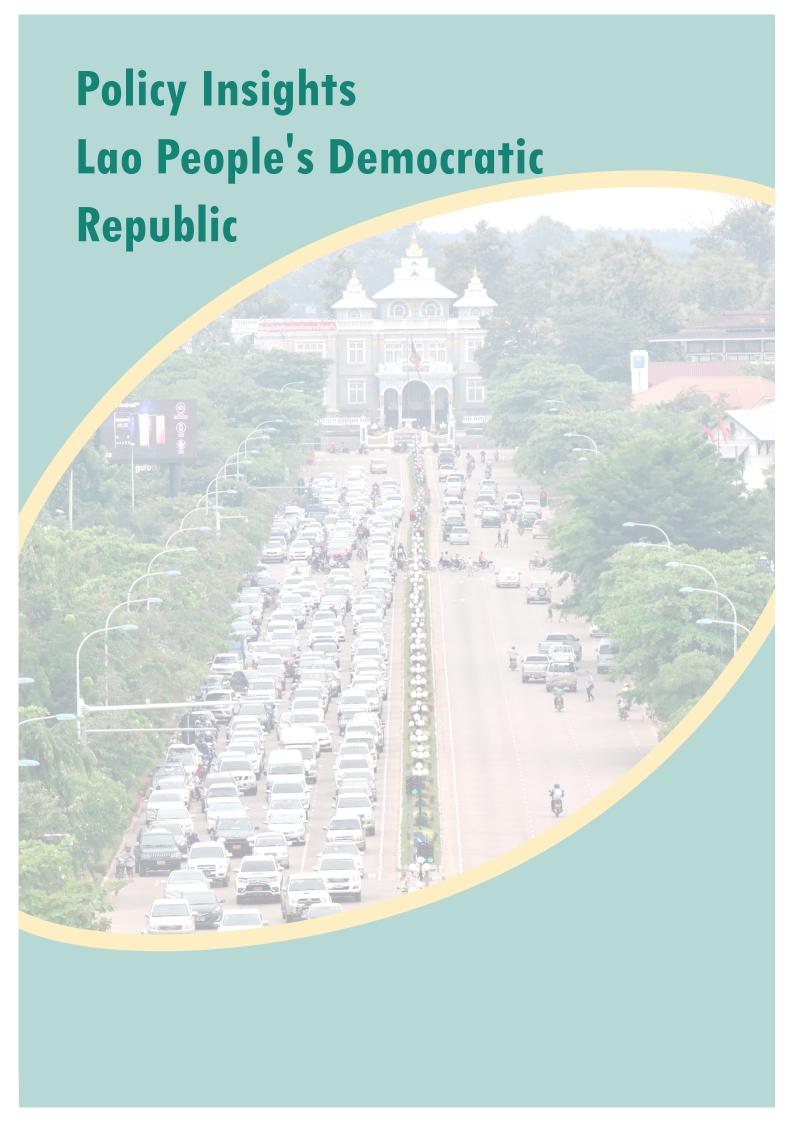
# **VII. Transport Investments**

#### Public-private partnership investments in the transport sector, million USD



# Official development assistance in the transport sector, million USD





# **VIII. Transport and Climate Policy Documents**

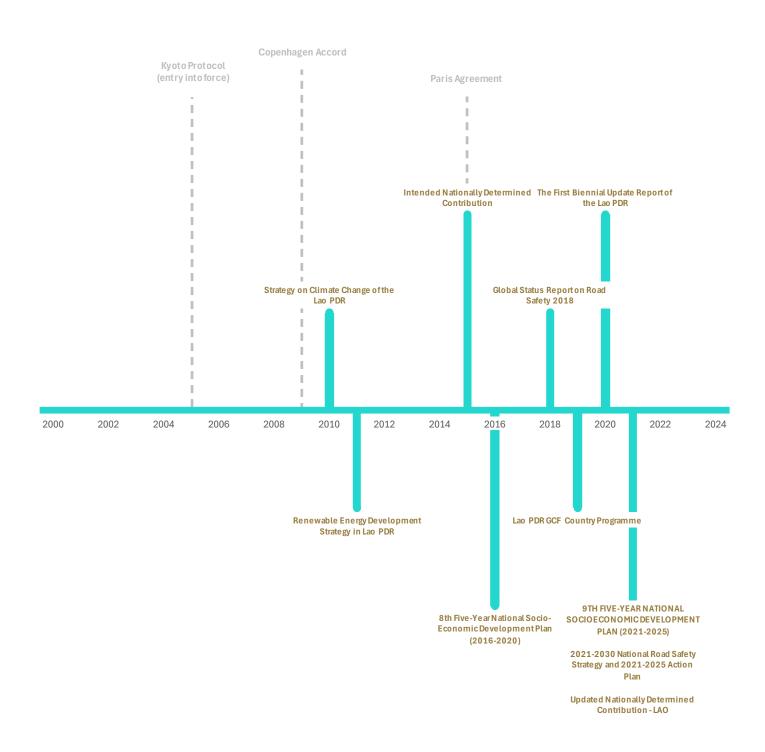
#### Transport-related policy documents in Lao People's Democratic Republic

Selection made based on the number of climate change mitigation and adaptation policy measures

Nationally Determined Contributions of Lao People's Democratic Republic

2015: Intended Nationally Determined Contribution

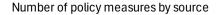
2021: Updated Nationally Determined Contribution - LAO



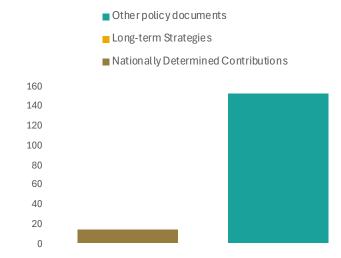
# IX. Representation of Transport in Key Climate Policy Documents

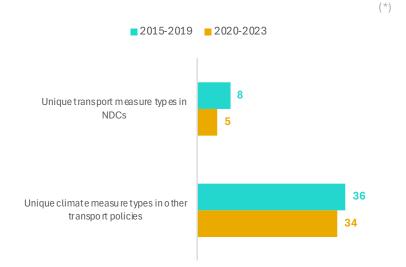
Nationally Determined Contributions						
		Road	Rail	Domestic	Domestic	Urban
		transport	transport	navigation	aviation	transport
Updated Nationally Determined	Mitigation measures	Yes				Yes
Contribution - LAO (adopted in 2021)	Mitigation targets	Yes	Yes	Yes	Yes	
	Adaptation measures	Yes	Yes	Yes	Yes	Yes
	Adaptation targets					
Long-term Strategies						
		Road	Rail	Domestic	Domestic	Urban
		transport	transport	navigation	aviation	transport
None	Mitigation measures					
116776	Mitigation targets					
	Adaptation measures					
	Adaptation targets					

# X. Distribution of Transport and Climate Policy Measures in Policy Documents



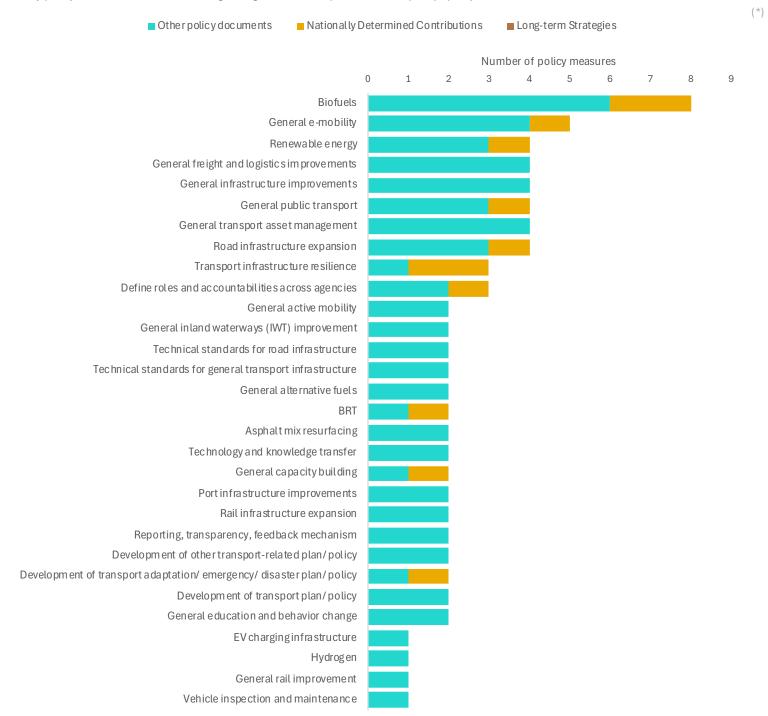
Integration of climate ambition, unique number of policy measures in (\*) NDCs and other transport policies



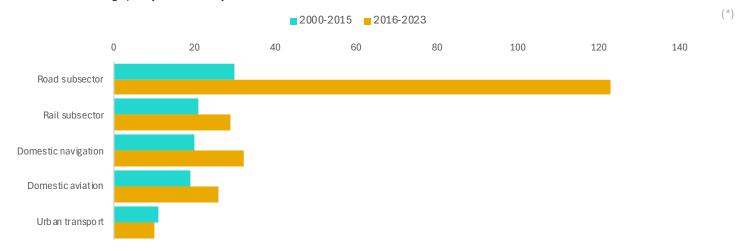


# XI. National Policy Priorities on Transport





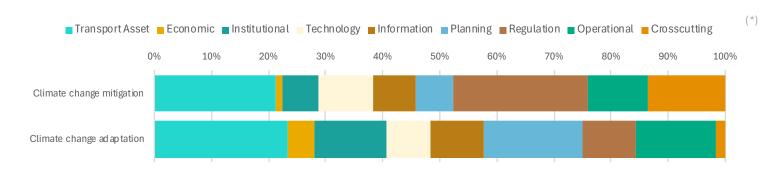
#### Number of climate change policy measures by subsectors



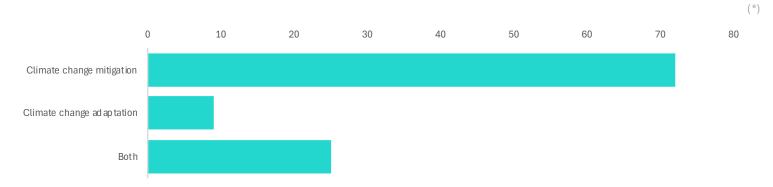
#### Number of climate change policy measures by passenger vs. freight



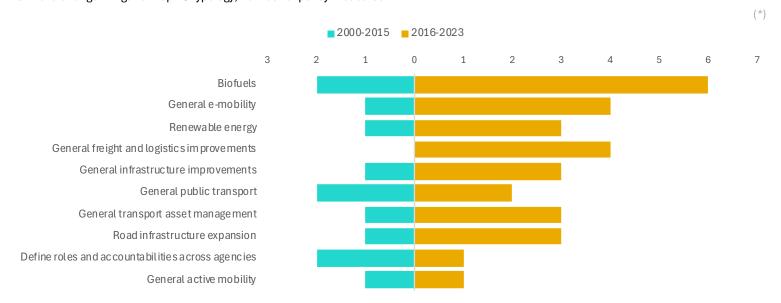
#### Transport-related climate change policy measures by framework



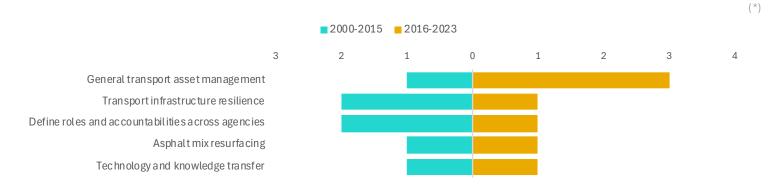
#### Number of climate change mitigation vs. climate change adaptation policy measures



## Climate change mitigation top 10 typology, number of policy measures



#### Climate change adaptation top 5 typology, number of policy measures



# XII. Direct GHG Targets

This table contains transport-relevant (e.g. economy-wide; sector-specific) GHG emissions targets as explicitly mentioned in the policy documents of Lao People's Democratic Republic

	Year		Target
Document	published	Target	year
Economy-wide emissions			
Net zero, carbon neutrality, and other long-term			
climate action			
Transport GHG emission			
The First Biennial Update Report of the Lao PDR	2020	15% of the emissions in transport sector reduced by 2030	2030

# **XIII. Indirect Transport Climate Change Targets**

This table shows non-GHG targets as specified in the policy documents in Lao People's Democratic Republic which indirectly benefit climate change mitigation and adaptation in the transport sector

Document	Year published	Target	Target year
Biofuels			
Intended Nationally Determined Contribution	2015	For transport fuels the objective is to increase the share of biofuels to meet 10% of the demand for transport fuels by 2025.	2025
Updated Nationally Determined Contribution - LAO	2021	Conditional: Biofuels to meet 10% of transport fuels	2030
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Build more than 100 charging stations/bio-fuel stations nationwide (20 stations in the northern region, 50 stations in the central region and 30 stations in the southern region);	2025
Lao PDR GCF Country Programme	2019	Increase the share of biofuels to meet 10% of the demand for transport fuels by 2025.	2025
The First Biennial Update Report of the Lao PDR	2020	10% of the fuel use in transport sector replaced by biofuel by 2025	2025
Voluntary National Review 2021 - LAO	2021	To expand biofuel development, Lao PDR is creating a national program with a goal of introducing 10% biofuel in the transport sector by 2025	2025
General e-mobility			
Updated Nationally Determined Contribution - LAO	2021	Conditional: 30% Electric Vehicles penetration for 2-wheelers and passengers' cars in national vehicles mix	2030
Renewable energy			
Intended Nationally Determined Contribution	2015	To increase the share of renewable energy to 30% of energy consumption by 2025 - Economy wide	2025
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Implement strategies to promote the use of clean energy in the transportation sector to reach 14% of the use of vehicles nationwide	2025
Lao PDR GCF Country Programme	2019	Economy wide: Implement the Renewable Energy Development Strategy, i.e. to increase the share of renewable energy to 30% of energy consumption by 2025. (Note that large scale technologies with installed capacity equal to or greater than 15MW are not included in this target).	2025
The First Biennial Update Report of the Lao PDR	2020	Renewable energy shares 30% of energy consumption by 2025 - Economy wide	2025
Audits/ star rating for existing roads for road safety			
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Safety classification of the International Safety Assessment Agency (iRAP) for the ASEAN highway network = At least 3 stars Traveling on major roads in the city requires a safety rating of three stars or higher = 75%	2025
EV charging infrastructure			
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Build more than 100 charging stations/bio-fuel stations nationwide (20 stations in the northern region, 50 stations in the central region and 30 stations in the southern region);	2025
General transport asset management			

# XIII. Indirect Transport Climate Change Targets

This table shows non-GHG targets as specified in the policy documents in Lao People's Democratic Republic which indirectly benefit climate change mitigation and adaptation in the transport sector

Document	Year published	Target	Target vear
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Build, upgrade, rehabilitate and maintain 2,800 km of land transport infrastructure, including roads, bridges and express ways as part of the network along the economic corridors connecting the countries in the region in accordance with ASEAN technical standards.	2025
Road infrastructure expansion			
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Build, upgrade, rehabilitate and maintain 2,800 km of land transport infrastructure, including roads, bridges and express ways as part of the network along the economic corridors connecting the countries in the region in accordance with ASEAN technical standards.	2025
Road-side checks on helmet-wearing, seatbelt- wearing, and child restraint systems-use			
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	The driver uses excessive speed = >25% decrease Car drivers use seat belts properly = at least 95% Motorcyclists wear helmets properly = at least 95% Detected drivers drinking alcohol more than the amount prescribed by law = <0.1%	2025
Target - Road crash fatalities			
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	By 2035, the road safety vision of Lao PDR is to reduce the rate of deaths and serious injuries to 70% in 2035	2035
Target - Road crash injuries			
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	By 2035, the road safety vision of Lao PDR is to reduce the rate of deaths and serious injuries to 70% in 2035	2035
Target - Transport activity			
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Increase the volume of passenger transport in the transport connectivity network with countries in the region, via all modes of transport: road by 7% per year, waterways by 5%, airways by 12%, railway by 3-5%; Increase freight volume in the transport connectivity network with countries in the region, via all modes of transport: road by 7% per year, waterways by 5%, airways by 12%, railway by 3-5%	2025
Technical standards for road infrastructure			
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Build, upgrade, rehabilitate and maintain 2,800 km of land transport infrastructure, including roads, bridges and express ways as part of the network along the economic corridors connecting the countries in the region in accordance with ASEAN technical standards.	2025
Vehicle labelling			
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	New vehicles must meet UN safety standards at least 7 out of 8 priorities = 87,5%	2025

Document	Year published	Measure	Road	Rail	Dome stic Navigation	Dome stic Aviation	Urban Transport
BRT							
Updated Nationally Determined Contribution - LAO	2021	New Bus Rapid Transit system in Vientiane Capital and associated Non-Motorized Transport component	х				x
Lao PDR GCF Country Programme	2019	"To encourage increased low carbon transport at the national level (green freight) and at the city level (i.e, public transport, bus rapid transit, non-motorised modes" Replicate and upscale the use of public transport such as bus rapid transport from Vientiane to secondary towns	х				х
Climate-resilient design standards							
Intended Nationally Determined Contribution	2015	Ensure flood protection and drainage design for urban infrastructure (roads, drains, flood protection works, water and wastewater facilities, landfills, hospitals, other public buildings) are adequate for climate change conditions;	х				x
Define roles and accountabilities across agencies							
Intended Nationally Determined Contribution	2015	The Ministry of Public Works and Transportation will be responsible for the introduction of policies that promote the use of alternative fuels in individual vehicles, public transportation systems, freight and air transport	х	х	х	х	
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	4.1 National Road Safety Committee The National Road Safety Committee is responsible for macro-level management, is the chief executive officer for the government in the implementation of strategies and action plans for road safety. It defines various policies and legislations, improves the organization and development of personnel, communicates and coordinates with all relevant parties both domestically and abroad to mobilize budgets, support as well as manage the use of budgets and monitor the implementation of road safety projects. 4.2 Provincial and Capital Road Safety Committees The provincial and capital road safety committees are responsible for guiding their relevant sectors to expand the road safety strategy and action plan into detailed plans, programs and projects in accordance with the local reality at each stage. It also coordinates with the Secretariat of the National Road Safety Committee to prepare a budget plan, soliciting cooperation, helping and mobilizing the contributions of various parties to implement it to get good results. 4.3 Ministries, Sectors and International Organizations that are not part of the National Road Safety Committee Ministries, sectors and international organizations that are not included in the National Road Safety Committee have the duty to contribute, advertise and provide financial assistance in the implementation of road safety work to get good results	x				
Renewable Energy Development Strategy in Lao PDR	2011	Facilitate coordination among responsible agencies concerning urban transport development and possible utilization of alternative transport technologies and fuels	х	Х	х	х	Х

Document	Year published	Measure	Road	Rail	Dome stic Navigation	Dome stic Aviation	Urban Transport
Development of transport adaptation/ emergency/ disaster plan/ policy							
Updated Nationally Determined Contribution - LAO	2021	Mainstream climate change adaptation in sectoral strategy and action plan including through results-based management framework	х	х	х	х	
Strategy on Climate Change of the Lao PDR	2010	Developing climate proofed urban environmental development plans; Formulation of climate proofing to the climate change policy and action plan;	х	х	х	х	х
General capacity building							
Intended Nationally Determined Contribution	2015	Capacity building on: - Sustainable and integrated urban planning - Law enforcement - Financial models for road planning - Traffic controls - Sustainable and climate resilient transport / technologies	х	х	х	х	х
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	2) Program of capacity building in road safety management 4 - Establish a unit of the secretariat of the national committee on road safety, the committee on road safety of the province and the capital city under the public works and transport sector, improve the role and work plan of the secretariat of the national committee on road safety and the committee on road safety of the province and capital city; 5 - Create a manual for road safety management for the national road safety committee and the provincial and capital road safety committees; - Prepare plans, budgets for national road safety work. Continue the road safety leadership program until 2022 and the capacity building program for comprehensive road safety management until 2030. Invest in capacity development for the main responsible departments to be able to fully supervise road safety works in Lao PDR Comprehensive assessment of capacity building in emergency assistance after an accident in Lao PDR, consisting of: - Emergency alerts when an accident occurs; - Transporting the victims from the accident site to the medical service or hospital; - First aid and the use of tools by employees who have been trained and are ready to restore their duties for victims of accidents.	х				
General public transport							
Intended Nationally Determined Contribution	2015	increase the use of public transport compared to the business as usual (BAU).	х	Х	Х		
Lao PDR GCF Country Programme	2019	"To encourage increased low carbon transport at the national level (green freight) and at the city level (i.e, public transport, bus rapid transit, non-motorised modes"	х				х
Technology Needs Assessment Report Climate Change Mitigation	2013	Research and development on alternative transport that optimizes and maximizes socioeconomic and environmental benefits, for example public transport, alternative fuels, noise control equipment/materials and environmentally-friendly vehicles	Х				
The First Biennial Update Report of the Lao PDR	2020	Increase use of public transport	Х	Х	х		

Document	Year published	Measure	Road	Rail	Do me stic Navigation	Dome stic Aviation	Urban Transport
Road infrastructure expansion	-				,		
Intended Nationally Determined Contribution	2015	road network development	х				
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	improve and construct standard roads to ensure goods transportation service and to link them to neighbouring countries Support international integration and expand the road network from provincial municipalities to the priority districts and zones Improve and construct the national roads and provincial roads such as paving the road to connect Xiangkok-Myanmar Bridge to R3 Road (the road that connects Bokeo to the China border); construct river bank protection in risky areas of Bokeo province. Implement the road construction projects, and build 18 concrete roads along Road 11E from Kaysone to Heuan Hin. Expand the means of transportationby building Mekong bridges in Pakxan district (Bolikhamxay province to Beung Karn province, Thailand), Pak Taphan (Saravan province to Ubon Ratchathani province, Thailand), Kon Teun village, Paktha district, Bokeo province; Chomphet in Luangprabang and the Mekong rail bridgein Vientiane Capita	x				
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	continue constructing the road to connect Att district, Huaphanh province and Thathom district (Lao PDR–Vietnam border); continue constructing the road to connect Sing district, Luangnamtha province and Kanthao district, Sayaboulyprovince (Lao PDR–Thailand border) through Bokeo province.	Х				
Transport infrastructure resilience							
Intended Nationally Determined Contribution	2015	Increasing the Resilience of Urban Development and Infrastructure to Climate Change	х	х	х	х	х
Updated Nationally Determined Contribution - LAO	2021	Increase the resilience of urban development and infrastructure to climate change, including through the use of green infrastructure and nature-based solutions · Promote ecosystem-based adaptation solutions	х	х	х	х	х
Strategy on Climate Change of the Lao PDR	2010	Incorporating a range of possible climate change effects into the transportation investment decisions and management strategies. Developing long-range transportation plans and investment strategies that are sufficiently robust to accommodate unanticipated future events	Х	х	х	х	
Alternatively-powered rolling stock							
Strategy on Climate Change of the Lao PDR	2010	promoting the use of alternate energy operated motor vehicles, including cars and motorcycles and pursuing environmental sustainable transport strategy;	Х				
Asphalt mix resurfacing							
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	pave roads with two layers of asphalt pavingto connect Samneua municipality to Nongkhang airport;	Х				
Urban Development Sector Assessment, Strategy, and Road Map	2012	The government aims to increase the overall coverage of sealed roads in urban areas to 46% by 2020, ranging between 35% and 55% for the various categories of towns, and the coverage of lined drains from 11% to 47%. T	х				х

Document	Year published	Measure	Road	Rail	Dome stic Navigation	Dome stic Aviation	Urban Transport
Biofuels							
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Study and develop legislation and policies to promote the use of vehicles that are powered by clean energy or locally available energy, such as electric vehicles (EVs) that use hydro-energy and solar energy, and promote the development of biofuel plants from palm oil, kerosene, cassava and the methane (CH4) production demonstration project for transportation and industrial sectors to reduce the import and use of fossil fuels and greenhouse gas emissions;	х	Х	х	х	
Renewable Energy Development Strategy in Lao PDR	2011	Upscale the current demonstration projects concerning the use of biofuels in rural transport and farm machinerie Carry out studies and demonstration projects for the use of higher blend biofuels for freight transport	х	х	х	х	
Convention on Road Traffic 1949							
59 UN Transport Agreements/ and Conventions Serviced by ECE	2021	Ratification, accession, or definite signature by country	х				
Design standards for sidewalks and bicycle paths							
Global Status Report on Road Safety 2018	2018	Partial	Х				
Development of climate change/ low carbon plan/policy							
Lao PDR GCF Country Programme	2019	support the implementation of the draft Clean Renewable Vehicle Development Strategy	Х	Х	Х	Х	
Development of other transport-related plan/policy							
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	Apply a policy on the development of economic corridors in the north, south, east and west, by linking them effectively with goods and passenger transportation by roads, water and air.	х		х	х	
Lao PDR GCF Country Programme	2019	revise a city's master plan as a demonstration of the low carbon transport options available for villages and cities.	Х	Х			Х
Development of transport plan/ policy							
Renewable Energy Development Strategy in Lao PDR	2011	Based on the technical studies and demonstration projects, develop a long-tern program for sustainable transportation system in Lao PDR.	Х	х	х	х	
Urban Development Sector Assessment, Strategy, and Road Map	2012	preparation of a national urban transport strategy	х	х			х
Disaster monitoring and risk assessment for transport infrastructure							

Document	Year published	Measure	Road	Rail	Dome stic Navigation	Do me stic Aviation	Urban Transport
Strategy on Climate Change of the Lao PDR	2010	Identification of the at-risk critical infrastructure, monitoring of conditions (both climate and infrastructure), changes in operation and maintenance practices, changes in infrastructure design and redesign and relocation of vulnerable infrastructure.	Х	х	х	х	
General active mobility							
Lao PDR GCF Country Programme	2019	To encourage increased low carbon transport at the national level (green freight) and at the city level (i.e, public transport, bus rapid transit, non-motorised modes	Х				
Technology Needs Assessment Report Climate Change Mitigation	2013	to promote travel without the use of engine vehicles (walking, cycling),	х				
General alternative fuels							
Renewable Energy Development Strategy in Lao PDR	2011	Facilitate coordination among responsible agencies concerning urban transport development and possible utilization of alternative transport technologies and fuels Support research and development and carry out feasibility studies and demonstration projects for alternative technologies and fuels for urban transport such as electricity, fuel cells and hydrogen.	х	х	х	х	х
Technology Needs Assessment Report Climate Change Mitigation	2013	Research and development on alternative transport that optimizes and maximizes socioeconomic and environmental benefits, for example public transport, alternative fuels, noise control equipment/materials and environmentally-friendly vehicles	Х	Х	х	Х	
General commuter trip reduction							
The First Biennial Update Report of the Lao PDR	2020	Reduce number of KM travelled by all vehicles	Х				
General e-mobility							
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Study and develop legislation and policies to promote the use of vehicles that are powered by clean energy or locally available energy, such as electric vehicles (EVs) that use hydro-energy and solar energy, and promote the development of biofuel plants from palm oil, kerosene, cassava and the methane (CH4) production demonstration project for transportation and industrial sectors to reduce the import and use of fossil fuels and greenhouse gas emissions;	Х				
Lao PDR GCF Country Programme	2019	To encourage electric vehicles in Lao PDR,	х				
Renewable Energy Development Strategy in Lao PDR	2011	Support research and development and carry out feasibility studies and demonstration projects for alternative technologies and fuels for urban transport such as electricity, fuel cells and hydrogen.	Х				х
The First Biennial Update Report of the Lao PDR	2020	Low Emission EV project initiated in Luangprabang since 2012.	Х				X

Document	Year published	Measure	Road	Rail	Dome stic Navigation	Dome stic Aviation	Urban Transport
General education and behavior change							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Road Safety Leadership Program - Learning from the implementation of road safety works from developed countries; - Organize a seminar on road safety for the national road safety committee, provincial road safety committee, and capital city. Develop curriculum and manuals on road safety in school training to increase students' understanding of road safety and improve traffic safety in schools (including banning the use of motorcycles and improving the road safety environment). Develop school training courses to increase students' understanding of road safety and improve traffic safety in schools (including banning the use of motorcycles and improving road safety environments). Prepare a comprehensive reform of road safety regulations, including vehicle driver's licenses and major safety behavior adjustments for drivers.	x				
Strategy on Climate Change of the Lao PDR	2010	Improving the public awareness on energy saving through implementing initiatives such as car free day	Х	Х	Х	Х	
General freight and logistics improvements							
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	Create comprehensive logistics systems by focusing on four areas: Natoei–Luangnamtha, Seno– Savannakhet, Tha Nalang–Vientiane and Vangtao–Phonthong Champasack.	x	х	х		
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Upgrade telecommunication, integrated logistics monitoring of the efficiency of logistics services Improve Lao PDR's ranking under the Logistics Performance Index (World Bank LPI ranking) Develop a comprehensive transportation service system in nine logistics areas to connect the Laos-China railway to the Mekong sub-region and ASEAN railway network (SingaporeKunming Rail Link), regional and international networks (Trans-Asian Railway), and connect to the road network, ports and airports to create a convenient, fast, modern, safe, highly efficient and cost-effective transportation system;	х	х	х	х	
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Continue to manage the dry ports that have been developed such as Savannakhet and Thanaleng dry ports; and monitor and manage the construction of dry ports being developed such as Thakhek and Champassak dry ports	Х	Х	Х		
Lao PDR GCF Country Programme	2019	"To encourage increased low carbon transport at the national level (green freight) and at the city level (i.e, public transport, bus rapid transit, non-motorised modes"	Х	Х	х	х	Х
General infrastructure improvements							

Document	Year published	Measure	Road	Rail	Dome stic Navigatior	Dome stic Aviation	Urban Transport
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	Continue to qualitatively develop goods transportation systems so as to become smooth and speedy transportation systems and subregional in-land transit business centres. Build facilities along highways such as stopping or parking lots, goods warehouses and vehicle stations, and build four logistics parks: Nateuay, Savannakhet, Vientiane Capital and Champasak; improve entry and exit checkpoints up to international standard along transit service corridors to the borders to facilitate smooth and speedy service. Transport integration: Apply a policy on green development of cities, for orderly and clean cities that have no pollution and are attractive for living in Transport integration: Apply a policy on communications in association with policy on production for business and industry.	х	х	х	х	х
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Ensure targeted development of infrastructure and public utility system aimed at improving the living standards and quality of life by developing and expanding the infrastructure necessary to facilitate production and transportation to balance urban and rural areas Encourage and promote the reduction of air pollution through supporting the use of environmentally friendly vehicles, alternative energy for vehicles	х	х	х	х	х
Technology Needs Assessment Report Climate Change Mitigation	2013	Awareness on sustainable transport Development and improvement of appropriate regulations, standards and guidelines for sustainable transport developments;	х	х	х	х	
Vision to 2030 and 10-Year Socio-economic Development Strategy	2016	Develop an efficient and effective infrastructure for transportation and transportation services in the region Accelerate the implementation of large-scale energy projects, railways, highways, airports, transportation and transportation systems, etc. to facilitate industrialization and modernization.	X	х	х	x	
General inland waterways (IWT) improvement							
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	Ensure effective water-borne communication, develop river transportation for towns along the riverswith internal and external integration, by building one main harbour and many sub-haboursto support river transportation in Huay Xai, Luang Prabang and Pak Bang as a centre of Mekong River transport; Improve river transportation along the Mekong and protect the river bank from erosion in the target areas; Conduct feasibility studies and surveys to design the improvement of canals for river transport from the Lao PDR-China-Myanmar borderto Luang Prabang			х		
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Develop, rehabilitate and maintain water transport infrastructure and facilities along the Mekong River and Heuang River, which are international water borders, including ports, canals and river embankmen			х		
General rail improvement							

Document	Year published	Measure	Road	Rail	Dome stic Navigation	Dome stic Aviation	Urban Transport
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Undertake a feasibility study, survey and design, construct and maintenance of railways and railway facilities in accordance with the Government's approved strategy, including the Laos-China railway and the Laos-Thailand railway. The Vientiane Capital-Thakhek-Vung Ang railway line is currently in the process of preparing a detailed survey and design to move forward the construction of the Thakhek-Muya section (Laos-Viet Nam border).		х			
General shipping improvement							
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Establish an efficient and comprehensive maritime transport system that can compete at the regional level, including development and improvement of Vung Ang 1, 2 and 3 port projects and their related facilities; and improve the management of Vung Ang port to be more efficient			х		
General transport asset management							
2021-2030 National Road Safety Strategy and 2021-2025 Action Plan	2021	Identify activities to maintain and repair the roads as a target to prevent head-on collisions; Develop and implement the "Black spot" program.	Х				
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	Upgrade roads that connect to the neighbouring countries, such as the Greater Mekong Subregion (GMS) Corridor, Asian Highway, East-West Corridor and North-South Economic Corridor. – Upgrade roads in accordance with the strategic plan on logistics to support the transportation of vehicles with 11 tons of cargo to underpin the shift to industrialization and modernization. improve and construct standard roads to ensure goods transportation service and to link them to neighbouring countries Upgrade the National Road No.13 in the Northern Region (between Pakmong and Oudomxay) to connect to Road No.1B; upgrade the National Road No.19 between Hatsa and Pakha (Lao PDR–China border); Improve and construct the national roads and provincial roads such as paving the road to connect Xiangkok-Myanmar Bridge to R3 Road (the road that connects Bokeo to the China border) including double-layer paved roads from Road No.8534 to the junction of Southern Road No.13 between Khampoun and Kang Pay, Xe Bangfai District (Khammouan province),	x				
Strategy on Climate Change of the Lao PDR	2010	Identification of the at-risk critical infrastructure, monitoring of conditions (both climate and infrastructure), changes in operation and maintenance practices, changes in infrastructure design and redesign and relocation of vulnerable infrastructure.	х				
General transport finance							

Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Urban Development Sector Assessment, Strategy, and Road Map	2012	To ensure that investment is efficient and maximizes benefits, highest development priority will be given to roads in commercial and high-density areas and to roads leading to markets, schools, hospitals, and other public facilities. Private investment in transport infrastructure and services is needed but will require less restrictive and better management of transport industry regulation as well as a more attractive investment climate.	Х	X	х	Х	
General vehicle improvements							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Completion of creating regulations and starting to implement the new vehicle safety regulations management system	х				
Hydrogen							
Renewable Energy Development Strategy in Lao PDR	2011	Support research and development and carry out feasibility studies and demonstration projects for alternative technologies and fuels for urban transport such as electricity, fuel cells and hydrogen.	х				Х
Logistics hub							
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	In addition, develop other potential dry ports as hubs connecting ASEAN countries and the region with destinations suitable for stopover and distribution of goods, and transit transportation, such as Natoei dry port (Luang Namtha), KM 20 dry port (Bolikhamxay), Huayxai dry port (Bokeo), Luang Prabang dry port (Luang Prabang) and Meuangxay dry port (Oudomxay).	X	х	х	х	
National speed law							
Global Status Report on Road Safety 2018	2018	Yes	Х				
Port infrastructure improvements							
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	provide a shipping service with high standards, such asproviding products transfer equipment, and a temporary warehouse (inland container depot – ICD) that can accommodate cargo of one thousand tons; increase the capacity of the existing harbours and the new ones, such as in Ban Xai, Xiengkok, Ban Mon and Meuang Kop; upgrade habours, warehouses and inspection equipment to facilitate the traffic of goods and passengers. Build international standard habours to support shipping of 500 tons in Xiengkok in Luangnamtha province, Pakbeng in Oudomxay province, Kok Jong in Luangprabang province and the third harbour in Vung Ang, Vietnam			х		

Document	Year published	Measure	Road	Rail	Dome stic Navigation	Dome stic Aviation	Urban Transport
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Develop, rehabilitate and maintain water transport infrastructure and facilities along the Mekong River and Heuang River, which are international water borders, including ports, canals and river embankmen Establish an efficient and comprehensive maritime transport system that can compete at the regional level, including development and improvement of Vung Ang 1, 2 and 3 port projects and their related facilities; and improve the management of Vung Ang port to be more efficient			х		
Rail infrastructure expansion							
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	Construct the Vientiane– Boten Railway Project conduct survey and design of Savanh–Lao bao and Vientiane Capital–Thakhek–Namphao, in order to connect to Muya and other destinations.		х			
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Efforts should also be focused on promoting railway travel between China and Thailand by ensuring that the completion of the Laos-China railway project is on schedule		х			
Reference to finance mechanisms within country							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Implement assistance to victims of road accidents by deducting $2.5\%$ of vehicle insurance fees into the road safety fund.	х				
Relocation from climate-risk areas							
Strategy on Climate Change of the Lao PDR	2010	Identification of the at-risk critical infrastructure, monitoring of conditions (both climate and infrastructure), changes in operation and maintenance practices, changes in infrastructure design and redesign and relocation of vulnerable infrastructure.	X	х	х	х	
Reporting, transparency, feedback mechanism							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	- Report on monthly income to the national road safety committee; - Report the number of drunk drivers and over speeding; Publish a report on road safety in Lao PDR, based on local data for analysis and evaluation from responsible institutions or sectors. Initiate survey and observation program to make annual report: - Driving a vehicle that exceeds the speed limit (two-wheeled vehicles, light vehicles, cargo trucks and passenger vehicles); - Use the helmets for two-wheelers (driver and passenger); - Wear seat belts (driver and passenger); - Having an amount of alcohol in the body related to the accident, including the driver who died due to alcohol in the body; - No vehicle driver's license (two-wheeled vehicles, light vehicles, cargo trucks and passenger vehicles). Carry out a comprehensive evaluation based on the goals and results from the implementation of the road safety strategy. Review and update the road safety action plan every 2 years.	x				
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	Logistics - more efficient and transparent customs clearance,	х	х	х	х	

Document	Year published	Measure	Road	Rail	Do me stic Navigation	Dome stic Aviation	Urban Transport
Resilient transport technologies							
Strategy on Climate Change of the Lao PDR	2010	Identification of the at-risk critical infrastructure, monitoring of conditions (both climate and infrastructure), changes in operation and maintenance practices, changes in infrastructure design and redesign and relocation of vulnerable infrastructure.	Х	Х	x	Х	
Road-side checks on overloading							
9TH FIVE-YEAR NATIONAL SOCIOECONOMIC DEVELOPMENT PLAN (2021-2025)	2021	Construct and install weighing stations and weighing equipment to manage heavy trucks on the roads connecting with countries in the region to be more efficient; and improve the mechanism and legislation for better management of heavy-duty trucks;	Х				
Speed limit on rural roads <= 70 kph							
Global Status Report on Road Safety 2018	2018	90 km/h	Х				
Speed limits on urban roads <= 30 kph							
Global Status Report on Road Safety 2018	2018	40 km/h	Х				Х
Technical standards for general transport infrastructure							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Develop and prepare a model project for infrastructure safety Develop a manual on road safety engineering that will impact road safety systems, principles and capacity building	х				
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	apply standards that each ferry must not carry more than 22 kg of goods for transport between Huayxai and Luang Prabang, a distance of 300km Improve the management of airport systems and facilities to meet the international standards in order to accommodate the growth of domestic and international air transport.			х	х	
Technical standards for road infrastructure							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Use standards for new road construction and improvement of old roads to promote the safety of motorcycle users.	х				
Technology and knowledge transfer							
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	enhancing coordination and exchanging knowledge on development among the regions and provinces is required in order to enjoy common benefits while improving the investment climate to promote business and employment generation suited to actual local conditions	х	х	х	х	
Renewable Energy Development Strategy in Lao PDR	2011	Support research and development and carry out feasibility studies and demonstration projects for alternative technologies and fuels for urban transport such as electricity, fuel cells and hydrogen;	Х	Х	Х	X	х

Document	Year published	Measure	Road	Rail	Domestic Navigation	Dome stic Aviation	Urban Transport
Training of enforcement authorities							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	5) Initiate an action plan to develop the capacity of traffic police officers - Enforce and create road safety programs with emphasis on the head of provincial traffic police department; - Training to be a trainer based on the action plan for capacity development of traffic police officers; - Prepare strategies for prevention and control of general enforcement, including preparation of other forms; - Expand the action plan on prevention and enforcement against those who are drunk and drive over the speed limit by testing the concentration of alcohol in the body of drivers of all types of permitted vehicles with 3 methods: breath, blood and urine.	х				
Transport asset condition assessment							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Carry out national road safety checks, using DRIVER information as part of planning for road maintenance, repair and construction. Use the results of the inspection in the planning and design for the maintenance, repair and construction of roads	х				
Transport asset management information system							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Determine the high-risk and targeted road rehabilitation points	х				
Transport law							
8th Five-Year National Socio-Economic Development Plan (2016-2020)	2016	Develop and improve legislation such as the management of vehicles, monitoring and managing goods and passenger transportation with a GPS system.	х	х	х	Х	
Vehicle import inspections							
Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles	2020	Yes	х				
Vehicle inspection and maintenance							
2021-2030 National Road Safety Strategy and 2021- 2025 Action Plan	2021	Determine and prepare tender documents to introduce the inspection and management of the new vehicle safety system.	Х				
Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles	2020	Periodic inspection is in effect	Х				

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