Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 23-May-2023 | Report No: PIDC35706

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Lao People's Democratic Republic	P179284		Lao PDR Climate Resilient Road Connectivity Improvement Project (P179284)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
EAST ASIA AND PACIFIC	Mar 20, 2024	Aug 29, 2024	Transport
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Ministry of Finance	Ministry of Public Works and Transport	

Proposed Development Objective(s)

To improve climate resilient road access in targeted provinces, enhance capacity to manage road network, and in case of an Eligible Crisis or Emergency, respond promptly and effectively to it.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	35.00
Total Financing	35.00
of which IBRD/IDA	34.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	34.00
IDA Credit	34.00

Non-World Bank Group Financing

Counterpart Funding	1.00

Borrower/Recipient	1.00

Environmental and Social Risk Classification	Concept Review Decision
Moderate	Track II-The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Lao People's Democratic Republic's (Lao PDR) economic growth averaged about 7 percent over the two decades to 2019 but the economy's growth pattern was capital-intensive, resource-driven, and debt-fueled[1].** Growth was predominantly driven by large foreign investments in hydropower, mining, and construction of transport infrastructure. The domestic private sector has been hampered by an unfavorable business environment, particularly through a lack of competition and transparency.
2. **The real Gross Domestic Product (GDP) growth declined sharply from 5.5 percent in 2019 to 0.5 percent in 2020 owing to the wide-ranging economic impacts of COVID-19 –including the collapse of international tourism.** Growth recovered to 2.5 percent in 2021. The agriculture and industry sectors bolstered growth in 2021, however, the services sector—especially hospitality, transport, and other tourism-related services—continued to contract in 2021. Laos is facing both solvency and liquidity challenges, owing to significant financing needs, limited financing options, low foreign exchange reserves, and considerable depreciation pressures. Total public and publicly guaranteed (PPG) debt increased from 69 percent of GDP in 2019 to 89 percent of GDP in 2021 ($14.5 billion). The Lao kip (LAK) depreciated by about 8 percent against the US dollar in 2021, and by 68 percent in 2022. Consumer price inflation accelerated rapidly to 37 percent in October 2022, the highest level in 22 years. Food and transport were the key categories contributing to overall inflation, accounting for 18 and 9 percentage points respectively.
3. **Lao PDR made remarkable progress in reducing poverty from the early 1990s until around 2018: from 46.0 percent to 18.6 percent over 1992–2018 period. COVID-19 set back progress on reducing poverty, and mounting inflation has weighed negatively on households' purchasing power.** Despite improvement in farm incomes, poverty remains highly concentrated in agriculture. Households headed by an agricultural self-employed person and an unemployed person experience the highest poverty rates of 24.6 percent and 21.3 percent, respectively, and about 90 percent of unemployed household heads were farm workers who have become seasonally unemployed. The Gini coefficient increased from 32.5 in 2013 to 38.8 in 2019, reflecting lower gains for the bottom 40 percent in a growth model heavily dependent upon hydropower and mining with limited job-creation.
4. **There is a large variation in poverty rates across districts in the same province as per a recent study conducted by the Lao Statistics Bureau[2].** The other key findings are: i) poverty is high in districts located in

[1] Country Partnership Framework for the Lao People's Democratic Republic for the Period FY 2023 – FY 2026, The World Bank Group.

[2] Report titled 'Where Are The Poor In Lao PDR?' Lao Statistics Bureau and the World Bank.

mountainous areas bordering Vietnam and low in districts located on the Mekong River plain and areas bordering China; and ii) districts with the highest number of poor people are mainly located in Savannakhet, Oudomxay, and Saravan.

5. **Lao PDR is highly vulnerable to climate change risks. From 1970 to 2010, 33 natural hazard events (mostly floods and droughts) were registered, affecting almost the entire population, and causing economic damages of over US$400 million[3].** The annual expected losses from climate events range between 3 to 4 percent of GDP. The northern and north-western parts of Laos are vulnerable to drought. Five droughts have affected the country over the past 40 years. It is estimated that around 188,000 households in Lao PDR are at risk of food insecurity caused by drought. The areas most vulnerable to flooding are the plain areas along the Mekong River in the central and southern parts. Five storms or tropical cyclones have reached and affected the country over the last two decades. Fifteen floods have occurred in Lao PDR from 1970 to 2010. Three of the five costliest natural disasters have taken place since 2009, including two floods in 2013. The 2015-16 El Nino phenomenon impacted the country through lower agricultural yields, reduced hydropower production, and infrastructure damage. The floods in 2018 were severe, and over half of the reported losses and damages were to the transport infrastructure, costing about US$190 million.
6. **Climate change projections indicate further increases in temperature as well as the intensity and frequency of extreme events, including increased rainfall and flooding risks.** Due to a combination of political, geographic, and social factors, Lao PDR is recognized as vulnerable to climate change impacts, ranked 142 out of 181 countries in the 2020 ND-GAIN Index[4]. Temperature rise in Lao PDR is expected to be broadly in line with the global average. The World Bank Climate Change Knowledge Portal (CCKP) model ensemble points to a rise of around 4.1°C by the 2090s over the 1986–2005 baseline, under the highest emissions pathway (Representative Concentration Pathway 8.5 - RCP8.5[5]). Rises in and annual minimum and maximum temperatures are expected to be more rapid than the rise in average temperature, with monthly minimum temperatures typically rising 10–20 percent faster. While uncertainty in the seasonal variation of temperature rises remains high, the CCKP model ensemble suggests that rises may be greatest in the hottest months of April and May. While considerable uncertainty surrounds projections of local, long-term future precipitation, some global trends are evident. The intensity of sub-daily extreme rainfall events appears to be increasing with temperature, a finding supported by evidence from different regions of Asia. The CCKP model ensemble projects that the average largest 5-day cumulative rainfall could increase from around 135 mm to over 150 mm under RCP6.0 and RCP8.5 emissions pathways, respectively.
7. **The labor market in LAO PDR exhibits some gender gaps, which vary in nature and size.** Overall, there are small gender gaps in the labor market, with 55.4 percent of women aged 15 and above and 62.4 percent of men for the same age category participating in the labor force[6]. However, there is a divide between where women and men work and the type of jobs they do. Women tend to be concentrated in health, education, and social services, while men dominate other sectors, such as transport, and energy[7]. The gender-based occupational segregation could

[3] Climate Change Knowledge Portal, The World Bank Group

[4] University of Notre Dame (2019). Notre Dame Global Adaptation Initiative. URL: https://gain.nd.edu/our-work/country-index/
The ND-GAIN Index ranks 181 countries using a score which calculates a country's vulnerability to climate change and other global challenges as well as their readiness to improve resilience. The more vulnerable a country is, the lower its score is, while the more ready a country is to improve its resilience, the higher it will be.

[5] RCP 8.5 refers to the concentration of carbon that delivers global warming at an average of 8.5 watts per square meter across the planet. The RCP 8.5 pathway delivers a temperature increase of about 4.3˚C by 2100, relative to pre-industrial temperatures.

[6] World Bank Gender Data Portal. (2022). Female and male labor Force Participation, 15 years and above (2022). ILO modelled statistics. https://genderdata.worldbank.org/countries/lao-pdr. Accessed on April 12, 2023.

[7] LAO PDR Population and Housing Census 2015

be one of the factors contributing to a gender pay gap in the country where women earn 23 percent less than men, are overrepresented in low-skill occupations, and spend a disproportionate amount of time on unpaid family and care work[8]. Just 21.9 percent of Members of Parliament are women, and the number is even lower at subnational levels (less than 2 percent of village heads are women). More than one-third of ever-partnered women in Lao PDR reported experiencing one form of violence (physical, sexual, or psychological) in their lifetime, and less than 2 percent of women reported it to authorities, according to the 2014 study on Violence Against Women[9].

Sectoral and Institutional Context

8. **The transport sector contributes to about 3.6 percent of the country's GDP. It grew at 6.5 percent per year during the last decade[10]. Transport demand has more than doubled between 2004-2018.** Over this period, the numbers of registered passenger cars every year has grown from 59,000 to 433,800 and that of motorcycles has also increased from 293,600 to 1,633,700. Likewise, those of passenger buses have increased from 2,200 to 5,500 and trucks have increased from 13,100 to 60,400. In total, the accumulated number of all the types of registered motor vehicles has increased from 367,900 at year 2004 to 2,133,500 at year 2018 (+480 percent).
9. **Lao PDR has a wide range of modes of transport. Ministry of Public Works and Transport (MPWT) manages the transport sector and consists of several departments including departments of roads, transport, civil aviation, inland waterways, housing and urban planning, and planning and finance.** Lao PDR has 59,943 km of road network. The country's rail network is about 425 km consisting of 414 km of the standard gauge Lao – China railway and 11 km of meter gauge railway connecting to the Thailand railway system. Of the total 14 airports, 9 have scheduled flights and 3 have international flights. Lao PDR has about 2,000 km of inland waterways and 29 river ports. The river ports are along the Mekong River and its main tributaries such as Nam Ou, Nam Ngum, Nam Kading, and Xe Bang Fai. The main river port is Laos-Japan friendship port, called Lak Si port. Before 1996, inland water transport was the most prominent mode of transport in Lao PDR, but it lost its share of transport because of shallow water levels in dry season, high current flows during rainy season, lack of concrete berths, lack of tools and equipment for loading and unloading, and difficulties at Khonephapheng falls[11].
10. **The transport sector is a major energy consumer in the country and one of the largest sources of Green House Gas (GHG) emissions as well as one of the principal sources of ambient air pollution.** Since 1990 emissions from the transport sector have grown by 135 percent[12] and now account for 37 percent of GHG emissions. Motorcycles/Motor Bikes is the most widely used mode of passenger transportation, accounting for nearly 80 percent of all the registered vehicles in the country. The capital city of Vientiane accounts for nearly 40 percent of the total country's vehicle population. E-mobility deployment is being intensified with a clear target of 30 percent Electric Vehicle penetration rate by 2030 at an estimated cost of US$500 million, as set forth in the Government's Clean Energy Transportation Strategy. To facilitate this transition, a comprehensive regulatory and institutional framework needs to be established.
11. **Road transport is the dominant mode of transport carrying about 86 percent of freight traffic and 98 percent of passenger traffic and is central to the policy of 'landlocked' to 'land linked'.** The country's total road network is 59,943 kilometers (km) in 2017[13] with a paved road network of 9,251 km (15.5 percent). It consists of a primary

[8] Gender Equality and Women's Empowerment in LAO PDR. https://www.undp.org/laopdr/gender-equality-and-womens-empowerment
[9] Ibid. UNDP
[10] Lao Statistics Bureau
[11] https://www.unescap.org/sites/default/files/Country%20presentation%20-%20Lao%20PDR%20%283%29-1.pdf
[12] European Commission (2019)
[13] 5-Year Development Plan 2021-25, Ministry of Public Works and Transport

network of 7,515 km of National Roads, secondary network of 8,597 km of Provincial Roads, tertiary network of about 33,318 km of District Roads and Rural Roads, 3,537 km of Urban Roads, and 6,975 km of Special Roads[14]. 40 percent of paved roads are classified as in poor or bad condition. About 40 percent of unpaved roads are inaccessible during the rainy seasons.

12. **MPWT is responsible for administration of the National Road network and setting sector policies, regulations, and standards for the entire road network. The road network other than the National Roads is managed by provincial road authorities.** MPWT has the overall responsibility but has delegated certain project management and maintenance responsibilities to departments of public works and transport (DPWTs) in each province, with subsidiary offices in districts. Similarly, DPWTs in each province have delegated various tasks to offices of public works and transport in districts. DPWTs report to the provincial governor for budget purposes but also to MPWT for compliance with national technical standards[15]. Based on 5-year transport plans[16], the provinces prepare and submit annual implementation plans for transport projects to MPWT. In line with the national decentralization policy, DPWT in each Province carry out local road maintenance prioritization using Provincial Road Maintenance and Management System (PROMMS), preparation of the local road improvement and maintenance budget, and manage the local road contracts with contract amount less than LAK 5 billion (around US$300,000).
13. **Funding constraints and channeling of most of the available funds towards the National Roads network is crowding out the maintenance of the secondary and tertiary networks, which primarily serve the rural population and agricultural areas, and are extremely vulnerable to climate risks.** There are two sources of funding for the road sector - the Road Fund and budgetary support. The yearly allocation to the sector from the Road Fund is capped at LAK 700 billion and 72 percent of this is earmarked for the National Roads and only 18 percent for the rest of the network. Moreover, about 35 percent of the Road Fund allocations are spent towards clearing the existing arrears to the contractors and only the remaining 65 percent are available for actual expenditure and payments. Due to depreciation of LAK against the US dollar, the yearly allocations for the road sector over the last couple of years have also been decreasing in real terms – US$66 million in 2020, US$33.9 million in 2021, and US$44.4 million in 2022. Currently, funding from multilateral and bilateral development agencies has been mainly towards developing the National Road network but the smaller and more remote secondary and tertiary networks account for about 87 percent of the total road network and funding needs are very high. Investing in and keeping the National Road network in good condition is necessary as it largely benefits a major part of national and regional traffic but adequate investments for secondary and tertiary road networks are also required as rural road access and resilience directly support agricultural production and rural poverty reduction. With about 63 percent of Lao PDR's population living in rural areas, provision of all-weather road access is critical for improving economic and social wellbeing of the rural and remote areas of the country, agriculture supply chains, and overall economic development.
14. **Only about 5.6 percent of the tertiary network of District Roads and Rural roads is paved, and rest of the network is either gravel surfaced or earthen. 40 percent of these roads are inaccessible for over six months in a year, and many have no redundancies for access during extreme climate events. More than 40 percent of villages are 6 km or more from the main road and nearly half are not accessible during the rainy seasons[17].** The network of District Roads and Rural Roads has (i) most of its cross-drainage structures in dilapidated condition, (ii) very few culverts, (iii) no longitudinal drainage facilities, and (iv) no adequate embankments. The focus of investment in these roads over the last two decades has been to increase the size of the network to improve

[14] Special Road means a road used specifically for the production and service of a sector of activities for the national defense and security and the forest preservation zone (Lao PDR Road Design Manual, August 2018)
[15] For the activities funded by the Donors and Road Fund, DPWTs also report to the MPWT
[16] This is not fully operationalized at provincial level.
[17] 5-year Development Plan 2021-25, Ministry of Public Works and Transport

connectivity. However, climate events have led to a deterioration in road conditions and maintenance funding has not kept pace with the demands for road maintenance, rehabilitation, and repair leading to loss of these assets. These infrastructure deficiencies need to be urgently addressed to adapt to increasing climate risks on flooding.

15. **Lao PDR's District Roads and Rural Roads are much prone to climate risks.** About 80 percent of the country is mountainous and forms the catchment of the Mekong River and its several tributaries and the road network in these areas are highly prone to landslides and slope failures. In the plains, the network is prone to flooding, inundation, and asset loss because of unpaved pavements, inadequate cross-drainage structures, lack of drains, timber bridges etc. In 2019, heavy rains caused floods in the southern provinces (Saravan Province worst affected) and impacted 580,000 people and caused damage of about US$50 million including many roads and bridges. 52 villages of the southern province of Savannakhet were flooded in October 2020 and affected over 10,000 people, several roads, and bridges. In 2021, floods and other national disasters impacted 70,000 people.
16. **Three other key areas which are affecting the management of District Roads and Rural Roads are (i) lack of adequate and updated road asset data for climate resilient network planning and prioritization of capital investments and maintenance, (ii) same institutional structure/staff working on the entire road sector, and (iii) overloading.** There is no proper and updated inventory of District Roads and Rural Roads or a prioritization framework for selecting roads for rehabilitation/maintenance giving due consideration to technical, socio-economic, and climate resilience. The institutional and technical capacities of the managing agencies are weak especially at the provincial and district levels. Apart from updating the asset data, skill enhancement in undertaking planning and prioritization exercise for the MPWT and DPWT staff would help in allocating available meagre resources to roads that are most critical for accessibility and vulnerable to climate risks. As the focus of the sector managing institutions is on international trade and logistics, there is not enough focus or priority in the institutional structure for the District Roads and Rural Roads which carry less traffic volumes and serve domestic needs. However, making these tertiary roads all-weather will not only increase the rural accessibility and better prices for the agricultural produce from the rural areas, but also connectivity to the railway and road trunk routes.
17. **All-weather road accessibility is one of the necessary conditions for inclusion and socioeconomic opportunities.** Safe and all-season road accessibility is critical to advance the human capital agenda. Roads support inclusion and socio-economic opportunities by connecting all members of the community to social, education, health and financial services, labor markets, and economic opportunities. Farmers in rural areas and regional value chains benefit from the development of rural infrastructure because road access is critical to access markets and distribution centers and to acquire agriculture inputs[18]. Not having safe and weather-resistant roads undermines communities' prosperity and further exacerbates poverty of communities.
18. **Road accessibility pre-determines the options a community has, to access to services and opportunities, hence roads must be designed and managed considering all the diverse voices in the community.** Understanding the mobility needs that the communities have and addressing the risks that roads may entail is therefore of utmost importance. Listening to the needs to include the voices and perspectives of all groups in the community, including differentiated perspectives for men and women, vulnerable groups such as children, the elderly and people with disabilities, and all economic and social stakeholders that ultimate rely on the road asset. Recent studies demonstrate that road projects, if they incorporate community engagement and gender-balanced approaches, may leverage, especially for women, social inclusion, and incorporation of rural population to the political and social decision making while reducing sexual exploitation and abuse (SEA).[19]

[18] A recent study found that, in India, rural road construction increased middle school enrollment and educational performance. Adukia, A., Asher, S., & Novosad, P. (2020). Educational investment responses to economic opportunity: evidence from Indian road construction. American Economic Journal: Applied Economics, 12(1), 348-76.

[19] World Bank. 2015. Roads to Agency: Effects of Enhancing Women's Participation in Rural Roads Projects on Women's Agency - a Comparative Assessment of Rural Transport Projects in Argentina, Nicaragua, and Peru (English).

19. **A major gender gap in the transport sector is related to employment. The female share of workers in the transport and logistics sector in the country is only 9.1 percent[20]**. Within the MWPT, women constitute 25 percent of the total workforce nationwide and this share is lower at provincial and district levels (20.6 percent and 9.9 percent, respectively21). The issues that typically impede women's access to employment in the 'male-dominated' sectors such as transport include 'soft' factors, such as gender stereotypes, which influence education choices that women and men make, affecting the number of girls who graduate with training in science, technology, engineering, and mathematics (STEM); inflexible conditions of employment, and workplace health and safety. In 2018, 29 percent[22] of all tertiary graduates from STEM were female in LAO PDR, which, apart from gender gaps in the fields of education, indicates that the employers in transport and logistics sector can tap into this existing talent pool graduating from the universities. There is very little participation of women in road improvement and maintenance activities. Women are also underrepresented in management jobs and business ownership in the sector with only a 9.6 percent share.
20. **In 2014, MPWT endorsed the Ten Year Strategic Plan that set out six expected outcomes for addressing gender gaps:** i) Gender mainstreaming carried down to all MPWT agencies, ii) Increased number of women in MPWT, iii) Increased role of women in decision making and increased number of women in decision-making positions, iv) Strengthened capacity and skills of women in MPWT, v) Mechanisms to mainstream gender into sector planning established, and vi) Uniform monitoring and evaluation system for gender mainstreaming developed. MPWT has established specific committees for women's advancement at the departmental, provincial and district levels with a gender focal point at each level. In 2021, women constituted slightly more than half of the committee members at the central and provincial levels. MPWT has set a goal to increase female staff to 30 percent in 2025. The current gender strategy of MPWT focuses on gender in the government dimensions executively, but its targets and objectives do not extend to the private sectors. Since February 2022, the responsibility to implement the Ten-Year Strategic Plan has been transferred from the National Committee for the Advancement of Women to the Department of Personnel under MPWT. As it transpired during the World Bank team's preliminary discussions with the client, there is need to support the ministry to update the plan, and to enhance the capacity of the Department of Personnel to implement it.
21. **Lao PDR recorded 6440 accidents in the year of 2022[23], resulting in 10,132 injuries and 947 fatalities**. In the country, road crashes are a leading cause of death among children and young people, and the number one cause of disability across all age groups. The impact of road crashes on the national economy is estimated at five percent of GDP. In December 2022, Lao PDR approved a new National Road Safety Strategy. The country has an ambitious goal of reducing road traffic deaths by 50 percent by 2030, in line with the UN Decade of Action for Road Safety 2021-30. The District and Rural Roads have no road safety infrastructure including road signs and road markings. These dusty roads limit visibility of drivers and pedestrians which leads to road crashes. Another challenge linked to road safety is vehicle overloading. Logging trucks and international traffic on some road sections continue to be main sources of overloading. This leads to road damage, reducing the life of the road. Further, existing weigh stations on National Roads do not adequately enforce vehicle axle controls, while Provincial and Rural roads lack such stations[24].

[20] Lao PDR Population Census 2015
[21] Gender Analysis of the Northern LAO PDR Regional Economic Corridor and Connectivity Project (2022). Internal Document
[22] World Bank Gender Data. Share of female tertiary graduates by field. https://genderdata.worldbank.org/indicators. Accessed on April 13, 2023.
[23] 1053 in 2017, 995 in 2018, 1134 in 2019, 1031 in 2020, 831 in 2021
[24] Sector Assistance Program Evaluation for the Transport Sector in the Laos PDR, Asian Development Bank

Relationship to CPF

22. **The proposed project is aligned with the 2023–2026 World Bank Group Country Partnership Framework[25] for Lao PDR**. The proposed project directly addresses the framework's (i) objective 4: increased connectivity through climate resilient infrastructure, and (ii) objective 7: improved inclusive access to quality health services. The proposed project also responds to the crosscutting theme: strengthened governance and institutions. As envisaged in objectives 4 and 7, the proposed project will improve domestic transport connectivity focusing on provinces and rural areas with high poverty rates, and on improving climate resilience and safety of prioritized roads which are critical to access key services such as schools, hospitals, markets, agriculture production areas, as well as other economic opportunities. Also, as envisaged in the crosscutting theme, the proposed project will contribute to policy, institutional, and capacity building of the sector institutions.
23. **The project will support Lao PDR in achieving its Nationally Determined Contribution (NDC) and contribute to efforts of climate change mitigation and adaptation, and therefore is consistent with the Country's strategies on climate change.** In the latest NDC submitted to the United Nations Framework Convention on Climate Change (UNFCCC), Lao PDR commits, under unconditional mitigation scenario, to reduce by 34 percent its GHG emissions by 2030 compared to the baseline scenario achieved in 2020. The country, conditioned on an estimated US$4.762 billion financial support from developed countries, could achieve net zero emissions by 2050. Among the key mitigation actions identified in the 2021 NDC, under unconditional mitigation scenario, are: (a) the Lao-China Railway, and (b) the new Bus Rapid Transport system in Vientiane Capital and associated Non-Motorized Transport component. Among the key mitigation actions identified in the 2021 NDC, under conditional mitigation scenario, are: (a) 30 percent Electric Vehicles penetration for two-wheelers and passenger cars in national vehicles mix, and (b) biofuels to meet 10 percent of transport fuels. The two long-term adaptation objectives in the transport sector identified in the 2021 NDC are: (a) Increase the resilience of urban development and infrastructure to climate change, including using green infrastructure and nature-based solutions, and (b) promote ecosystem-based adaptation solutions. The proposed project is consistent with both the mitigation and adaptation objectives of the country as it seeks to enhance climate resilience of the tertiary road network and contribute to lower the GHG emissions.
24. The National Adaptation Program of Action (2009), the National Climate Change Strategy (2010), Climate Change Action Plan for Lao PDR for 2013 – 2020, and the previous INDC (2015) emphasize the need to build climate resilience in the most vulnerable sectors: agriculture, forestry and land use, water resources, transport and urban development, and public health. The National Green Growth Strategy to 2030 (2019) further places climate change adaptation as a cross-cutting focus area with the objective of reducing vulnerability of the country and of the population.

C. Proposed Development Objective(s)

To improve climate resilient road access in targeted provinces, enhance capacity to manage road network, and in case of an Eligible Crisis or Emergency, respond promptly and effectively to it.

Key Results (From PCN)

25. Achievement of the Project Development Objective (PDO) will be measured by the following indicators:
    (a) proportion of inhabitants connected to climate resilient all-weather roads in the targeted provinces
    (b) access disruption along the project roads due to climate hazards (number of days multiplied by section length per year)

[25] The World Bank Report No. 177311-LA

(c) number of new road projects implemented by the Ministry of Public Works and Transport that include climate resilient designs

26. Achievement of the PDO will also be demonstrated through improvements by the end of project with respect to Core Sector Indicators[26] and other intermediate indicators including: (i) travel time along the project roads, (ii) kilometers of project roads constructed with road safety infrastructure, (iii) use of climate resilient road network planning and prioritization for infrastructure investments, (iv) Increase in road user satisfaction on the project roads - dis-aggregated by gender, and (v) 50 Female last-year university students and graduates recruited for 6-month paid internship program at MPWT in the areas of engineering/similar male-dominated fields.

D. Concept Description

27. **The proposed project will improve about 300 km of District Roads and Rural Roads in poor districts of Khammouan, Savannakhet, and Saravan provinces.** The MPWT in consultation with the DPWT of these three provinces had identified a long list of proposed roads. About 100 km of roads in each of the provinces will be selected from the roads in this longlist through a prioritization exercise based on aspects which include: (i) passing through a poor district – based on poverty head count[27], (ii) criticality of the link for climate resiliency of the network, (iii) connectivity to agricultural areas, (iv) population served by the road, (v) traffic level, (vi) not passing through environmentally sensitive areas, and (vii) no resettlement of more than 200 people (or 40 households) and/or more than 40 households severely affected with 10 percent of productive assets owned by individual household lost in all three target provinces.

28. **The proposed project provides connectivity to National Roads and access to the east west economic corridor between Vietnam and Thailand, thus increasing market linkages and contributing towards greater economic gains to the local communities.** The proposed project provides access to the rural areas to the markets located mainly on the National Roads 9,13,1 and 11 in Savannakhet province, National roads 12,13,8,1, and 11 in Khammouan province and National Road 1,15 13 and 20 in the Saravan province. The proposed project activities are expected to provide year-round access to inter village mobility to access to 101 schools (77 primary and 24 secondary schools)[28] and 11 health centers[29].

29. **The proposed project will benefit about 600,000 people (approximately 8 percent of country's population) in poor districts of Khammouan[30], Savannakhet[31], and Saravan[32] provinces.** The rural population in these provinces is about 75 percent to 88 percent of the total population. Most of the District Roads and Rural Roads in this proposed project area are prone to flooding during rainy season. The following maps depict the flood susceptibility of the District Roads and Rural Roads in the proposed project area.

[26] Roads constructed under the project (km), Roads rehabilitated under the project (km), Roads in good and fair condition as a share of total classified roads (percent), and Direct project beneficiaries, of which female (no.)
[27] Report on 'Where are Poor in Lao PDR?' prepared by the Lao Statistics Bureau and the World Bank.
[28] Primary and Secondary school points, Ministry of Planning and Investment (MPI).
[29] Health center and hospital points, Ministry of Planning and Investment. (MPI)
[30] Nakai, Bualapha, Xebangfai, and Thakhek districts.
[31] Champone, Xongkhong, and Xepone disctricts
[32] Lao Ngarn, Toumlarn, and Saravan districts

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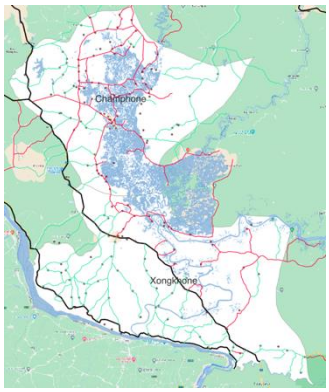
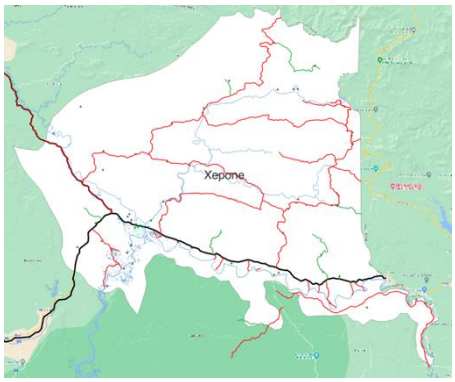
<tr><td>  </td><td>  </td></tr>
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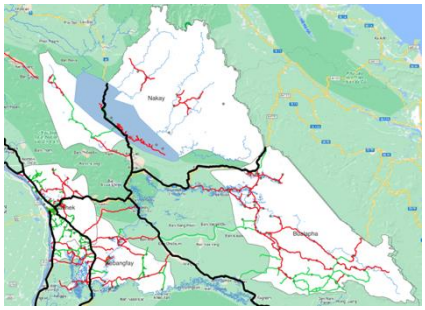
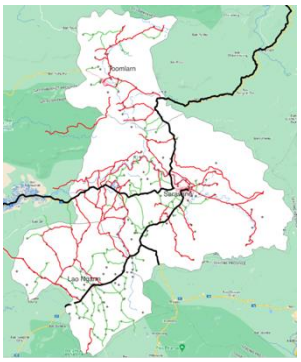
<tr><td>  </td><td>  </td></tr>
<tr><td>Thakhek, Xebangfay, Nakay and Bualapha districts (Khammouan province)</td><td>Toomlarn, Saravan and Lao Ngarm districts (Saravan province)</td></tr>
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30. **The proposed project will adopt the design standards specified in MPWT's Road Design Manual and address climate risks.** The Road Design Class is V/VI depending upon the traffic volume in the design year i.e., 100 – 300 passenger car units per day roads as Class V and 50 – 100 passenger car units per day roads as Class VI. The project roads are expected to be in flat or rolling terrain and therefore their geometric design will be for a design speed of 60 kmph (flat terrain) or 40 kmph (rolling terrain). The cross-sectional parameters will be 2 lanes of 2.75 m width and 0.75 m wide shoulders on both sides for roads designed for Road Design Class V. For Road Design Class VI, the cross-sectional parameters will be one lane of 3.5 m width and 1.5 m wide unpaved shoulders on both sides. The pavements will mostly have Double Bituminous Surface Treatment surfacing except for few stretches which will be laid with a concrete pavement. Many of the cross-drainage structures may need to be replaced with newly constructed small concrete bridges or box culverts as the existing structures are in dilapidated condition. The project roads will not have major realignments and generally follow the existing alignments. Accordingly, the embankments, cut slopes, pavement structure including its surface, drainage, cross-drainage structures, and hill slope protection works will be designed to address climate risks. The MPWT's Road Design Manual also recommends adding a 15 percent increase in flows to calculated 10, 25, 50, or 100-year return storm events to

react to increases in short duration rainfall intensities. The proposed project will adopt contracting structures such as performance-based maintenance contracts that will ensure maintenance of the assets post construction and quicker actions in case of emergencies and natural disasters.

31. **The risks and impacts of climate change will be identified, and mitigation measures will be incorporated during the project design through infrastructure design and material choices, and through management.** Project considerations linked to changes in infrastructure design and materials include use of improved asphalt mixtures during the construction of the road. The flood line will be determined having accounted for climate change and this will be used to inform the Finished Road Level of the pavement as well as the soffits of the bridge decks to reduce inundation and severe flooding of low-lying infrastructure. The subgrade of the pavement will be at least 0.5 m above the High Flood Level at the location. The design period for the pavement will be 20 years. The project design will also entail the upgrading of existing infrastructure drainage systems such as the side drains and increasing culvert capacity. Pipe culverts and box culverts less than 10 m span will be designed for a 25-year flood frequency and box culverts more than 10 m span and short bridges will be designed for a 50-year flood frequency. Hydraulic designs will consider a 15 percent increase to the calculated 25/50-year return storm events to factor in the short duration extreme rainfall events. The surface drainage system will also include side ditches, cut-off ditches to prevent erosion of embankments, and toe ditches. Bio-engineering measures such as top soiling and grassing will be used to arrest erosion of slopes of high embankments and steep cuts. Specific measures linked to operational changes may include shortening maintenance periods to accommodate changes in precipitation and temperature, increasing monitoring frequencies to ensure structures are enduring climate change pressures, monitoring the deformations of the pavement layers, monitoring the bridge structures, increasing financial and technical resources for more frequent maintenance and repairs.
32. **The design of proposed roads will include identification of road safety vulnerabilities and incorporating specific road safety engineering counter measures.** These will include conducting road safety audits and installing road safety furniture such as road markings, traffic signs, marker posts, crash barriers, and safety fences. The counter measures will also include speed calming measures in sections passing through villages.
33. **The project will undertake consultations with the key stakeholders including local communities, women, and road users during road design and implementation, and in the planning of other ancillary community infrastructure improvements.** The consultations will be organized at times that are convenient to both women and men and in culturally accepted settings/in appropriate distance which women would feel comfortable to travel to and attend. The consultants will encourage the participants' 'meaningful' participation in consultations which goes beyond their mere attendance but involves ensuring safe and secure environment for all voices to be heard and avoiding allowing the consultations to be taken over by a few vocal community members. The consultations will explore the participants needs from road and bridge infrastructure which often differ by gender (e.g. wider and sealed road shoulders for walking and non-motorized transport; road alignments linking to feeder roads, or directly passing close to schools, health centers, markets and other facilities of importance to women's gender roles and daily activities; bridge design including ease of access to walking lanes with handrails for pedestrians and easy access to/from bridges such as steps on/off bridges). Importantly, the participants' gender-disaggregated feedback will be documented and reflected into road works as much as possible. The project will undertake road user satisfaction surveys to track users' perception – disaggregated by gender - of the accessibility and safety of roads and will ensure that grievance committees at various levels are represented by both women and men.
34. **The project will endeavor to develop and implement a female internship program within the MWPT with a commitment for the MPWT to employ the most successful graduates of the program in its workforce permanently**. The project could offer to at least 50 female university students in their last year and recent graduates, six-month paid internships in transportation and construction fields that are traditionally male

dominated (e.g., engineering), by partnering with national university/ies that offer degrees in engineering and related fields. It will be the first time that such a program will be piloted by the ministry. The ministry will lead the design and overall implementation of the program in terms of developing program content, outreach to the university/ies and the interns 'placement. The details about the selection criteria and procedures will be further detailed as the project preparation progresses. Also, the project will consider amending the bidding documents by mandating the road construction companies to submit a gender action plan explaining what measures they will put in place to recruit and retain local women in their respective workforce with a particular focus on supporting women in mid and high-skilled technical roles, and list concrete actions that they will put in place to build a more inclusive workplace that supports greater gender equality. Importantly, the gender action plans will include quantitative female employment and internship targets committing the proposer to employ 20 percent of local women in project management, technical, and administrative roles in project works. Lastly and importantly, the project will support the MPWT to update its strategic plan on gender and will provide capacity building training to the ministry's Department of Personnel to implement the plan.

35. **The proposed road improvement activities will have low impact on GHG emissions.** This is because: (a) the proposed project roads have very low traffic volumes, (b) there are no alternative transport modes that can serve the access function, (c) the proposed roads are also used for non-motorized transport by the rural population, and (d) the proposed project roads provide critical access to unserved or underserved communities to markets and social services, facilitate rural and agriculture development, connect rural areas to nearby towns and promote rural-urban integration.
36. The proposed project will also include: (i) capacity building of local contractors in the areas of Output and Performance-based Road Contracts, climate resilience, road safety, and environmental and social risk management, (ii) a study on climate resilient road network planning and prioritization, (iii) training of the staff of MPWT and DPWTs.

The proposed project will have the following components as detailed below.

37. **Component 1: Climate Resilient Road Access (Total: US$33 million; IDA: US$32 million, Government of Lao PDR: US$1 million):** The project will support (i) improvement of about 300 km of District Roads and Rural Roads in the provinces of Khammouan, Savannakhet, and Saravan to the standards of Class V/VI roads as per MPWT's Road Design Manual and addressing climate and disaster resilience aspects, (ii) construction supervision of the project road improvement works, (iii) financial audit, (iv) technical audit of the project road improvement works during construction, (v) environmental and social monitoring, (vi) road safety audit of the project road designs, (vii) road user satisfaction surveys carried out at the start of implementation, at mid-term, and at the close of the project, (viii) incremental operating costs, and (ix) land acquisition, resettlement, and rehabilitation which will be fully funded by the Government of Lao PDR.

38. **Component 2: Institutional Development (Total: US$2 million; IDA: US$2 million):** This component will support MPWT in (i) capacity building of local contractors in the areas of Output and Performance-based Road Contracts, climate resilience, road safety, and environmental and social risk management, (ii) capacity building of MPWT and DPWTs in road inventory data collection, and climate resilient road network planning and prioritization, (iii) preparation of a gender action plan, and (iv) training of MPWT and DPWT staff on cross-cutting issues including road safety, gender, citizen engagement, and climate disaster risk.

39. **Component 3: Contingent Emergency Response Component (Total: US$0 million; IDA: US$0 million):** This component will support MPWT in case of an Eligible Crisis or Emergency in responding promptly and effectively to it as per the Contingent Emergency Response Manual.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

40. Overall Environmental and Social (E&S) risks is currently considered Moderate. On the basis of the project information available so far, nine out of ten Environmental and Social Standards (ESSs) of the World Bank will be likely relevant under the project. These are ESS1: Assessment and Management of Environmental and Social Risks and Impacts, ESS2: Labor and Working Conditions, ESS3: Resource Efficiency and Pollution Prevention and Management, ESS4: Community Health and Safety, ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement, ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources, ESS7: Indigenous People, ESS8: Cultural Heritage, and ESS10: Stakeholder Engagement and Information Disclosure.

41. Potential direct environmental impacts associated with the road improvement may include sourcing of material for earthworks, noise, dust, sedimentation, erosion, wastes generated from civil works, management of storm water, community safety related to traffic during construction and operation, occupational health and safety of the workers, worker camps, forests/land clearing beyond road corridors, encounter of unexploded ordnance (UXO), and intentional or accidental introduction of non-native flora species for stabilization of embarkment. Based the scale and nature of proposed project activities, potential environmental risks and impacts associated with road improvement activities are considered insignificant, site specific, temporary, and manageable if relevant mitigation measures are properly conducted. Potential indirect impacts may be associated with improved road condition that may encourage additional encroachment of agricultural farms and infrastructure to the road-side forests which are already in degraded condition and cause further degradation of such forests or changes to other land use types. Road upgrade and the increased connectivity of road network may amplify illegal trades of timber and wildlife products from nearby Conservation Forests/Protected Areas and Protection Forests.

42. Following risk mitigation hierarchy as per ESS 6, the project will not finance road sections within Protected Areas (PAs) with international or nationally significant biodiversity value that may cover Conservation Forests and Protection Forests so as to ensure avoidance of adverse impacts on key biodiversity, critical and natural habitats, and ecological functions as well as local population. While shortlisting roads based on selection criteria, consultations with Ministry of Agriculture and Forestry, and its respective Provincial and District Offices, and other key stakeholders must be undertaken to ensure that the proposed road sections for project financing do not fall within Protected Areas with internally and nationally significant biodiversity value. Any potential for indirect impacts will be further assessed including amplifying illegal trade of timber and wildlife from the nearby PAs when the road sections for project financing are close to/entering PAs. Mitigation measures to manage significant potential risks if any, will be integrated into the site-specific Biodiversity Management Plan which may include ways to engage with local authorities and other stakeholders on post-construction protection of illegal timber and wildlife trade.

43. During project implementation, and after the list and scope of roads sections to be financed by the project is confirmed, site-specific assessments would be carried out and required site-specific management plans will be developed following the screening procedure to be outlined in the project's ESMF. The project's risk management instruments include but should not be limited to Environmental and Social Commitment Plan (ESCP), Environmental and Social Management Framework (ESMF) covering occupational health and safety requirements for road improvement works, Procedures for UXO encounter, Labor Management Procedures, Community Health and Safety

Plan, a template for Biodiversity Management Plan, Resettlement Policy Framework (RPF) with the outline of Abbreviated Resettlement Action Plan (ARAP) to be prepared during project implementation, a Stakeholder Engagement Plan (SEP), and an Ethnic Group Engagement Framework (EGEF) to be developed as part of SEP. These ESF instruments are required to be prepared, disclosed, consulted with key stakeholders, and submitted to the Bank for review and clearance before appraisal.

44. Road alignment may go through some Protection Forests and Production Forests and noise and frequent movement of traffic during construction and operation might affect biodiversity and their habitats. The site-specific ESMP will include mitigation measures to limit direct impacts on those forests along roadside and their biodiversity during construction phase. However improved access and better road condition during operation stage and after project completion may bring additional pressure on the remaining forests along the roadsides including further encroachment of agricultural activities, and new settlements. These will be accepted as residual risks as the project benefits relate to transport improvement, facilitation of trade and potential livelihood improvement of communities outweigh the risks.

45. Social risk is currently considered Moderate based on the project information available and initial discussion with the PMU so far. Social risks and impacts are expected to be site specific and manageable since the project aims to finance improvement works for existing District Roads and Rural Roads within the pre-identified road alignments except those segments where some small adjustments may be needed to improve road safety and climate resilience. Moreover, the density of population in the three target provinces is relatively low ranging from 27 to 50 persons per square kilometer and the traffic volume, as well as number of road commuters, along the rural roads is small. Land acquisition and resettlement are expected to be minor as all main house structures and assets are located outside the road alignments and Corridor of Impact (COIs). To minimize land acquisition and resettlement related impacts, one of the agreed criteria to be included in the negative list of project investment is that sub-projects that may cause resettlement of more than 200 people (or 40 households), and/or cause more than 40 households to be severely affected - with 10 percent or more of productive assets including land owned by individual household lost ? will not be considered for financing under the Project in all three target provinces.

46. Risks of Occupational Health and Safety (OHS) and Community Health and Safety (CHS) including risks of communicable diseases transmission, and SEA/SH, GBV and VAC will be likely moderate and manageable due to limited influx of workers anticipated from outside local community, and from neighboring countries if foreign contractors are selected. To help minimize risks associated with external labor influx, the MPWT will encourage local contractors to undertake the road works using national competitive bidding method to and to hire local labors and workers from local communities to the extent possible. Workers camps may be installed along rural road sections with necessary facilities to be provided.

47. There are some ethnic groups that may be defined as Indigenous Peoples (IPs) among the potential project affected people along the proposed road sections in the three provinces. These groups are observed to possess the four characteristics of IPs defined under the scope of application of the World Bank's ESS7. Initial screening identifies potential risks of the exclusion and discrimination, particularly of ethnic minorities, women and vulnerable groups from project planning, consultation, implementation and benefit, e.g., income earning or employment opportunities. Further risk assessment (ESA) is underway to inform the nature and scale of risks and impacts on the environment and local population including the ethnic groups and preparation of the risk management instruments (ESMF, SEP which includes EGEP and ESCP).

48. The PMU is also recommended to comply with the relevant national regulations. These include the EIA Decree, updated in October 2022 which requires a separate Initial Environmental Examination (IEE) to be carried out and IEE reports prepared and submitted to the Provincial Office of Natural Resources and Environment (PONRE) for review and approval for projects to improve existing roads regardless sources of funds.

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