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IDA/R2018-0103/1

May 1, 2018

<p>Closing Date: Friday, May 18, 2018 at 6 p.m.</p>
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FROM: Vice President and Corporate Secretary

**Lao People's Democratic Republic
National Road 13 Improvement and Maintenance Project**

Project Appraisal Document

Attached is the Project Appraisal Document regarding a proposed credit to Lao People's Democratic Republic for a National Road 13 Improvement and Maintenance Project (IDA/R2018-0103), which is being processed on an absence-of-objection basis.

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Report No: PAD2512

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 27.7 MILLION
(US\$40 MILLION EQUIVALENT)

TO THE

LAO PEOPLE'S DEMOCRATIC REPUBLIC

FOR A

NATIONAL ROAD 13 IMPROVEMENT AND MAINTENANCE PROJECT

May 2, 2018

Transport & Digital Development Global Practice
East Asia and Pacific Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective February 28, 2018)

Currency Unit = Lao Kip (LAK)

8,272 LAK = US\$1

US\$ 1.44589 = SDR 1

FISCAL YEAR

January 1 - December 31

Regional Vice President: Victoria Kwakwa
Country Director: Ellen A. Goldstein
Senior Global Practice Director: Jose Luis Irigoyen
Practice Manager: Almud Weitz
Task Team Leader(s): Sombath Southivong, Sadig Aliyev

ABBREVIATIONS AND ACRONYMS

AADT	Annual Average Daily Traffic
ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
ASEAN	Association of South East Asian Nations
CBA	Cost Benefit Analysis
CPF	Country Partnership Framework
CQS	Selection Based on Consultants' Qualifications
DA	Designated Account
DoF	Department of Finance, Ministry of Public Works and Transport
DoI	Department of Inspection, Ministry of Public Works and Transport
DoR	Department of Roads, Ministry of Public Works and Transport
DOT	Department of Transport, Ministry of Public Works and Transport
DPC	Department of Planning and Cooperation, Ministry of Public Works and Transport
DPWT	Provincial Department of Public Works and Transport
EGEP	Ethnic Group Engagement Plan
EGPF	Ethnic Groups Policy Framework
EIRR	Economic Internal Rate of Return
ESD/PTRI	Environment and Social Division, PTRI, Ministry of Public Works and Transport
ESHS	Environmental, Social, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GDP	Gross Domestic Product
GHG	Green House Gas
GoL	Government of the Lao People's Democratic Republic
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
ICB	International Competitive Bidding
ICR	Implementation Completion and Results Report
ICT	Information and Communication Technology
IDA	International Development Association
iRAP	International Road Assessment Program
IUFR	Interim Unaudited Financial Report
JICA	Japan International Cooperation Agency
KfW	German KfW Development Bank (<i>KfW Entwicklungsbank</i>)
LRSP/LRSP2	Lao Road Sector Project/ Lao Road Sector Project 2
M&E	Monitoring and Evaluation
MPI	Ministry of Planning and Investment
MPWT	Ministry of Public Works and Transport
NDF	Nordic Development Fund
NPV	Net Present Value
NR13	National Road 13
NSEDP	National Socio-Economic Development Plan
O&M	Operation and Maintenance
ODA	Official Development Assistance
OP/BP	Operational Policy/Bank Procedures

OPBRC	Output and Performance-based Road Contract
PDO	Project Development Objective
POM	Project Operations Manual
QCBS	Quality-Cost Based Selection
RAP	Resettlement Action Plan
RFB	Request for Bids
RPF	Resettlement Policy Framework
RSA	Road Safety Audit
SDG	Sustainable Development Goal
SDR	Special Drawing Rights
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
VOC	Vehicle Operating Cost
WBG	World Bank Group



BASIC INFORMATION

Is this a regionally tagged project? No	Country(ies)	Financing Instrument Investment Project Financing
<input type="checkbox"/> Situations of Urgent Need of Assistance or Capacity Constraints <input type="checkbox"/> Financial Intermediaries <input type="checkbox"/> Series of Projects		
OPS_BASICINFO_TABLE_3		
Approval Date 23-May-2018	Closing Date 31-May-2023	Environmental Assessment Category A - Full Assessment
Bank/IFC Collaboration No		

Proposed Development Objective(s)

To improve the road condition, safety and climate resilience on critical sections of National Road 13.

Components

Component Name	Cost (US\$, millions)
Road Improvement and Maintenance	120.50
Technical Assistance and Supervision	4.80
Project Management	2.70

Organizations

Borrower: Lao People's Democratic Republic

Implementing Agency: Ministry of Public Works and Transport



PROJECT FINANCING DATA (US\$, Millions)

<input checked="" type="checkbox"/> Counterpart Funding	<input type="checkbox"/> IBRD	<input checked="" type="checkbox"/> IDA Credit	<input type="checkbox"/> IDA Grant	<input type="checkbox"/> Trust Funds	<input checked="" type="checkbox"/> Parallel Financing
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Total Project Cost: 128.00	Total Financing: 128.00	Financing Gap: 0.00
	Of Which Bank Financing (IBRD/IDA): 40.00	

Financing (in US\$, millions)

Financing Source	Amount
Asian Infrastructure Investment Bank	40.00
Borrower	38.50
International Development Association (IDA)	40.00
Nordic Development Fund (NDF)	9.50
Total	128.00

Expected Disbursements (in US\$, millions)

Fiscal Year	2018	2019	2020	2021	2022	2023	2024
Annual	0.0	5.00	10.00	10.00	12.00	1.65	1.35
Cumulative	0.00	5	15	25	37	38.65	40.00

INSTITUTIONAL DATA

Practice Area (Lead)

Transport & Digital Development



Contributing Practice Areas

Climate Change

Public Private Partnership

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Substantial
2. Macroeconomic	● High
3. Sector Strategies and Policies	● Substantial
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Moderate
6. Fiduciary	● Substantial
7. Environment and Social	● Substantial
8. Stakeholders	● Moderate
9. Other	● Moderate
10. Overall	● Substantial



COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[] Yes [✓] No

Does the project require any waivers of Bank policies?

[] Yes [✓] No

Safeguard Policies Triggered by the Project

Yes No

Environmental Assessment OP/BP 4.01

✓

Natural Habitats OP/BP 4.04

✓

Forests OP/BP 4.36

✓

Pest Management OP 4.09

✓

Physical Cultural Resources OP/BP 4.11

✓

Indigenous Peoples OP/BP 4.10

✓

Involuntary Resettlement OP/BP 4.12

✓

Safety of Dams OP/BP 4.37

✓

Projects on International Waterways OP/BP 7.50

✓

Projects in Disputed Areas OP/BP 7.60

✓

Legal Covenants

Sections and Description

Institutional Arrangements (Section I. A, Schedule 2): Recipient to maintain, throughout the Project Implementation period: (a) Project Steering Committee, with a mandate, composition and resources satisfactory to the Association; and (b) Project implementation structures within Ministry of Public Works and Transport (MPWT), with functions, resources and staff in numbers and with terms of reference and qualifications satisfactory to the Association.

Sections and Description

Project Operation Manual (Section I. B, Schedule 2): Recipient to ensure that the project is carried out in accordance with the Project Operations Manual (POM); and not amend, abrogate or waive any provisions of the POM unless the Association provides its prior no-objection thereof in writing.

Sections and Description

Annual Work Plans and Budgets (Section I. C, Schedule 2): The Recipient to furnish to the Association, no later than



November 30 of each year, an annual work plan and budget for the Project for the following Fiscal Year, in a manner and substance satisfactory to the Association, and thereafter implement the activities under the Project during the relevant Fiscal Year in accordance with such plan and budget.

Sections and Description

Technical Audit (Section I. D, Schedule 2): The Recipient to appoint, by October 15, 2019, an independent technical auditor, with terms of reference and qualifications satisfactory to the Association, and to furnish, not later than December 15 of each year during the Project implementation period, commencing on December 15, 2019, the reports of the independent technical auditor and thereafter take measures, acceptable to the Association, to address the findings and implement the recommendations of such reports.

Sections and Description

Output and Performance-Based Road Contract (OPBRC) Sustainability Plan (Section I. E, Schedule 2): The Recipient shall adopt, not later than twelve (12) months prior to the Closing Date, a sustainability plan, in form and substance satisfactory to the Association, specifying actions and budget designed to ensure the continued and effective implementation of the OPBRC in the period after the Closing Date, including, inter alia, financial, institutional sustainability, and monitoring and supervision measures to be put in place by MPWT for the full period of the operation and maintenance phase of the OPBRC.

Sections and Description

Environmental and Social Safeguards: (Section I. F, Schedule 2): Recipient to ensure that the Project is carried out in accordance with the Safeguard Instruments, and not amend, abrogate or waive the Safeguard Instruments or any of their provisions, unless the Association has provided its prior no-objection thereof in writing, and consolidated reports on the status of compliance with the Safeguard Instruments are collected, compiled and furnished to the Association as part of the semiannual progress reports.

Sections and Description

Co-financing Deadline (Article 4.01): The Co-financing Deadline for the effectiveness of the Asian Infrastructure Investment Bank (AIIB) Co-financing Agreement is April 30, 2019.

Conditions

Type	Description
Effectiveness	The Additional Condition of Effectiveness is that the Nordic Development Fund (NDF) Co-financing Agreements has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under it (other than the effectiveness of the IDA Financing Agreement) have been fulfilled.
Disbursement	No withdrawal shall be made for payments made for Eligible Expenditures under Subcomponent 1.1, until and unless the AIIB Co-financing Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under it (other than the effectiveness of



the IDA Financing Agreement) have been fulfilled

PROJECT TEAM**Bank Staff**

Name	Role	Specialization	Unit
Sombath Southivong	Team Leader(ADM Responsible)	Senior Infrastructure Specialist	GTD02
Sadig Aliyev	Team Leader	Infrastructure Specialist	GTD03
Hoai Van Nguyen	Procurement Specialist(ADM Responsible)	Procurement Specialist	GGO08
Siriphone Vanitsaveth	Financial Management Specialist	Financial Management	GGO20
Carmenchu D. Austriaco	Finance Officer	Finance Officer	WFACS
Amphavanh Sisouvanh	Team Member	Consultant	GSU08
Cesar Augusto Queiroz	Team Member	Consultant	GTD04
Chanin Manopiniwes	Team Member	Infrastructure Economist	GTD02
Holly Krambeck	Team Member	Senior Transport Specialist	DECCE
Manida Unkulvasapaul	Environmental Safeguards Specialist	Environmental Consultant	GEN2B
Martin Henry Lenihan	Social Safeguards Specialist	Social Specialist	GSU02
Paul Reddel	Team Member	Consultant	GTD02
Prajakta Ajit Chitre	Team Member	Infrastructure Finance Specialist	GTPFS
Sybounheung Phandanouvong	Social Safeguards Specialist	Social Specialist	GSU02
Van Anh Thi Tran	Team Member	Senior Transport Specialist	GTD02
Vatthana Singharaj	Team Member	Program Assistant	EACLF
Manush Hristov	Counsel	Senior Counsel	LEGES
Wasittee Udchachone	Environmental Safeguards Specialist	Environmental Consultant	GEN2B

Extended Team

Name	Title	Organization	Location
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**LAO PEOPLE’S DEMOCRATIC REPUBLIC
LAO NATIONAL ROAD 13 IMPROVEMENT AND MAINTENANCE**

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I. STRATEGIC CONTEXT

A. Country Context

1. **Lao PDR has achieved important development gains during the past decade.** Gross domestic product (GDP) growth averaged 7.8 percent per year over the past decade, making Lao PDR the 13th fastest-growing economy globally.¹ The rapid economic growth has been primarily reliant on natural resources and regional integration under the Association of Southeast Asian Nations (ASEAN), and more recently, on expansion of services in retail, tourism and transport. The economy of Lao PDR is projected to continue to have grown at 6.7 percent in 2017.² Growth in 2018 is projected at 6.6 percent before picking up slightly in 2019-2020.³ As the growth was supported by significant public investments, the fiscal deficit grew to 6 percent of GDP during 2015-2016, and public debt increased to 68 percent of GDP in 2016. Ambitious public investment plans, including the Lao PDR section of the Kunming – Singapore railway line, are expected to keep the deficit elevated. The Government of Lao PDR (GoL) has taken steps to consolidate its fiscal position over the medium term by removing exemptions, expanding the tax base and strengthening tax administration; however, further efforts are needed to improve the public investment management system.

2. **Absolute poverty has declined in Lao PDR; meanwhile, a significant part of the population is still at risk of falling back into poverty.** The poverty rate, based on the national poverty line, has declined from 33.5 to 23.2 percent between 2003-2013.⁴ Despite this notable achievement, a large part of the population is vulnerable to frequent shocks. Households in agriculture are twice more likely than non-farm households to fall back into poverty due to their exposure to shocks from price fluctuations, loss of land, and adverse weather. Furthermore, inequality has also widened, with the Gini coefficient increasing from 32.5 to 36.2 between 2003-2013. Transport connectivity and proximity to schools and health centers remain lower for the bottom 40 percent of the population when compared to others.

3. **Lao PDR is highly vulnerable to climate and disaster risks.** Historical data indicate that annual expected losses from climatic events range between 3 to 4 percent of GDP, with the associated average annual fiscal cost being close to two percent of government expenditures. Three of the five costliest natural disasters have taken place since 2009, including two floods in 2013. The 2015-16 El Niño phenomenon was one of the strongest on record and impacted Lao PDR through lower agriculture yields, reduced hydropower production and infrastructure damages. Climate change projections indicate further increases in temperature as well as intensity and frequency of extreme events, including increased rainfall and flooding risks. These conditions can severely impact economic activities such as hydropower, transportation and agricultural production, and affect the poverty reduction efforts. Vulnerability and losses may increase further if infrastructure planning does not consider climate and disaster risks.

B. Sectoral and Institutional Context

4. **The Lao PDR's membership in ASEAN and the World Trade Organization (WTO) has lowered**

¹ World Bank (2017). *Lao PDR: Systematic Country Diagnostic*, Report No. 112241

² World Bank (2017). *East Asia and Pacific Economic Update 2017*, Report No. 120158

³ World Bank (2017). *Lao PDR Economic Monitor*, Report No. 121960

⁴ World Bank (2017). *Lao PDR: Systematic Country Diagnostic*, Report No. 112241



barriers and increased its market potential. Making the most of this opportunity requires improving transport connectivity to efficiently move goods and provide services across borders. The Government has invested in the construction and upgrading of new roads and bridges but this has resulted in growing public debt, including a significant increase in arrears to contractors. The focus on new investments has also led to a comparatively lower budget allocation to maintenance and operation of roads. Therefore, internal connectivity continues to suffer, with a significant part of the network being impassable during the rainy season, particularly secondary roads. The growing impacts of natural disasters and climate change on the road network have increased the need for emergency repair, which accounts for approximately 30 percent of the overall annual road maintenance budget.

5. **The road sector is under the overall jurisdiction of the Ministry of Public Works and Transport (MPWT).** MPWT is responsible for policy making, financing, strategic planning, oversight and overall management of the sector. While it has progressively delegated maintenance and operational tasks for local roads to the provincial level, MPWT retains the responsibility for the maintenance and operation of the national road network. MPWT has ample experience in implementing IDA projects, which is being further strengthened through the ongoing IDA-financed Lao Road Sector Project 2 (LRSP2).

6. **Funding for the road sector has been increasing, but higher efficiency is needed to serve the growing road maintenance needs.** The road sector is financed through the Government budget, overseas development assistance and the Road Fund. Capitalized mainly through a fuel levy, the Road Fund is the key mechanism to ensure predictable allocations of funds for road maintenance. Its revenues have been growing by more than 10 percent per annum in recent years and reached over US\$80 million in 2016, from US\$2 million in 2002, when it became operational. Conservative projections by MPWT indicate future growth rates of the Road Fund at around 10 percent in the medium term. The Road Fund supports routine, periodic and emergency maintenance as well as rehabilitation and upgrading of the existing roads, with 80 percent of its funds allocated to national roads.

7. **The road sector received a total allocation of US\$107 million for the fiscal year 2017 from the national budget and the Road Fund, which is 37 percent higher compared to the fiscal year 2014-15 budget.** However, a large portion of the allocation has been used to pay outstanding debt for road construction and upgrading, emergency repairs and road maintenance and disaster recovery works implemented over the last five years. As such, managing the road sector debt and the outstanding liabilities and enhancing the efficiency of the Road Fund allocations are critical. The IDA-financed LRSP2 is supporting the sector's institutional development through preparation of financing and policy frameworks, sector strategic plan, improved governance systems and development of technical capacity to maximize the effectiveness of public expenditures in the sector. The proposed project will complement this work by demonstrating ways to achieve improved efficiency in the use of the Road Fund through the performance-based contracting approach.

8. **The Government plans to further develop the North-South transport corridor across the country by provision of both road and railway connectivity as part of its policy of transforming Lao PDR from a land-locked to a land-linked country.** The National Road 13 (NR13) is the most important road corridor in Lao PDR and its upgrade, rehabilitation and maintenance will result in significant benefits for the economy and population. NR13, with 1,500 km length, is the backbone of the road network that connects Lao PDR with China in the North and with Cambodia in the South. The road comprises NR13 North (671 km) from Vientiane Capital to Boten on the Chinese border and NR13 South from Vientiane Capital to the



Cambodian border (829 km). There have been discussions on a potential future tolled expressway to connect to the border of China; however, this would require significantly higher investment compared to a full rehabilitation of the existing NR13 corridor. To further strengthen the transit role of the country, the Government has also concluded an agreement with China to build the China-Laos railway starting from the Mohan-Moten border area between the two countries, running over 414 kilometers to Vientiane. This railway line will link China with countries in Southeast Asia through Lao PDR as part of China's Belt and Road Initiative. At the same time, NR13 is very likely to maintain its major role in domestic and regional connectivity of the capital and Vientiane province as it serves the highest traffic volume on the national road network of the country (see next paragraph) and passes through densely populated sub-urban areas. The main sections of the road were completed in 1997 and have not been rehabilitated since then, now requiring major improvement works to meet the growing demand of road users.

9. Strong economic growth and trade expansion have been accompanied by a rapid increase in traffic volume, including transit traffic on NR13, particularly in the stretches near Vientiane Capital, some of which are expected to reach their full capacity in the next 5 years. A detailed feasibility study carried out in 2015 identified several critical sections on NR13 requiring improvement and widening works. The study indicated that improvements in these sections would result in reduced vehicle operating costs and travel time, enhanced accessibility of enterprises, increased labor productivity, and reduced road fatality rates. Improved climate resilience of the road and truck overloading control measures will help increase the efficiency of expenditures allocated for maintenance and operation of the road. MPWT will use a phased approach to the improvement of NR13. To start, MPWT has prioritized the section from km 12 to km 70 on NR13 because this road section serves the highest traffic volume on the national road network, up to 22,100 Annual Average Daily Traffic in 2015. This section is also periodically damaged by severe flooding events such as Typhoon Haima in 2011. Results of the traffic study indicated that the capacity of the Section km 12-31 will be fully used in the next 5 years if no measures are undertaken. The Section km 31-70 serves less traffic but is in worse condition compared to the first section. Therefore, the proposed project will focus on these two priority sections of NR13, by widening of the first section and improving the existing two lanes on the second section. The improvement of other critical sections of NR13 will follow as financing becomes available.

10. The major gender gap identified in the transport sector relates to labor force participation. Lao PDR has achieved important progress in providing equal employment opportunities for men with women accounting for about 49 percent of total employment. However, the share of women employed in the transport and logistics sector is only 9.1 percent.⁵ Although there is no gender disaggregated data available related specifically to the road sector, consultations during project preparation indicated that there is very little participation of women, if any, in road operation and maintenance activities in the country. Women also are underrepresented in management jobs and business ownership in the sector with only a 9.6 percent share.⁶ Related to employment in the project area, the consultations revealed that the majority of traders working in adjacent markets are women from local communities who are facing serious road safety risks in the absence of basic pedestrian infrastructure. Local women and children are also facing these risks while using the road as pedestrians for daily short trips to schools. The project design includes specific gender actions⁷ to help address the above gaps by enhancing employment opportunities for women in the sector and providing improved and safer pedestrian protection for women

⁵ Lao PDR Population Census 2015

⁶ Lao PDR Economic Census 2013

⁷ Gender actions included to the project design are described in the paragraphs 78 and 79.



and children. Furthermore, while the risk associated with labor influx under the project is considered moderate because most of the labor will be sourced locally and because of the high absorption capacity of the peri-urban area experiencing this influx, the project design also includes adequate measures on gender-related risks, including management of labor influx and gender-based violence (GBV) risks.

11. **Reported road fatalities at the national level more than doubled between 2000 and 2010 (from 358 to 790) and increased to 1,054 in 2014.** Nearly three-quarters of these fatalities were related to motorcyclists. Regionally, the World Health Organization places Lao PDR third behind Thailand and Vietnam – countries with significantly higher motorization rates – in terms of the share of GDP losses from road crash fatalities (2.7 percent in 2010). LRSP2 is supporting the Government to operationalize road safety management and safety improvements on local roads, but this remains an important issue on national corridors, including NR13. An improved condition of the road as well as comprehensive safety measures, both physical works and social engagement, included in the technical design will help reduce road safety risks along the project road. The feasibility study indicates that a “with project” option could help reduce the fatality rate by 20 percent and serious accident rate by 15 percent on the project road.

12. **The Government, with assistance from IDA through the LRSP2, the Asian Development Bank (ADB), and the Japan International Cooperation Agency (JICA), is strengthening the institutional framework on truck overloading control.** Truck overloading from national and international freight transportation is increasing rapidly and affecting the rate of deterioration of the network. Most of the main roads in Lao PDR, including NR13, were designed and built for 8.2-tonne standard axle loads while the current ASEAN standard is 11-tonne axle loads. MPWT has identified truck overloading as a significant contributor to pavement damage on roads that serve the bulk of transit transport, including NR13. The proposed project will support this effort of MPWT through the assignment of appropriate risks and responsibilities between the Government and contractor under an output and performance-based contract modality. In addition, MPWT will install a weigh station on the project road, and rehabilitation works will be carried out to the ASEAN standard.

C. Link to CPF

13. **The proposed project is closely aligned with the World Bank Group’s Country Partnership Framework (CPF) for 2017-2021 discussed by the Board of Directors on April 6, 2017 (Report No. 110813-LA).** The improvement and maintenance of a high to medium traffic volume section of NR13 will support the CPF Objective 1.3 – Investing in infrastructure for growth and inclusion, by strengthening the integration between rural and urban markets, and creating growth opportunities for both rural and urban populations. Consideration of climate resilience measures in road improvement and maintenance activities will support the CPF Objective 3.2 – Putting in place enhanced disaster risk management and climate and disaster resilience. By enhancing transport connectivity on a key national corridor, the project will help reinforce regional integration, economic activity, and support under the CPF Objective 1.2 – Making it easier to do business. The project will also contribute to addressing one of the priority areas of the of the Country Gender Action Plan (2016), which is part of the CPF Focus Area 3, by providing greater opportunities for women to participate in wage jobs.

14. **The project is also consistent with the Eighth National Socio-Economic Development Plan (NSED) 2016-2020, which was approved by the Lao National Assembly in December 2015.** The project supports the NSED goals of achieving sustained and inclusive economic growth, while reducing the



effects of natural shocks as well as the national efforts to achieve Sustainable Development Goal (SDG) 9 to build resilient infrastructure and SDG 13 to address the impacts of climate change. The project contributes to the National Transport Sector Plan to 2020 and Strategy to 2025, in which sustaining the condition of the existing infrastructure is a high priority.

15. **The project supports the World Bank Group’s twin goals of ending extreme poverty and boosting shared prosperity by providing a larger share of the population with more efficient access to markets, jobs and public services.** Significant inequalities are observed in Lao PDR in access to services. As indicated in the Systematic Country Diagnostics (SCD), transport connectivity and proximity to schools and health centers are lower for the bottom 40 percent when compared to others. The project will support improving connectivity, access to public services and markets, and directly benefit road users on the country’s main north-south trunk road in Vientiane Province and Vientiane Capital. Improved access to markets, jobs and services along the major transport corridor will benefit a significant share of population and contribute to inclusive growth.

II. PROJECT DESCRIPTION

A. Project Development Objective(s)

16. The Project Development Objective (PDO) is to improve the road condition, safety and climate resilience on critical sections of National Road 13.

B. Project Beneficiaries

17. **The main direct beneficiaries of the project include approximately 502,100 people, of which 239,300 are women, living in 471 villages and 11 districts in Vientiane Capital and Vientiane Province,** which are adjacent to and served by the project road to access nearby markets, jobs and services. In addition, the project will benefit a wider share of the population, including road users and local businesses traveling to and from the eight northern provinces of Lao PDR as well as to Vietnam, Thailand and China. The project will also benefit freight transit and long-haul transport by improved transport connectivity and travel conditions, reduced transport costs and reduced travel time along the road. Climate resilience and truck overloading control measures will help the Government increase the efficiency of expenditures allocated for maintenance and operation of the road. Improved road safety will help reduce the road fatality and injury risks on this high traffic-intense section of NR13, including for women and children who will benefit from improved and safer pedestrian protection. MPWT will benefit through improved capacity in the use of output and performance-based contract modalities that can enhance the efficiency of investment and extend the road lifecycle, and that will also improve the enabling environment for increased private sector participation in the road sector.

C. PDO-Level Results Indicators

18. The achievement of the PDO will be measured through the following outcome indicators:

- (i) *Road condition:* Reduction in vehicle operating cost on the project road (Percentage);
- (ii) *Road safety:* Increase in average International Road Assessment Program (iRAP) star rating of the project road (Number);



- (iii) *Climate resilience*: Project road upgraded and improved with climate resilient measures (Yes/No).

D. Project Components

19. **Component 1: Road Improvement and Maintenance (US\$120.5 million, including IDA US\$36.6 million, AIIB US\$39.4 million, NDF US\$6.0 million and GoL US\$38.5 million)**. This component will finance road widening, improvement, operation and maintenance works and land acquisition required for road works. The component will include the following sub-components:

20. **Subcomponent 1.1: Road Improvement and Maintenance (US\$100.0 million, including IDA US\$36.6 million, AIIB US\$39.4 million and GoL US\$24.0 million)**: This subcomponent will support implementation of road improvement, operation and maintenance works on the following road sections: (i) the Section Sikeut-Songpeuay Market (km 12 to km 31), which will be upgraded from 2 to 4-lane road; and (ii) the Section Songpeuay Market-Phonhong (km 31 to km 70), which will be improved along the existing 2-lane road. The road improvement and maintenance will be carried out through the implementation of an Output and Performance-Based Road Contract (OPBRC) using a design, build, maintain, operate and transfer approach. The subcomponent will support implementation of climate resilience measures during the road improvement and initial period of the operation and maintenance phase. The subcomponent will also support participation of women from local communities in paid jobs under OPBRC and improvement of pedestrian facilities along the road.

21. **Subcomponent 1.2: Land Acquisition (US\$20.5 million, including NDF US\$6.0 million and GoL US\$14.5 million)**: This subcomponent will be financed by the GoL and NDF and support the acquisition of land needed for road works. As complimentary financing, AIIB plans to allocate a special fund (grant) to MPWT to finance the Resettlement Action Plan (RAP) implementation support consultancy.

22. **Component 2: Technical Assistance and Supervision (Total US\$4.8 million, including IDA US\$0.7 million, AIIB US\$0.6 million, NDF US\$3.5 million)**. This component will support MPWT to manage the OPBRC implementation, implement traffic safety activities, overloading control, and enhance environmental and social monitoring and supervision. The component will also support preparation of studies for future investments on other sections of NR13. The component will include the following sub-components:

23. **Subcomponent 2.1: Traffic Safety, Overloading Control and Safeguards Monitoring (IDA US\$0.7 million)**: This subcomponent will be financed by IDA and support implementation of (i) traffic safety campaigns and other traffic safety enhancement measures; (ii) overloading control and (iii) environmental and social monitoring.

24. **Subcomponent 2.2: Management and Supervision of the OPBRC Implementation (NDF US\$3.0 million)**: Under this subcomponent, NDF will support MPWT to manage and supervise OPBRC implementation through financing the consultancy for supervision of road improvement works during the construction period and supervision of the initial post-construction maintenance and operation until project closure.

25. **Subcomponent 2.3: Preparation of Future Investments (US\$1.1 million, including AIIB US\$0.6**



million and NDF US\$0.5 million): This subcomponent will finance technical assistance to prepare future investments on other selected sections of NR13: (i) AIIB will finance preparation of conceptual design and related technical studies, and (ii) NDF will finance preparation of related environmental and social documents. The critical road sections for future investments will be defined during project implementation.

26. **Component 3: Project Management (IDA US\$2.7 million).** This component will be financed by IDA to support project management, including technical and operational assistance for the day-to-day management of Project activities including training on output and performance based contracting, Project planning and execution, financial management, procurement, monitoring and evaluation, and technical and financial audits.

E. Project Cost and Financing

27. **The World Bank lending instrument will be Investment Project Financing (IPF) with a five-year implementation period.** The IDA Credit of US\$40 million equivalent will finance US\$36.6 million (30.4 percent) of Component 1, US\$0.7 million (14.6 percent) of Component 2 and US\$2.7 million (100 percent) of Component 3. The remaining balance will be financed by AIIB, NDF and GoL (Table 1).

Table 1: Project Cost and Financing (US\$, millions)

Project Components	Project Cost	IDA	AIIB⁸	NDF	GoL
<i>Component 1: Road Improvement and Maintenance</i>	120.50	36.60	39.40	6.00	38.50
Subcomponent 1.1: Road improvement and maintenance	100.00	36.60	39.40	-	24.00
Subcomponent 1.2: Land acquisition	20.50	-	-	6.00	14.50
<i>Component 2: Technical Assistance and Supervision</i>	4.80	0.70	0.60	3.50	-
Subcomponent 2.1: Traffic Safety, Overloading Control and Safeguards Monitoring	0.70	0.70	-	-	-
Subcomponent 2.2: Management and Supervision of OPBRC	3.00	-	-	3.00	-
Subcomponent 2.3: Preparation of Future Investments	1.10	-	0.60	0.50	-
<i>Component 3: Project Management</i>	2.70	2.70	-	-	-
Total Estimated Project Cost	128.00	40.00	40.00	9.50	38.50

⁸⁸ As complementary support to the Subcomponents 1.2, AIIB plans to allocate a special fund grant to MPWT to finance technical assistance on RAP implementation support and preparation of conceptual design for future investment along NR13. Financing structure of the AIIB loan, including financing charges will be confirmed as part approval of AIIB loan and special fund grant.



III. IMPLEMENTATION

A. Institutional and Implementation Arrangements

28. **The project will be implemented through the existing Government structures.** The project will receive overall policy and strategic guidance from a Project Steering Committee chaired by the Minister of MPWT and comprising the Vice-Governors of Vientiane Province and Vientiane Capital, representatives from other ministries involved in the implementation of the project and MPWT's Department Directors directly involved in project implementation. The Project Steering Committee will be supported by a secretariat led by the Deputy Director General of MPWT's Department of Roads (DoR) and comprising representatives of related departments.

29. **MPWT is the Project Implementing Agency.** MPWT's DoR is responsible for the overall management and implementation of the project, including monitoring progress, supervising the procurement process and chairing the Procurement Evaluation Committee, reviewing work plans and allocating funds to improvement and Operation and Maintenance (O&M) activities. DoR has established a Project Management Unit (PMU) led by a Project Manager with responsibilities for management of day-to-day implementation.

30. **The project will use arrangements that have proved successful for previous and ongoing IDA projects implemented by MPWT.** As such, MPWT departments will have implementation responsibilities as per their official mandates, including: (i) Department of Finance (DoF) will have overall responsibility for financial management of the project and will provide procurement support to project activities; (ii) Department of Inspection (DoI) will apply internal controls to project activities, procure independent financial and technical auditors, and oversee the project grievance redress mechanism; (iii) ICT Division of the Cabinet Office will oversee activities related to disclosure of bidding documents, and public information posted in MPWT's website; and (iv) Environmental and Social Division of the Public Works and Transport Research Institute (ESD-PTRI) will lead all aspects of safeguards preparation, supervision, monitoring and reporting. MPWT's Department of Transport (DoT) will lead the activities related to traffic safety and overloading control. The Department of Planning and Cooperation (DPC) will provide coordination support to departments implementing the project activities.

31. **Procurement Committee.** A Procurement Committee has been established for the proposed project. DoR is the Chair of the Committee, which is comprised of representatives from DoF, DoT, DPC, Provincial Department of Public Works and Transport (DPWT) of Vientiane Capital and DPWT of Vientiane Province, MPI, MOF, and the Project Manager.

32. **Resettlement Committee.** Two resettlement committees have been established. The Vice-Governor from Naxaythong District in Vientiane Capital chairs the committee for the Section km 12 to km 44 (the road section in the territory of Naxaythong district), and the Vice-Governor of Phonhong District in Vientiane Province chairs the committee for the Section km 44 to km 70 (the road section in the territory of Phonhong district). The resettlement committees include representatives of the DPWT, district Lao National Front for Construction, and district Lao Women's Union.

33. **Project Operations Manual.** The project will be implemented following a Project Operations Manual (POM), which contains detailed information on the project implementation arrangements and



processes, including procurement, financial management, disbursements and safeguards. AIIB and NDF will use the same POM for the co-financed and parallel-financed project activities.

34. **Role of Partners.** The overall development financing and technical assistance to the transport sector in Lao PDR is coordinated through the Infrastructure Working Group chaired by the Minister of MPWT. Improvement and maintenance activities under the proposed project, including traffic safety and load axle control, will be implemented under the framework of ongoing programs supported by several partners including the IDA, the Asian Development Bank (ADB), Japan International Cooperation Agency (JICA) and German Development Bank (KfW), among others. Close coordination will be maintained with development partners throughout the project implementation.

35. The participation of the World Bank in the project and comprehensive preparatory and due diligence work on technical design and safeguards compliance will help mobilize financing from other development partners. Both Asian Infrastructure Investment Bank (AIIB) and Nordic Development Fund (NDF) have expressed interest to finance the project. The safeguards and fiduciary policies of the World Bank will be applied for the implementation of all activities under the project, including those financed by AIIB and NDF. The co-lending agreement to be signed between the World Bank and AIIB will establish the framework for co-financing of the project. The AIIB's special fund (grant) and NDF will use parallel financing arrangement. The implementation support and supervision of the project will be led by the World Bank in close coordination with AIIB and NDF.

B. Results Monitoring and Evaluation Arrangements

36. **Monitoring and Evaluation (M&E) will be performed through the existing systems of the MPWT, which will be further strengthened under the proposed project.** The project implementation period is five years. Implementation of land acquisition is expected to be completed during the first year. During this period, MPWT will complete procurement of the contractor for OPBRC implementation and launch implementation of other project activities. The road improvement works phase under OPBRC will have a three-year implementation period. The project will also cover the initial period of the post-construction O&M phase under OPBRC until project closure, while Government will continue supporting the remaining period of the O&M phase after the closing of the project. A semi-annual M&E report will be submitted to the World Bank as per agreed dates, and in time for regular implementation support missions to be conducted jointly by the World Bank and co-financiers. The progress reports will also include information on compliance with safeguards, citizen engagement and grievance redress. Annual independent financial audits and technical audits will be carried out. A midterm review of the project will be carried out within 30 months after project effectiveness to assess the status of project implementation, as measured against the performance indicators. Implementation Completion and Results Report (ICR) will be prepared within six months after the closing date of the project.

IV. PROJECT ASSESSMENT SUMMARY

A. Theory of Change/Results Chain

37. **The project will support improvement and operation and maintenance of a critical 58 km section of NR13 - the most important transport corridor of Lao PDR in terms of both domestic and regional connectivity.** The key outcomes of this investment will be improved (i) *road condition* by yielding



significant economic benefits from reduced travel time and vehicle operating cost and reduced road congestion; (ii) *road safety* by helping reduce traffic injury and fatality risks as well as enhancing safety of pedestrians, who are mostly women and children; and (iii) *climate resilience* by building road infrastructure which is more resilient to climate events. These three key outcomes will be measured by corresponding PDO indicators. Intermediate level results indicators incorporated into the project design will help measure the key project outputs related to project objectives, including kilometers of road to be upgraded and improved with climate resilient measures, improved access for pedestrians, and capacity building on output and performance-based contracting. The results chain also includes intermediate level indicators to monitor important social and gender aspects of the project including grievance redress and training of all contractor staff on a worker code of conduct.

38. **The project design is aligned with the World Bank’s approach to maximize finance for development (MFD) by leveraging private sector financing to cover a share of the road improvement cost.** Different financing options were considered during project preparation to enable increased participation of the private sector. There are still constraints, both in respect of market condition and regulations, for increasing private sector financing in the sector. Based on consideration of different financing options, the Government has decided that an output and performance-based contracting approach would be the most appropriate scheme at this stage, as the application of this option builds on previous experience with performance-based contracts and can help further develop the public-private partnership model in the sector going forward. In the proposed OPBRC approach, the contractor will finance upfront a defined share of road improvement cost, which will be refunded by the Government during the post-construction O&M phase based on agreed performance indicators. It will increase the affordability of the investment for the public sector by deferring a share of the investment cost to the O&M phase. Successful implementation of OPBRC will help improve the enabling environment for private sector participation in the road sector. It will also enhance efficiency gains from the incentive structure in the performance-based contract to yield higher quality results in road improvement and maintenance.

B. Economic Analysis

39. **The economic analysis was conducted based on a standard methodology applied for appraisal of road works, which demonstrates the economic internal rate of return (EIRR) of 26.3 percent and net present value (NPV) of US\$121.97 million.** The economic evaluation focuses on the overall project road improvement cost over the first three years and operation and maintenance costs for 7 years (from the 4th year to 10th year). The annual operation and maintenance cost estimated by the design consultants was included to the assessment. A Cost-Benefit Analysis (CBA) was conducted to calculate the EIRR and NPV of the project over the life-cycle of the Portland Cement Concrete (PCC) road. The analysis covers the period of 27 years (2018-2044), assuming the road maintenance continues over the full study period.

40. Traffic intensity data was recorded along three sections of the project road, as part of the feasibility study conducted in 2015 (Table 2).

Table 2. Annual Average Daily Traffic, 2015

Road Sections	Motorcycle	Car	Bus	Truck	Total
Section 1 (7 km)	7,000	12,900	600	1,600	22,100
Section 2 (45 km)	1,300	5,000	400	700	7,400
Section 3 (6 km)	1,100	3,400	200	400	5,100



41. The major economic benefits of the project arise from reduced vehicle operating costs (VOCs) due to improved road condition, travel time savings for passengers and freight, avoided emergency maintenance costs in the case of without-project, and reduction in the road accident rate. It is also assumed that there will be 15 percent generated traffic in 2021 – after the construction completion. The maximum project cost which would occur under the OPBRC without additional concessional financing is assumed with the standard conversion factor of 0.92 for construction and 0.87 for maintenance. The discount rate is assumed to be 12 percent.

42. An alternative pavement design, asphalt concrete (AC) pavement, was also considered and analyzed for the project investment. The estimated cost of this alternative design is US\$70.8 million, while its expected life-cycle is less than half that for PCC, around 13 years. The EIRR for this alternative is calculated as 27.3 percent with NPV of US\$90.71 million. Although the EIRR of the alternative is slightly higher due to its lower upfront investment cost, NPV for the selected PCC option is US\$18 million higher than the AC option. The PCC option will also require lower maintenance cost throughout the road life cycle. The selection of the PCC option is further justified as the road is periodically affected by flooding events and truck overloading, which is a major issue in Lao PDR due to damages it causes in the road network. The PCC option is a more resilient solution for both climate change and truck overloading impacts.

43. The sensitivity of the EIRR was also tested against different cost and traffic variation scenarios, which has confirmed the robustness of economic returns. The results of the sensitivity analysis are illustrated in Table 3.

Table 3: CBA Results and Sensitivity Analysis

Scenarios	EIRR	NPV (US\$ million)
Base case	26.28%	121.97
Maintenance cost increases by 20%	25.94%	119.21
Construction cost increases by 20%	23.38%	110.39
Both construction and maintenance costs increases by 20%	23.09%	107.63
No generated traffic	24.22%	100.46
Traffic moves to railway and/or expressway by 20% starting 2023	23.75%	91.56

44. **Greenhouse gas emissions.** An analysis of greenhouse gas emissions (GHG) was undertaken based on the fuel consumption rate at different speed under with-project and without-project scenarios. Without project, the road’s deteriorated condition limits vehicle speed and leads to higher fuel consumption per vehicle-km compared to the with-project scenario. With project, the improved road condition leads to improved speed, and hence lower fuel consumption. *Gross GHG Emission* under the with-project scenario is estimated to be 2,849,065 tCO₂e. *Total Net GHG Emission* is estimated to be -474,210 tCO₂e – a net reduction over the 27-year evaluation period. The *Annual Average Net GHG Emission* is -17,563 tCO₂e/year. The social benefit from GHG reduction is estimated to be US\$14.23 million, based on a social cost of emission reduction at US\$30 per tCO₂e.

45. **Climate co-benefits.** The project design incorporated the recommendations of the climate and disaster risk screening carried out for the project to enhance the resilience and sustainability of the investment. The main risks identified are the risks of extreme precipitation and flooding. The project road is affected by periodic flooding with various degrees of severity during the monsoon season. The project



will contribute to both climate change mitigation and adaptation. Inclusion of an additional bicycle and motorcycle lane in project design will contribute to mitigation benefits. Regarding climate change adaptation, Component 1 includes climate resilient measures for both road improvement phase and O&M phase. First, the adaptation measures incorporated into the engineering design account for about 30 percent of total cost of road works, and include raised road profiles in flooding-prone sections, replacement of significantly damaged bridges and strengthening others, improved capacity and quality of water-crossing structures and side drainage, strengthened the approach road to bridges, strengthened slope protection and strengthened inlet and outlet of culverts. The selection of the PCC pavement design will further make the road surface more resilient to potential flooding damages. Secondly, the post-construction O&M phase will be implemented under the OPBRC modality which will define specific performance requirements for improved preservation of road assets and enhanced resilience to climate events during this phase. Component 2 will also support climate resilience of the investment by ensuring adequate supervision during OPBRC implementation, including quality management of climate resilience measures in road works as well as consideration of climate resilience measures in preparation of future investments along NR13.

C. Technical Soundness

46. **The proposed project is expected to demonstrate ways to improve efficiency in road investment and maintenance** in which part of design, construction, operations and maintenance risks are transferred to the contractor under OPBRC. It will help leverage private sector financing to cover a share of road improvement cost, which will be refunded to the contractor by the Government during the post construction O&M phase. Payments based on performance indicators and results will provide incentives for the contractors to better manage the transferred risks and to provide appropriate services. Therefore, the sector will benefit in the long-term from lower lifecycle cost and increased quality and sustainability of the investment.

47. The main features of the OPBRC structure and financing are summarized below:

- (i) To enable long-term efficiency and sustainability gains, OPBRC will have a 10-year implementation period, including 3-year road improvement and 7-year O&M phases.
- (ii) The implementation period of the proposed project is 5 years, therefore, a part of the O&M phase under OPBRC will continue after the closing of the project. This will support sustainability of the project investment beyond the project life and enhance the efficiency of maintenance activities.
- (iii) Financing from the World Bank and AIIB will cover the road improvement phase during project implementation, excluding deferred amount of civil works, which will be financed by the contractor and refunded by the Government during the O&M phase. The Government has formally confirmed its financing through the Road Fund to cover the full cost of the 7-year O&M phase, including the deferred repayments to the contractor.
- (iv) The payments to the contractors for road improvement works will be based on completed construction milestones according to defined performance criteria. During the O&M phase, the contractors will receive quarterly payments, including deferred amount of civil works based on achievement of service level performance requirements. The performance milestones for road construction and service level requirements for O&M will be specified in the bidding documents.



- (v) Bidders will be assessed on their technical and financial proposals. The bidding documents will include a conceptual design for road improvement works and the contractor will be required to prepare the detailed design. Therefore, the proposed OPBRC contract format covers design, build, operation, maintenance and transfer of the road, by enabling greater participation of the private sector in financing of the road investments and efficient allocation of risks between the Government and private sector to achieve higher quality results and services.

48. **As part of the preparation for the procurement of OPBRC, MPWT has carried out a market sounding process.** The market sounding took place in two phases starting in August 2017. During the first phase, the request for information document was distributed to potentially interested local and international private sector stakeholders. The second phase included two workshops with participation of a wide range of private sector stakeholders. The results of the market sounding indicated broad support of stakeholders for the OPBRC concept. Feedback to the questions in the market sounding document and discussions at the workshops were related to the conceptual design, contract structure, payment principles as well as bidding process and timing. Stakeholders recommended consideration of a 3-month period for the preparation of bid proposals, limiting the up-front funding commitment of the contractor to contractors' profit margin and indicating clearly the minimum design requirements, performance milestones and service levels in the bidding documents. The recommendations and feedback received from market sounding have been incorporated into the OPBRC structure and bidding documents.

49. **The project will finance improvement, operation and maintenance activities on 58 km of the National Road 13.** The works will be executed on existing roads and will follow the existing alignment. MPWT has prepared a technical design for the project road, taking into consideration ASEAN standards, structural strength, traffic characteristics and volume, road safety, and climate and disaster risks. This conceptual design will be used as a minimum technical requirement in the bidding documents. The pavement of the road will be PCC slabs with 25 cm thickness. For the pavement design, the American Association of State Highway and Transportation Officials (AASHTO) Method has been used. The road section from km 12 to km 31 will be improved from 2 to 4 lanes with a total width of 23m including 4 lanes, median, shoulder and sidewalk. The section from km 31 to km 70 will receive an improved surface from bituminous to PCC with widening of the shoulder as a safety lane for motorcycles and bicycles, and sidewalk in populated areas. Four small bridges will be replaced and three existing small bridges will be strengthened. The slope of bridges and approach roads will be strengthened to be climate resilient.

50. **The road design includes an improved drainage system with the construction of additional and larger culverts, appropriate inlet-outlet of culverts, side ditches, and canals to drain water out from the side ditches.** The design will ensure that water can flow smoothly to the natural reservoirs minimizing the impact to the road and adjacent surroundings. The road alignment will be raised in flood-prone sections. Bio-engineering solutions will be used as much as possible for improved road slope protection, including grasses and tree planting. Clearance of drainage sedimentation and drainage of the pavement are included as part of the service level requirements under OPBRC. Service levels also include attention to road roughness, skid resistance, vegetation control, visibility of road signs and markings, response times to rectify safety related defects, attendance to road accidents, and profile and pavement strength.

51. **The technical design for the project road incorporates findings from a road safety audit (RSA) conducted following the standard methodology and check-list for RSA.** Road safety measures include road furniture, reflectors, and improvements in driving vision, sidewalks or traffic shoulders, pedestrian



bridges, traffic calming options and street lighting in highly populated areas. The assessment of the traffic safety condition following the rehabilitation and during the O&M period will be based on the iRAP Star Rating methodology. Traffic safety aspects will be further strengthened through education and awareness campaigns targeting motorists, public transport and the public, and through road safety enforcement.

52. **The project design also includes measures to enhance truck overloading control, which is one of the major challenges affecting rapid deterioration of road assets in the country.** Most of the main roads in Lao PDR, including NR13, were originally designed and built for 8.2-tonne standard axle load, while the actual loads of trucks at present, particularly along the major freight corridors, are significantly higher. The project will include the following measures to enhance axle load control: (i) designing the road in compliance with the ASEAN standards of 11-tonne axle load of axle load; (ii) implementation of measures to strengthen axle load enforcement; and (iii) assignment of appropriate risks and responsibilities between the Government and contractor for overloading control under the OPBRC. These measures will help enhance sustainability of the road assets improved under the project and complement other ongoing efforts of the Government on truck overloading control implemented with the assistance of IDA (LRSP2), ADB and JICA.

D. Lessons Reflected in Project Design

53. **The use of long-term improvement and maintenance contracts can help improve road asset management and enhance sector efficiency.** Due to the current national debt challenges, the Government is not able to fully support its share of contractor costs during the construction period unless additional concessional financing is made available. Since the proposed project is of such high importance to the economic growth strategy of the country, an OPBRC modality has been proposed, drawing upon best practice in crowding in private sector investment – both for ameliorating short-term funding issues and for supporting higher-quality infrastructure. The OPBRC modality expands the role of the private sector from the simple execution of works to the longer-term management and maintenance of road assets. The contractor is paid by the Government through performance-based lump-sum payments for bringing the road to a mutually agreed service level and then maintaining it at that level, increasing the lifecycle of the road. The contractor finances a share of improvement works, which will be recouped over the term of the contract through the lump sum payments. This provides an incentive for the contractor to deliver better quality road improvement works and perform timely and adequate routine and periodic maintenance works. The role of MPWT, as the Employer, will be to enforce the contract by verifying compliance with the specified performance indicators and service levels and with all applicable national legislation and regulations. The OPBRC approach will build upon MPWT's several years of experience in implementing shorter-term performance-based contracts.

54. **Climate resilient road designs are critical and need to be promoted to reduce infrastructure vulnerability to current and future climate risks.** The road sector in Lao PDR is proactively developing its capacities to strengthen the climate resilience of the network, and this work is underway through LRSP2 on provincial and district roads. Through the proposed project, improved designs and standards being developed under LRSP2 will be scaled up to national roads. The project considers key lessons learned from LRSP2, including the need for close coordination of various ongoing climate resilience initiatives under MPWT and other ministries, and ensuring effective supervision and monitoring of the implementation of climate resilience measures during road improvement phase. The NR13 project road will feature stronger water-crossing structures and drainage systems, raised profiles in flood-prone sections, stronger side



ditches and a pavement concrete surface to minimize the impacts of flooding. Attention will be paid to ensure that the outflow of flood water from the road does not damage nearby fields. Bio-engineering solutions will be explored, including grasses and tree planting. The OPBRC approach will further enable defining the performance requirements for better preservation of road assets, making the road more resilient to climate events during the O&M phase.

55. **The project uses a comprehensive approach to traffic safety.** Experience from other projects indicates that traffic safety measures are more effective when they cover both physical and social measures. On the physical side, the technical design incorporates findings from the road safety audit, iRAP inspections and public feedback provided by residents during project preparation consultations. Physical features include enhanced measures to safeguard pedestrians' safety, particularly for women and children from local communities who use the road to walk to and from markets and schools. These measures include pedestrian bridges; traffic calming and speed control measures; street lighting in populated areas; road furniture; reflectors; improvements in driving vision facilities; motorcycle lanes; and sidewalks. Traffic safety aspects will be embedded in the performance criteria and service levels under the OPBRC. To complement the physical measures, the project will also support implementation of social measures focusing on communication and awareness raising on road safety, and targeting motorists, pedestrians and children at schools along the alignment, as well as testing innovative solutions such as geospatial data gathering. With these measures, the project will provide a model for traffic safety on national roads in the country, which can be scaled up to other roads in the future.

E. Fiduciary

56. **Financial Management.** Financial management (FM) assessment of the project was carried out in accordance with OP/BP 10.0. The assessment concluded that overall FM arrangements are acceptable and meet the World Bank requirements. FM arrangements for this project will be similar to those used in the LRSP2. The processes, procedures and controls as documented in MPWT's Financial Management Manual (FMM) have been found acceptable for use under LRSP2 and other projects financed by IDA, and the same FMM will be used under the proposed project. MPWT's DoF will have overall responsibility for financial management of the project. DoF has experience in managing donor funded projects, including IDA projects. Currently, DoF staff is responsible for accounting and disbursement of project funds, with support from consultants for review of work and on-the-job coaching. The current capacity of DoF staff is considered adequate.

57. The overall FM risk for this project is assessed as Substantial. The main risks identified are lack of familiarity with and capacity to monitor and timely verify the work progress under the OPBRC approach; increased workload which may overstretch staff capacity; and the complexity of financing (i.e., multiple donor co-financing). These risks could lead to delays in the payments to the contractor, delay in preparation and submission of Interim Unaudited Financial Reports (IFR), non-compliance and misuse of funds. Actions to mitigate these risks include (i) assigning qualified and experienced DoF staff for FM tasks under the project; (ii) providing training to staff concerned once the project is effective; (iii) establishing clear mechanisms on co-financing and funds flows from each project co-financier; and (iv) engaging qualified auditors to audit annually the project expenditures.

58. An annual budget and work plan (ABWP) will be prepared in accordance with annual work plans, covering all project financing. Steps and timeline for preparation of ABWP will follow the budgeting



processes and timeline as detailed in the FMM. It is expected that ABWP will clearly indicate sources of financing (IDA, AIIB, NDF or GoL) for activities under each component and subcomponents. IDA and AIIB will review and provide no objection to AWPB prior to implementation. A pooled designated account (DA) in USD will be opened at the Bank of Lao PDR, managed by the National Treasury, MOF. Funds advanced from the IDA Credit and AIIB Loan will be transferred to the pooled DA. The ceiling for the DA will be variable and will be based on six months planned expenditure and related cash flow forecast. The six-monthly forecast is to be approved by IDA and AIIB. Reporting of expenditure will be based on IFRs. The IFR will be prepared semi-annually and submitted to IDA and AIIB no later than 45 days after the quarter end. Applicable disbursement methods are advance, direct payment and reimbursement. The individual minimum application size for Reimbursements and Direct Payments will be equivalent to US\$250,000. Two separate applications will be prepared, one for AIIB and one for IDA, and submitted to IDA for processing. IDA will inform AIIB to disburse. Disbursement of NDF funds and AIIB special fund grant will follow separate disbursement arrangements. FM implementation details are described in MPWT's FMM and the POM.

59. An annual financial audit, covering all sources of financing, will be required. The audit will be carried out by qualified independent external auditors, with terms of reference acceptable to IDA. The annual audited report together with management letter will be submitted to IDA and AIIB no later than six months after the end of each fiscal year. The audited financial statements will be subject to public disclosure in accordance with the World Bank's Policy on Access to Information.

60. To monitor implementation of the project's FM arrangements, the World Bank jointly with co-financiers will conduct at least two implementation support missions per year. The missions will include reviews of the continuous adequacy of the FM arrangements, progress with FM capacity building activities, adequacy and timeliness of preparation of IFRs and progress in implementation of agreed FM actions and recommendations from project audits.

61. **Procurement.** Procurement under the project would be carried out in accordance with the World Bank's "Procurement Regulations for IPF Borrowers: Procurement in Investment Project Financing" (hereinafter referred to as "Procurement Regulations") dated July 1, 2016, revised November 2017; and the provisions stipulated in the Financing Agreement. The project will be financed by World Bank, AIIB, NDF and Government of Lao PDR, and all financiers have agreed to use the World Bank's Procurement Regulations. Procurement under national procurement procedures as agreed with the World Bank will be carried out in accordance with national regulations, including Procurement Decree No. 03, dated January 9, 2004; Implementation Rule and Regulations (IRR) No. 0063 issued by the MOF on March 12, 2004, and No. 0861/MOF, dated May 5, 2009 (amended version); and the Procurement Manual dated May 2009. Conditions for use of such procedures will be stipulated in the procurement plan. Under the proposed project the World Bank's planning and tracking system, Systematic Tracking of Exchanges in Procurement (STEP), will be used.

62. *Procurement Capacity and Risk Assessment.* A procurement capacity and risk assessment of MPWT was conducted and concluded that MPWT has experience conducting procurement in accordance with the World Bank procurement procedures through the implementation of previous IDA-funded projects. MPWT has also an adequate organizational structure and relatively qualified staff to manage and implement the project. DoR through the project management unit will carry out procurement activities under the project with support of DoF of MPWT. Key risks that could lead to delays in project



implementation and/or non-compliance, if not properly mitigated, include: (i) gaps in knowledge and experience of MPWT staff with new features allowed by the World Bank's Procurement Regulations; (ii) lengthy internal procurement reviewing and approval processes under MPWT; (iii) governance risks associated with conflict of interest, fraud and corruption, and collusive practices; (iv) limited capability in contract management; (v) potential delays in implementation of the RAP; (vi) limited market for capable contractors to carry out this type of work and lack of attractiveness of local construction industry due to debt in the sector; and (vii) risk associated with a long-term contract, operation and maintenance phase of which will continue after the project closure. The procurement risk of the project is therefore rated as Substantial. To mitigate these risks and strengthen the procurement capacity of MPWT, the following measures will be undertaken: (i) assigning qualified staff and hiring a qualified procurement consultant for the implementation of procurement activities; (ii) providing procurement training for MPWT staff during project preparation and implementation; (iii) signing a Transparency and Ethics Statement by all members of the tender committee when carrying out their duties; (iv) the POM has been adopted, including a chapter on procurement comprising of clear rules, step-by-step procedures and responsibilities, timeline requirements for procurement activities, actions and decisions, sample documents and evaluation report for small procurements; (v) providing contract management training and implementation support to MPWT staff during project implementation; (vi) monitoring closely the implementation of the RAP; (vii) use of the international market approach and two-envelope system (no prequalification); and (viii) letter of commitment from the government for funding the O&M phase after the project closure.

63. *Procurement Strategy.* The Project Procurement Strategy for Development (PPSD) identified the following major activities under the project: (a) works including improvement, widening, operation and maintenance of 58 km (Km 12 to Km 69) of NR13; and (ii) consultant services including supervision consultant for works contracts. The PPSD shows that both works and supervision consulting services are considered of substantial risk because they are relatively large value, the contractual period is long-term and they are critical for the achievement of project objectives. The market analysis demonstrated that MPWT has a good opportunity to select contractors/consultants which have good capacity to successfully execute the works and perform the supervision consulting services.

64. Considering the market conditions and other factors, road works are packaged into two contracts including (i) Contract #1 covering the four-lane widening section of the road (19 km) and bridges; and (ii) Contract #2 covering the two-lane improvement section of the road (39 km) and bridges, using a "slice and package" arrangement which allows bidders to bid for one or both contracts. This packaging approach is selected to (a) increase the level of competition; (b) allow national and local contractors to participate; (c) match better with the current contract management capacity of MPWT; (d) reduce the impact of failure risk; and (f) allow more flexibility in dealing with the risk of potential delays in implementing the RAP. Given that the technical nature of road works is not complex and does not require special technology or method to execute, the Request for Bids (RFB) method will be applied. Standard Procurement Documents (SPD) of the World Bank for OPBRC will be customized for this project. The procurement approach for these contracts is to use international competitive bidding with a two-envelope process.

65. Regarding the supervision consultant assignment, the consultancy market in Lao PDR is relatively competitive. There are both national and foreign consultants in this area. The assignment will be procured using quality cost-based selection (QCBS) with international market approach that is considered appropriate for this assignment due to its relatively large value and importance to the project. Other small



consulting assignments will be procured using QCBS or selection based on consultant's qualifications (CQS) method with international or national market approach. There will be also several small packages for procurement of goods under the project. These packages will be procured using the request for bids (RFB) method or request for quotations (RFQ) method (for packages smaller than USD 100,000) with national market approach. The full PPSD is available for reference as a separate project file.

66. *Procurement Plan.* Based on the PPSD, the initial procurement plan for the project was prepared by MPWT and agreed by the World Bank at negotiation. The procurement plan will be updated at least annually by MPWT to (a) reflect project implementation; (b) accommodate changes that should be made; and (c) add new packages as needed for the project. All procurement plans and their updates or modifications will be subject to the World Bank's prior review and no-objection. Details for the procurement arrangements are provided in the POM. The procurement plan identifies the risk for each activity and prior review of these activities is set based on the performance and risk rating. Contracts not subject to prior review will be subject to post review. The World Bank will carry out procurement post reviews on an annual basis with an initial sampling rate of 20 percent, which will be adjusted periodically during project implementation based on the performance of the project. Bidding documents for works, terms of reference for key consultants and the POM have been prepared.

F. Safeguards

67. **Environmental Safeguards.** The project is classified as Category A and triggers the following environmental safeguard policies of the World Bank: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04) and Physical Cultural Resources (OP/BP 4.11). The proposed project involves improvement of the capacity, quality, climate resilience and safety of two sections of NR13, with a total length of 58 km. From km 12 to km 31, civil works will include road widening from 2 to 4 lanes with a 23m right-of-way, with land acquisition of 1.5m required on each side of this section. From km 31 to km 70, works will include improvement of the existing 2-lane with a 16m right-of-way, with minor land acquisition. The project activities also include technical assistance to enhance environmental and social monitoring and to prepare environmental and social studies, and detailed design for other critical sections of NR13 to be defined during project implementation.

68. The project road runs through semi-urbanized and agricultural areas in two districts, Naxaythong in Vientiane Capital and Phonhong in Vientiane Province, covering 44 villages in total. Local traffic accounts for a large portion of the total traffic volume on this road. The project is expected to create positive impacts to the environment on improved climate resilience, particularly on drainage systems and reduced GHG emissions. The road design also includes features aimed to improve road and pedestrian safety. Negative environmental impacts would be derived from increased traffic flows, traffic safety and traffic disruption, use of borrow pit, siltation of water bodies, water quality, blockage of drainage, dust, noise, waste management and disposal, and contractor camp site management issues related to influx of workers (e.g. hygiene and sanitation, public safety and security). Pollution or contamination may also be induced by incident or accident. These impacts would be incurred primarily during construction, but may also be incurred during the operational phase. The impacts would be site-specific and likely limited to the project areas and surroundings. To address these impacts, MPWT has prepared an Environmental and Social Impact Assessment (ESIA), which includes an Environmental and Social Management Plan (ESMP). The ESIA also requires the contractor to prepare a Site-Specific Environmental and Social Management Plan (SSESMP) before commencement of construction works. This requirement and ESMP will be attached



to the bidding documents and the contracts. The draft ESIA was consulted with stakeholders during two rounds of public consultation and was disclosed on MPWT's website in English and Lao on January 3, 2018, and the World Bank external website (www.worldbank.org) on January 10, 2018. The final ESIA has been disclosed on MPWT's website and the World Bank website on February 8, 2018.

69. The policy on Natural Habitats is triggered since landscape of the areas along the proposed road is typical of a marshy area (with flood plains and riverine forest vegetation) combined with small hilly zones. The road improvements activities will involve expansion of three bridges to accommodate 4 lanes and improvements of one bridge on the 2 lanes section. The ESIA concluded that impacts to natural streams are expected to be minimal and mitigation measures were prepared in the ESIA. The policy on Physical Cultural Resources is triggered due to the presence of village temples and graves observed near the road. None of the temples or graves will need to have any portion of their properties removed. Necessary measures such as chance finding procedure to minimize and mitigate potential impacts have been included in the ESIA.

70. The technical assistance (TA) for the preparation of technical, environmental and social studies for other sections of NR13 will be financed by NDF and AIIB, and will be used to mitigate adverse environmental and social impacts downstream when the future investments are implemented. No specific safeguards instrument was prepared for the Component 2 TA as additional sections will be defined during the project implementation. Term of References (TORs) for respective technical, environmental and social studies for additional road sections will be reviewed and cleared by the World Bank to ensure that adequate environmental and social considerations, screening and safeguards policy requirements are duly taken into account. These TA activities will comply with requirements of the Interim Guidelines on the Application of Safeguard Policies to Technical Assistance Activities in Bank-Financed Projects and Trust Funds Administered by the World Bank.

71. **Social Safeguards.** The proposed project is expected to generate largely positive social benefits to the local population, including improved travel conditions and road safety, reduced transport costs, travel time and congestion, and improved health outcomes due to long-term reduction in noise and pollution. Productivity gains for agricultural businesses in the area are also expected, as well as increased competitiveness and contribution to the growth of local economies, increased access to markets and social services - particularly to education, and better connectivity between rural and urban centers, and between the northern provinces with Vientiane Capital.

72. The social assessment conducted as part of the ESIA included data collection from households in 44 villages along the alignment, and the completion of over 60 focus group discussions in all villages. This assessment as well as public consultations have confirmed that there is widespread support for the project among key stakeholders, including residents, road users, district and provincial authorities, and ethnic groups present in the area. Adverse social impacts and risks identified include business disruption (due to land closure or access problems), impacts on temples and graves, disruption of the water and electricity supply, impacts on schools as many are located along the project road, long-term impact on land prices and population growth, and potential labor influx and the conduct of road workers during construction. Other risk and impacts identified include dust, noise, gas emissions and other forms of pollution from construction, drainage blockage, traffic interruption, removal of vegetation during construction, increased traffic flow and speed during operation. Negative social impacts will be for the most part temporary during the road improvement works phase. These impacts on the local population will be managed according to



the ESMP, RAP and Ethnic Group Engagement Plan (EGEP). Furthermore, the project includes a strong emphasis on community health and safety during construction, cooperation with village authorities on worker conduct, the use of village mediation committees to resolve conflicts, community awareness raising, and the establishment of a contractor grievance focal person.

73. **Involuntary Resettlement OP/BP 4.12.** The World Bank's Operational Policy on involuntary resettlement is triggered for this operation as the works to be financed will result in land acquisition, disruption of agricultural and livelihood activities, and the displacement of residential and commercial structures, primarily due to the upgrade from 2 to 4-lanes on the section Sikeut-Songpeuay Market (km 12 to km 31) that will require the acquisition of 1.5m of land on each side. The RAP prepared by MPWT indicates that over 2,398 households will be affected by some form of land acquisition or disruption of commercial activities because of the project, and 8 households and commercial structures will be displaced, primarily due to the works on Houay Xon Bridge. The resettlement plan is based on a comprehensive socio-economic census and inventory of losses, and has been consulted with project affected people (PAPs) and households. A resettlement committee has been established at the provincial and district levels to review and approve the resettlement plan, and to oversee its implementation. This committee will be supported by a consulting firm with responsibility for ensuring the successful implementation of the resettlement plan, which will be financed from the AIB special fund grant. The land acquisition and implementation of the RAP will be financed by the Government and NDF. The timeframe for completion of RAP implementation is estimated at 12 months, and its successful completion will be a requirement for the commencement of civil works. The RAP was disclosed on the MPWT website in English and Lao on January 3, 2018 and the World Bank external website (www.worldbank.org) on January 10, 2018 and the final RAP has been disclosed on MPWT's website and the World Bank website on February 7, 2018

74. **Indigenous Peoples OP/BP 4.10.** The World Bank's Operational Policy on Indigenous Peoples is triggered due to the presence of a Hmong Ethnic Community in the project area that will be impacted. The client has prepared an EGEP for the project based on a social assessment of potential impacts, and a process of free, prior and informed consultation leading to broad community support. The consultation process, and means of achieving broad community support, involved a series of public meetings held at times and in venues that were accessible to a broad range of community members. The meetings were independently facilitated to ensure the voices of different generations, ethnicities and genders would be heard and would impact the design of the mitigation measures and the project. The EGEP was disclosed on the MPWT website in English and Lao on January 3, 2018 and the World Bank external website (www.worldbank.org) on January 10, 2018 and the final EGEP has been disclosed on MPWT's website and the World Bank website on February 7, 2018.

75. **Gender.** The project design includes gender actions which build on key findings of the gender gap analysis and consultations carried out during project preparation. These findings indicate that a major gender gap identified relates to the low participation of women in labor force in the transport and logistic sector, particularly in paid-jobs. The share of women employed in the sector is only 9.1 percent, and participation of women in management positions and business ownership is about 9.6 percent. This is very low compared to the same figures for men, which are about ten times higher (around 90 percent). Although gender disaggregated jobs data is not available for the road sector, consultations indicated that there was very little participation of women, if any, in the road operation and maintenance activities. Consultations during project preparation also indicated that another main concern of women in the



project area relates to lack of basic pedestrian safety facilities around the adjacent markets where the majority of traders are women from local communities. To help address these critical gaps, the gender actions included in the project design will focus on three priority directions, which will be implemented under the Components 1 and 2: (i) Enhancing employment opportunities for women from local communities in paid jobs under the first major and long-term (10 year) OPBRC in the road sector; (ii) Training female staff of MPWT on management and supervision of OPBRCs to support their future leadership role in the planning and decision making process in the road sector; and (iii) Improving quality and safety of pedestrians facilities and implementing targeted traffic safety campaigns and awareness measures with the focus on needs of women traders working in adjacent markets and school children who use the road as pedestrians. The project results framework includes three corresponding intermediate indicators to ensure close monitoring of gender actions during implementation.

76. **Labor Influx.** According to the Lao National Survey on Women’s Health and Life Experiences (2014), 5.1 percent of women interviewed had experienced physical violence by a non-partner in their lifetime from the age of 15, while the percentage of women who report a variety of types of sexual violence (forced intercourse, attempted forced intercourse, or other unwanted sexual acts) was 5.3 percent. This is slightly lower than that the global lifetime prevalence of non-partner sexual violence (7.2 percent) reported by the World Health Organization in 2013. Given this context, and based on the risk classification defined by the World Bank’s 2016 Guidance Note on managing the risks of labor influx⁹, the marginal risk associated with the labor influx under the project is considered moderate. This is based on the expected size of the labor influx population against the absorption capacity of the area experiencing influx. The works will be in a peri-urban area with high absorption capacity. The size of labor influx will be moderate with around 200 workers, most of whom can be recruited locally. The POM specifies responsibilities of the implementing agency, contractor and supervision engineer to mitigate negative impacts of labor influx and potential risks related to sexual exploitation and gender-based violence.

77. Principles and guidelines for contractor Codes of Conduct and management of worker health and safety have been incorporated in the bidding documents and will be regularly monitored by the supervision consultant during the execution of works. Contractors will be required to train all workforce at regular basis on the Workers Code of Conduct to ensure clear definition of obligations of contractors’ staff and workers with regard to implementing the project’s environmental, social, health and safety (ESHS) and occupational health and safety (OHS) requirements; help prevent, report and address gender-based violence (GBV) within the work site and in its immediate surrounding communities; and inform workers about national laws that make gender-based violence a punishable offence which is prosecuted. Labor camps will be constructed for those workers coming from outside the community, and will be regularly monitored by the supervision consultant. The ESIA, RAP and EGEP provide details on a comprehensive grievance redress mechanism that will also be used to manage grievance redress related to worker conduct, including monitoring timely resolution of grievances received from women. Two intermediate results indicators are included in the project results framework, which will help track timely and due resolution of grievance and monitoring of mandatory training of all contractor staff on GBV, ESHS and OHS Codes of Conduct.

78. **Citizen Engagement.** Local communities and stakeholders were consulted during project preparation. The project has in place a Grievance Redress Mechanism (GRM) that will be monitored on

⁹ Managing the Risks of Adverse Impacts on Communities from Temporary Project Induced Labor Influx. World Bank, December 2016



an ongoing basis and include an online grievance reporting system via the MPWT website. During project implementation, grievances arising due to project financed activities will be handled by the relevant village mediation committee, working in collaboration with the grievance focal person appointed by the contractor, or the environmental/social safeguards specialist of the MPTW. Those project related issues (including land acquisition and resettlement) which cannot be resolved at the community level, will be referred to the district resettlement committee. The project, through the MPWT's DoI, will track grievances and provide to the World Bank a quarterly report on project grievances received with gender disaggregate data and information on how grievances were addressed. Consultations with local communities and stakeholders will continue throughout the implementation of the project to ensure communities are adequately informed and their needs, including women and youth, are addressed.

G. World Bank Grievance Redress

79. Communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level grievance redress mechanisms or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

80. **The overall project risk is rated Substantial.** The project design includes adequate risk mitigation measures as summarized hereafter.

81. **Political and Governance.** Lao PDR has made some progress in strengthening governance, but there are still weaknesses related to accountability, control of corruption, and regulatory quality. An Anti-Corruption Law was passed in 2012, including the National Anti-Corruption Action Plan to 2020. The State Inspection Authority has been empowered to prevent and counter corruption. Nonetheless, impacts have been limited and governance mechanisms remain weak, therefore, political and governance risks remain substantial. The World Bank is addressing governance risks by designing programs to support Government in improving governance in sectors of World Bank engagement and support. Governance-related risks will be mitigated under the proposed project and ongoing LRSP2 through strengthened support for implementation of the government's Anti-Corruption Action Plan as well as improved systems of budget, accountability, procurement and financial management, monitoring and evaluation and transparency. Political commitment for the project is strong and stated in national and sectoral policy.

82. **Macroeconomic Risk.** The country's macroeconomic situation is very challenging, with high fiscal



and current account deficits and debt levels, keeping the macroeconomic risk high. Increased public spending in an effort to address the country's infrastructure gap and public investment participation in the power sector coupled with revenue shortfall has kept the fiscal deficit and public debt high. Furthermore, the tight fiscal space limits the ability to fund maintenance of public assets, including infrastructure, while arrears, though declining, persist. Risks are partly mitigated by the announced fiscal consolidation expected to be supported through stronger revenue collection and continued control over spending, though the track record is yet to be fully established. Furthermore, ongoing reforms to strengthen PFM and the approval of the public debt management law will help strengthen MOF role and capacity to improve public finance and debt management. In addition, around a quarter of external public debt is for projects in the energy sector, which are expected to be economically viable and self-financing. Related to the project, the strong political commitment to the project further mitigates risks. The Government will fund its contributions to the project from the Road Fund, partially alleviating concerns about financing availability.

83. **Sector Strategies and Policies.** Sector policies have been developed, however, their implementation continues to be a challenge. While the focus of government investments in the sector has been on road construction and improvement works, funding for road maintenance is low compared to the needs of the network, which undermine the sustainability of road assets. Therefore, risks associated with sector strategies and policies are Substantial. The proposed project will support sector modernization efforts by improving efficiency in road maintenance and leveraging private sector financing through implementation of OPBRC. The transport sector is also strengthening its strategies and policies, including through the implementation of Prime Minister Decree 60/PM/2015 restricting investment to projects that demonstrate a high rate of return, and through the IDA-financed LRSP2, which is supporting the sector in developing financing and policy frameworks, and reinforcing investment prioritization systems.

84. **Technical Design and OPBRC.** The investment on improvement of the project road is relatively simple from the technical standpoint, since it supports improvement and upgrading of an existing road on flat terrain. MPWT also has experience with three-year performance-based routine maintenance contracts. However, technical design risk is rated Substantial due to limited experience of MPWT on longer-term OPBRC contract management. The OPBRC approach provides incentives to the contractor for a long-term engagement beyond road improvement, at its own risk, during maintenance period, which in turn is expected to help reduce the risk of poor construction as well as ineffective maintenance. The use of OPBRC also ensures the availability of budget for the road maintenance over the longer term. However, a risk remains that the contractor could seek to extract more during the construction period, and would be less interested in receiving performance-based payments over the O&M period. This risk would be mitigated by including in the structure of the contract a certain level of the capital investment that the contractor needs to finance, which will be refunded over time in quarterly payments during the O&M period, to ensure a stake in the quality and enable the Government to pay from its revenues generated by the Road Fund. This risk will be addressed in the short-term through the support of the supervision consultant and over the medium to longer term through the capacity development of MPWT.

85. Additional risks related to the OPBRC approach are associated with the market risk (interest of potential bidders) and timely and orderly implementation of payment obligations by the Government during the O&M period. Market sounding carried out for the project demonstrated broad interest of both local and international contractors for the OPBRC concept. It also helped informing stakeholders and potential bidders about OPBRC. Key recommendations and feedback received from the market sounding



process has been incorporated in the contract design. Regarding risks related to payment obligations during the O&M period, the Government has confirmed its financing through the Road Fund to cover the full cost of 7-year O&M phase. The revenues of the Road Fund amounted to US\$80 million in 2016/17, and are projected to grow annually by 10 percent in the medium term. The review of the revenues and expenditures of the Road Fund has confirmed that it has sufficient resources and sustained revenues to cover the payment commitments of the Government during the full period of the O&M phase. The Financing Agreement will require the Recipient to develop a sustainability plan before the project closure to ensure the sustainability of the project results. This plan, inter alia, will specify actions and budget to ensure continuous and effective implementation of the O&M phase of OPBRC, including financial and institutional sustainability measures as well as supervision and monitoring arrangements by MPWT to ensure continuous and effective implementation of the O&M activities during the remaining period of OPBRC. The supervision consultant will train DoR staff and provide hands-on capacity building measures so that DoR is fully equipped with necessary knowledge and tools to carry out supervision and monitoring of the maintenance and operation works after the project closure.

86. **Environmental and Social Risks.** Environmental and social risks associated with the road works are Substantial. This is mainly due to the large number of people who will be affected by land acquisition and the displacement of commercial activities (2,398 affected people), some of whom belong to ethnic groups. MPWT has prepared an ESIA, RAP, and EGEP. Findings from these safeguards instruments were considered in the project design and implementation arrangements. The enhanced Environmental, Social, Health and Safety (ESHS) policy requirements have been incorporated into the procurement process. Safeguard instruments and workers' codes of conduct to prevent gender-based violence and for child protection are included in the bidding documents and Terms of Reference for Supervision. Additional capacity building activities have been included in the project design to strengthen MPWT and contractor capacity to implement the project. To address the potential risk of delays in the start of works due to land acquisition, the GoL has established two resettlement committees and land acquisition has been included in the budget plan for fiscal year 2018 and 2019. MPWT and resettlement committees will be supported by a RAP implementation support consulting firm, which will be financed from the AIIB special fund. Additionally, to mitigate the risk of delays due to the high number of small transactions that needed to be provided in a timely and sequenced manner, expertise in project management and development of an appropriate IT-based tracking tool will be included into the scope of services of consultancy to support RAP implementation. Successful completion of the RAP implementation will be a requirement for the commencement of civil works.

87. **Fiduciary.** MPWT has experience in implementation of the IDA-financed projects, and its financial management and procurement capacity have improved over time. The accounting software has been rolled out ministry-wide and the DoI has been strengthened to carry out procurement, technical and financial reviews of all projects managed by MPWT. Staff at MPWT's DoF and DoR are familiar with the World Bank requirements on financial management and disbursement and procurement procedures, respectively. However, the OPBRC contracting concept is new to Lao PDR, and experiences from other countries have shown impact on bidder participation and lengthy bidding periods. Cases related to fraud and corruption have been identified under LRSP1, which led to sanction of some firms. Therefore, the combined fiduciary risk is assessed as Substantial. Risk management includes continued technical support and capacity building to strengthen the FM system and procurement and contract management capacity. The Government has enhanced its procurement information disclosure on the MPWT's website and all staff involved in procurement decisions are required to sign disclosure of their interest.



VI. RESULTS FRAMEWORK

A. Indicators and Targets

COUNTRY: Lao PDR

Lao National Road 13 Improvement and Maintenance Project (P163730)

Development Objective(s): To improve the road condition, safety and climate resilience on critical sections of National Road 13

Results Indicators		CRI	Unit	Baselines	Yearly Cumulative Targets				End Targets
					Y1	Y2	Y3	Y4	Y5
PDO Indicators									
Objective 1: Road condition	Reduction in vehicle operating costs on the project road		Percentage	0	0	0	0	20	20
Objective 2: Road safety	Increase in average iRAP star rating of the project road		Number	1	1	1	1	3	3
Objective 2: Climate resilience	Project road upgraded and improved, with climate resilient measures		Yes/No	No	No	No	No	Yes	Yes
Intermediate Results Indicators									
Component 1: Road Improvement and Maintenance	Reduction in average IRI		Number	7	7	7	7	3	3
	Kilometers of road upgraded from 2 to 4 lanes, with climate resilient measures		Km	0	0	5	10	19	19
	Kilometers of road improved on 2 lanes, with climate resilient measures		Km	0	0	10	20	39	39
	Roads constructed or rehabilitated	X	Km	0	0	15	30	58	58



	Kilometers of roads transferred to performance-based O&M phase under OPBRC		Km	0	0	0	30	58	58
	Percentage of adjacent markets with improved pedestrian facilities, with focus on safety of women traders and school children		Percentage	0	0	0	50	90	90
	Share of women employed in paid jobs in implementation of OPBRC		Percentage	0	5	10	15	15	15
	Contractor’s workforce trained on ESHS, OHS and GBV Code of Conduct		Percentage	0	100	100	100	100	100
	Project beneficiaries (number), of which female (percentage)		Number (Percentage)	0	0	150,000 (47%)	300,000 (47%)	500,000 (47%)	500,000 (47%)
Component 2: Technical Assistance and Supervision	Grievances registered related to delivery of the project addressed, with disaggregated data by gender		Percentage	0	90	90	90	90	90
	Total number of MPWT staff received training on OPBRC and related topics		Number	0	0	10	25	40	40
	Number of MPWT female staff received training on OPBRC and related topics		Number	0	0	5	10	15	15



B. M&E Plan for Indicators

Indicator Name	Definition/Description	Frequency	Data Source	Data Collection Method	Responsibility for Data Collection
Reduction in vehicle operating costs on the project road	Vehicles operating costs (VOC) includes the costs of road users related to vehicle usage, including fuel, tires, maintenance, repairs and depreciation.	At the end of the road improvement works	Progress reports of the supervision engineer	Baseline data on VOC for cars and trucks was defined as part of the economic analysis of the project. Reduction in VOC will be re-calculated for cars and trucks at the end of the civil works by using HDM-4 model with data inputs on new condition and technical parameters of the road.	MPWT
Increase in average iRAP star rating of the project road	International Road Assessment Program (iRAP) star ratings involve an inspection of road infrastructure attributes that have an impact on the likelihood of a crash and its severity. The focus of the methodology is on identification and recording the road attributes, which influence the most common and severe types of crashes. The assessment assigns star ratings between 1 and 5-stars depending on the level of safety which is 'built-in' to the road.	At the end of the road improvement works	iRAP start rating report for the project road to be prepared by iRAP accredited consultant	Upon completion of civil works, the iRAP rating assessment will be performed through a drive-through inspection on the road. The inspectors will be required to hold iRAP accreditation. The inspection will involve a continuous record of road infrastructure elements, including a video-based inspection to record images at specified intervals. At the completion of the inspection, the consultants will prepare a final report that summarizes road characteristics and safety conditions and assigns a star rating for each 100-meter section of the road.	MPWT
Project road upgraded and improved with	Climate and disaster risk screening of the project road was carried out during preparation phase. Based on findings of the screening, climate resilient measures	At the end of the road improvement works	Technical report at completion	Implementation of climate resilient design elements will be assessed and reported regularly by the supervision engineer during the construction	MPWT



climate resilient measures	were identified and incorporated to the engineering conceptual design such as raised profiles in flooding-prone sections, PCC pavement, improved capacity and quality of water-crossing structures and side drainage, strengthened approach road to bridges, strengthened slope protection and strengthened inlet and outlet of culverts. The indicator will assess whether all climate resilient design elements are implemented as per design requirements. Intermediate results indicators corresponding to this PDO level indicator will measure the outputs in terms of kilometers of road widened and improved.		of the road works	phase. Upon completion of civil works, MPWT will engage an independent consultant to (i) carry out assessment on compliance of the constructed road infrastructure with the climate resilient measures specified in the engineering design; (ii) prepare recommendations, based on the capacity and quality of the new road, to further enhance climate resilience of the project road during maintenance and operation phase.	
Reduction in average IRI	The international roughness index (IRI) is a standardized measurement methodology for pavement roughness. Road roughness is an important condition characteristic of the road pavement affecting vehicle riding quality, travel time, fuel consumption and maintenance costs. Generally, IRI up to 3.5 is considered as good, between 3.5-5.5 as fair and higher than 5.5 as poor condition.	After completion of the road improvement works	Progress reports of the supervision engineer	IRI test will be carried out after completion of the pavement works based on technical requirements specified in the civil works contract.	MPWT
Kilometers of road upgraded from 2 to 4 lanes, with climate resilience measures	One kilometer (km) upgraded road equals one km of road widened from two to four lanes, and equals one km of four-lane road ready to be opened for traffic. Climate resilient measures specified in the engineering design should be implemented along the entire upgraded road section	Annual	Progress reports of the supervision engineer	Implementation of road works, including climate resilient design elements will be assessed and reported regularly by the supervision engineer during the construction phase.	MPWT



Kilometers of road improved on 2 lanes, with climate resilience measures	One kilometer (km) improved road equals one km of road rehabilitated on the existing two lanes, and equals one km of two-lane road ready to be opened for traffic. Climate resilient measures, indicated in the above corresponding PDO indicator and specified in the engineering design should be implemented along the entire improved road section.	Annual	Progress reports of the supervision engineer	Implementation of road works, including climate resilient design measures will be assessed and reported regularly by the supervision engineer during the construction phase.	MPWT
Roads constructed or rehabilitated, non-rural (Core)	This indicator is a Core Result Indicator (CRI) and measures the number of kilometers of all roads constructed, reopened to motorized traffic, rehabilitated, or upgraded by operations supported by the World Bank.	Annual	Progress reports of the supervision engineer	Implementation of road construction and rehabilitation works will be assessed and reported regularly by the supervision engineer.	MPWT
Kilometers of road transferred to the performance based O&M phase under OPBRC	One kilometer (km) of transferred road equals to one km of road transferred to the performance based operation and maintenance (O&M) phase under OPBRC. The target is to transfer all 58 km of the road section after completion of civil works to O&M phase of OPBRC. OPBRC will have a 10-year implementation period, including 3-year road improvement and 7-year operation and maintenance (O&M) phases. As the project implementation period is 5 years, a major part of the O&M phase will continue after the closing of the project, which will enhance sustainability of investment. The performance indicators for O&M will be specified in the bidding documents and OPBRC.	Annual	Progress reports of the supervision engineer	Implementation of the O&M phase of OPBRC during project life will be supervised by a supervision consultant. During O&M phase, the contractor will receive quarterly payments based on achievement of targets of performance indicators and service levels on operation and maintenance activities. The supervision consultants will also support MPWT to enhance capacity on implementation and supervision of OPBRC to help with transition at project closure.	MPWT



<p>Percentage of adjacent markets with improved pedestrian facilities, with focus on safety of women traders and school children</p>	<p>This indicator will measure the percentage of markets adjacent to the project road where the facilities for access of pedestrians, who are mostly women traders working at markets and school children, are improved with the support of the project.</p>	<p>Annual</p>	<p>Progress reports of the supervision engineer</p>	<p>The markets adjacent to the project road have been identified during project preparation. The review also noted that most of traders at these markets are women from local communities. The improvement of the pedestrian access facilities will be carried out as part of the civil works in close consultations with local communities and traders at market, including women.</p>	<p>MPWT</p>
<p>Share of women employed in paid jobs in implementation of OPBRC</p>	<p>This indicator will measure and monitor the percentage of women employed in paid jobs in implementation of OPBRC.</p>	<p>Annual</p>	<p>Progress reports of the supervision engineer</p>	<p>The project will promote participation of women from local communities in paid jobs in implementation of the first major long term OPBRC in the country. OPBRC will include requirement for the contractor to encourage employment of women, particularly from local communities. Required job related training will be provided by the contractor. Supervision consultant will report on employment of women under OPBRC, including types jobs and salary levels.</p>	<p>MPWT</p>
<p>Contractor’s workforce trained on ESHS, OHS and GBV Code of Conduct</p>	<p>This indicator will monitor training to be provided by the Contractor to all its workforce on the Workers Code of Conductor, to ensure clear definition of obligations of contractors’ staff and workers with regard to implementing the project’s environmental, social, health and safety (ESHS) and occupational health and safety (OHS) requirements; help prevent,</p>	<p>Quarterly</p>	<p>Progress reports of the supervision engineer</p>	<p>Contractor will be required to ensure all contractor’s workforce are trained on ESHS, OHS and GBV Code of Conduct. MPWT through the supervision consultant will monitor the fulfilment of this important contractual requirement.</p>	<p>MPWT</p>



	report and address Gender Based Violence (GBV) within the work site and in its immediate surrounding communities.				
Project beneficiaries (number), of which female (Percentage)	Project beneficiaries are people who live in the project area and derive benefits from an intervention.	Semi-Annual	Project Semi-Annual Reports	MPWT will report on number of project beneficiaries who live in 471 villages and 11 districts in Vientiane Capital and Vientiane Province, which are adjacent to and served by the project road to access nearby markets, jobs and services.	MPWT
Grievances registered related to delivery of the project addressed, with disaggregated data by gender	The indicator includes registration and resolution of grievances received arising from project activities, with gender disaggregated data.	Quarterly	Quarterly reports	MPWT, through the grievance redress mechanism established for the project, will track and report on all grievances received and addressed related to project activities, with gender disaggregated data.	MPWT
Total number of MPWT staff received training on OPBRC and related topics	The indicator includes number of MPWT staff attending the full duration of the OPBRC training.	Annual	Report of the training provider	One staff receiving training equals one staff of MPWT attending the full duration of OPBRC training	MPWT
Number of MPWT female staff received training on OPBRC and related topics	The indicator will measure the number of MPWT female staff attending the OPBRC training to support their knowledge and skills development and future participation in planning and decision making in the road sector.	Annual	Report of the training provider	One female staff receiving training equals one female staff of MPWT attending the full duration of the OPBRC training.	MPWT