



## 1. Project Data

**Project ID**

P123961

**Project Name**

Vietnam Road Asset Management Project

**Country**

Viet Nam

**Practice Area(Lead)**

Transport

**L/C/TF Number(s)**

IDA-53310,TF-15733

**Closing Date (Original)**

31-Dec-2020

**Total Project Cost (USD)**

206,463,512.65

**Bank Approval Date**

12-Dec-2013

**Closing Date (Actual)**

31-Dec-2022

**IBRD/IDA (USD)**
**Grants (USD)**

Original Commitment

250,000,000.00

1,584,904.25

Revised Commitment

230,818,197.58

1,337,643.85

Actual

206,463,512.65

1,032,819.23

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## 2. Project Objectives and Components

### a. Objectives

The PDO of the Vietnam Road Asset Improvement Project (VRAMP) was to "improve the efficiency and sustainability of the road asset management and maintenance practices performed by the Ministry of Transport on national roads in Vietnam" (PAD p.4 and the Financing Agreement p.5).

The PDO statements in the PAD and the Financing Agreement are identical.



The ICRR will treat the PDO as one sole objective since efficiency, sustainability, road asset management, and maintenance as practices were closely intertwined in this project, and most of the project's outputs and outcomes contribute to the four sub-objectives simultaneously.

**b. Were the project objectives/key associated outcome targets revised during implementation?**

Yes

**Did the Board approve the revised objectives/key associated outcome targets?**

No

**c. Will a split evaluation be undertaken?**

No

**d. Components**

The project had four components:

**Component 1: Road Asset Management System (RAMS) Development** (Approval: US\$10 million, Actual cost: US\$7.3 million)

This component was to finance the development and implementation of a comprehensive Road Asset Management System (RAMS). Activities included:

- Establishment of the road asset management framework (RAMF) which included the Road Asset Management System (RAMS) and road database framework.
- Data collection for the whole network of national highways to enable planning and financing.

**Component 2: Road Asset Preservation** (Approval: US\$156.6 million, Actual cost: US\$108.14 million)

This component was to support funding of traditional road asset maintenance and performance-based contracts (PBC) to demonstrate more efficient maintenance of selected highways as well as financing technical assistance for establishing PBC legal framework; PBC scale up for preservation and periodic maintenance with traditional methods; a comparison study; supervision of maintenance and improvement works contracts; and finance of the purchase of vehicles.

**Component 3: Road Asset Improvement** (Approval: US\$133.4 million, Actual cost: US\$143.63 million)

This component was to improve selected activities such as high priority roads; upgrading of bridges; supervision of improvement works; and ensuring technical, internal, and financial audits.

**Component 4: Institutional Strengthening Program** (Approval: US\$1.7 million, Actual Cost: US\$1.04)

This component was to finance targeted activities to develop the capacity of Vietnam's Road agencies to undertake better planning, budgeting, constructing, and monitoring of assets. The main activities covered improvement in human resource management within the Department of Roads of Vietnam (DRVN); improvement in management, transparency, and monitoring of the Road Management Fund (RMF), and development of standard drawings for infrastructure facilities.

**Restructuring:**

The project was restructured and scaled up. However, the components and subcomponents were not



formally altered nor revised during the restructuring. The scaled-up activities were performed under Component 2: Road Asset Preservation, and Component 3: Road Asset Improvement.

The restructuring came as a result of savings of about USD 55.07 million, and approximately USD 31.89 million was earmarked to carry out additional activities. Some target values in the Results Framework were revised upwards to reflect changes in the intermediate results due the additional activities introduced.

For example, according to the Project Restructuring Paper (Report No: RES43279, 2013), for the PDC maintenance implemented under the project, the target value increased from 170 km to 234 km; for km of roads maintained under the project with traditional input method the target value increased from 161 km to 168 km; and for km of roads improved under the project the target value increased from 56 km to 79 km. The additional activities were expected to contribute to improved economic benefits for the people in the project areas while creating more employment opportunities in the construction industry in the selected regions.

Since the restructuring mostly entailed a scale-up of the intervention and target values were increased, a split rating is not necessary.

#### **e. Comments on Project Cost, Financing, Borrower Contribution, and Dates**

##### **Project Cost**

The project cost at appraisal was US\$251 million, and the actual project cost was US\$260.11 million.

##### **Project Financing**

The project was financed by IDA and co-financed by the Australian Agency for International Development (AUSAID) with an amount of AU\$1.7 million.

##### **Borrower Contribution**

The borrower contribution was US\$50 million at appraisal, restructuring and closing.

##### **Dates**

The project was approved on January 14, 2014, became effective on April 1, 2014, and scheduled to close on December 31, 2020. The project was restructured on December 28, 2020. The closing date of the project was extended by 24 months from December 31, 2020 to December 31, 2022 to facilitate the implementation of the additional activities following the formal restructuring of the project.

### **3. Relevance of Objectives**

#### **Rationale**

##### **Country and sector context**

At the time of the initiation of the Vietnam Road Asset Management Project (VRAMP), Vietnam was experiencing rapid economic growth. The annual average real domestic growth product (GDP) was 7.4 percent. By 2014, the rapid economic growth enabled the country to lift 40 million Vietnamese out of poverty. It was estimated that between 1993 and 2014, the proportion of people living in poverty had



declined from 60 percent to 14 percent. This remarkable drop in the level of poverty was attributed to rapid investment in infrastructure, which was estimated at between 9-10 percent of GDP.

The road transport network represented almost half of the infrastructure investment. At the time of the project appraisal, Vietnam had built 210,000km of national road network. Of this total, 17,199km comprised national highways, and 19,450km consisted of provincial roads. Additionally, 131,951km or 63 percent of the total road network consisted of rural roads. Despite the rapid growth in the road network, 30 percent of the road network was classified as poor (Project Appraisal Document (PAD): Vietnam Road Asset Management Project (P123961), p.2 and ICR September 2023, p.5). Regular road maintenance was necessitated by the recognition that approximately 30 percent of the national road network did not meet international standards and had been classified as “poor or very poor”. It was noted during project appraisal that only 50 percent of the road network was paved. The continuous growth of the Vietnamese economy was contingent upon maintaining the road infrastructure.

### **Alignment with Government strategy**

To enhance its capacity to maintain and expand the national road network, the Government of Vietnam developed a plan to expand revenue streams for road maintenance by establishing a Road Maintenance Fund (RMF) and requested World Bank support for the financing of an enhanced Road Asset Management System (RAMS), which was intended to facilitate regular maintenance and upgrade key roads of strategic importance (PAD, p.2 and ICR p.6).

The Vietnam Road Asset Management Project (VRAMP) was designed to equip the Ministry of Transport (MoT) and the Directorate for Roads of Vietnam (DRVN), the main implementing entity with support from the Project Management Unit-3 (PMU-3), to apply state-of-the-art technology to maintain the extensive national, provincial, and rural road network. The project objective of providing regular maintenance of the extensive road network aligned with the Government sectoral strategy. The implementation of activities and the achievement of related outputs and their application, such as the replenishment of the RMF through IDA and the establishment of the PBC, supported the GoV’s policy of ensuring periodic maintenance of the national road network.

### **Alignment with World Bank strategy**

At the time of appraisal, the PDO was consistent with the FY12-FY16 Country Partnership Strategy (CPS) which sought to ‘enhance Vietnam’s competitiveness in the regional and global economy, increase development sustainability, and broaden access to economic and social opportunity’ (PAD, p.4). Additionally, the VRAMP was expected to contribute to (a) enhancing competitiveness by promoting a sustainable approach to road asset management, the advancement of performance-based maintenance approach that incorporated private sector contracts in road maintenance works, improving road safety through sustained road maintenance, as well as by reducing travel time, variability of travel time, and vehicle operating costs through road asset improvements and preservation; (b) increasing fiscal sustainability by strengthening the strategic planning of the road maintenance fund; and (c) expanding opportunity by improving infrastructure quality in under-served areas and by building institutional capacity to promote and manage private participation in road asset management.

The PDO was also well aligned with the World Bank’s Country Partnership Strategy at closure (CPS FY2018-2022), and specifically with Objective 2 of Focus Area 1, which aimed at ‘promoting private sector and agribusiness development’ as well as Focus Area 3, which sought to ‘enhance trade competitiveness and multi-modal transport connectivity and logistics services in Vietnam’.



### Previous Bank Experience

Based on the World Bank's long-standing engagement with the Government of Vietnam (GoV), the GoV asked the World Bank for assistance to finance the upgrading of the Road Asset Management System (RAMS) to improve the planning of regular maintenance and upgrading of strategically chosen corridors of the National Highway (NH) network. The Vietnam Road Asset Management Project (VRAMP) was built on lessons learned from the previous World Bank-financed Road Network Improvement Project (RNIP) P059663 (US\$ 225.26 million), which supported an efficient transport network and preservation of existing assets.

### Level of the PDO

While there is clear alignment between the project's development objectives and the country- and WB strategies, a minor shortcoming here is the lack of clarity in the PDO formulation around what outcomes would be achieved through improving the efficiency and sustainability of the road asset management and maintenance practices; i.e., in what ways this was expected to improve people's lives. Focusing on "improved efficiency" and "improved sustainability" alone does not help in understanding what development results were expected as a consequence of the project. Impact on people's lives (such as for decreased travel time or a decrease in accidents) would have been useful to track.

### Rating

Substantial

## 4. Achievement of Objectives (Efficacy)

### OBJECTIVE 1

#### Objective

To improve efficiency and sustainability of road asset management and maintenance practices

#### Rationale

##### Theory of Change:

No explicit Theory of Change was written out at appraisal, as that was not a requirement at the time. The ICR reconstructed the Theory of Change. **Activities** including designing a software database to accommodate changes; dialogue with and technical assistance to the government to develop legal framework for performance based contracts (PBC); rehabilitation of priority national highways using performance based contracts; development and implementation of road maintenance and bridge improvement plans; and capacity building of the road agencies (such as for road asset management, planning, procurement of performance-based contracts, etc.) were expected to lead to **outputs** such as a database established and RAMS (Road Asset Management System) operationalized; a strengthened PBC legal framework established, including output-based monitoring; established a PBC toolkit for maintenance planning; roads rehabilitated using performance-based contracts; targeted roads and bridges improved; planning and revenue collection capacity improved and targeted staff trained satisfactorily. These outputs were, in turn, expected to lead to the following **outcomes**: increased use of the database for planning and prioritization, improved financing for road maintenance, improved capacity for road asset management and supervision, and increased capacity to



manage road infrastructure. These outcomes were expected to lead to the **achievement of the project development objective** of improved efficiency and sustainability of road asset management and road maintenance practices in Vietnam. This objective was expected to contribute to the **long-term goal** of improved connectivity for economic activities.

The Theory of Change is logical and convincing. Critical assumptions included effective coordination and strong support of the implementing agency for PBCs, as well as government support and funding for RAMS.

### **Outputs**

The project achieved the following outputs:

- 234 kilometers of roads maintained through performance-based contracts (PBC) directly implemented under the project, exceeding the target of 170 kilometers.
- 168 kilometers of roads maintained directly under the project with traditional input method, exceeding the target of 161 kilometers.
- 80.53 kilometers of road improved under the project, exceeding both the original target of 56 kilometers and the revised target of 79.9 kilometers.
- Surveys were completed, and the road surface condition of 25,200 km of national highways was updated in the road management system, exceeding the target of 17,000.

### **Outcomes**

The project achieved the following outcomes:

- Annual and mid-term 3 year-plans for priority and implementation of national road network maintenance were generated by RAMS as targeted. Target achieved.
- Annual, mid-term, and long-term maintenance strategies of 10 years were generated by RAMS as targeted. Target achieved.
- The two points above also demonstrate that the RAMS system has been verified, handed over, and put into use. The Department for Roads of Vietnam has issued regulations on the management, operation, and use of the RAMS system.
- For the improved financing of road maintenance measured by the increased maintenance financing covered by the Road Maintenance Fund (RMF), the project achieved an increase of 127 percent, exceeding the target of 100 percent (and compared to a baseline of 70 percent).
- 25,200 km of national roads were maintained through the operational PBC (performance based contracts) program, exceeding the target of 17,000.
- Improved maintenance forecast and identification of repairs needed, as targeted.

The project inputs and activities, such as establishing a database for a roads management system and a performance-based contracts system coupled with training of relevant staff to operate the systems, contributed to improved maintenance of roads as well as enhancing the efficiency of the Department of Roads in planning and maintenance of the road network. The introduction of the Performance Based Contract (PBC) system has contributed to cost savings and efficiency gains. Sustainability was enhanced through improved financing of road maintenance, as well as reduced future maintenance costs because the existing roads were to be made more resilient to storms and severe rain. Efficacy is thus rated Substantial.



## Rating

Substantial

## OVERALL EFFICACY

### Rationale

Overall Efficacy is rated Substantial, as the sole objective was substantially achieved.

### Overall Efficacy Rating

Substantial

## 5. Efficiency

### Economic and Financial Efficiency

An economic analysis was conducted on the viability of the project during preparation and appraisal, which was outlined in the final project paper (PAD, p.11). The economic analysis was derived from the World Bank 's Development and Management Model (HDM-4) to cover civil works of the PBC scale-up, periodic maintenance, and road asset improvement program. The model further focused on potential reduction in road costs (ICR, p.11). The economic analysis projected a 20 % Economic Rate of Return (ERR) and a Net Present Value of US\$237 million. Additionally, it was estimated that road maintenance had an ERR higher than 12 percent.

Upon completion, an updated economic analysis of the project was done, which confirmed the economic viability of the project. The updated NPV of 216.83 million USD and the IRR of 21.82 percent of the project were not only greater than the required thresholds of 0 (for NPV) and 10 percent for IRR, but were of greater benefit than expected in the PAD, namely 127 million USD for NPV and 20 percent for IRR.

### Administrative Efficiency

Administrative efficiency was generally good, with sound implementation arrangements, adequately staffed Provincial People's Committees, and low staff turnover.

There were, however, initial delays in the provision of government counterpart funding, which affected the procurement of civil works and acquisition of land. The use of cost savings for the additional works was subjected to delays due to lengthy and rigid government processes and procedures. The project was extended and completed 24 months later than the original closing date.

Given that the EIRR at completion was above the EIRR at appraisal and there were minor shortcomings in administrative efficiency, the overall efficiency is rated as substantial.

### Efficiency Rating

Substantial





a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

\* Refers to percent of total project cost for which ERR/FRR was calculated.

## 6. Outcome

Relevance, Efficacy and Efficiency are all rated Substantial, and this gives an overall Outcome rating of Satisfactory.

### a. Outcome Rating

Satisfactory

## 7. Risk to Development Outcome

The risks to Development Outcome can be summarized as follows:

**Technical Risk:** The technical risk is considered to be low, as the establishment, roll-out, and use of the Road Asset Management System (RAMS) and the Road Asset Management Framework (RAMF) provide the Department of Roads (DRVN) with access to reliable databases to guide and enhance government decisions about the development and maintenance of the national road network. The RAMS and the RAMF have been institutionalized and are serving as a national backbone that facilitates efficiency in the management of the road sector.

**Financial Risk:** The financial risk is considered to be low, as the introduction of Performance Based Contract (PBC) system has contributed to cost savings and efficiency gains that enabled the government to use additional funds generated to support road development and maintenance. It is anticipated that the PBC will be sustained as the GoV continues to invest in road infrastructure.

**Political Risk:** The political risk is also considered to be low, as the Government has demonstrated ownership both in terms of implementation and financial contribution to the intervention. It is likely that the Government will continue to finance road infrastructure development to propel the economic growth and development of the country.





## 8. Assessment of Bank Performance

### a. Quality-at-Entry

The design of the Road Assessment Management Project was derived from lessons drawn from a previous World Bank funded Road Network Improvement Project (RNIP). The project design was logical as it focused on addressing persistent problems encountered in road maintenance/rehabilitation due to inadequate funding and lack of private sector participation in road maintenance works.

The project development objective was relevant to the context and the project design had clearly structured and defined components, with clear implementation arrangements. Innovative tools such as the Roads Asset Management System (RAMS) and the Performance Based Contracts (PBC) were introduced to the design. The PBCs enabled private sector participation of road rehabilitation at reduced costs. The three project components were appropriate as they were designed to remove a key bottleneck in the development of the road infrastructure, namely the use of traditional approach to road maintenance and rehabilitation which before the intervention had resulted in poor quality road network.

Environmental and safeguard measures were incorporated appropriately into the design. The project team paid attention to social safeguard issues such as settlement activities through preparation of Resettlement Action Plans (RAPs).

### Quality-at-Entry Rating

Satisfactory

### b. Quality of supervision

The World Bank team provided regular support to the Department for Roads of Viet Nam (DRVN) and the Project Management Unit 3 (PMU-3) through 17 implementation support missions and virtual meetings (conducted approximately twice per year) throughout the implementation of the project. The World Bank team played a proactive role throughout the implementation of the project by supporting the Ministry of Transport, DRVN and the PMU-3 to resolve any issues that emerged. The missions and frequent consultations provided opportunities to learn about emerging challenges and adoption of mitigating measures. A mid-term review (MTR) was conducted in January 2017.

The MTR findings informed project restructuring in December 2020, which resulted in a 24-months' extension of project completion from December 2020 to December 2022. It was noted in the ICR that the restructuring of the project generated some savings which were ploughed back to improve the national road network. The readiness of the Bank to accept the restructuring of the project enabled the GoV to use the excess funds accrued from exchange rate gains to expand the road rehabilitation and maintenance works. As shown under the analysis of efficacy, the use of the additional funds contributed to exceeding the original targets, which has benefited the local population in the implementing areas. The World Bank team ensured that relevant stakeholders were adequately informed, and project-affected households (PAHs) were adequately compensated. The Bank team also addressed resettlement related risks and impacts by ensuring that the project prepared a Resettlement Policy Framework (RPF), which was made



available to the public through the World Bank website on Respective Resettlement Action Plans (RAPs) for easy access.

### **Quality of Supervision Rating**

Satisfactory

### **Overall Bank Performance Rating**

Satisfactory

## **9. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

The project development objective was relevant to the context, and the M&E design was logical, with clearly defined outputs and outcomes. The project's results framework contained appropriately identified indicators that enabled systematic tracking and measurement of results throughout the project implementation period.

Overall, the results framework was appropriately tailored to facilitate tracking and measurement of the key performance indicators that were reflected in semi-annual and annual progress reports, which report towards the achievement of the PDO.

### **b. M&E Implementation**

A dedicated M&E unit in the Department of Roads (DRVN) together with the PMU-3, the Supervision consultant and designated staff in the provinces contributed to ensuring data availability and collection at all levels of implementation. The Project procured modern road surface condition data collection devices which were compatible with the Pavement Management System and supported DRVN with data collection and processing of images obtained from CCTV cameras, surface crack detection using the international roughness index (IRI), road surface settlement, surveys, and geographic coordinates.

The PMU-3's previous experience with World Bank requirements enabled good performance in reporting and analysis, as well as monitoring and measuring PDO indicators. They regularly ordered and undertook monitoring, evaluation, and periodic reporting of performance, process, and compliance monitoring; operations reviews; beneficiary feedback surveys; risk management and assurance studies, third-party impact evaluations; and others. The project performed well, and two semi-annual reports were submitted yearly in a timely manner during the implementation period, and these were of good quality, as supported by an independent monitoring consultant.

### **c. M&E Utilization**

The M&E data for the project were regularly used to monitor progress. Monitoring of progress towards project objectives, evaluating performance, and informing project management was done by the PMU3,



with guidance from the World Bank. The project restructuring and the closing date extension were based on inputs from the M&E system.

## **M&E Quality Rating**

Substantial

## **10. Other Issues**

### **a. Safeguards**

The project was classified as a Category B, which triggered safeguard policies OP/BP 4.01 Environmental Assessment, OP/BP4.04 Natural Habitats, and OP/BP 4.12 Involuntarily Resettlement. OP/BP4.01 necessitated a full Environmental Assessment (EA) whose findings provided guidance on compliance to World Bank policies aimed at ensuring that the interventions of the project did not adversely contribute to environmental degradation and livelihoods of communities in the project implementation areas. OP/BP 4.04 Natural Habitats required adherence to Bank policies and aimed at protecting fauna and indigenous people living in adjacent communities. OP/BP 4.12 focused on the development of Involuntary Resettlement plans to ensure that communities that were affected by the road maintenance and rehabilitation works were either adequately compensated or resettled in ways that protected their livelihoods. OP/BP 4.10 focused on Indigenous People, which ensured that Indigenous communities who were directly affected by the road rehabilitation and maintenance works were given adequate protection. Overall, according to the ICR, the project complied with the environmental safeguard policies, and safeguards compliance during project implementation was rated Satisfactory or Moderately Satisfactory (ICR p.24).

### **b. Fiduciary Compliance**

#### **Financial Management**

While the project's financial management system was generally adequate, there were some inconsistencies in relation to the slow release of counterpart funds for land acquisition, but it did not undermine the implementation of the project. While waiting for the government to release funds, IDA funds were used to carry out activities with fewer encumbrances. There were no major issues in the external audit reports as the project complied with most of the audit recommendations to the satisfaction of the World Bank. Financial monitoring reports were regularly released. No qualified opinions were observed, and any audit observations were promptly resolved.

#### **Procurement**

Procurement performance was considered satisfactory throughout project implementation. Whilst some delays were encountered such as the procurement of contracts for data collection for the road asset management system, there was a total of 48 Bank financed goods, works, non-consulting and consulting contracts, which included project cost savings under the project (ICR p.25). The rate of disbursement of project funds was considered good throughout the implementation of the project.



c. Unintended impacts (Positive or Negative)

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d. Other

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## 11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	
Bank Performance	Satisfactory	Satisfactory	
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

## 12. Lessons

The following lessons were derived from the ICR with some modifications to the language by IEG:

- Technical innovations may enhance implementing entities' institutional capacity to perform beyond their traditional roles and administrative remit.** The decision to acquire the Road Asset Management System/Road Asset Management Framework strengthened the institutional capacity of the Ministry of Transport and the Department for Roads Viet Nam, which made use of reliable data that guided them to use data to manage the Vietnam Road network effectively and efficiently at the national, provincial and district levels.
- Public and private sector partnerships can be effectively utilized to overcome public sector inertia and institutional lethargy.** By introducing performance-based contracts (PBC), the project empowered the private sector to participate in the road maintenance scheme of the Government of Vietnam. This invariably brought efficiency gains that resulted in better road maintenance, which would go a long way in improving the safety of road users. PBCs can ensure the successful implementation and sustainability of road maintenance.
- If careful analysis and planning precedes the implementation of new activities in a well performing project, the additional activities may have greater potential for success.** In the context of this project, the additional activities were ambitious, considering the capacity of the implementing agency, the financial constraints of the PPC, and the time left for implementation without extension. When discussing additional activities, in-depth assessment, selectivity, clearly defined activities with timeline and risk mitigation measures were factored in to provide a clear view of what would be possible to accomplish prior to project closing.

## 13. Assessment Recommended?



No

#### **14. Comments on Quality of ICR**

The ICR is well written, clear and succinct. It is sufficiently results oriented and provides good evidence of the claims of achievements and it is candid with regard to both positive and negative outcomes. The evidence presented is appropriately referenced. The quality of analysis is good with clear links of evidence to the findings.

The report is internally consistent and there is a logical linking and integration of the various parts of the report. It is consistent with the guidelines. The report is concise and there is sufficient clarity in the report's messaging. The ICR quality is rated Substantial.

##### **a. Quality of ICR Rating** Substantial