Validation Report
July 2022

Papua New Guinea: Highlands Region Road Improvement Investment Program–Project 2

Reference Number	: PVR-900
Project Number	: 40173-043
Loan Numbers	: 3076 and 3077

Independent Evaluation ADB

Raising development impact through evaluation

ABBREVIATIONS

ADB	–	Asian Development Bank
DOW	–	Department of Works
DMF	–	design and monitoring framework
EIRR	–	economic internal rate of return
IED	–	Independent Evaluation Department
km	–	kilometer
MFF	–	multitranche financing facility
NRA	–	National Roads Authority
PCR	–	project completion report
PIU	–	project implementation unit
PNG	–	Papua New Guinea
RRP	–	report and recommendation of the President

NOTE

In this report, "$" refers to United States dollars.

Director General	Emmanuel Jimenez, Independent Evaluation Department (IED)
Deputy Director General	Sona Shrestha, IED
Director	Nathan Subramaniam, Sector and Project Division (IESP)
Team Leader	Srinivasan Palle Venkata, Senior Evaluation Specialist, IESP

PROJECT BASIC DATA

Project number	40173-043	**PCR circulation date**	Dec 2021	
Loan numbers	3076 and 3077	**PCR validation date**	Jul 2022	
Project name	Highlands Region Road Improvement Investment Program–Project 2			
Sector and subsector	Transport	Road transport (nonurban)		
Strategic agenda	Inclusive economic growth			
Safeguard categories	Environment		B	
	Involuntary resettlement		B	
	Indigenous peoples		C	
Country	Papua New Guinea		**Approved** ($ million)	**Actual** ($ million)
ADB financing ($ million)	**ADF:** 40.00	**Total project costs**	172.60	117.52
	OCR: 69.00	**Loan**		
		L3076	40.00	36.30
		L3077	69.00	66.20
		Borrower	63.60	15.02
		Beneficiaries	0.00	0.00
		Others	0.00	0.00
Cofinancier		**Total cofinancing**		
Approval date	4 Dec 2013	**Effectiveness date**	26 May 2014	16 Apr 2014
Signing date	25 Feb 2014	**Closing date**	30 Jun 2018	30 Jun 2019
		Financial closing date[a]	-	8 Apr 2021
Project officers		**Location**	**From**	**To**
	S. Khan	ADB headquarters	Dec 2013	Dec 2015
	D. Ling	ADB headquarters	Dec 2013	Dec 2015
	M. Ingratubun	Papua New Guinea Resident Mission	Jan 2016 Jan 2016	Dec 2017 Dec 2017
	G. Ganiga	Papua New Guinea Resident Mission	Jan 2018	Jun 2019
	B. Khpalwan	Papua New Guinea Resident Mission		
IED review				
Director	N. Subramaniam, IESP			
Team leader	S. P. Venkata, Senior Evaluation Specialist, IESP*			

ADB = Asian Development Bank, ADF = Asian Development Fund, IED = Independent Evaluation Department, OCR = ordinary capital resources, PCR = program completion report.
[a] no approved financial closing date
*Team members: E. Gozali (quality reviewer), F. De Guzman (Senior Evaluation Officer), and P. Choynowski (consultant).

I. PROJECT DESCRIPTION

A. Rationale

1. The Highlands Region of Papua New Guinea (PNG) was the primary source of national income and export earnings, mainly from gold, oil and gas, and from agricultural production such as coffee, tea, and vegetables The road network of the Highlands Region was the main transport network used for exporting these commodities and for supplying the resource-extraction enclaves.

The roads are linked to the Lae Port, which is the largest and busiest port of PNG and a major gateway to international trade. About 40% of the PNG population lived in the Highlands Region.

2. The Highlands Region's terrain is rugged, with high mountain ranges, steep valleys, and fast-flowing rivers. About 70% of the roads were in poor condition. The high volume of rainfall, seismic activities, fragile geological conditions, and a highly dispersed population made the road network difficult to develop and maintain. Vehicle overloading—particularly vehicles used by the extractive industries—was also responsible for the deterioration of the roads. Poor road conditions resulted in longer journey times, higher vehicle operating costs, and isolation of rural communities.

3. At appraisal, the multitranche financing facility (MFF) was considered as the the most suitable modality for financing the investment program for the roads improvement because it (i) supported the government's long-term vision of developing the transport sector, (ii) enabled the Asian Development Bank (ADB) to sustain a long-term partnership needed for institutionalizing road maintenance, (iii) enabled ADB to strengthen and improve the national transport development plan and pursue policy dialogue, and (iv) responded to the long-term capacity development needs of road agencies.[1] The MFF was to provide the government with flexibility on the timing and size of investment for each tranche and the opportunity to apply lessons from earlier tranches, including incentives for reforms and implementation efficiency. The MFF also was to raise the confidence of private companies interested in pursuing long-term opportunities in the road sector.

B. Expected Impacts, Outcomes, and Outputs

4. As indicated in the design and monitoring framework (DMF) of the project completion report (PCR), Project 2 (the subject of this validation) had the same intended impact as that of the MFF which was export-driven economic growth and rural development in the Highlands Region. The expected outcome of Project 2 was improved accessibility and reduced transport cost in the Highlands Region. The expected outputs of Project 2 were (i) improved core road network in the Highlands Regions to national standards for road users, including pedestrians; (ii) sustainable maintenance arrangements for the Highlands Region's core road network; (iii) improved capacity of the National Roads Authority (NRA) to plan and manage long-term road maintenance contracts; (iv) a more efficient Department of Works (DOW) that is capable of implementing road improvements; and (v) improved safety capacity of the Road Safety Unit (RSU)

C. Provision of Inputs

5. ADB approved the project in December 2013, according to the project completion report (PCR).[2] The expected date of loan effectiveness was May 2014 and the actual date of effectiveness was April 2014. The proposed loan closing date was June 2018, and the actual closing date was June 2019 with one extension. Procurement issues were the main causes of delays, along with the addition of two kilometers (km) of road and bridges.

6. The program's total investment cost (to be partly financed by the MFF) was estimated at $750 million. The estimated cost of Project 2 was $172.6 million—including taxes, duties, physical

[1] ADB. 2008. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility to Papua New Guinea for the Highlands Region Road Improvement Investment Program*. Manila.

[2] ADB. 2021. *Completion Report: Highlands Region Road Improvement Investment Program–Project 2 in Papua New Guinea*. Manila.

and price contingencies, interest, and other charges. The MFF was approved for an amount up to $400 million in 2008, primarily from the Asian Development Fund and supplemented by ordinary capital resources The approved financing of Project 2 (tranche 2 of the MFF) was $69 million from ADB's ordinary capital resources and SDR26,084,000 from the Asian Development Fund. The government was to finance the balance of $63.6 million.

7. The actual project cost at completion was $117.5 million, 32% less than estimated at appraisal. ADB's contribution was $102.5 million (87%) while the government counterpart contribution was $15 million (13%). The main reason for the lower project cost was the large cost underrun in the civil works, especially on the Ialibu–Kagua section, and in taxes. The DOW reduced the original 32 km Ialibu–Kagua alignment to 14 km after contract award because of a separately financed project initiated after Project 2. This reduced the cost of the road section from $27.3 million to $17.6 million. The timely execution of the Kotna–Lampramp project provided further savings. The cost underruns led to the cancellation of $2.85 million from the loans.

8. At appraisal, Project 2 required a total of 1,124 person-months of services from consulting firms. This comprised 640 person-months for construction supervision, 456 person-months for the NRA, 18 person-months for the road asset management system, and 10 person-months for National Road Safety Council support, according to the periodic financing request.[3] The PCR did not provide details on the actual consulting services that were utilized.

9. The project was classified category B for environment and involuntary resettlement. The main potential environmental impacts were land clearing, earthworks, dust, noise, tree trimming, materials sourcing and transport, construction traffic issues, construction camp, waste disposal, and discharges. The initial environmental assessment indicated that these impacts could be mitigated to acceptable levels. The widening of roads was to require additional land and clearances of trees and some structures. The project was classified category C for indigenous peoples. Project 2 was categorized as having some gender elements.

D. Implementation Arrangements

10. According to the RRP for the investment program, the DOW was to be the executing agency and the implementing agency for the road improvement works. The NRA was to be the implementing agency for road maintenance. The Highlands Road Management Group—the project implementation unit (PIU) in the DOW for ongoing ADB loans—was to be responsible for implementing road improvement works. The Highlands Road Management Group was to be responsible for engaging all consulting services and road improvement contracts under the investment program. The NRA was to establish a PIU comprising key NRA staff, supported by consultants. A program steering committee, chaired by the Secretary of the DOW, was to oversee the program's implementation, monitor its progress, approve roads for subsequent projects, and provide guidance to the executing and implementing agencies.

11. During the implementation of Project 2, the DOW was the executing and implementing agency.[4] The DOW and NRA had PIUs based in Port Moresby and field offices in the Highlands Region. The construction supervision consultant assisted the DOW in engineering and

[3] ADB. 2013. *Periodic Financing Request Report: Highlands Region Road Improvement Investment Program–Project 2*. Manila.

[4] The PCR noted that although the NRA was to maintain the roads once upgraded, its development as an institution was hampered by institutional rivalries, with unresolved questions on responsibilities and jurisdiction. The NRA was eventually disbanded as an entity in January 2021.

management tasks, and in capacity building. The PIU in the DOW at Port Moresby managed the loan's financial management and procurement and coordinated with other agencies. The Highlands Road Management Group's office in Mount Hagen conducted the surveys, prepared specifications and designs, and supervised construction works. It also initiated and monitored environmental and social safeguards and provided the reports. The NRA assigned PIU functions to separate offices in Port Moresby (maintenance planning, procurement, and finance) and in Mount Hagen (maintenance contract supervision and management). A project steering committee, chaired by the Secretary of the DOW, monitored the project's implementation, and provided guidance and approvals to the executing agency and implementation agency. All 32 covenants in the loan agreements were complied with.

II. EVALUATION OF PERFORMANCE AND RATINGS

A. Relevance of Design and Formulation

12. The PCR rated the project relevant. The project's emphasis on maintaining the rehabilitated roads was relevant, although there was a recent drift of focus toward new, large, expensive, and high-profile road projects, such as those featured in the Connect PNG plan.[5] The project was transformational in terms of building strong capacity on environmental and social safeguards by providing on-the-job training programs. The choice of the MFF modality was appropriate because it allowed for a smooth transition from Project 1 to Project 2. The modality helped Project 1 engineers to continue working when the procurement of the construction supervision consultant under Project 2 was delayed.

13. The project's design focused on improving road infrastructure and developing capacity to plan, finance, and manage contracts for road maintenance. The three minor variations to the initial design were as follows: (i) upgrading two additional kilometers of road and replacing 11 bridges; (ii) reducing the government's counterpart funding from 37% to 10%; and (iii) reducing the length of the Ialibu–Kagua alignment from 32 km to 14 km. The additional output of constructing 11 bridges was included under a separate DOW investment program, which did not materialize. The omission of bridges would have decreased benefits, disrupted traffic, prevented the movement of heavier vehicles, and created a potential safety hazard. The counterpart funds were reduced due to the government's fiscal situation, which was the result of a period of lower commodity prices, slower economic growth, and an overstretched national budget.

14. The project's focus was consistent with ADB's country partnership strategy for 2011–2015, which focused on upgrading and maintaining priority infrastructure.[6] It was also aligned with ADB's 2010 Sustainable Transport Initiative that emphasized road maintenance financing and asset preservation.[7] The project was in line with the focus of the government's Medium-Term Development Plan for 2011–2015 for export-driven growth and reduced poverty.[8] It was also in line with the 2013 National Transport Strategy, which emphasized infrastructure maintenance;

[5] Government of Papua New Guinea, Department of Works. 2020. *Connect Papua New Guinea (PNG) Economic Road Transport Infrastructure Development Program, 2020–2040*. Port Moresby.
[6] ADB. 2011. *Country Partnership Strategy: Papua New Guinea, 2011–2015*. Manila.
[7] ADB. 2010. *Sustainable Transport Initiative: Operational Plan*. Manila.
[8] Government of Papua New Guinea, Department of National Planning and Monitoring. 2010. *Papua New Guinea Medium-Term Development Plan, 2011–2015*. Port Moresby.

and the Medium-Term Development Plan III for 2018–2022, which focused on integrated construction and maintenance contracting arrangements.[9]

15. The DMF in the Project 2 periodic financing request contained impact, outcome outputs, and milestones that followed the structure and content in the RRP. However, the envisaged program's economic impacts, such as increased production and marketing of cash crops and higher incomes, were large-scale national economic goals that did not have direct links with the improvement of 120 km of road. The outcome indicators were relevant to the goal of improved transport. Output indicators were aligned with the project's scope.

16. Project 2 addressed the transport constraints in the Highlands Region and was consistent with government and ADB priorities. The design and lending modality were also appropriate. Therefore, this validation assesses the project relevant.

B. Effectiveness in Achieving Project Outcomes and Outputs

17. The PCR rated the project effective. The PCR indicated five outcome targets to be achieved by 2018 for the broader investment program. Of these five, three were not achieved. One was the traffic growth target, which was not achieved by 2018, while information on two indicators for the international road roughness index and road safety were not available. Specifically for Project 2, the indicators for travel time reduction and frequency of public motor vehicle service were achieved.

18. On Project 2 outputs, 6 of the 12 targeted outputs were achieved, 2 were partly achieved, and 4 were not achieved. Improvements to 120 km of the Highlands Region road network were achieved. Appropriate signage and safety features along the improved roads were also achieved. The NRA prepared annual maintenance plans and supervised maintenance contracts for 360 km of the 500 km targeted Highlands Region road network. However, the NRA was disbanded in 2021 and there were no maintenance contracts in place when Project 2 was completed. Thus, this indicator was not achieved. Road user charges doubled in 2017 from 4 toea to 8 toea per liter of fuel, which was less than the 150% target. Hence, this target was partly achieved. The NRA prepared annual road maintenance plans and this responsibility was later transferred to the DOW. This was achieved. The length of roads maintained decreased from the expected 850 km to just 800 km. Moreover, no new long-term, performance-based maintenance contracts were being pursued; thus, this output target was partly achieved. A 250% increase in the number of road improvement contracts awarded and managed exceeded the 150% target. Hence, this was achieved. The DOW's environment unit was to be strengthened and expanded to include a safeguards unit with three staff, including two female staff. The unit employed eight staff, one of them was a female. This output target was largely achieved. Road condition surveys were not current and the road asset management system data covering the Highlands Region road network was out of date. Therefore, the establishment of a road inventory database in the DOW covering 3,225 km was not achieved. No periodic traffic condition survey program was established and implemented for the Highlands Region road network and no road safety audits were undertaken. For the Highlands Region road network, an accident database was established, thus, this target was achieved. With the closure of the NRA and the subsequent lack of progress in the road asset management system database, it was difficult to measure the key performance indicators in the DMF. These included the maintenance contracts, annual road maintenance plans, long-term

[9] Government of Papua New Guinea, Department of Transport. 2013. *National Transport Strategy*. Port Moresby; Government of Papua New Guinea, Department of National Planning and Monitoring. 2018. *Medium-Term Development Plan III, 2018–2022*. Port Moresby.

performance-based maintenance contracts, the extent of the road condition database, and the periodic traffic condition survey.

19. The safeguard categorizations at appraisal were correct. The project's expected impact on the environment included the potential adverse impact from road improvement. Three initial environmental examinations, each including an environmental management plan, were prepared. Resettlement plans were prepared for the three road subsections that were expected to displace fewer than 200 persons in terms of housing and affected less than 10% of customary landholdings.[10] None of the indigenous peoples to be affected were identified as "distinct" or "vulnerable" based on the Safeguard Policy Statement (2009) definition of indigenous peoples.

20. Given the shortfall in achieving the outputs and outcomes, including the lack of data on road quality and road safety, this validation assesses the project less than effective.

C. Efficiency of Resource Use

21. The PCR rated the project less than efficient since the economic internal rate of return (EIRR) was estimated at 10.1%, which was below the 12.0% threshold for opportunity cost of capital. The estimated EIRRs at appraisal for individual subprojects ranged from 13.7% to 18.7%, while after completion, the reevaluated EIRRs were from 3.4% to 12.5%. Overly optimistic traffic estimates at appraisal were the main cause of the lower EIRRs. The subprojects' actual traffic counts in 2021 were 33%–73% of those estimated at appraisal.

22. In this validation's view, assuming that generated traffic or the induced travel due to the project is just 1%, then the estimated EIRR at appraisal is likely an overestimate. In any case, since the estimated EIRR of 10.1% is below the 12.0% threshold, this validation assesses the project less than efficient.

D. Preliminary Assessment of Sustainability

23. The PCR rated the project less than likely sustainable. This is due to the lack of initiative to maintain the project roads over the longer term. Although the DOW's Road Fund staff were trained in maintenance management, the institutional culture is focused more on road rehabilitation and upgrading and less on planning and executing regular, routine, or periodic maintenance. Moreover, the Road Fund no longer has a recurrent source of funds dedicated to maintenance. Regular maintenance must compete with other DOW funding priorities. The development of safeguards capacity, in contrast, could enhance sustainability. The trained safeguards staff in the Environment and Social Safeguards Branch improved its engagement with communities, which could strengthen the implementation of other road projects. The Road Safety Unit hired new staff and expanded the accident database, although better internal capacity and more cooperation from other agencies were needed to perform road safety audits. This validation assesses the project less than likely sustainable.

---

[10] Customary landholdings refer to the case where land titles are communal as opposed to individual.

III. OTHER PERFORMANCE ASSESSMENTS

A. Preliminary Assessment of Development Impact

24. The PCR rated the development impact of the project highly satisfactory. The three impact indicators in the DMF were (i) average annual economic growth of 5% for PNG by 2018, (ii) average annual export growth of 10% by 2018, and (iii) a 10% decrease from the 2009 baseline in the number of people below the poverty line in the project area. None of the development impact indicators in the DMF were achieved. Gross domestic product from 2015 to 2019 grew at an average annual rate of 4%. Average annual exports during 2015–2019 grew at a rate of 4%. For the third indicator, the PCR provided only a national figure where the share of the population living below the poverty line rose from 28% in 2013 to 40% in 2019.

25. Nevertheless, the PCR stated that the socioeconomic impacts to roadside communities were considerable. Although anecdotal, the PCR noted that the roads provided faster access to towns, which made public motor vehicle operations more frequent and economical. On the Mendi–Tambul road, public motor vehicle service increased from a few trips per day to 15–20 trips per day. Faster, more frequent, and cheaper bus service allowed farmers to travel to markets to sell goods, stimulating a larger production of cash crops. More frequent and cheaper public motor vehicle service allowed shop owners to obtain more supplies that could be sold at lower prices. Coffee traders visited more frequently and, as a result, purchases increased and incomes rose, while the cost of transporting foodstuffs and other essentials fell, increasing the consumption of most residents living near the roads. A DOW survey of schools found that enrollments near project roads increased at a rate of 5%–19% per year and that visits to health aid posts also increased. The project's social monitoring reports showed similar trends.

26. The project had a positive impact on employment and other income-earning opportunities from the civil works. Of those employed, 50% or more were affected people from the community and 12%–23% were female. Civil works contractors purchased local food and materials and rented land and quarries from roadside communities. Contractors also built community structures and donated them to the communities after completing subprojects and shared electricity with neighbors. Contractors provided a variety of useful in-kind amenities such as concrete laundry basins, walkways to schools, churches, markets, water holes, and springs. Contractors built structures on school campuses during project implementation and then turned these over to the host institutions after completing their contracts.

27. The development impact indicators in the DMF were not achieved. Although the PCR provided anecdotal evidence of a positive development impact, given that the roads are not likely to be maintained and the expected impact of the roads may not be commensurate to the scale of the project, this validation assesses the development impact less than satisfactory.

B. Performance of the Borrower and Executing Agency

28. The PCR rated the performance of the borrower and executing agency satisfactory. The DOW prepared bid documents and associated evaluations but encountered delays in obtaining approvals through the government procurement processes. ADB's Office of Anticorruption and Integrity carried out an integrity review for Projects 1 and 2 to verify compliance with policies, guidelines, and loan agreements, with a focus on detecting and preventing integrity violations. The review identified several findings, including weak records management, procurement and financial management capacity concerns, unsubstantiated payment claims,

conflicts of interest, procurement competition concerns, bid and/or proposal evaluation deficiencies, and construction output quality issues. The review made 18 recommendations to improve project implementation and supervision. A follow-up review of nine of the most important recommendations found that six of the recommendations were not implemented, which continued to expose the project to integrity risks (PCR, paras. 66–67). As a result of the second review, the DOW initiated measures to implement the recommendations, mainly by adapting the Integrated Financial Management System. The DOW prepared the annual project financial statements. However, these were not submitted in a timely manner.

29. A governance assessment was conducted during the preparation of the investment program that identified risks and mitigating actions and these were discussed with the government. In this validation’s view, the borrower and executing agency did not adequately implement the mitigating actions expected at appraisal. Corrective action during implementation or after project completion would likely be not as effective. Therefore, this validation assesses the performance of the borrower and executing agency less than satisfactory.

C. Performance of the Asian Development Bank

30. The PCR rated ADB performance satisfactory. ADB provided regular monitoring, including bid document preparation, and bid evaluation; conducted regular field review missions; and identified and resolved issues at an early stage. There were 11 operational missions, six of which had safeguard officers as members. However, ADB was slow in ensuring that annual project financial statements were produced in a timely manner (PCR, para. 70). ADB insisted on regular project audits and carried out a proactive integrity review for compliance with procedures and to prevent integrity risks (PCR, paras. 66–67). On the whole, the validation assesses ADB performance satisfactory.

IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS

A. Overall Assessment and Ratings

31. The PCR rated the project less than successful. It rated the project relevant, effective, but less than efficient and less than likely sustainable. The project addressed some of the development issues in the Highlands Region and was consistent with the government’s and ADB’s priorities. Only six out of 12 envisaged outputs were achieved. Since the expected volume of traffic did not materialize, the EIRR was below the 12% threshold. Resources to maintain project roads were also not assured. This validation rated the project relevant, but less than effective, less than efficient, and less than likely sustainable. Overall, it assessed the project less than successful.

Overall Ratings

Validation Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Relevance	Relevant	Relevant	
Effectiveness	Effective	Less than effective	Outputs and outcomes were only partially achieved. Data relating to targets on road quality and road safety are lacking.
Efficiency	Less than efficient	Less than efficient	

Validation Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Sustainability	Less than likely sustainable	Less than likely sustainable	
Overall Assessment	**Less than successful**	**Less than successful**	
Preliminary assessment of impact	Highly satisfactory	Less than satisfactory	Development impact indicators in the DMF were not achieved. Given that the road maintenance is likely to be an issue, the development impact may not be commensurate with the scale of the project.
Borrower and executing agency	Satisfactory	Less than satisfactory	The borrower and executing agency did not implement many of the important recommendations made by ADB.
Performance of ADB	Satisfactory	Satisfactory	
Quality of PCR		Satisfactory	Para. 38.

ADB = Asian Development Bank, DMF = design and monitoring framework, IED = Independent Evaluation Department, PCR = project completion report.
Source: ADB (Independent Evaluation Department).

B. Lessons

32. The PCR identified eight lessons. First, the notions of recurring funding for road maintenance and an independent agency devoted to managing road maintenance remain worthy, although strengthening institutions has many challenges and risks. Second, procurement delays are a feature of large contracts in PNG and there are many steps in national procedures that result in long periods for endorsement of contract awards. Third, MFFs proved that they are well-suited for advance preparation for procurement. Fourth, robust safeguards are valuable, not only as an approach to preserving natural resources, ecosystems, health, livelihoods, social bonds, and cultural resources as ends in themselves, but also as a tool to engage with communities and facilitate implementation. Fifth, during project selection and other phases of design in PNG, it is important to investigate and identify legacy grievances and disputes. Sixth, PNG's economy is resource-driven and exported commodities are subject to large swings in demand and price. Hence, the national economy and government finances are volatile and government counterpart funding will be a risk for the foreseeable future. Seventh, in preparing future projects, it should be noted that the government has limited capacities in procurement, project financial management, contract implementation, and contract management. Eighth, the executing agency needs to improve processes and expand efforts to work with consultants and international partners to enable them to submit audited project financial statements on a timely basis.

33. This validation offers two more lessons. First, the collection of data on project socioeconomic benefits allows better assessment of a project's development results. Projects that establish project performance management systems are likely to assess the economic viability and development impacts of road projects more accurately. Second, better estimation of generated traffic—based on "with-the-project" and "without-the-project" traffic forecasts—helps avoid the overestimation of vehicle operating cost savings. This is also a better approach in cost–benefit analysis and minimizes the overestimation of a project's economic viability indicator (i.e., EIRR).

C. Recommendations for Follow-Up

34. The PCR suggested four recommendations. First, in the PNG transport sector, ADB should continue to take advantage of the MFF mechanism's ability to fast-track the preparation of project design, specifications, and tender documents under an earlier tranche and/or project phase so that the tender process could begin soon after the loan becomes effective or even before—under advance procurement. Second, ADB should continue to seek and support opportunities to ensure the sustainable financing of road maintenance. ADB capacity-building initiatives should include the development of dedicated and recurrent funding sources, maintenance planning, monitoring, accounting, and financial management. Third, the implementation of subproject components should seek community engagement. Fourth, ADB should ensure that the government's counterpart funding meets the agreed upon share in the project cost. This validation supports these recommendations.

V. OTHER CONSIDERATIONS AND FOLLOW-UP

A. Monitoring and Reporting

35. The RRP required that the DOW and NRA monitor and evaluate the impacts of the investment program to ensure that the completed infrastructure was managed effectively, and the benefits are maximized. The ADB management was to prepare periodic reports to inform the ADB Board of the program's overall progress. A socioeconomic impact study was prepared in 2018 to assess the impact of rural road rehabilitation on socioeconomic development and poverty reduction in six Highland provinces.[11]

36. The RRP also required that consultants for the program's implementation were to work with the DOW in collecting data to measure performance indicators at inception, 3 years after the completion of each project and/or tranche, and at the completion of the investment program. Key findings were to be reported to ADB on a quarterly basis. This requirement was not covenanted. Also, the PCR did not discuss the design and implementation of a program and/or project performance management system or data collection, analysis, and reporting.

37. The DOW prepared audited project financial statements from 2015 to 2020. The statements were audited according to government and international standards and were acceptable to ADB. ADB assisted the executing agency and the project team leader in producing audited project financial statements in a timely manner. The DOW was thorough in submitting safeguards document, such as the resettlement plan, memoranda of understanding for each subproject, and semiannual environmental and social monitoring reports. The contractor submitted a complete series of three socioeconomic impact monitoring reports (baseline, midterm, and impact).

B. Comments on Project Completion Report Quality

38. The PCR discussed the four core evaluation criteria succinctly and provided appropriate justifications for their ratings. The main shortcoming in the report was the inappropriate quantification and valuation of incremental traffic in the EIRR calculation. On the noncore evaluation criteria, the PCR was less candid on the development impacts of the project and the borrower's and executing agency's performance. The PCR should have based its rating of

[11] ADB. 2018. *Socioeconomic Impact Study for the Highlands Region Road Improvement Investment Program*. Manila.

development impact on actual data rather than on anecdotal evidence. The rating for borrower and executing agency performance should also have considered implementing the recommendations made by ADB. Nevertheless, the PCR's assessment that the project was less than successful is justified. This validation assesses the quality of PCR satisfactory.

C. Data Sources for Validation

39. Data sources for this validation included the RRP, PCR, and mission reports.

D. Recommendation for Independent Evaluation Department Follow-Up

40. The PCR suggested that a project performance evaluation report be prepared in the first half of 2023. This validation supports the recommendation that a project performance evaluation report be prepared, which would be an opportunity to check the project's sustainability of outcome targets and the extent of development impact realized.