Validation Report
December 2019

Papua New Guinea: Highlands Region Road Improvement Investment Program-Project 1

Reference Number: PVR-652
Project Number: 40173-023
MFF Number: 0029
Loan Number: 2496 and 2497

Independent Evaluation ADB

Raising development impact through evaluation

ABBREVIATIONS

ADB	–	Asian Development Bank
DMF	–	design and monitoring framework
DOW	–	Department of Works
EIRR	–	economic internal rate of return
km	–	kilometer
MFF	–	multitranche financing facility
NRA	–	National Roads Authority
NTDP	–	national transportation development plan
PCR	–	project completion report
PNG	–	Papua New Guinea
TA	–	technical assistance

NOTE

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

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PROJECT BASIC DATA

Project Number	40173-023	**PCR Circulation Date**	19 June 2019	
Loan Numbers	2496 and 2497	**PCR Validation Date**	Dec 2019	
Project Name	**Highlands Region Road Improvement Investment Program-Project 1**			
Sector and subsector	Transport	Road transport (nonurban)		
Strategic agenda	Inclusive economic growth			
Safeguard categories	Environment		B	
	Involuntary Resettlement		B	
	Indigenous Peoples		B	
Country	Papua New Guinea		**Approved** ($ million)	**Actual** ($ million)
ADB Financing ($ million)	**ADF:** 71.20 (L2496) 28.80 (L2497)	**Total Project Costs**	140.00	139.41
	OCR: 0.00	**Loan**	100.00	99.41
		Borrower	40.00	40.00
		Beneficiaries	00.00	00.00
		Others	00.00	00.00
Cofinancier	-	**Total Co-financing**	00.00	00.00
Approval Date	22 Dec 2008	**Effectiveness Date**	18 May 2009	18 May 2009
Signing Date	19 Feb 2009	**Closing Date**	30 Jun 2013	7 Aug 2017
Project Officers		**Location**	**From**	**To**
	H. Masood	ADB headquarters	2008	2011
	A. Lee	PNRM	2008	2013
	S. Muramoto	ADB headquarters	2013	2017
IED Review				
Director	N. Subramaniam, IESP			
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ADB = Asian Development Bank, ADF = Asian Development Fund, IED = Independent Evaluation Department, IESP = Sector and Project Division, OCR = ordinary capital resources, PCR = project completion report, PNRM = Papua New Guinea Resident Mission.
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I. PROJECT DESCRIPTION

A. Rationale

1. The Highlands Region is Papua New Guinea's (PNG) primary source of national income and export earnings, mainly from gold, oil and gas, as well as from agricultural production, such as coffee, tea, and vegetables. The terrain is rugged, with high mountain ranges, steep valleys and fast-flowing rivers. About 40% of the PNG population lives in the Highlands Region. The Highlands road network provides a lifeline for exporting these commodities and for the supplies to the resource enclaves and general population, and the main link with Lae Port.

2. About 70% of the Highlands Region's roads were considered in poor condition. High rainfall, seismic activities, fragile geological conditions and a highly dispersed population made the road network difficult to develop and sustain. Vehicle overloading was also a factor

responsible for the deterioration of the road network, particularly because of heavily loaded vehicles from the extractive industries. Poor road conditions resulted in longer journey times, higher vehicle operating costs, and the isolation of rural communities.

3. The Highlands Region Road Improvement Investment Program, a multitranche financing facility (MFF), aimed to ensure the maintenance of the Highlands Core Road Network, comprising 2,500 kilometers (km) of major national and provincial roads.[1] The program was consistent with the government's National Transport Development Plan (NTDP)[2] that provided a policy framework and investment plan for road sector development that corresponded with the objectives of the government's Medium-Term Development Strategy for 2005–2010.[3] The NTDP also stressed the importance of institutional reforms and promote road safety. The Asian Development Bank's (ADB) Country Strategy and Program for 2006–2010 in PNG supported the implementation of the Medium-Term Development Strategy through its program for road rehabilitation and maintenance in the Highlands Region.[4]

4. The MFF was the most suitable modality for financing as it (i) supported the government's long-term vision for developing the sector, (ii) enabled ADB to sustain the long-term partnership needed to institutionalize road maintenance, (iii) allowed ADB to strengthen and improve the NTDP and actively pursue policy dialogue, and (iv) responded to the long-term capacity development needs of the road agencies. It provided the government (i) flexibility on the timing and size of the investments for each tranche, and (ii) opportunity to apply lessons from earlier tranches and to include incentives for reforms and implementation efficiency. It also provided comfort to private companies interested in pursuing long-term opportunities in the road sector (footnote 1).

5. The MFF is funded through three tranches. The first tranche (Project 1) had six components. The physical component was improvements to 211 km of national roads. Two components supported the Department of Works (DOW) and the National Roads Authority (NRA) in project implementation. Another two components were for consulting services to both DOW and NRA for project supervision, and consulting services for capacity development and improving road transport services. The last component was for a socioeconomic monitoring study.[5] Projects 2 and 3 are ongoing projects.

B. Expected Impacts, Outcomes, and Outputs

6. The design and monitoring framework (DMF) in the report and recommendation of the President stated that the intended impact of the project was export-driven economic growth and rural development in the Highlands Region. The expected outcome was improved accessibility and reduced transport cost in the Highlands Region. The five project outputs included improved core road network in Highlands Region[6] and sustainable maintenance arrangements

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[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] Government of Papua New Guinea, Ministry of Transport and Civil Aviation. 2006. *National Transport Development Plan*. Port Moresby.

[3] Government of Papua New Guinea. 2004. *The Medium-Term Development Strategy, 2005–2010—Our Plan for Economic and Social Advancement.* Port Moresby.

[4] ADB. 2006. *Country Strategy and Program: Papua New Guinea, 2006–2010.* Manila.

[5] ADB. 2019. *Completion Report: Highlands Region Road Improvement Investment Program-Project 1 in Papua New Guinea*. Manila.

[6] The 5 roads were: Nipa–Magarima (26 km), Magarima–Ambua (41 km), Hiwinda Junction–Koroba (29 km), Mendi–Kandep (50 km), and Laiagam–Porgera (65 km).

for the core road network. It also had soft items—improved capacity of NRA to plan and manage long-term road maintenance contracts and a more efficient DOW capable of delivering road improvements as well as a new NTDP for 2011 to 2020.

C. Provision of Inputs

7. The total investment program cost was estimated at $750 million and ADB financing through the MFF was estimated at $400 million over a 10-year implementation period. Financing was to be provided primarily from the Asian Development Fund, supplemented by ordinary capital resources. Cofinancing of about $80 million was expected from the Japan International Cooperation Agency on concessional terms from the second tranche onwards. Other development partners had expressed interest in cofinancing the remaining $70 million. The government was to provide counterpart financing of $200 million.

8. According to the project completion report (PCR), Project 1 was approved in December 2008. The actual date of effectiveness of the project was in May 2009, same as planned. While the loan agreement for the project stated that the loan closing date was to be in June 2013, the actual loan closing was after two extensions in August 2017 (footnote 5).

9. Project 1 total cost, which included taxes, duties, physical and price contingencies, interest, and other charges, was estimated at $140 million. At appraisal, the government requested[7] two loans totaling $100 million from the Asian Development Fund (a "hard-term" loan of $28.8 million and a "soft-term" loan of $71.2 million) to finance Project 1. The ADB loans were to finance 71% of the total cost of Project 1. The government was to finance the remainder in the amount of $40 million, including local taxes and duties. The PCR did not discuss the financing arrangements at completion but it mentioned in Appendix 2 that in September 2015, ADB increased the loan financing percentage for civil works from 34% to 62% for the two loans (footnote 1). Before project commencement, the government postponed the rehabilitation of three of the five road sections under Project 1 as these would have hindered traffic and disrupted the construction of a new liquefied natural gas facility in the Southern Highlands Province. However, the three road sections were rehabilitated by the government with the assistance of ExxonMobil for the transportation needs of the natural gas project.[8] The revised total cost estimate of Project 1 was $111.1 million.

10. The total cost at completion of Project 1 was $139.4 million. There were several reasons for the higher actual cost. First, the unit construction cost estimated during project preparation was based on road-improvement contracts that were ongoing at that time under the supplementary financing for the Road Maintenance and Upgrading (Sector) Project.[9] However, during the detailed engineering design on the Project 1 roads, it was determined that these unpaved roads needed not only sealing, but also major improvements in road geometry and drainage. Second, the liquefied natural gas project raised unit costs in the construction industry nationwide. Third, the replacement, upgrading, and reconstruction of seven bridges in

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[7] Government of Papua New Guinea, Ministry of Finance. 2008. *Periodic Financing Request 1: Highlands Region Road Improvement Investment Program.* Port Moresby.

[8] Exxon Mobil Corporation, one of the world's largest publicly traded energy providers and chemical manufacturers, develops and applies next-generation technologies to help safely and responsibly meet the world's growing needs for energy and high-quality chemical products. See https://corporate.exxonmobil.com/Company/Who-we-are. (accessed November 2019).

[9] ADB. 1999. *Report and Recommendation of the President to the Board of Directors*: *Proposed Road Improvement Investment Program*. Port Moresby.

the Mendi–Kandep road and nine bridges in the Laiagam–Porgera road were unplanned. Fourth, payment to the PNG defense and police forces to maintain law and order at the construction sites was unforeseen. And finally, land compensation claims were increased.

11. The project was categorized B for environment, involuntary resettlement, and indigenous peoples at appraisal. All five roads under the project included improvements within the existing road corridor. There were no road sections located in or passing through protected areas or ecologically sensitive environments. The environmental impacts of the project roads during construction and operation were assessed and were to be mitigated to acceptable levels.

12. The government had already acquired the public road reserve for the Highlands Highway from Lae to Mendi and planned to acquire land along all Project 1 roads. The additional land needed for road improvement works for Project 1 was minor. Affected clans and communities were to be compensated for land; individuals and households with assets on the land were to be compensated for damage or loss; and clans and communities were to continue to occupy and use the land in the road reserves outside those for road improvement. There was to be no displacement of housing, and people were to experience only small losses of crops, trees, fences or other secondary structures. Tribes or ethnic groups did not consider themselves as minorities. The resettlement framework and plans were to address specific actions favorable to indigenous peoples, if necessary, in dealing with the customary land acquisition. Project 1 also included technical assistance (TA) to the Department of Transport to help prepare the NTDP for 2011–2020.[10]

D. Implementation Arrangements

13. DOW was to be the executing agency for the investment program and the implementing agency for the road improvement works. NRA was to be the implementing agency for road maintenance, including all road maintenance works contracted directly by NRA or transferred from DOW. The Highlands Road Management Group, the DOW project implementation unit for ongoing ADB loans, was to be responsible for implementing road improvement works. The existing project director for ADB loans was also to be responsible for the investment program. NRA was to establish a project implementation unit consisting of key NRA staff and supported by consultants. A program steering committee was to oversee program implementation, monitor progress, approve roads for subsequent projects, and provide guidance to the executing and implementing agencies. For Project 1, consultants were to assist DOW in the detailed engineering bid documents, environment and resettlement plans, tendering, and contract awards. All resettlement activities were to be completed before civil works were to begin.

14. There were no major changes to implementation arrangements during project implementation. The Highlands Road Management Group was originally to be responsible for implementing the road improvement works. However, as the office of the project director was based at DOW headquarters in Port Moresby, project implementation unit functions gradually shifted to the project director’s office in Port Moresby. The program steering committee met 12 times during Project 1 implementation period. This is equivalent to about 37% of the required meetings over the 8-year active life of the project, as stipulated in the loan covenants.

[10] Attached Technical Assistance (accessible from the linked documents in the Supplementary Appendixes in the report and recommendation of the President for the MFF). This is TA 7214-PNG on the preparation of the National Transport Development Plan (2011–2020).

15. At appraisal, it was estimated that Project 1 would require 1,266 person-months (362 international and 904 national) of services from consulting firms. The consulting services were to be financed from the ADB loans. Consultants were recruited and there were no major consultant recruitment problems with the road maintenance component. However, the consultant firm engaged to support NRA with road maintenance was underutilized due to inadequate funds for road maintenance works. This led the consultant to focus more on improving designs and preparing operation and maintenance manuals instead of performing road maintenance supervision. When the consulting firm's contract ended, the firm was replaced by individual road maintenance engineers. For the road improvement component, international consultants were recruited as DOW had difficulty hiring qualified and capable national consultants. The PCR rated the overall performance of the consultants less than satisfactory. The TA helped to formulate the NTDP for 2011–2020. The TA completion report rated the TA successful.[11] It also found the TA relevant to the needs of the sector, well formulated, and timely. However, the implementation of the TA highlighted the weak capacity of the government agencies involved, including weak interagency communication and alignment.

16. The loan agreements had 41 covenants, of which 35 were complied with, 5 were partly complied with, and one was not complied with. Although training was to be provided to the environment staff, the only environmental safeguards training conducted were in June 2016 and 2017 after project implementation had ceased. The covenants that were partly complied with included (i) road maintenance not being transferred from DOW to NRA in a phased manner; and (ii) the government not increasing maintenance resources for the Road Fund, which reduced the efficiency and effectiveness of project outputs. Some of the environmental monitoring and capacity development requirements were delayed. Land compensation payments were delayed due to inadequate funds and late formation of the grievance redress committee, which lessened beneficiary ownership. Local customs and culture prevented local contractors from recruiting women to the level of 30% of their workforce, and thus restrained the positive gender impact.

II. EVALUATION OF PERFORMANCE AND RATINGS

A. Relevance of Design and Formulation

17. The PCR rated the project relevant. Its intended outcomes were strategically aligned (para. 3) with the government's development priorities in the Medium-Term Development Strategy for 2005–2010 and with ADB's country, sector, and corporate strategies at time of appraisal, including PNG's Country Strategy and Program for 2006–2010 (footnote 4). The PCR said the project design was appropriate for achieving the intended outputs and outcomes and had adopted the lessons from previous PNG projects. The MFF was an appropriate financing modality (para. 4).

18. ADB financed only two of five road sections. The PCR noted that the liquefied natural gas project, which postponed the implementation of two Project 1 roads, and the lack of government financing for road maintenance were unforeseeable external events. These reduced the planned project scope, which negatively affected the relevance of the project. Three of the five project roads were rehabilitated with financing from other sources (para. 9); Project 1 financed only the two remaining roads—the Mendi-Kandep road (50 km) and the Laiagam-Porgera road (65 km).

[11] ADB. 2017. *Technical Assistance Completion Report: Review of the National Transport Development Plan in Papua New Guinea.* Port Moresby.

19. The PCR did not sufficiently analyze whether ADB approved the project based on a solid investment plan. The change in the original project scope affected the rationale of the project, particularly from a project design perspective. This validation also finds that the design issues resulted in cost overrun in the upgrading, and reconstruction of seven bridges for the Mendi–Kandep road and nine bridges for the Laiagam–Porgera road. The need for rehabilitation of the bridges should have been foreseen and was a substantial design flaw of the project. The higher cost may have led to economic non-viability of these road sections and a complete redesign of the project. In view of the insufficient coordination with other projects during project preparation and the design issues, this validation considers the project less than relevant.[12]

B. Effectiveness in Achieving Project Outcomes and Outputs

20. The PCR rated the project less than effective. Of the six targeted outcomes, three were not fully measured—annual increase in traffic, reduction in overloaded vehicles, and decrease in accidents. The remaining outcomes that were achieved included road maintenance, reduced travel time, and increase in public motor vehicle services. The change in scope and reduced outputs resulted from the government's decision regarding the liquefied natural gas project (para. 9).

21. Safeguard plans and monitoring reports were adequate, frequently disclosed, and executed on time. The negative environmental and social impacts of the project were minimized. However, the implementation of the resettlement plan was delayed because of the late finalization of rates for compensation and cash payments. There were no remaining or unresolved safeguard-related issues or complaints resulting from the project.

22. The resettlement framework complied with relevant PNG laws and regulations and ADB's Policy on Involuntary Resettlement and funds were allocated for compensation. The resettlement framework plan was implemented with some initial delays in land compensation payments. DOW did not always complete compensation payments before civil works contractors were mobilized and there was a delay in forming the grievance redress committee. Independent Evaluation Department's Project Safeguard Assessment rated resettlement largely satisfactory.[13] There were no issues regarding indigenous peoples, but the project presented significant challenges as many communities were characterized by the persistence of intra- and inter-tribal conflicts.

23. This validation also notes that of the six expected project outputs, one was achieved, three were partly achieved, and two were not achieved, according to the design and monitoring framework in the PCR. This validation assesses Project 1 less than effective.

C. Efficiency of Resource Use

24. The PCR rated the project efficient. economic internal rate of return (EIRR) for the Mendi–Kandep road was estimated at 17.8% and for the Laiagam–Porgera road it was 17.7%. The EIRRs were based on savings in transport costs. Appendix 10 of the PCR provided little discussion of how the EIRRs were calculated or on the assumptions used in their calculation. The appendix did not provide information on traffic volumes in the "with project" and "without project" scenarios, the shadow pricing of costs and benefits, or how project benefits were

[12] Management remains firm on the PCR findings and assessment on project relevance (please see Appendix 1).
[13] ADB (Independent Evaluation Department). 2019. Project Safeguard Assessment: Highlands Region Road Improvement Investment Program–Project 1 in Papua New Guinea. 20 August (internal).

identified, quantified, and valued. Overall, it was not possible to assess the veracity of the recalculated EIRRs. This validation notes that it would be difficult to propose a scenario where the discounted net economic benefits of the rehabilitation of two relatively short sections of roads in the remote mountainous areas of PNG would be in the $140 million range, the economic cost of the rehabilitation. The PCR noted that the completion was delayed by 33 months due to delays in project start-up resulting, in part, from (i) the slow engagement of project support consultants and contract awards, and (ii) construction delays that were partly due to the initial hostile reaction of some affected local communities. There were also delays in (i) government counterpart funding, and (ii) closing the project account, partly resulting from the additional time required to settle land compensation claims, and the scope change due to coordination with the other project (paras. 8 and 20) delayed implementation. Therefore, this validation assesses the project less than efficient.[14]

D. Preliminary Assessment of Sustainability

25. The PCR rated the project less than likely sustainable over its anticipated 20-year life. It stated that long-term maintenance contracts under the two civil works packages awarded under Project 1 continued to be effective and the project was environmentally sustainable. However, the sustainability of road projects in PNG depends on the capacity of NRA and on sufficient funds for road maintenance. Although the government failed to provide sufficient maintenance funds during Project 1, the government provided budget support to DOW for road maintenance from the road user fund. The government also passed policies that demonstrated its commitment to ensuring the future operation and maintenance of project roads. It also examined how to strengthen institutional arrangements to manage all national and provincial roads. But the PCR provided little evidence that the road maintenance issue will be resolved in the near future. Therefore, this validation assesses the project less than likely sustainable.

III. OTHER PERFORMANCE ASSESSMENTS

A. Preliminary Assessment of Development Impact

26. The PCR rated the project's development impact satisfactory. Only the first of the three targets was achieved at the completion of Project 1. The economy grew at an average annual rate of 5.5% from 2013 to 2018, compared to the impact target of 5% in the DMF. However, exports grew at an average annual rate of 4.8% from 2013 to 2018, less than the impact target of 10%. The DMF also required a 10% decrease from the 1996 baseline on the number of people below the poverty line in the project area. The latest information available in the PNG Poverty Profile for 2012 stated that "…for all PNG and for each region, except National Capital District, there is no evidence that poverty rates have changed over time." In the PCR's view, the impact targets could be better evaluated at the end of the investment program in 2020.

27. The impact targets would be better evaluated in 2020 but it is unlikely that all three impact targets will be met by 2020, given the current global economic environment. The PCR provided little evidence on other positive development impacts. Therefore, this validation rates the project's development impact less than satisfactory.

[14] Management remains firm on the PCRs findings and assessment on project efficiency (please see Appendix 1).

B. Performance of the Borrower and Executing Agency

28. The PCR rated the overall performance of the borrower less than satisfactory. The project was not completely independent of the political processes of the borrower. Political priorities appeared to have prevented NRA from achieving full financial autonomy.[15] Counterpart funding for Project 1 was delayed and the government's commitment to ensure project sustainability through NRA was questionable.

29. The performance of the executing agency was also rated less than satisfactory. DOW managed Project 1 in accordance with the facility administration manual. Its performance deteriorated when many trained government staff moved to the private sector. Project procurement-related reviews revealed weaknesses in review, supervision, and monitoring of procurement processes. These referred to weak records management, weak financial management and project procurement capacity, unsubstantiated claims, erroneous evaluation of consultants that led to the hiring of an unqualified individual consultant, conflicts of interest, potentially favored firms, and poor project outputs. 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's performance less than satisfactory. ADB thoroughly prepared the project, oversaw project implementation, and established coordination and constructive support and guided DOW during project implementation. Delegation of the project to the PNG Resident Mission (PNRM) led to some improvement in coordination. It was also helpful in providing support to the new implementing agencies. Regular review missions provided an opportunity to discuss progress with stakeholders and overcome bottlenecks in a timely manner. However, project procurement-related reviews of 2017 revealed that ADB had not worked closely enough with the executing agency to improve fiduciary oversight and ensure compliance with ADB procurement guidelines. Following the midterm review mission. ADB worked closely with NRA to improve road maintenance financing but the efforts were unsuccessful.

31. IED's Project Safeguard Assessment assessed ADB's work quality satisfactory, at appraisal and supervision (footnote 13). The assessment rated the work quality on involuntary resettlement largely satisfactory given that ADB preparation and support was generally appropriate and the fact that the client had resolved pending issues regarding delays in compensation. Safeguard performance regarding indigenous peoples was not a major project issue. This validation considers the performance of ADB less than satisfactory.

IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS

A. Overall Assessment and Ratings

32. The PCR rated Project 1 less than successful (Table 1). The project was not fully implemented as conceived – 96 km of road that were to be constructed under Project 1 were constructed under the auspices of the liquefied natural gas project. The government's lack of sufficient financing for long-term road maintenance likely affected NRA's ability to maintain the project roads. However, the government made up for the shortfall partly with budget

[15] It was not clear how NRA could be financially autonomous since it does not generate revenues.

appropriations to DOW through the road user fund. The PCR assessed the project relevant, less than effective, efficient and less likely sustainable. It also rated development impact satisfactory and the performance of the borrower and the executing agency, and ADB less than satisfactory.

33. Overall. this validation rates Project 1 less than successful. The project is less than relevant due to the major design flaw, specifically the need to rehabilitate several bridges on the two project roads and the impact it likely had on the economic viability of these road sections (footnote 12). It is less than effective with three of the six outcomes not fully measured and about half of the expected outputs were not achieved. It is less than efficient since the net economic benefits of the project roads did not likely cover the economic costs and little information was provided on the calculations of the EIRRs in the PCR (footnote 14). The project is rated less than sustainable because the road maintenance issues have not been resolved.

Overall Ratings

Validation Criteria	**PCR**	**IED Review**	**Reason for Disagreement and/or Comments**
Relevance	Relevant	Less than relevant	Design flaws were insufficient, coordination with other projects led to change in scope and did not identify the need to rehabilitate the bridges (para. 17).
Effectiveness	Less than effective	Less than effective	
Efficiency	Efficient	Less than efficient	Net economic benefits of project roads did not likely cover the economic costs and little information was provided on the EIRRs in the PCR.
Sustainability	Less than likely sustainable	Less than likely sustainable	
Overall Assessment	**Less than successful**	**Less than successful**	
Preliminary Assessment of Impact	Satisfactory	Less than satisfactory	Impact targets in the DMF will likely not be met and there is little evidence on other positive development impacts.
Borrower and executing agency	Less than satisfactory	Less than satisfactory	
Performance of ADB	Less than satisfactory	Less than satisfactory	
Quality of PCR		Less than satisfactory	Para. 39.

ADB = Asian Development Bank, IED = Independent Evaluation Department, PCR = project completion report.
Source: ADB Independent Evaluation Department.

B. Lessons

34. The PCR provided four lessons. First, the MFF modality matched the long-term development needs of PNG. However, project monitoring by the executing and implementing agencies, the program steering committee, and ADB needed to be more complete. Monitoring should have focused more on development impact, not just on construction. Second, the lack of road maintenance (and maintenance of all infrastructure) had long been a problem in PNG. Institutional progress had been made with the establishment of NRA.

However, a more concerted effort by the government, with more support from development partners, was needed. Third, weak procurement was an issue that needs to be addressed. And fourth, the difficulty of hiring national consultants in PNG can necessitate hiring international consultants.

35. This validation recognizes these lessons and suggests two more. First, as a **sector-level lesson**, given PNG's institutional capacity constraints and the difficulties in adequately preparing projects for ADB financing and project implementation, the MFF modality may not be appropriate at this time. Project or sector lending with substantial input from PNG government staff would give ADB more control over project identification, preparation and implementation and expose PNG government staff to good practices in these areas.

36. Second, on **results framework and methodology-level lesson**, the economic analyses, specifically on EIRR calculations, must present in full detail in the PCRs the methodology and assumptions used. Otherwise, the appropriateness of the economic analysis cannot be assessed.

C. Recommendations for Follow-Up

37. The PCR had the following 10 recommendations:

(i) PNRM should discuss road maintenance funding covenant with the PNG Department of Treasury.
(ii) DOW should award admeasurement-based contracts initially for one or two years to allow for the development of a database on pavement deterioration and maintenance costs.
(iii) For future projects, DOW should complete compensation payments before civil works contractors are mobilized.
(iv) Consultant services should be in place before construction starts and international consultants should work as advisers to local staff.
(v) PNRM and ADB's Pacific Department should follow up on all recommendations of the project procurement-related reviews of 2017.
(vi) The executing agency and ADB should incorporate the findings of the monitoring of socioeconomic benefits by the contracted company into their own monitoring of the overall investment program.
(vii) DOW should strengthen environmental monitoring and capacity development.
(viii) DOW should produce a final summary report on social and environmental monitoring.
(ix) ADB should follow up with the borrower and executing agency on (i) the performance of the long-term performance-based monitoring contracts; and (ii) socioeconomic impact studies up to the end of the MFF period and with DOW, NRA, and the National Road Safety Council on their capacity to continue to achieve outputs and outcomes through to the end of the MFF period.
(x) All covenants should be maintained in their existing form until the end of the MFF period.

This validation supports these recommendations and has no further recommendations to offer.

V. OTHER CONSIDERATIONS AND FOLLOW-UP

A. Monitoring and Reporting

38. DOW produced regular social and environment monitoring reports. NRA produced quarterly and annual monitoring reports on road maintenance as stipulated in the Facility Administration Manual.[16] DOW completed the baseline survey for the Socioeconomic Impact Study. However, the same consultant did not complete both the midterm and the final impact study due to tribal fights along Project 1 roads at the time the study surveys were being implemented. The consultant provided only a partial socioeconomic impact assessment. Project accounts were audited and released in a timely manner.

B. Comments on Project Completion Report Quality

39. The PCR was succinct and assessed all the evaluation criteria. However, it was less candid on some of the shortcomings of the project at completion. It should have highlighted the flaws in the revised project design, where several bridges were not considered, and this oversight was not reflected in the relevance rating. The recalculations of EIRRs for the two road sections were superficial and provided little information on the methodology and assumptions used. As a result, the EIRRs at project completion could not be verified. The PCR's rating on project development impact did not reflect the evidence. Two of the three impact targets were not met and the PCR provided little evidence on other positive development impacts. Therefore, a satisfactory rating was not warranted. The PCR did not also assess the project performance management system. Two of the four key evaluation criteria were lowered in the validation report. Therefore, this validation rates the quality of the PCR less than satisfactory.

C. Data Sources for Validation

40. Data sources included the report and recommendation of the President, PCR, mission reports, facility administration manual, and project safeguard assessment.

D. Recommendation for Independent Evaluation Department Follow-Up

41. The PCR recommended that the project performance evaluation report be undertaken at the end of the 12-year of the MFF, once the remaining socioeconomic assessment and the output and outcome data from the road asset management system are available. Since Project 1 was essentially a two-road section investment, there seems to be no reason to delay the project performance evaluation report. Moreover, it is necessary to validate the EIRRs of the two road sections. Therefore, validation suggests the project performance evaluation report be undertaken as soon as possible.

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[16] ADB. 2010. *Facility Administration Manual: Highlands Region Road Improvement Investment Program–Project 1*. Manila.

APPENDIX 1: LINKED DOCUMENTS

PCR Validation Report: Papua New Guinea: MFF–Highlands Region Road Improvement Program-Project 1

1. PNRM Comments on Final PVR

   https://www.adb.org/sites/default/files/evaluation-document/549501/files/pnrm-comments-pvr-l2496-97.pdf

2. IED Clarifications to PNRM Comments

   https://www.adb.org/sites/default/files/evaluation-document/549501/files/ied-response-pnrm-l2496-97.pdf