

Validation Report
July 2020

Bhutan: Road Network Project II

Reference Number: PVR-658
Project Number: 39225-022
Grant Number: 0174



Raising development impact through evaluation

ABBREVIATIONS

ADB	–	Asian Development Bank
DMF	–	design and monitoring framework
DOR	–	Department of Roads
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
km	–	kilometer
PCR	–	project completion report
RRP	–	report and recommendation of the President
TA	–	technical assistance

NOTE

In this report, “\$” refers to United States dollars.

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PROJECT BASIC DATA

Project number	39225-022		PCR Circulation Date	3 July 2019	
Grant number	0174		PCR Validation Date	Jul 2020	
Project name	Road Network Project II				
Sector and subsector	Transport		Road transport (nonurban) Transport policies and institutional development		
Strategic agenda	Regional integration Inclusive economic growth				
Safeguard categories	Environment		A		
	Involuntary resettlement		B		
	Indigenous peoples		C		
Country	Kingdom of Bhutan		Approved (\$ million)	Actual (\$ million)	
ADB financing (\$ million)	ADF: 38.76	Total project costs	54.32	59.16	
	OCR: 0.00	Grant	38.76	38.76	
		Borrower	15.56	20.40	
		Beneficiaries	0.00	0.00	
		Others	0.00	0.00	
Cofinancier	-	Total cofinancing	0.00	0.00	
Approval date	10 Nov 2009	Effectiveness date	14 Mar 2010	19 Jan 2010	
Signing date	14 Dec 2009	Closing date	30 Jun 2015	30 Jun 2016	
Project officers		Location	From	To	
	H. Yamaguchi	ADB headquarters	2009	2010	
	S. Lim	ADB headquarters	2010	2011	
	T. Sakai	ADB headquarters	2011	2014	
	A. Chiang	ADB headquarters	2014	2015	
	G. Hoelscher	ADB headquarters	2015	2016	
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.

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I. PROJECT DESCRIPTION

A. Rationale

1. Bhutan had very low levels of passenger and cargo transport by air, had only one choice for surface transport, and had no coastal shipping. Its highly mountainous terrain, with a mean elevation of 2,220 meters, precluded transport on inland rivers. Due to its low population of just 0.8 million in 2018,¹ the country did not have a capital-intensive rail transport, leaving roads as the only surface mode of transport for both people and goods. The rough terrain allowed road construction only along valleys resulting in a highly circuitous “spaghetti” network. Despite these

¹ The World Bank. Data. <https://data.worldbank.org/indicator/SP.POP.TOTL> (accessed 22 April 2020).

limitations, Bhutan had a large road network of 12,205 kilometers (km). Roads play a vital role in the country's socioeconomic structure.² However, due to frequent landslides, year-round road access to some rural areas was often hindered.

2. At appraisal, many rural communities remained unconnected for motorized road traffic. Travel between the east and west regions of the country relied on a single east–west national highway running through northern Bhutan. In the southern areas, the east–west road network passes through India at various locations, adding additional travel cost and delays. Thus, the Government of Bhutan asked the assistance of the Asian Development Bank (ADB) to develop and improve existing sections along the east–west road network in the southern region.

3. The Department of Roads (DOR) needed an investment component and a capacity development component. The investment component entailed the upgrading of the existing Manitar–Raidak road to national highway and constructing the four new roads: three national highways (Raidak–Lhamoizingkha, Panbang–Amshingwoong (Nganglam) and Samdrupcholing–Samrang), and a feeder road (Tsebar–MikuriDurung Ri). The Samdrupcholing–Samrang national highway was envisaged to provide access to the border crossing at Samdrup Jongkhar.

4. The capacity for road administration in the country was weak. The following were needed: (i) support for quality control, survey and design, and control of vehicle overloading and emissions; (ii) detailed design and construction supervision by DOR; (iii) knowledge in modern road technologies suitable for Bhutan; (iii) knowledge in environment-friendly road construction methods; and (iv) analytical skills to utilize road asset management systems that are suitable for Bhutan.

B. Expected Impact, Outcome, and Outputs

5. The original impact envisioned at appraisal was to (i) promote industrial development in the isolated and impoverished southern areas of the country; and (ii) increase regional integration through improved passenger and freight transport along the country's road network and, hence, facilitate regional transport and distribution system.

6. The intended outcome was expanded road transport capacity in the southern region—by facilitating efficient and safe transport within the region, with India, and through India to Bangladesh and Nepal. Two performance targets were included in the design and monitoring framework (DMF) to achieve the outcome. The average travel time along project roads was to be reduced by at least 50% (from more than 3 hours). The other target was not to exceed the country's average fatality rate of 5 per 10,000 vehicles along the project corridor.

7. The expected outputs were to have the (i) critical road sections connected along the southern east–west corridor, and (ii) capacity of road engineering technologies and road asset management strengthened. The target for the first output was to complete, by 2014, 180 km of roads with international roughness index below 5 for paved roads, and at an all-weather standard for gravel roads.

² ADB. 2009. *Report and Recommendation of the President to the Board of Directors: Proposed Asian Development Fund Grant to the Kingdom of Bhutan for the Road Network Project II*. Manila.

C. Provision of Inputs

8. The project was approved by ADB in November 2009 and was effective in January 2010, about 8 weeks before the planned date. The project completion date was in October 2015, 9 months after the envisioned completion. The delay in the procurement process led to a 1-year delay in starting the civil works, hence, the planned closing date of June 2015 was delayed by 1 year, and the grant closing date was also delayed by 1 year.

9. The proposed project was estimated to cost \$54.3 million, including taxes and duties. ADB approved a grant of \$38.8 million (71.4%) from Special Funds, including \$10.0 million from the Asian Development Fund to cover foreign exchange costs (footnote 2). The government agreed to provide the balance to fund local costs. The project cost was shared as follows: (i) 78.8% for civil works, inclusive of taxes and duties estimated at 7.0%; (ii) 1.8% for capacity development (equipment); (iii) 2.3% for land acquisition and resettlement of \$1.2 million; (iv) 7.4% for design and supervision consulting costs; and (v) 9.8% for contingencies.

10. At completion, the total project cost was \$59.2 million—8.9% higher than the appraisal estimate.³ ADB financing was unchanged at \$38.8 million (65.5%) and the Government of Bhutan financed the balance. The main reasons for the increased cost for civil works were the 1-year delay in executing procurement contracts, which resulted in higher material cost due to global price increases; and the rock excavation quantities, which were underestimated at preparation stage.

11. The consultancy services under the project consisted of two contracts. One was the detailed design and procurement assistance with inputs of 34 person-months for international and 32 person-months for national experts.⁴ The other was the construction supervision involving 36 person-months of international and 604 person-months of national experts.⁵ The detailed design was completed on schedule in September 2010. At appraisal, the selection of construction supervision consultant was planned for the first to third quarters (Q1–Q3) of 2010. The actual contract for construction supervision commenced in May 2011, a year later than planned.

12. The technical assistance (TA) attached to the grant agreement was funded with a \$0.4 million grant from ADB's Technical Assistance Special Fund-IV, and \$0.1 million in-kind contribution from the government.⁶ At appraisal, the completion date was planned for July 2010. The actual closing date of the TA was in December 2012 or a delay of 28.5 months (footnote 3).

³ ADB. 2019. *Completion Report: Road Network Project II in Bhutan*. Manila. Civil works cost was \$51.6 million or \$8.8 million more than the estimate at appraisal. The actual cost of \$3.2 million for capacity development (equipment) is 218% more than the estimate, the actual land acquisition and resettlement compensation of \$0.7 million is 40.7% less than the estimate, the actual design and supervision consulting cost of \$3.7 million is 7.5% less than the estimate, and all contingency funds were actually used.

⁴ Footnote 2. The "Outline Terms of Reference for Consulting Services for Detailed Design and Procurement Assistance" is accessible from the list of documents in the Supplementary Appendixes.

⁵ Footnote 2. The "Outline Terms of Reference for Construction Supervision" is accessible from the list of documents in the Supplementary Appendixes.

⁶ Footnote 2. Attached Technical Assistance to the Kingdom of Bhutan for the Capacity Building for the Department of Roads (TA 7374-BHU).

D. Implementation Arrangements

13. As agreed at appraisal, DOR will be the executing agency and will continue using the project management office established in Gedu, which was used in the previous ADB-funded road project.⁷ Implementation arrangements agreed at appraisal were followed. In addition to the project management office, DOR also established site offices at Gedu, Samdrupcholing, and Nganglam to oversee the day-to-day implementation of the projects and to prepare progress reports for road sections under their jurisdiction. To support DOR, the executing agency—then under the Ministry of Works and Human Settlement—and to increase the agency's knowledge on survey, design, and construction, the consultants worked on tasks delineated at appraisal.⁸

14. The project completion report (PCR) indicated that of the 28 covenants, 22 were complied with and six were partially complied with. This validation has concerns on three covenants. The first covenant stated that “the Recipient shall provide sufficient and timely budget for routine and periodic maintenance....”. Funds from the government's general budget earmarked for road maintenance had been increased, but these were used for restoring roads damaged by the monsoon. The ADB missions observed that minimum repairs were done in some locations and full restoration was urgently needed.⁹ The second covenant stated that “the recipient shall ensure that all prevailing regulations on overloading control will be effectively implemented, including by further installing overweigh bridges.” The PCR, however, reported that regulations for overloading control need to be further strengthened. The third covenant provided that “DOR shall establish a baseline of performance indicators to monitor implementation at each segment in accordance with the project performance monitoring system and report progress annually.” The baseline for the project performance monitoring system was submitted 2 years late and the annual evaluation surveys were not submitted. Even as late as March 2019, during ADB project completion mission, DOR was still planning to purchase the road profile measuring equipment, an instrument for measuring international roughness index, which is a key output target in the DMF at appraisal.¹⁰

⁷ ADB. 2000. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Kingdom of Bhutan for the Road Improvement Project*. Manila.

⁸ These tasks included providing examples of international best practices for survey, design, and construction in mountainous roads with environmental considerations. Enhancements to existing standards and methods of survey, design, and construction were proposed. A tool kit or handbook of international best practices applicable to Bhutan was developed for DOR engineers' use in planning survey, design, and construction. They also trained DOR engineers in selected modern road technologies with environmental considerations, and recommended a training program to update DOR engineers' knowledge and skills in road technologies. The consultants also reviewed environment-related practices, including bioengineering techniques from the earlier Road Network Project (RNP). They conducted workshops and training to transfer lessons learned from RNP I to RNP II for construction supervision consultants, contractors, and DOR staff. They reviewed existing regulations, guidelines, manuals, and others on environment-friendly road construction in Bhutan, prepared a field handbook and manual on road construction using environment-friendly sustainable techniques and established a pilot database for the road asset management system covering 273 km of the east–west highway.

⁹ Footnote 3. Appendix 11: Status of Compliance with Grant Covenants.

¹⁰ ADB (South Asia Department). 2019. Project Completion Review Mission to Bhutan Aide Memoire: Road Network Project II. Back-to-office report. 21 March (internal).

II. EVALUATION OF PERFORMANCE AND RATINGS

A. Relevance of Design and Formulation

15. The PCR rated the project relevant at appraisal and at closing. The project was aligned with ADB's country strategy and program for Bhutan.¹¹ A key focus of the strategy was road transport to improve access and diversify the economy. The project was also an integral part of Bhutan's development priorities as set out in Bhutan 2020: A Vision for Peace, Prosperity and Happiness.¹² Expanding road infrastructure was one of the strategic priorities to move toward poverty reduction. ADB's regional cooperation strategy for 2006–2008 also included regional transport connectivity to promote economic development by reducing transport cost, increasing competitiveness, and facilitating movement of goods and people.¹³ To accommodate increasing vehicular traffic and to promote socioeconomic development, Bhutan needed to construct the new southern east–west roads and upgrade and improve the existing road infrastructure. The project design was an appropriate response to development needs to enhance rural accessibility, facilitate industrial development in the southern areas, and integrate with the primary markets in India. The proposed 180-km road sections along the southern east–west highway was also needed to facilitate economic development in the southern areas and integrate them more effectively with the primary markets in India. The capacity development component, under the attached TA grant, was to enhance asset management of the road network. It was also relevant in improving the management of the country's road network and complementing the physical investments.

16. Upon completion, the project continued to be consistent with ADB's country partnership strategy for 2014–2018, which supported three strategic pillars: inclusive economic growth, environmentally sustainable growth, and regional cooperation and integration.¹⁴ The project also continued to be relevant at completion to Bhutan's development priorities as outlined in the Eleventh Five Year Plan (2013–2018).¹⁵ There were no major deviations in the original project design: all selected roads at appraisal were implemented. The DMF was generally well formulated and the targets were clear. This validation assesses the project relevant.

B. Effectiveness in Achieving Project Outcome and Outputs

17. **Outcome and Outputs.** The PCR rated the project effective in achieving its intended outcome and outputs (paras. 6–7). The PCR reported that the average travel time was reduced—from 2.6 to 6.7 hours. From the road accident statistics provided by DOR, the PCR assessed that the road safety target was partly achieved. At the time of writing the PCR, road accident data at the project level was not available for 2017 and 2018.

18. The project's outputs had two targets. The target to complete 180 km of roads by 2014 was met with 186.4 km of roads built. The other target—to maintain the project roads at an international roughness index below 5 for paved roads, and at an all-weather standard for gravel roads—was assessed by the PCR as partially achieved. Routine maintenance is in place.

¹¹ ADB. 2005. *Country Strategy and Program: Bhutan, 2006–2010*. Manila.

¹² Royal Government of Bhutan. 1999. *Bhutan 2020: A Vision for Peace, Prosperity and Happiness*. Thimphu.

¹³ ADB. 2005. *Regional Cooperation Strategy and Program: South Asia, 2006–2008*. Manila.

¹⁴ ADB. 2014. *Country Partnership Strategy: Bhutan, 2014–2018*. Manila.

¹⁵ Royal Government of Bhutan, Gross National Happiness Commission. 2013. *Eleventh Five Year Plan, 2013–2018*. Vol. I: Main Document. <https://www.gnhc.gov.bt/12rtm/wp-content/uploads/2013/10/Eleventh-Five-Year-Plan-Volume-I-Final.pdf>.

The roads were generally within the required roughness for the paved roads and at an all-weather standard for gravel roads. However, some sections of the project roads had been damaged by landslides and overloading.

19. The TA grant was successfully implemented, and guided by the lessons learned from the TA of the previous Road Network Project, a workable road asset management system, tool kits, and field guides were developed.¹⁶ All the tasks specified in the TA's terms of reference were implemented and the achievements were well recognized by the government.¹⁷ The TA grant contributed to strengthening DOR's capacity in road survey, design, and construction; and in road tunneling and road asset management systems.

20. The measures to promote gender quality and women's empowerment in the design were properly implemented. Gender provisions were incorporated in the bidding and contract documents for civil works. A social specialist was engaged by DOR to design and implement the gender-awareness program, including road safety. Over 12% of the project's direct employment went to female workers. The project employed a total of 204 women laborers in civil works and consulting services.

21. At appraisal, the project was classified category A for environment based on ADB's Environment Policy (2002). Some of the road segments fall under environmentally sensitive areas and the project includes construction of new roads. According to the PCR, the ADB review missions noted that the environmental covenants and environmental management plan (EMP) were satisfactorily implemented. The quality of the EMP was also satisfactory and commensurate with the scale, environment, and social impacts that were identified in the environment impact assessment. The assessment identified potentially significant environmental impacts and their corresponding mitigating measures to reduce impacts to acceptable levels. It also described the anticipated impacts, monitoring, and development of mitigation measures. Institutional responsibilities and the requirements to implement safeguard measures associated with the project were adequately established.

22. The PCR reported that DOR adopted an environment-friendly approach to road construction, such as controlled blasting, limited use of bulldozers, use of log and boulder barriers to control slipping of blasted or excavated materials instead of an excavator-tipper combination, and incorporation of bioengineering techniques for slope protection. Nine environment monitoring reports were submitted during 2011–2015 and two social monitoring reports (2013 and 2015), which were posted at the ADB webpage. The reports provided sufficient detail on compliance with the EMP and monitoring requirements.

23. The project is category B for involuntary resettlement and category C for indigenous peoples. The implementation of involuntary resettlement complied with ADB's Involuntary Resettlement Policy (1995) and the government's Land Act 1979 (amended in 2007).¹⁸ At appraisal, the number of households to be affected in the project area was 412, with 243.8 acres of private land to be acquired to accommodate road, bridge, and drainage construction. It was also estimated that 77 structures would be demolished while trees, crops, and community structures such as irrigation channels, water pipelines, and religious structures

¹⁶ ADB. 2013. *Completion Report: Road Network Project in Bhutan*. Manila.

¹⁷ Footnote 3. Appendix 8: Technical Assistance Completion Report.

¹⁸ Royal Government of Bhutan. 2007. *The Land Act of Bhutan, 2007*. Thimphu. http://oag.gov.bt/wp-content/uploads/2010/05/LandAct-of-Bhutan-2007_English.pdf.

would be adversely affected. During implementation, 438 affected persons were identified and were offered either compensation for permanent loss of land, or relocation to a comparable land, or a combination of the two options.

24. The impact generated by the project related to compensating for crops and tree losses and land replacement (compensatory). Resettlement plans were prepared to cover all new roads constructed, and four of these plans were updated. The resettlement plans met Bhutan and ADB requirements. Many affected persons opted for land replacement instead of cash payment. Two safeguard monitoring reports were prepared, providing sufficient details of project status and compensation paid. Based on the above, this validation assesses the project effective.

C. Efficiency of Resource Use

25. The PCR rated the project efficient. At appraisal, economic analyses were conducted for four new construction segments and one upgraded road section. At appraisal and reevaluation, the economic analysis followed ADB guidelines for economic analysis of projects.¹⁹ The economic costs were derived from the financial costs with a conversion factor of 0.94 applied to nontradable goods and were expressed in constant 2009 prices. The economic internal rate of return (EIRR) for the four road segments at appraisal ranged 15.9%–24.0% with the overall EIRR of 19.9% for the whole project. At completion, the same process was used and the reevaluated EIRR ranged 12.6%–30.2% with an EIRR of 15.8% for the project.

26. On process efficiency, the procurement of civil works contracts began in October 2010 as planned; however, the procurement process took longer than DOR expected due to the requirement of ministerial level sign-off and the need to form a tender committee. Construction was delayed by 3–4 months due to heavy monsoon rains, which was not incorporated into the works contracts. Obtaining permits for machinery import also caused delays. These delays could have been anticipated and incorporated into the design at appraisal. This validation considers the project efficient.

D. Preliminary Assessment of Sustainability

27. The PCR rated the project less than likely sustainable. The central government allocated funds for periodic maintenance, large rehabilitation, and monsoon restoration budget—based on the national norm. The government increased the maintenance budget from Nu570 million in the Tenth Five Year Plan, 2008–2013²⁰ to Nu1.4 billion in the Eleventh Five Year Plan, 2013–2018 (footnote 15). However, some periodic maintenance was delayed due to budget limitations. Despite this, the government is committed to allocate the necessary budget to the extent possible to avoid a faster road deterioration. Road maintenance is currently being completed manually, which can be a challenge due to labor shortage, although DOR was gradually moving to mechanize road maintenance.

28. The PCR reported that ADB's project completion mission observed routine maintenance was in place; however, there were also locations with substantial potholes, damaged drainage structures, and areas of pavement failure. The roads were damaged by landslides,

¹⁹ ADB. 2017. *Guidelines for the Economic Analysis of Projects*. Manila.

²⁰ Royal Government of Bhutan, Gross National Happiness Commission. 2009. *Tenth Five Year Plan, 2008–2013*. Vol. 1. Thimphu. http://11rtm.gnhc.gov.bt/RTMdoc/TenthPlan_Vol1_Web.pdf.

and heavy-loaded trucks. Portions of the Manitar–Raidak road was severely damaged by landslides, which rendered the road impassable during monsoon season. DOR also investigated some of the project roads in 2017 and concluded that the road damage was mainly caused by overloaded trucks; the detailed design did not consider heavily loaded vehicles that transported cement. This validation rates the project less than likely sustainable.

III. OTHER PERFORMANCE ASSESSMENTS

A. Preliminary Assessment of Development Impact

29. The PCR rated the project's development impact highly satisfactory. The DMF set four targets for impact: (i) traffic volume along the project corridor to increase by 20% more than the country's average traffic growth rate, (ii) volume of cross-border traffic to increase by 50% more than the country's average traffic growth rate, (ii) the number of industries in project-influenced *dzongkhags* (districts) to increase by 10% more than the country's average traffic growth rate, and (iv) the contribution of road transport sector to gross domestic product (8.5% in 2007) to increase by 10%.

30. The first and the last indicators were quantitatively monitored, but the remaining indicators were not. The volume of traffic on the project roads increased by an average of 28% in 2017 over 2016, achieving the target. However, this validation notes that traffic volume of the project roads should be an outcome indicator. The last indicator was related to economic growth. The PCR reported that the contribution of the transport and storage sector [proxy] took 10.3% of the total gross domestic product in 2016, against 11.3% in 2007. This validation considers the indicator on traffic volume as outcome, and the two indicators are not measurable. The project achieved one impact indicator—the contribution of the transport and storage sector. This validation assesses project impact satisfactory.

B. Performance of the Recipient and Executing Agency

31. The PCR rated the performance of the grant recipient and the executing agency satisfactory. During implementation, an adequate organizational framework was established for an efficient and timely project management. The government also provided adequate and timely counterpart funds totaling \$20.4 million equivalent. Land acquisition and resettlement were completed on time, in accordance with ADB and national policies. On the negative side, delays in project completion should have been incorporated in the design. This validation finds the performance of the recipient and executing agency satisfactory.

C. Performance of the Asian Development Bank

32. The PCR rated the performance of ADB satisfactory. ADB's safeguard work quality at appraisal is considered satisfactory. The project was correctly classified category A for environment, category B for involuntary resettlement, and category C for indigenous peoples, in compliance with ADB's Environment Policy (2002) and Environmental Assessment Guidelines (2003). At appraisal, the project conducted initial mission visits for fact-finding (22 June–1 July 2009) and appraisal (17–20 August 2009), followed by a project inception mission (25–29 January 2020). Environmental and social requirements were reflected satisfactorily in the report and recommendation of the President (RRP), grant agreement, and project administration manual. The RRP contained a detailed environmental impact assessment report and summary resettlement plans, and these documents were disclosed on the ADB webpage.

Workshops were held, findings were discussed, and roads and preliminary alignments were determined with community consultation in view of environmental and social impacts. Meetings were adequate and comprised project information disclosure.

33. ADB's safeguard work quality at supervision is rated satisfactory in meeting ADB requirements. Project documentation included nine environment monitoring reports that were submitted between 2011 and 2015 and two safeguard monitoring reports (2013 and 2015) that were disclosed on the ADB webpage. The reports provided sufficient detail on compliance with the EMP and monitoring requirements. The early environment monitoring reports identified a number of deficiencies in the performance of contractors during construction that were addressed over the course of the project. ADB conducted eight project review missions between May 2010 and October 2015, monitored the project effectively, and prepared detailed back-to-office reports and recommendations. The project completion mission conducted on 8–20 March 2019 concluded that the project had complied materially with the key safeguard requirements in the grant agreement.

34. ADB processed approvals and “no objection reviews” efficiently and provided timely guidance and recommendations. Grant funds were released on time throughout the project's implementation. ADB advised the executing agency on all relevant matters throughout the implementation and when delays were encountered at the beginning, the frequency of ADB missions increased. Through frequent interaction and guidance by ADB, the implementation schedule was implemented without additional delays. This validation also finds ADB's performance satisfactory.

IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS

A. Overall Assessment and Ratings

35. The PCR's overall rating for the project is successful. The PCR deemed the project design relevant to the country's development objective of constructing critical sections of the southern east–west highway to facilitate industrial development and integrate more effectively the southern areas of Bhutan with the primary markets in India. It rated the project effective in achieving the envisaged outcome, contributing significantly to the development of the east–west highway corridor. The economic reevaluation showed the project to be economically viable and the PCR rated the project efficient. It also rated the project less than likely sustainable since a funding gap for road maintenance remains and strict implementation of weight controls was not evident.

36. Overall, this validation assesses the project successful. This validation's rating of less than satisfactory for the project's development impact is due to the issues on monitoring and sustainability.

Overall Ratings

Validation Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Relevance	Relevant	Relevant	
Effectiveness	Effective	Effective	
Efficiency	Efficient	Efficient	
Sustainability	Less than likely sustainable	Less than likely sustainable	
Overall Assessment	Successful	Successful	

Validation Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Preliminary assessment of impact	Highly satisfactory	Satisfactory	Only two of the four indicators were quantitatively monitored, with the first considered as an outcome indicator. The other two indicators were not quantitatively monitored.
Borrower and executing agency	Satisfactory	Satisfactory	
Performance of ADB	Satisfactory	Satisfactory	
Quality of PCR		Satisfactory	Para. 42.

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

B. Lessons

37. The PCR identified several lessons and noted that project implementation was marked by cost overruns and implementation delays. The first lesson notes that contract duration must consider excavation quantities, steepness of terrain, monsoon season, and whether the civil works are in a green field. The second lesson is on the need to incorporate road maintenance plans into the project design. Finally, it suggests that the government should support immigration and forestry checkpoints, and to incorporate climate impacts.

38. This validation adds the following lessons: At the **country level**, the government must clearly emphasize the vital role that roads play in Bhutan's socioeconomic development. As a norm **at the sector level**, it is important that central government allocate funds from the general budget for routine and periodic maintenance, and for large rehabilitation. In many countries, road maintenance costs are provided through dedicated funds earmarked from user fees collected by the government, such as excise tax, fuel tax, vehicle registration fees, and other sources. Thus, the lesson is to ensure the availability of maintenance funds so that roads are adequately maintained. Additional emergency restoration funds must also be allocated for monsoon-caused road damages, for clearing landslides, and for reconstructing critical structures.

39. At the **project level**, axle load regulations must be strictly implemented. Jurisdictional separation in implementing projects should not be an excuse, particularly in Bhutan where the importance of roads in the nation's development and regional integration are clearly evident. ADB must follow through on the compliance with the covenants pertaining to the quality and timeliness of project completion, and the full achievement of targets. The accident data provided for 1 year is impressive, however, road safety in rural areas needs continuous support to remain sustainable. Thus, it is important to carefully design future project-based interventions, with measures to strengthen beneficiary involvement through a community-based road safety program—to sustain the project's momentum even after its completion.

C. Recommendations for Follow-Up

40. The second and third impact indicators should be monitored, and the attribution of the project to economic growth should be examined.

V. OTHER CONSIDERATIONS AND FOLLOW-UP

A. Monitoring and Reporting

41. The project's DMF properly guided the monitoring and evaluation of the project. However, attributing regional economic development to the project roads should be carefully measured and monitored since each road segment cannot be solely credited for economic development. For a project that connects missing links in a region, more realistic traffic volume forecasts are necessary as the economic and regional integration benefits that will be generated can only be fully realized over a longer period.

B. Comments on Project Completion Report Quality

42. The PCR is clear and generally followed ADB's *Project Administration Instructions*.²¹ Some lessons in the PCR are perceived as implementation issues, rather than lessons. Recommendations were satisfactory. The PCR quality is assessed satisfactory.

C. Data Sources for Validation

43. This validation is based on the RRP, PCR, country partnership strategy, national strategy, mission reports, safeguard assessment and Bhutan's development plans.

D. Recommendation for Independent Evaluation Department Follow-Up

44. No further IED follow up is recommended.

²¹ ADB. 2019. Project Completion Report for Sovereign Operations. *Project Administration Instructions*. PAI 6.07A. Manila.