

The Democratic Republic of Timor-Leste

FY2024 Ex-Post Evaluation Report of

Japanese ODA Loan Project

“National Road No.1 Upgrading Project”

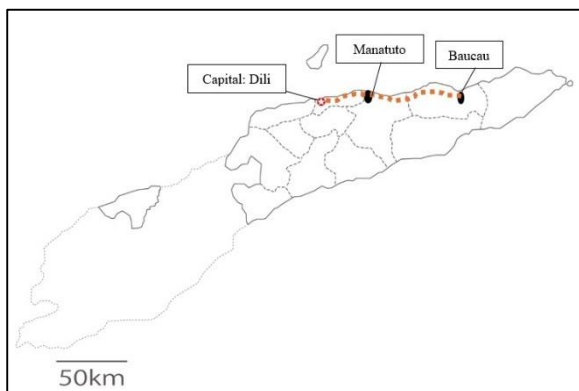
External Evaluator: Kenichi Inazawa, Octavia Japan, Co., Ltd.

0. Summary

This project aimed to improve the logistics network centred in northern Timor-Leste by developing an all-weather road that ensures safe and smooth travel along the northern corridor connecting the capital city, Dili, and the second-largest city, Baucau. Regarding relevance, the project was confirmed to be consistent with both the “Development Plan” and “Development Needs.” In terms of coherence, the project aligned well with “Japan’s ODA Policy,” and both internal coherence and external coherence were confirmed through specific collaborations and synergies. It also aligns with the goals of international frameworks such as the SDGs. Therefore, its relevance and coherence are high. However, since both the project cost and period significantly exceeded the plan, efficiency of the project is low. As for effectiveness, the target value for “Reduction in Required Travel Time” was achieved. Although data on the “Annual Average Daily Traffic” were not available, based on trends in vehicle registration numbers, it is inferred that traffic volume on National Road No. 1 is increasing. Furthermore, interviews with stakeholders and field inspections confirmed that the completed sections of the road exhibit high drivability, comfort and safety. Regarding impact, National Road No. 1, developed as an all-weather road, supports the revitalization of the regional economy and logistics. Citizens, businesses and farmers in Dili and Baucau are enjoying the benefits of improved convenience and efficient transportation of goods. Therefore, effectiveness and impacts of the project are high. With respect to sustainability, at the time of the ex-post evaluation, there were no significant concerns identified in terms of the policy/system, institutional/organizational, technical and financial aspects, environmental and social considerations, risk responses, or the status of operation and maintenance. Therefore, sustainability of the project effects is high.

In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Location (Source: JICA)



Condition of the Improved
National Road No. 1
(Source: Taken by the evaluator)

1.1 Background

Timor-Leste is characterized by steep mountainous terrain and fragile geological conditions. During the rainy season, natural disasters such as landslides occur frequently, causing disruptions to vehicle traffic in many sections. Additionally, maritime routes as alternative means of transport are limited to certain sections, making road network development essential for stabilizing logistics and revitalizing the economy and industry. Before the start of this project, most of the national road network (national and municipal roads) had only undergone emergency-level repairs. During the years of turmoil when the country sought independence, road maintenance became extremely difficult, leading to deterioration of road surfaces, and few national roads remained in good condition. The Timor-Leste Government aimed to strengthen the national road transport network as core infrastructure for economic development. Before this project began, travel by vehicle between the capital Dili and Baucau, the country's second-largest city, would take up to six hours. Particularly in mountainous areas, nighttime travel along winding road sections and passage during rainfall on roads prone to landslides posed significant safety hazards. During the rainy season, when roads were flooded, travellers often had to wait over 12 hours until the water receded enough to allow passage. In other words, the road was not fully functioning as a national trunk route connecting the capital and the second-largest regional city. Therefore, the development of an all-weather road capable of ensuring safe and smooth transportation and logistics at all times was an urgent necessity.

1.2 Project Outline

The objective of this project is to improve the logistics network centred in northern Timor-Leste by developing an all-weather road that ensures safe and smooth travel along the northern corridor connecting the capital city, Dili, and the second-largest city, Baucau, thereby contributing

to the country's economic development.

Loan Approved Amount / Disbursed Amount	5,278 million yen / 4,306 million yen
Exchange of Notes Date / Loan Agreement Signing Date	19 March 2012 / 19 March 2012
Terms and Conditions	Main Component: Interest Rate: 0.7% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General Untied Consulting Services: Interest Rate: 0.01% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General Untied
Borrower / Executing Agency(ies)	The Government of the Democratic Republic of Timor-Leste / Listed below: - Executing agency: Conselho de Administração do Fundo das Infra-estruturas (hereinafter referred to as “CAFI”) - Project implementation agency (the organization effectively responsible for executing the project and overseeing maintenance): Ministry of Public Works (hereinafter referred to as “MPW”)¹ - De facto operation and maintenance agency: Directorate General of Roads, Bridges, and Flood Prevention and Control within MPW (hereinafter referred to as “DGRBFPC”)²
Project Completion	February 2021
Target Area	Dili–Baucau section (Northern Trunk Road)
Main Contractor(s) (Over 1 billion yen)	Sinohydro Corporation Ltd. (China)
Main Consultant(s) (Over 100 million yen)	PT Indokoei International (Indonesia) / Nippon Koei Co., Ltd. (Japan) / Philkoei International Inc. (Philippines) (JV)
Related Studies (Feasibility Studies, etc.)	ADB: Timor-Leste National Road Master Plan (2009) ADB: Feasibility Study (2015)
Related Projects	[JICA Technical Cooperation] - “Project for the Capacity Building of Road Maintenance” (2005-2008) - “Project for the Capacity Development of Road Works” (2010-2014) - “Project for the Capacity Development of Road Services” (2016-2019) - “Advisor for Road Infrastructure and Quality Control in Timor-Leste” (Individual Expert Dispatch) (2021-2023)

¹ Before the start of this project, the Ministry of Infrastructure (MOI) served as the executing agency, but due to organizational restructuring in February 2015, it became MPW.

² During the implementation of this project, the organization was named the DRBFC (Department of Roads, Bridges and Flood Control), but after the project completion, it was reorganized and became DGRBFPC.

	[JICA Grant Aid] - “Project for Construction of Upriver Comoro Bridge” (2015-2018) [Other International Organizations and Agencies] - “Support for the Formulation of the National Road Master Plan of Timor-Leste” (ADB) - “National Road Development between Dili and Aileu” (World Bank)
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2. Outline of the Evaluation Study

2.1 External Evaluator

Kenichi Inazawa, Octavia Japan, Co., Ltd.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: September 2024-December 2025

Duration of the Field Study: January 4-18, 2025 and April 14-18, 2025

3. Results of the Evaluation (Overall Rating: B³)

3.1 Relevance/Coherence (Rating: ③⁴)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of Timor-Leste

Prior to the commencement of this project, the Government of Timor-Leste formulated its *Strategic Development Plan* (2011-2030) in July 2011, which identified road network development as a key infrastructure priority for economic growth. The plan outlined efforts to rehabilitate existing roads, construct new ones and strengthen road maintenance systems, aiming to establish a network of paved roads that are passable year-round, regardless of the rainy or dry season, day or night. In particular, National Road No. 1, which connects Dili and Baucau (the northern trunk road, with a total length of 116 km), was considered critical from the perspective of industrial development.

At the time of the ex-post evaluation, the above-mentioned *Strategic Development Plan* (2011-2030) remains valid. In 2018, the Government of Timor-Leste formulated the *Transport Sector Master Plan* (TSMP), which was positioned as an important document aligned with the *Strategic Development Plan*. The TSMP outlines a vision for transportation systems and services, as well as an integrated transport framework, aimed at facilitating comprehensive economic and social development. While emphasizing goals such as establishing a democratic and sustainable social environment, the plan advocates for the continued development of transport infrastructure—

³ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁴ ④: Very High, ③: High, ②: Moderately Low, ①: Low

including roads and bridges—to respond to the steadily growing transport demand, particularly in the capital city of Dili.

Based on the above, it is evident that both prior to the project’s commencement and at the time of the ex-post evaluation, the Government of Timor-Leste was/is advancing infrastructure development—focusing on roads and bridges—in response to increasing transportation demand. The National Road No. 1 development project, as a major trunk road initiative, constitutes a key component of this effort. Accordingly, the project is aligned with national development plans and sectoral strategies, demonstrating consistency with relevant policies and initiatives.

3.1.1.2 Consistency with the Development Needs of Timor-Leste

Prior to the commencement of the project, the Government of Timor-Leste aimed to strengthen the national road transport network as a core infrastructure for economic development. In this context, travel along the road between the capital, Dili, and Baucau (National Road No. 1) used to take up to six hours. In particular, nighttime driving through winding mountainous sections and travel during rainfall—when landslides were likely—posed serious safety hazards. During the rainy season, road flooding often required more than 12 hours of waiting until the water receded and the road became passable again. Consequently, the road did not adequately fulfil its function as a national trunk route. Faced with these challenges, the development of an all-weather road capable of ensuring safe and smooth traffic and logistics year-round was an urgent necessity. However, due to a lack of sufficient financial resources for road development, the Government of Timor-Leste requested loan assistance from Japan.

At the time of the ex-post evaluation, the improved section of National Road No. 1 is passable even during rainfall, when landslides are likely to occur, facilitating smooth travel between cities. On the other hand, there remains a strong nationwide demand to further enhance transport capacity. Road network development connecting Dili to various regional cities is under consideration, including specific sections such as the Dili-Maliana road, the Dili-Suai road, the Suai-Baucau road network (Extension of expressway from Viqueque to Baucau).

Based on the above, it is evident that both prior to the commencement of the project and at the time of the ex-post evaluation, there is a confirmed need for enhanced transport capacity and road network development, not only in the capital city of Dili but across the country. Therefore, the project is consistent with the identified development needs.

3.1.1.3 Appropriateness of the Project Plan and Approach

The project’s plan, policy and approach are considered appropriate. Prior to the commencement of the project, ex-post evaluations of similar past projects had identified important lessons, such as: “Proper maintenance is as crucial as new construction or rehabilitation. As road development progresses, demand for maintenance increases; therefore, it is essential to secure adequate

maintenance budgets and to implement maintenance activities efficiently.” In light of these lessons, the following considerations were noted for project management involving the executing agency: “With regard to the implementation of the Infrastructure Fund established in 2011, the government of Timor-Leste recognizes the importance of securing budget allocations not only for new projects but also for maintenance. Since budgetary measures for maintenance had already been planned, the project was expected to provide technical assistance aimed at enhancing road operation and maintenance by ensuring proper budget execution and facilitating the transfer of maintenance-related know-how. Furthermore, since the government expressed its intention to improve the durability of roads through proper construction supervision and maintenance, the project planned the necessary technology transfer to support that goal. Additionally, regarding data management related to the project, the outputs of the technical cooperation project titled ‘Project for the Capacity Development of Road Works’ were expected to be utilized through the consulting services under this project.” Through interviews with project stakeholders and questionnaire surveys conducted as part of this evaluation, it was confirmed that a significant number of training sessions were held to enhance the maintenance capacity of DGRBFPC personnel, and that the knowledge and skills acquired through this training are expected to continue to be applied in field operations. This serves as evidence that appropriate measures were undertaken.

As will be discussed in “3.2.1 Project Outputs” under Efficiency, the adoption of a new national road design standard⁵ by the Government of Timor-Leste after the commencement of the project resulted in cost implications. The Government requested that the construction supervision consultant revise the detailed design to reflect the new standard.⁶ Initially, the Government had planned to implement the construction of the Manatuto-Baucau section (Contract Package 2) on its own; however, due to financial constraints, the project was continued with ADB financing. On the other hand, coordination, information sharing, and collaboration among the project stakeholders were confirmed to have been conducted appropriately, and no significant project delays were observed. In light of these circumstances, it can be concluded that stakeholders

⁵It was confirmed through interviews that the Asian Development Bank (ADB) had provided technical assistance in around 2013 for the introduction of the new national road design standard. The new standard was designed to achieve higher quality and durability compared to the previous one.

⁶ The adoption of the new road design standard was also promoted for road development projects funded by other donors, such as ADB and the World Bank. According to interviews with stakeholders from the Ministry of Public Works (MPW), ADB and other related parties, the following comments were obtained: “(1) After the commencement of this project, awareness of climate change impacts began to grow, and there was increasing demand for roads that are more resilient to natural disasters. There was a rising momentum to develop roads that would minimize disruption from disasters and ensure traffic continuity. It is possible that such trends prompted the consideration of a new road design standard; and (2) Around the time of this project, the Government of Timor-Leste had initiated road development efforts in the western part of Dili (around the Tibar area), where it aimed to adopt the new road design standard. Government stakeholders recognized the benefits of the new standard, which may have contributed to its application to subsequent projects, including this one (the National Road No. 1 development project).” However, since some interviewees noted that the specific circumstances are not fully clear, this information should be treated as reference only. As of the ex-post evaluation, the new road design standard has been applied to the design and construction of all national trunk roads in Timor-Leste.

remained committed to the project's continuation and took consistent action to sustain an approach that safeguarded its intended benefits.

3.1.2 Coherence (Rating: ③)

3.1.2.1 Consistency with Japan's ODA Policy

Prior to the commencement of this project, the Government of Japan had identified the following priority areas for its cooperation with Timor-Leste: (1) human resource development and enhancement of administrative capacity to promote democratic governance; (2) development and maintenance of economic and social infrastructure; (3) improvement of agricultural productivity and access to markets; and (4) strengthening of public security and law enforcement capacity.

This project aimed to improve the logistics network along the northern corridor connecting the capital city, Dili, and the second-largest city, Baucau, by supporting the development of an all-weather road that ensures safe and smooth transportation. The project is consistent with the above-mentioned policy priorities and, therefore, aligns with Japan's development assistance policy.

3.1.2.2 Internal Coherence

JICA supported the enhancement of road maintenance capacity in the road sector through a series of technical cooperation initiatives: the "Project for the Capacity Development of Road Works in Timor-Leste"⁷ (2010-2013), the "Project for the Capacity Development of Road Services in Timor-Leste"⁸ (2016-2019), and the dispatch of an individual expert, "Advisor for Road Infrastructure and Quality Control" (2021-2023). As a result of these related initiatives and the expert dispatch conducted in parallel with this project, the professional competencies of DGRBFPC personnel improved. It can be concluded that these interventions provided valuable opportunities for DGRBFPC in performing road maintenance operations, and that a mechanism was in place to generate synergistic effects.⁹

⁷ A technical cooperation project aimed at enhancing capacities in construction management and equipment management.

⁸ A technical cooperation project aimed at strengthening road maintenance capacity through activities such as establishing appropriate road maintenance practices, enhancing construction management capabilities, and developing standardized design manuals.

⁹ According to MRW, "Following the restoration of independence in 2002, JICA was one of the first international development partners to initiate studies addressing Timor-Leste's infrastructure development needs. The Project for the Capacity Development of Road Works (2010–2013) was formulated in connection with the *Strategic Development Plan* (2010–2030). In this project, examples such as road standards, quality benchmarks and technical specifications were introduced. These case examples were subsequently utilized in the current project and are considered to have been beneficial for DGRBFPC personnel with existing knowledge and experience in road design and construction." Regarding the Project for the Capacity Development of Road Services (2016–2019) and the Advisor for Road Infrastructure and Quality Control (individual expert dispatch, 2021–2023), MRW stated, "These initiatives were useful in enhancing DGRBFPC personnel's capabilities in road design and in providing them with hands-on construction experience. They also offered valuable lessons and case examples that contributed to improving the overall quality of project implementation."

3.1.2.3 External Coherence

As also described in “3.2.1 Project Outputs” under Efficiency, the construction contract for the target section of this project (Dili-Baucau) was initially divided into two packages at the planning stage. Package 1, covering most of the Dili-Manatuto section, was to be implemented through the Japanese ODA loan, while Package 2, covering the Manatuto-Baucau section, was planned to be financed by the Government of Timor-Leste using its own funds. However, due to fiscal constraints, the Government shifted the financing source for Package 2 in 2016, and the project was continued with a loan from the Asian Development Bank (ADB). This represents project implementation based on concrete coordination with other development partners. Both organizations shared common objectives—accommodating increased traffic volume and reducing travel time—and collaborated closely in pursuit of these goals.¹⁰

In relation to international frameworks, this project sought to improve the logistics network through the development of all-weather roads that ensure safe and smooth traffic flow. Accordingly, it can be considered consistent with multiple Sustainable Development Goals (SDGs), including Goal 9: “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation,” Goal 11: “Make cities and human settlements inclusive, safe, resilient and sustainable,” and Goal 13: “Take urgent action to combat climate change and its impacts.”

With regard to the relevance of this project, consistency with both the national development plan and development needs has been confirmed. In terms of coherence, the project is consistent with Japan’s ODA policy, and both internal and external coherence were observed through specific forms of coordination. The project is also aligned with international frameworks, including the Sustainable Development Goals (SDGs).

Therefore, its relevance and coherence are high.

3.2 Efficiency (Rating: ①)

3.2.1 Project Outputs

Table 1 presents the planned and actual outputs of the project.

Table 1: Planned and Actual Outputs of the Project

Planned at the Time of Appraisal	Actual Results
1) Civil Works	1) Civil Works

¹⁰ As one example, the consulting services responsible for supervising all sections of construction were concluded in July 2019 during the project implementation period. According to ADB, at that time, they coordinated and shared information with JICA and MPW to ensure steady supervision of the remaining construction sections. Subsequently, the works were completed in February 2021 without significant delays. This serves as a good example of effective coordination among development partners. (This point is also discussed in Section 3.2.1: Project Outputs under Efficiency.)

- Rehabilitation of approx. 116 km of the target national road section (including earthworks, pavement, drainage, slope protection, etc.)	⇒Although there were changes in project financing, the planned activities—such as earthworks, pavement, drainage and slope protection—were largely implemented as scheduled. The project consisted of the following two civil works contract packages: - Contract Package A1-01 (road rehabilitation between Dili and Manatuto): <u>48.74 km (financed by a Japanese ODA loan) and 7.66 km (financed by the Government of Timor-Leste), totalling 56.4 km</u> - Contract Package A1-02 (road rehabilitation between Manatuto and Baucau): <u>57.70 km (financed by an ADB loan)</u> ⇒ <u>Total length of road developed under the project: 114.1 km</u>
2) Consulting Services - Support for basic design, bidding assistance, review of detailed design and construction supervision - Capacity development support for operation and maintenance within the Directorate of Roads, Bridges and Flood Control (DRBFC) under the Ministry of Infrastructure (MOI) - Baseline survey and project effect monitoring - Support for environmental and social monitoring	2) Consulting Services ⇒Largely implemented as planned up to July 2019. From August 2019 to February 2021, in-house personnel of MPW undertook responsibilities such as construction supervision of the road works.

Source: JICA documents (plan at the time of appraisal), Project Completion Report and questionnaire responses (actual results)

With regard to the project outputs, the actual results were largely in line with the plan.

1) Civil Works

At the time of planning, the construction works were divided into two contract packages: Package 1 (covering most of the Dili-Manatuto section) was to be financed by a Japanese ODA loan, and Package 2 (the Manatuto-Baucau section) was planned to be financed by the Government of Timor-Leste using its own funds. However, as noted earlier, after the start of the project, MPW decided to adopt a new national road design standard. Accordingly, the detailed design under this project was carried out based on the new standard. As a result, the total project cost increased significantly. While the original project cost estimate was based on improving the existing road alignment and focused primarily on upgrades, the revised plan involved a complete overhaul starting from the subgrade level and significant improvements to the horizontal alignment. This raised concerns within the Government of Timor-Leste regarding budgetary capacity. After a series of discussions and adjustments, it was decided that Contract Package 2

would be implemented with financing from the Asian Development Bank (ADB).¹¹

2) Consulting Services

The consulting services were implemented until July 2019. The contents were largely in line with the original plan. From August of the same year until completion, in-house personnel of MPW undertook tasks such as construction supervision of the road works. Although the detailed circumstances regarding the termination of the consulting services could not be confirmed, it is considered that delays in payment due to the fiscal situation of the Government of Timor-Leste were among the underlying factors. While the consulting services were being implemented, quarterly project progress reports were prepared, including for the section under Contract Package 2, and regular information sharing from ADB was also conducted.¹² Thereafter, MPW procured its own consultant (in-house personnel) to take charge of supervising the remaining civil works. At that time, ADB made efforts to coordinate and share information closely with JICA and MPW to avoid unforeseen issues (i.e., to ensure that the quality of construction would not decline).



Figure 1: Location of the Project Site
(Red Dashed Line Indicates National Road No. 1)

(Source: Adapted from OpenStreetMap - copyright: <https://www.openstreetmap.org/copyright>)

¹¹ JICA and ADB shared information with the aim of ensuring proper project implementation and concluded that a Procedural Arrangement (P/A) agreeing to jointly monitor the progress of the project was necessary. According to JICA documents, with regard to Contract Package 2, the construction contractor had already signed a contract with the Government of Timor-Leste before it was decided that the package would be implemented using ADB financing. The JICA Timor-Leste Office, in coordination with ADB, confirmed that ADB would not newly procure or contract a different contractor, and verified that the existing contractor—selected in accordance with JICA's procurement guidelines—was eligible for implementation.

¹² According to ADB, the progress rate of construction for Contract Package 2 was approximately 80% at the time the consulting services were terminated.

3.2.2 Project Inputs

3.2.2.1 Project Cost

While the total project cost at the time of appraisal was planned at 7,114 million yen (of which 5,278 million yen was to be covered by the Japanese ODA loan), the actual total cost amounted to 10,949 million yen (of which 4,306 million yen was covered by the Japanese ODA loan), significantly exceeding the plan (approx. 154% of the plan). This discrepancy can be attributed to differences in project budgeting between the time the Feasibility Study (FS) was conducted in 2009 and the detailed design phase after project initiation (from 2012 onward). Specifically, as previously noted, after the commencement of the project, MPW adopted a new set of road design standards and requested the construction supervision consultant to revise the detailed design accordingly. As a result, the project budget increased substantially as indicated above. Although the Government of Timor-Leste initially intended to cover the additional cost entirely on its own, payment delays occurred due to the financial situation of the government.¹³ After a series of developments, the Government of Timor-Leste requested a loan from the Asian Development Bank (ADB) to finance Contract Package 2. ADB approved the loan, and the construction works proceeded.

3.2.2.2 Project Period

At the time of appraisal, the project duration was planned for five years and five months (64 months), from March 2012 to June 2017.¹⁴ In contrast, the actual implementation period significantly exceeded the plan, extending to nine years and one month (108 months), from March 2012 to February 2021. Although no contract modifications were made due to the COVID-19 pandemic, the Government of Timor-Leste imposed restrictions on economic activity and movement (for approximately one to two months in 2020) due to the spread of the virus. As a result, a delay of approximately three months in construction progress was confirmed.¹⁵ This delay is considered to be due to external factors, and the effective actual implementation period is therefore regarded as 105 months (108 months minus three months). Comparing the planned duration (64 months) with the adjusted actual duration (105 months), the project period was approximately 164% of the plan. If external factors such as COVID-19 are not excluded, the actual duration was 108 months compared to the planned 64 months, which corresponds to approx. 169% of the plan. In addition to the impact of COVID-19, the following factors contributed to the

¹³ Another contributing factor was the depreciation of the Japanese yen. At the time of project cost estimation, the exchange rate was 1 USD = 76.8 yen (as of October 2011). However, by 2016, the yen had significantly weakened. During the actual implementation period of the project components (2015-2021), the average exchange rate was 1 USD = 109.67 yen. This currency depreciation was one of the underlying reasons for the increase in the actual project cost.

¹⁴ At the time of appraisal, the completion of the project was defined as the “opening of the road to traffic.”

¹⁵ The Chinese contractor faced difficulties in dispatching construction workers to Timor-Leste, and delays in the arrival of construction materials in the country were also observed.

project delays: a) As previously mentioned, a new road design standard was introduced after the commencement of the project, requiring changes to the road design for the target section, which resulted in procedural delays; b) During the bidding and selection process for the construction contractor, the pre-qualification (PQ) assessment took considerable time, leading to delays in procurement procedures; and c) The land acquisition process for the target section required significant time. With respect to a) and b), more than five years had elapsed since the signing of the loan agreement. Consequently, the commencement of civil works was also delayed. Regarding consulting services, as shown in Table 1, from August 2019 to February 2021, MPW assigned in-house personnel to undertake supervision of the road construction works. Table 2 presents the initially planned and actual project periods.

Table 2: Initial Plan and Actual Project Period

	Initial Plan	Actual Duration
(Entire Project)	March 2012-June 2017 (64 months)	March 2012-February 2021 (108 months) <i>However, after subtracting the three months assumed to have been affected by COVID-19, the adjusted actual period is 105 months.</i>
1) Selection of the Consultant	March 2012-January 2013 (11 months)	March 2012-January 2013 (11 months)
2) Consulting Services	February 2013–February 2017 (49 months)	January 2013-July 2019 (78 months)
3) Procurement and Contracting	August 2013-November 2014 (16 months)	February 2014-March 2016 (26 months)
4) Civil Works	November 2014-June 2017 (44 months)	July 2016-February 2021 (56 months) ¹⁶

Source: Documents provided by JICA (initial plan), the Project Completion Report, questionnaire responses and interviews (actual)

3.2.3 Results of Calculations for Internal Rates of Return (Reference only)

Economic Internal Rate of Return (EIRR)

At the time of appraisal, the EIRR was estimated at 12.0%, based on a project life of 20 years, with benefits defined as travel time savings and reductions in vehicle operating costs, and costs defined as project costs and operation and maintenance (O&M) expenses. In this ex-post evaluation, a recalculation was conducted using the same assumptions as at the time of appraisal, and the EIRR was found to be 8.0%, which was lower than the estimate made at the time of appraisal. The main reason for this is that, as mentioned earlier, while the original cost estimate was based on the former road design standards, the actual project was implemented using revised cost estimates based on new standards, resulting in a significant increase in project costs. Taking

¹⁶ Of these, the Dili-Manatuto section (Contract Package 1) was completed in July 2019, while the Manatuto-Baucau section (Contract Package 2) was completed in February 2021.

into account that the benefit of travel time savings (to be discussed in detail in Section “3.3.1.1 Quantitative Effects (Operation and Effect Indicators)” under Effectiveness) was found to be greater than initially assumed, the difference was nevertheless not substantial enough to offset the increased costs. In addition, no significant reduction in vehicle operating costs was observed. In summary, while project costs increased considerably, the expected benefits did not change significantly. Furthermore, the large disparity between the exchange rate at the time of the loan agreement and the average exchange rate during the project implementation period also affected the recalculated EIRR.

Financial Internal Rate of Return (FIRR)

At the time of appraisal, the FIRR was not calculated, as financial revenue—such as toll fees—was not expected to be generated. Similarly, no recalculation was conducted at the time of the ex-post evaluation.

While the outputs of the project were generally in line with the original plan, both the project period and the project cost significantly exceeded the plan.

Therefore, efficiency of the project is low.¹⁷



Photo 1: Hera, the starting point of National Road No. 1 (near Dili)
(Source: Taken by the evaluator)



Photo 2: View from National Road No. 1 (Dili-Manatuto section)
(Source: Taken by the evaluator)

¹⁷ (Supplementary Note) In order to complete the construction of National Road No. 1, a key arterial route in the country, project stakeholders made sincere efforts—particularly in terms of securing the necessary budget. However, from the perspectives of cost and time, the project cannot necessarily be considered efficient. On the other hand, without such efforts by the stakeholders, the construction may have been suspended, and the initially expected effects and impacts could have been significantly diminished.



Photo 3: Road between Dili and Manatuto
(Source: Taken by the evaluator)



Photo 4: Road between Manatuto and Baucau (ADB-financed section)
(Source: Taken by the evaluator)

3.3 Effectiveness and Impacts¹⁸ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

At the time of appraisal, as an expected effect of the project, it was planned to improve the logistics network by developing an all-weather road that would enable safe and smooth travel along the northern corridor connecting the capital city, Dili, and Baucau. Table 3 presents the quantitative effect indicators of the project, including baseline values, target values, and actual values.¹⁹

Table 3: Quantitative Effect Indicators of This Project (Baseline, Target and Actual Values)

Indicator	Baseline Value 2011	Target Value Two years after completion	Actual Value (2023)
1. Reduction in Required Travel Time (Unit: Hours)	5	3	2-2.5
2. Annual Average Daily Traffic (Motorcycles) (Unit: vehicles/day)	1,122	2,654	N/A
3. Annual Average Daily Traffic (Other than Motorcycles) (Unit: vehicles/day)	1,586	3,267	N/A

Source: Documents provided by JICA (baseline and target values), questionnaire responses and on-site travel time measurement (actual value)

¹⁸ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

¹⁹ In this ex-post evaluation, the analysis and assessment of project effects, impacts and sustainability were conducted to cover the entire road section, including the ADB-financed section (Contract Package 2), in order to measure the overall effectiveness of the project. This approach was taken because, at the time of appraisal, indicators for effectiveness and quantitative effects had been established for the entire Dili-Baucau corridor.

At the time of appraisal, the target values were set for 2019, which corresponded to the second year after the expected completion of the project. However, the actual completion (start of operation) took place in 2021. Therefore, in this ex-post evaluation, the actual values from 2023—two years after completion—were used for comparison against the target values. Regarding Indicator 1, after the project’s completion, the travel time between Dili and Baucau is approximately 2 to 2.5 hours by vehicle. The target travel time set before the start of the project (in 2012) was three hours. However, as previously noted, the application of new road design standards likely improved drivability and ride comfort, which may have further enhanced the time-saving effect. Although project costs increased, it could be said that greater benefits were ultimately achieved. Regarding Indicators 2 and 3 on Annual Average Daily Traffic, while the planned values were based on actual measurements, neither MPW, DGRBFPC nor the external contractors responsible for maintenance operations (as described in Section “3.4.2 Institutional/Organizational Aspect”) have measured or monitored traffic volume.²⁰ As a result, a straightforward comparison with the planned values was not possible, and the indicators were therefore marked as “N/A.” In other words, it was difficult to assess the level of achievement for Indicators 2 and 3. On the other hand, Table 4 shows the number of registered vehicles in Timor-Leste, which has shown an increasing trend since before the start of the project. It was confirmed that the number of registered vehicles approximately doubled between the project’s start year (2012) and the year of road opening (2021). Considering that the difference between the baseline and target values for Annual Average Daily Traffic in Table 3 (Indicators 2 and 3) is also approximately twofold, it is likely that the actual values also achieved roughly double the baseline level.

(Reference) Table 4: Number of Registered Vehicles in Timor-Leste

Year	Motorcycles	Vehicles (Other than Motorcycles)	Total Number of Registered Vehicles
2006	821	620	1,441
2007	2,254	861	3,115
2008	4,053	1,506	5,559
2009	6,836	3,380	10,216
2010	7,370	2,290	9,660
2011	7,132	2,014	9,146
2012 (Loan Agreement Signed)	8,507	2,049	10,556
2013	11,170	2,690	13,860
2014	12,436	3,414	15,850
2015	13,876	3,634	17,510
2016	16,308	2,893	19,201

²⁰ Interviews confirmed that, from the start of the project through to its completion, no system had been established for measuring or monitoring indicator data. Going forward, it is desirable that MPW and DGRBFPC regularly measure the Annual Average Daily Traffic in order to better understand the project’s effects and to support maintenance operations.

2017	14,878	2,375	17,253
2018	11,704	1,989	13,693
2019	15,627	2,863	18,490
2020	16,496	3,451	19,947
2021 (Start of Operation)	12,429	3,604	16,033
2022	13,068	4,073	17,141
2023	23,019	5,583	28,602

Source: Ministry of Public Works and Transport, Timor-Leste (Direção Nacional de Transportes Terrestres; DNTT)

Next, Table 5 presents the number of days per year during which road access was blocked due to natural disasters. Before the start of the project, the target section (Dili-Baucau) was considered hazardous for vehicle traffic in mountainous areas during the rainy season, when landslides were likely to occur. Although no official records could be confirmed for the pre-project period, as described in Section “3.1.1.2 Consistency with the Development Needs” under Relevance, nighttime driving on winding roads in mountainous areas and vehicle passage during periods of rainfall with a high risk of landslides were considered dangerous. During the rainy season, when the roads were flooded, it often took a long time for the water to recede before traffic could resume. Therefore, it is presumed that a considerable number of days were lost to road closures. According to MPW, even during the passage of Cyclone Seroja in April 2021—shortly after the project’s completion—there were no large-scale road closures along the section. Since the completion of the project, road access for vehicles has been maintained without significant disruption caused by natural disasters.

Table 5: Number of Days Per Year with Road Closures Due to Natural Disasters

Before Project Start	After Project Completion			
	2021	2022	2023	2024
<i>Not Available</i>	0 days	0 days	0 days	0 days

Source: Questionnaire responses and interviews

3.3.1.2 Qualitative Effects (Improvement of Traffic Conditions)

At the time of the appraisal, the road improvement between Dili and Baucau was expected to enable safe and smooth vehicle traffic and improve overall traffic conditions. In this evaluation, the following findings were confirmed through questionnaire responses, interviews with DGRBFPC personnel and on-site inspections.²¹

Road Traffic Performance

The project has successfully improved the safety of vehicle traffic. Prior to the project, large vehicles such as trucks had difficulty travelling along certain sections of the road. Through road

²¹ The evaluation team rode in a vehicle and drove along the target section to visually assess the road surface and maintenance conditions.

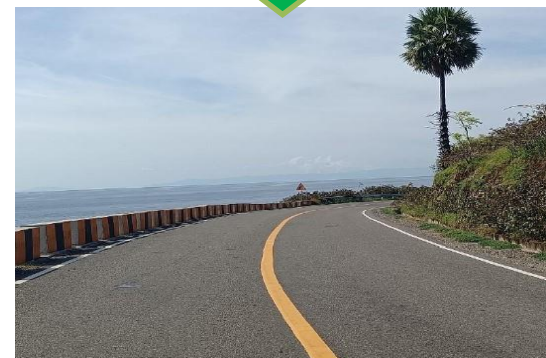
widening, traffic capacity has been increased, enabling vehicles of all sizes to travel smoothly. As a result, vehicle travel speeds have improved, contributing to better drivability.

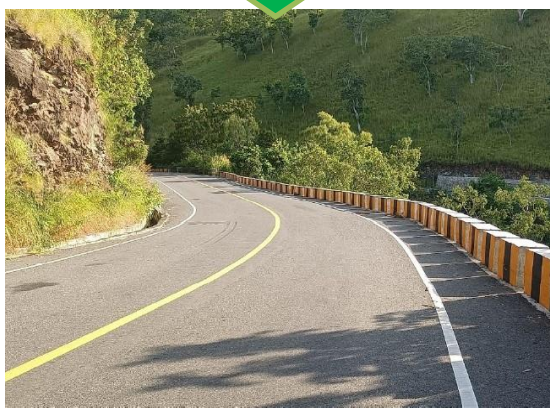
Traffic Safety

The improved road ensures safety even with increased traffic volumes. For example, concrete guard fences have been installed in necessary locations along the road to prevent vehicles from falling off, thereby enhancing overall road safety.

According to DGRBFPC personnel, “The condition of the improved Dili-Baucau road is good. Asphalt repairs and patching are carried out as needed and in a timely manner. There are no deficiencies in maintenance. The road remains consistently comfortable for drivers.” As shown in the photographs below illustrating the changes in road conditions before and after project implementation, visibility while driving is considered to have improved after completion. Given that, as previously mentioned, there have been no road closures due to natural disasters since project completion, it can be concluded that traffic conditions along the project section have improved.

[Changes in Road Conditions Before and After Project Implementation]
(Photographs Taken at the Same Location; Source: Executing Agency)





3.3.2 Impacts

3.3.2.1 Intended Impacts

Contribution to Economic Development, Logistics Network Development, Revitalization of Local Industries and Job Creation

Table 6 presents Timor-Leste's nominal GDP from the start of the project through to the time of the ex-post evaluation. Table 7 shows the value added by industry (specifically in wholesale and retail trade, transport and storage, and accommodation and food service activities). Table 8 presents figures on private consumption, while Table 9 provides data on the unemployment rate.

Table 6: Nominal GDP (2013-2022)

									(Unit: million USD)
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1,396	1,447	1,594	1,651	1,596	1,564	2,029	2,158	3,621	3,163

Source: World Bank

Reference: The population at the start of the project (2012) was approximately 1.13 million; at the time of the ex-post evaluation (2022 data), it was approximately 1.37 million.

Table 7: Value Added by Industry – Wholesale and Retail Trade, Transport and Storage, and Accommodation and Food Service Activities (2014–2023)

(Unit: million USD)

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
250	291	321	395	263	288	246	246	267	297

Source: General Directorate of Statistics, Timor-Leste

Table 8: Private Consumption (2014-2023)

(Unit: million USD)

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
866	876	897	954	977	1,025	1,009	978	1,121	1,165

Source: General Directorate of Statistics, Timor-Leste

Table 9: Unemployment Rate (2014-2023)

(Unit: %)

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
4.23	4.45	4.66	4.21	3.73	3.13	2.79	2.34	1.54	1.52

Source: World Bank

Timor-Leste has a population of approximately 1.37 million (World Bank, 2022 data). This project involved the improvement of a key trunk road connecting the capital city of Dili (population approx. 320,000) and the country's second-largest city, Baucau (population approx. 130,000), based on 2022 data.²² Since project completion, the movement of people and goods has become more active, which is believed to be improving access to social services and employment opportunities, as well as benefiting rural communities. People from all segments of society are also believed to be benefiting from reduced travel times, with enhanced access to markets, schools, and healthcare facilities. As per Table 6, the country's GDP has generally shown an upward trend since the start of the project. Table 7 (value added by industry, including transport) and Table 8 (private consumption) also show a generally increasing trend, excluding the temporary decline in economic and social activities due to the impact of COVID-19. As indicated in Table 9, the unemployment rate has remained at a relatively low level in recent years. It can therefore be inferred that transport infrastructure development, such as this project, is contributing to the revitalization of industries and the economy in the surrounding areas.

As part of this evaluation, interviews were conducted with representatives from Baucau City Administration (Industry and Tourism Department), the Ministry of Agriculture and Fisheries (Baucau Office) and DGRBFPC personnel (Dili and Baucau offices) to assess how the project has contributed to the revitalization of the regional economy and logistics.²³ The following are

²² Source: Table 1, *Population and Housing Census 2022: Timor-Leste Preliminary Results*, p.11. Available at: https://timor-leste.unfpa.org/sites/default/files/pub-pdf/censuspreliminaryresults2022_4.pdf (accessed January 17, 2025)

²³ Two to three representatives from each organization participated in the interview in a group format.

selected comments obtained during these interviews.

- “Rice, maize, beans, tomatoes and cooking oil are produced in the Baucau area. Agricultural output has increased compared to the period before the project was completed. Road widening, improved drivability and reduced travel times have made transportation to consumer areas such as Dili more efficient. Transport of agricultural inputs such as fertilizers and seeds has also become more efficient. I believe that agricultural productivity has improved as a result.”
- “Before the completion of this project, passing vehicles would kick up dust along the road (some areas). As a result, the quality of agricultural products sold roadside was not trusted. Since completion, dust generation has significantly decreased, and I believe farmers are now able to sell higher-quality produce and earn greater profits.”
- “Since the completion of the project, some farmers have begun purchasing vehicles such as pickup trucks. With the improved National Road No. 1, they can now transport goods to consumer markets more quickly, which enables them to generate stable revenue. Delays in delivery have also decreased.”
- “Before the project was completed, some farmers had to rent trucks for transportation and sales. Due to poor road conditions at the time, they needed to rent vehicles with high off-road capability, which came at a high cost. This became a burden that limited their ability to sell and earn profits. Now that road conditions have improved, rental costs have decreased. I believe this has contributed to greater income stability for farmers.”
- “Before the project was completed, fishers in the Baucau area sold their catch only within Baucau. Since the improvement of National Road No. 1, some have begun transporting fish to Dili using pickup trucks and are now able to sell their products at higher prices and earn greater profits.”
- “In Baucau, the number of domestic and international tourists has been increasing year by year. Popular destinations include historical buildings, natural parks and religious sites. Mountain trekking has also been gaining attention. Since the completion of the project, the number of accommodation facilities and restaurants around Baucau has increased. The improvement of National Road No. 1 has made the area more accessible to tourists and has helped increase the visibility of the region’s attractions.”

Timor-Leste’s main agricultural products are rice and maize. Focusing on the Baucau region, the area has approximately 14,423 hectares of land suitable for rice cultivation and 16,000 hectares of land suitable for growing maize and other crops.²⁴ It is one of the country’s leading production areas, with rice production in 2021 totalling approximately 39,945 tons and maize production totalling around 17,644 tons—accounting for 28% and 18% of the national totals,

²⁴ Source: MPW (2022 data)

respectively. According to the 2019 Timor-Leste Agricultural Census (TLAC), 81% of households in the six administrative posts of Baucau Municipality are engaged in agricultural activities. Baucau is therefore recognized as a region that contributes significantly to national food security. As for the fisheries sector around the Baucau region, approximately 510 fishing households have been identified along the 60 km of coastline within the administrative areas of Baucau, Vemasse and Laga. Many of these fishers operate motorized fishing boats and harvest nutrient-rich marine products such as seaweed, molluscs and crustaceans.²⁵ Taking into account the comments cited above, it can be inferred that this project is supporting—and will likely continue to support in the future—the revitalization of the regional economy and logistics, particularly in the agriculture and fisheries sectors. The improvement of National Road No. 1 into an all-weather road is believed to have enhanced transport accessibility and enabled more efficient distribution of goods.

During the interview survey, comments were also received noting that “although road conditions along National Road No. 1 have improved, certain challenges remain. One such challenge is driver behaviour. Traffic accidents are not uncommon due to speeding and reckless driving. While accurate data on the number of accidents are not available, there is a need for countermeasures.” Going forward, improvements in traffic manners and safety measures on the Timor-Leste side are considered necessary.

Regarding comments on tourism, the tourism industry in the Baucau region appears to be on an upward trend. While specific data on the number of tourists are not available, the trend in value added by sector—namely wholesale and retail trade, transport and storage, and accommodation and food service activities, as shown in Table 7—suggests that the impact of the project on the tourism sector is also significant.

Based on the above, the improvement of National Road No. 1 can be considered to be contributing to regional economic development, the enhancement and establishment of logistics networks, the revitalization of local industries, and the creation of employment opportunities.

3.3.2.2 Other Positive and Negative Impacts

1) Impacts on the Environment

This project was classified as Category B under the *JICA Guidelines for Environmental and Social Considerations* (April 2010), as it did not fall under the category of large-scale road sector projects and was not expected to cause significant adverse environmental impacts. In addition, it did not involve environmentally sensitive characteristics or areas as defined in the Guidelines. An Initial Environmental Examination (IEE) for the project was approved in 2014 by the Ministry of

²⁵ The source is the Spatial Development Framework Municipal Spatial Plan (RFP/045/MPO-2021). Data on fish catch volume could not be confirmed.

Public Works, Transport and Communications (MPWTC).²⁶

According to questionnaire responses, interviews with personnel from MPW, and on-site observations, the project was found to have had minimal environmental impact during both implementation and post-completion phases, including air pollution (e.g., increased emissions), noise, vibration, and ecosystem disturbance.²⁷ The social and environmental monitoring report (prepared in 2017) confirms that there were no significant negative impacts during the project implementation. In fact, residential areas are limited along National Road No. 1, and no major complaints or dissatisfaction regarding noise, vibration or air quality were reported—this was confirmed through interviews with MPW and DGRBFPC personnel.

Regarding the situation surrounding environmental monitoring, an Environmental and Social Management Plan (ESMP) was formulated during project implementation (after the commencement of the main construction works in 2016). According to MPW, the contractor recognized its obligation to mitigate environmental and social issues, developed the ESMP, and established a process for its review and approval by the construction supervision consultant. Interviews confirmed that mitigation measures were taken as necessary during road construction.²⁸ Regarding environmental monitoring after project completion, MPW stated that, since 2025, the other central government organization conducts environmental monitoring on road infrastructure facilities. Should any negative environmental impacts be confirmed, the organization will immediately contact MPW and require corrective action. As of the time of the ex-post evaluation (April 2025), no such reports or notifications had been received and it was confirmed through interviews that no negative environmental impacts had occurred.

2) Resettlement and Land Acquisition

In January 2014, MPW prepared a Resettlement Plan²⁹ in accordance with the legal and procedural framework of the Government of Timor-Leste and examined the assets and impacts on affected persons in relation to the improvement works on National Road No. 1.

According to the regulations of the Government of Timor-Leste, land subject to setback from existing roads is regarded as government property. Accordingly, only “assets located on the surface of the land” are considered to be affected, and those who own such assets are recognized

²⁶ Following an organizational restructuring in October 2017, MPWTC was reorganized into the Ministry of Development and of Institutional Reform (MDIR). Subsequently, in June 2018, it was again reorganized and became MPW. At the time of project approval in 2014, the organization was MPWTC.

²⁷ (Reference Information) Prior to the commencement of the project, local residents in the area along the National Road No. 1 construction section had expressed concerns to MPW regarding potential impacts on coral reefs. According to MPW, its internal Safeguard Team conducted an environmental assessment, and interviews confirmed that the impact on the coral reefs was not attributable to the implementation of this project. During project implementation, no further complaints were received from local residents. MPW also confirmed at the time of the ex-post evaluation that no such impacts had occurred.

²⁸ However, no specific monitoring details or reports were provided by MPW.

²⁹ According to MPW, the content was also in line with the *JICA Guidelines for Environmental and Social Considerations*.

as project-affected persons.³⁰ Based on this understanding, the number of affected persons in the project section from Dili (starting from Hera) to Manatuto was 380, and in the section from Manatuto to Baucau was 565, totalling 945 persons. Compensation payments for trees, fences, crops, and other surface assets amounted to USD 355,292 for the Dili (from Hera)-Manatuto section and USD 1,101,683 for the Manatuto-Baucau section, totalling USD 1,456,975. According to MPW, although negotiations took time, the procedures were carried out in accordance with the Resettlement Plan and largely followed the initial plan. It was also noted that the process complied with the *JICA Guidelines for Environmental and Social Considerations*. As of the ex-post evaluation, no complaints or grievances had been received from the affected persons.

3) Gender Equality, Marginalized People, Social Systems and Norms, People's Well-being and Human Rights

This project aimed to improve the logistics network by developing an all-weather road that ensures safe and smooth passage along the northern corridor connecting the capital city, Dili, and the second-largest city, Baucau. Although no specific impacts related to gender, equality, social systems or norms, people's well-being, or human rights were identified, as noted earlier, traffic volume has been increasing year by year, with a growing trend in the transportation of goods and movement of people. This indicates continued social and economic revitalization in the future. In this context, the project is considered to have brought benefits to a wide range of people and businesses—including socially vulnerable groups such as low-income and impoverished populations—through employment opportunities and other means. It is also expected to contribute to expanding life choices and generating outcomes that enhance well-being. The project is therefore regarded as playing a supportive role in promoting these broader social benefits.

The outcomes and impacts expected from the implementation of this project have been largely achieved as planned, and in the long term, the project is considered to have had minimal negative impact on society (including human rights and gender equality), the environment or the economy. This project has achieved its objectives.

Therefore, effectiveness and impacts of the project are high.

³⁰ In Timor-Leste, many land registry records and cadastral maps were lost during the struggle for independence, making it difficult in many cases to accurately identify land ownership, including land within the project area. According to MPW, the country's Civil Code stipulates that "immovable property without a clearly established owner shall be considered state property" (Article 1265). It can be inferred that, for this reason, land areas set back from the existing road were deemed to belong to the government, and only the surface assets on such land were considered to be affected by the project. However, information on the actual acquired land area and the number of relocated people was not available from MPW. As of the time of the ex-post evaluation, legal frameworks related to land ownership identification, ownership transfer, and real estate registration are gradually being developed.

3.4 Sustainability (Rating:③)

3.4.1 Policy and System

The *Strategic Development Plan* (2011-2030) formulated by the Government of Timor-Leste sets policy goals such as promoting the development of infrastructure, including roads and bridges, to meet increasing transport demand, as well as establishing a sustainable social environment. These objectives are consistent with the Government's policies and direction at the time of the ex-post evaluation.

3.4.2 Institutional/Organizational Aspect

CAFI is designated as the executing agency under the *Infrastructure Fund Law*.³¹ At the same time, MPW functions as the effective implementing agency, with authority to approve both technical and financial aspects of projects. MPW's mission includes employment creation and poverty reduction through the expansion of the road network, and it is responsible for project planning, implementation, monitoring, and capacity development at the local level (e.g., technology transfer).

Operation and maintenance (O&M) of the project section is under the responsibility of DGRBFPC, a unit under MPW. For approximately three years following project completion, the construction contractors that carried out the civil works were responsible for O&M as stipulated in the construction contract. Their duties included periodic road patrols and inspections, asphalt pavement repair, bridge maintenance, drainage system cleaning and maintenance, slope protection, and vegetation control such as mowing and removal of weeds along road shoulders and embankment edges. Three years after the completion of the project (i.e., from mid-2024 onward), MPW conducted a new tender process and selected two local construction companies—one from Baucau and one from Manatuto—as external service providers for O&M. The contract period is two years.³² DGRBFPC is in charge of supervising and monitoring their performance. Although the contracts were signed recently, no operational issues or negative impacts from workforce shortages had been observed as of the time of the ex-post evaluation.

Based on the above, it is concluded that there are no particular issues with the institutional/organizational aspects for the operation and maintenance of the project.

3.4.3 Technical Aspect

The work experience and qualifications of the personnel working at DGRBFPC were found to

³¹ The Infrastructure Fund is a national budget established in 2011 to support domestic infrastructure development. The purpose of the Fund is to ensure the allocation of necessary financial resources for the maintenance and management of core infrastructure.

³² After the contract period ends, a new contractor is selected through a competitive bidding process.

be without issues. Technical personnel have sufficient experience in construction and maintenance work and have graduated from four-year universities (e.g., with majors in civil engineering).

DGRBFPC regularly conducts training for its personnel. In recent years, examples of such training include “GPS/QGIS” (seven participants in 2024) and “Smart Road Design” (10 participants in 2024).³³ These training opportunities are mainly provided by external training institutions or private companies. Although no training (e.g., OJT) has been conducted for newly recruited personnel in recent years, DGRBFPC stated that such training would be provided when necessary.

According to DGRBFPC, through the JICA “Project for the Capacity Development of Road Works in Timor-Leste” (2010-2013), the agency acquired knowledge on practical topics such as “Database for Road and Bridge Maintenance,” “Preparation of Construction Work Checklists,” and “Case Study: Emergency Flood Control at the Loes River.” The contents were described as being practical and applicable to their work.³⁴

DGRBFPC retains documents related to road construction, including design drawings, as well as documents related to operation and maintenance. Although a dedicated maintenance manual has not been distributed, DGRBFPC prepares an annual maintenance plan and shares it with external contractors.

Based on the above, it is concluded that there are no particular issues with the technical aspects of operation and maintenance for this project.

3.4.4 Financial Aspect

Table 10 shows the budgeted and actual expenditures for the operation and maintenance of National Road No. 1 (Dili-Manatuto section and Manatuto-Baucau section). The maintenance budget is financed by the Infrastructure Fund.

³³ According to DGRBFPC, the agency has expressed interest in participating in future training programmes on topics such as unmanned aerial vehicle (drone) operation and surveying, leadership development, 3D civil engineering design, topographic surveying, and bridge maintenance.

³⁴ According to MPW, the Timor-Leste side is continuing to explore ways to further enhance its technical capacity and knowledge related to operation and maintenance. It was noted that, going forward, stakeholders involved in maintenance are expected to acquire evaluation methods necessary for road repair and rehabilitation, and to develop the ability to appropriately estimate the required budget for such works. These improvements are expected to contribute to more efficient budgeting and proper implementation of maintenance activities. MPW also expressed hope for guidance and training to be provided by external experts.

Table 10: Budgeted and Actual Expenditures for Operation and Maintenance of National Road No. 1 (Past Three Years)

<Dili-Manatuto Section: 56.4 km>

(Unit: USD)

	2022	2023	2024
Budget	502,203.24 (Jun-Dec only)	921,304.50	401,848.50 (up to May)
Actual Expenditure	497,993.51 (Jun-Dec only)	900,476.51	388,575.27 (up to May)

<Manatuto-Baucau Section: 57.7 km>

	2022	2023	2024
Budget	83,311.80 (Nov-Dec only)	499,912.80	416,594.00 (up to Oct)
Actual Expenditure	77,869.76 (Nov-Dec only)	476,034.53	397,446.09 (up to Oct)

Source: Questionnaire responses

With regard to the budgeted and actual expenditures shown in Table 10, responses from the questionnaire and interviews with MPW indicated that: “Sufficient maintenance budgets have been allocated each year.³⁵ The budget is mainly used for monitoring, inspection, and repair of road surface conditions and related facilities. There have been no instances where a lack of budget has resulted in insufficient maintenance. In the event of a natural disaster or other emergency requiring large-scale repairs, the MPW headquarters carefully assess the situation and arranges additional budget accordingly.”

Based on the above, no particular issues have been identified in the financial aspects of the operation and maintenance of this project.

3.4.5 Environmental and Social Aspect

As stated in “3.3.2.2 Other Positive and Negative Impacts, 1) Impacts on the Environment,” no significant negative environmental impacts have been observed as of the time of the ex-post evaluation.

3.4.6 Preventative Measures to Risks

At the time of the appraisal, no specific external conditions or risk control factors were identified. However, as noted earlier, Package 2 of the civil works contract under this project was continued with financing from ADB. It might have been preferable for both the donor and the recipient government to carefully assess, as far as possible, whether any unforeseen events or factors—including those that could lead to significant changes in the project plan or budget—

³⁵ As noted earlier, a new service contract has been concluded between MPW and external contractors (local construction companies), with a contract amount set at USD 600,000. This amount is not reflected in Table 10.

might arise before the commencement of the project, and to reach mutual confirmation and agreement in advance. While it may be considered that the situation could have been controlled, but not foreseeable or manageable as a risk. Therefore, it cannot be concluded that an unanticipated risk emerged during project implementation that should have been identified at the time of appraisal.

3.4.7 Status of Operation and Maintenance

As described in “3.4.2 Institutional/Organizational Aspect,” maintenance of the project section is being carried out by external contractors. Construction companies based in Manatuto and Baucau are responsible for the maintenance work, which includes road inspection, asphalt pavement, bridge maintenance, drainage, slope protection, and vegetation control such as mowing and weed removal along road shoulders and edges. DGRBFPC is responsible for supervising and monitoring the work of these construction companies.

With regard to the Manatuto-Baucau section of the road (constructed with ADB financing), surface and subgrade deterioration has occurred at least twice in Bukoli, a somewhat mountainous area, following project completion. As a result, unevenness developed on the road surface, and repairs were carried out. The situation at the site is shown in Photo 5. While DGRBFPC has confirmed the condition on site and the contracted maintenance company has promptly carried out repairs, the exact cause remains unknown. According to MPW, (1) the issues have occurred during the rainy season when rainfall is high, and (2) although two rounds of repairs have already been conducted, further actions will be taken as needed while monitoring the situation.³⁶ No such problems have been observed on the Dili-Manatuto section of the road, which was constructed with Japanese ODA loan financing.



Photo 5: Section of the Manatuto-Baucau Road with Surface Unevenness
(Source: Taken by the evaluator)

Maintenance equipment and spare parts are owned by the contracted companies. Road repair

³⁶ Geological factors (e.g., weak ground conditions or the influence of surrounding water environments) may also be contributing to the issue. According to interviews with MPW and DGRBFPC, “Technical investigations, including topography and water volume surveys, were conducted during the design phase (prior to 2012). At the time, we understood that there were no issues with the design, geological strata, or calculated water volumes. However, since the project commenced, the impacts of climate change have become more widely recognized. While construction defects cannot be conclusively determined, it is possible that sudden heavy rainfall and increased precipitation due to climate change may have affected the ground conditions.” The Timor-Leste side is expected to continue monitoring the situation and take necessary measures as appropriate. It should be noted that no specific impacts or correlations have been identified in relation to the adoption of the new road design standards introduced after 2013.

equipment and spare parts are stored in their warehouses, and spare parts can generally be procured within approximately one month. No issues were observed in the procurement process.

Through site visits and interviews with DGRBFPC, no damage or operational deficiencies were observed on the road—other than the incidents mentioned above—that could negatively affect the manifestation of project effects. As of the time of the ex-post evaluation, the overall operation and maintenance status was considered to be good.

Based on the above, no major issues have been observed in the policy/system, institutional/organizational, technical, financial, environmental and social aspects including the current status of operation and maintenance, and preventative measures to risks.

Therefore, sustainability of the project effects is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project aimed to improve the logistics network centred in northern Timor-Leste by developing an all-weather road that ensures safe and smooth travel along the northern corridor connecting the capital city, Dili, and the second-largest city, Baucau. Regarding relevance, the project was confirmed to be consistent with both the “Development Plan” and “Development Needs.” In terms of coherence, the project aligned well with “Japan’s ODA Policy,” and both internal coherence and external coherence were confirmed through specific collaborations and synergies. It also aligns with the goals of international frameworks such as the SDGs. Therefore, its relevance and coherence are high. However, since both the project cost and period significantly exceeded the plan, efficiency of the project is low. As for effectiveness, the target value for “Reduction in Required Travel Time” was achieved. Although data on the “Annual Average Daily Traffic” were not available, based on trends in vehicle registration numbers, it is inferred that traffic volume on National Road No. 1 is increasing. Furthermore, interviews with stakeholders and field inspections confirmed that the completed sections of the road exhibit high drivability, comfort and safety. Regarding impact, National Road No. 1, developed as an all-weather road, supports the revitalization of the regional economy and logistics. Citizens, businesses and farmers in Dili and Baucau are enjoying the benefits of improved convenience and efficient transportation of goods. Therefore, effectiveness and impacts of the project are high. With respect to sustainability, at the time of the ex-post evaluation, there were no significant concerns identified in terms of the policy/system, institutional/organizational, technical and financial aspects, environmental and social considerations, risk responses, or the status of operation and maintenance. Therefore, sustainability of the project effects is high.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to Executing Agency and the Government of Timor-Leste

1) With regard to the quantitative indicator of effectiveness, “Annual Average Daily Traffic” had not been measured or recorded up to the time of the ex-post evaluation. It is recommended that the Timor-Leste side monitor and record traffic demand data, including whether traffic volumes are increasing as projected, and utilize such data for future traffic demand forecasting and maintenance planning.

2) In the area of Bukoli, located along the Manatuto-Baucau section financed by ADB, surface and subgrade deformation occurred after project completion. Although the Timor-Leste side has conducted repairs as needed while monitoring the situation, the cause has not yet been identified. It is therefore recommended to continue monitoring the situation carefully and take appropriate measures as necessary, including the allocation of the repair budget.

3) As of the time of the ex-post evaluation, instances of speeding and reckless driving have been observed not only on the improved National Road No. 1, but also on other major roads. Although specific and reliable data on traffic accidents were not available after project completion, the implementation of traffic safety awareness campaigns and preventive measures is recommended to help reduce accident risks.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

The Importance of Confirming—Prior to Project Commencement—that No Unforeseen Events Will Arise That Could Cause Significant Changes to the Project Plan, and of Establishing a Framework to Allow for Appropriate Procedures and Contingency Responses by Both the Donor and Recipient Sides

After the start of this project, the Timor-Leste side adopted new national road design standards. The executing agency requested that the construction supervision consultant apply these new standards to the detailed design. As a result, the detailed design based on the new standards led to a substantial increase in the estimated project cost. Because this issue arose after project initiation and could not have been foreseen in advance, the Timor-Leste side initially expressed its intention to cover the increased costs entirely with domestic funds. However, for Package 2 of the civil works, the project was continued with financing from ADB. When forming similar projects in the future, it is worth considering the importance of confirming, as far as possible, whether any unforeseen events might arise prior to project commencement that could lead to significant changes in the project plan or cost. In addition to ensuring that necessary procedures (if any) are

undertaken without delay, it is also advisable to establish a framework to deal with contingencies—for example, reaching prior agreement among stakeholders on possible actions in the event of changes, or including contingency allocations in the project budget to accommodate future modifications.

5. Non-Score Criteria

5.1 Performance

5.1.1 Objective Perspective

None

5.2 Additionality

None

(End)

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs	1) Civil Works - Rehabilitation of approx. 116 km of the target national road section (including earthworks, pavement, drainage, slope protection, etc.) 2) Consulting Services - Support for basic design, bidding assistance, review of detailed design and construction supervision - Capacity development support for operation and maintenance within the Directorate of Roads, Bridges and Flood Control (DRBFC) under the Ministry of Infrastructure (MOI) - Baseline survey and project effect monitoring - Support for environmental and social monitoring	1) Civil Works ⇒ Although there were changes in project financing, the planned activities—such as earthworks, pavement, drainage and slope protection—were largely implemented as scheduled. The project consisted of the following two civil works contract packages: - Contract Package A1-01 (road rehabilitation between Dili and Manatuto): 48.74 km (financed by a Japanese ODA loan) and 7.66 km (financed by the Government of Timor-Leste), totalling 56.4 km - Contract Package A1-02 (road rehabilitation between Manatuto and Baucau): 57.70 km (financed by an ADB loan) ⇒ Total length of road developed under the project: 114.1 km 2) Consulting Services ⇒ The project was largely implemented as planned up to July 2019. From August 2019 to February 2021, in-house personnel of MPW undertook responsibilities such as construction supervision of the road works.
2. Project Period	March 2012-June 2017 (64 months)	March 2012-February 2021 (108 months) <u>*However, after excluding the three months assumed to have been affected by the COVID-19 pandemic, the adjusted implementation period is considered to be 105 months.</u>
3. Project Cost	328 million yen	10,767 million yen
Amount Paid in Foreign Currency		
Amount Paid in Local Currency	6,786 million yen	182 million yen
Total	7,114 million yen	10,949 million yen

ODA Loan Portion	(5,278 million yen)	(4,306 million yen)
Exchange Rate	1 USD = JPY 76.8 (as of October 2011)	1 USD = JPY 109.67 (Average rate based on IMF International Financial Statistics (IFS) during the main implementation period of the project components, 2015-2021)
4. Final Disbursement	July 2022	