

Republic of Togo

FY2022 Ex-Post Evaluation Report of Japanese Grant Aid Project

“Projet de construction de deux ponts, Kara et Koumongou”

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Foundation for Advanced Studies on International Development

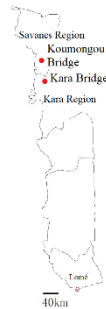
0. Summary

This project was implemented to improve the transportation capacity of National Road 17 by constructing bridges and an access road on National Road 17, thereby contributing to the development of a smooth, stable international logistics network in Togo and neighboring countries as well as to the improvement of access to basic social services.

The objectives of the project are consistent with the development plans of the government of Togo, which emphasizes the development of the Lomé-Ouagadougou corridor, and with the development needs of Togo, as there is a strong need to develop National Road 17 as an alternative to National Road 1, the lifeline between Togo and landlocked West African countries. The objectives of the project were consistent with Japan’s ODA policy for Togo at the time of ex-ante evaluation. Synergies and interlinkages with other JICA projects were not envisaged at the time of planning. At the time of project formation, JICA had agreed and coordinated with the executing agency and other donors on the content of collaboration regarding the development of National Road 17 to enhance the Lomé-Ouagadougou corridor, which was partially effective, and there was external coherence. Therefore, relevance and coherence are high. Although the project period slightly exceeded the plan, the project cost was within the plan, and therefore efficiency of the project is high. Among the operation and effect indicators, the indicators on the decrease in the travel time and the increase in the possible period for crossing the rivers achieved their targets as planned. As for the increase in traffic volume, no quantitative change has been confirmed at the time of ex-post evaluation, and the development of all sections of National Road 17, which is a prerequisite for the achievement of this indicator, was not completed. However, interviews with transporters traveling between Togo and Burkina Faso indicated that the project contributed to the increase in traffic volume to some extent. In addition, the impact of improved access to basic services such as health and education for the local population was also identified after project completion. No negative impacts on the environment were observed, and resettlement and land acquisition were carried out in accordance with Togo’s national laws. In this regard, this project has achieved its objectives, and effectiveness and impacts of the project are high. Some minor issues have been observed in the technical aspect including the current status of operation and maintenance. Although the concerned parties began to take measures to improve and resolve the situation, the results of such measures could not be confirmed at the time of ex-post evaluation. Therefore, sustainability of the project effects is moderately low.

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

1. Project Description



Project location(s) (source: Ministry of Foreign Affairs website and document provided by JICA)

Kara bridge. The small bridge on the right side is a sunken bridge that was used before project implementation. (source: Document provided by JICA)

1.1 Background

Togo is a country which is extremely long and narrow from south to north, stretching approximately 700 km from north to south and 50-150 km from east to west. The government of Togo aims to become a port nation and is promoting national development based on the Lomé-Ouagadougou corridor, an international logistics network from the port of Lomé at the southern end to the Burkina Faso border at the northern end. National Road 1 is a lifeline of traffic between Togo and the landlocked countries (Burkina Faso, Niger, and Mali), and National Roads 1 and 17 form part of the Lomé-Ouagadougou corridor. The surface of National Road 1 was severely damaged due to the rapid increase in the volume of large cargo, and flooding during the rainy season frequently caused bridges to collapse. The government of Togo had been promoting the construction of National Road 17 as an alternative road, but it was not functioning as an alternative road due to the absence of bridges over the Kara and Koumongou Rivers. “The Project for the Study on Togo Logistics Corridor Development in the Republic of Togo,” conducted by JICA in 2012-2013, proposed the construction of bridges over the Kara and Koumongou Rivers on National Road 17 as a top priority as part of a master plan for the efficient, effective development of the corridor.

1.2 Project Outline

The objective of this project was to improve the transportation capacity of National Road 17 by constructing two bridges and an access road, thereby contributing to the development of a smooth, stable international logistics network in Togo and neighboring countries, as well as to the improvement of access to basic social services.

Grant Limit/Actual Grant Amount	Detailed Design: 62 million yen/62 million yen Construction Works: 3,125 million yen/2,993 million yen
Exchange of Notes Date /Grant Agreement Date	Detailed Design: March 2015/March 2015 Construction Works: July 2015/July 2015
Executing Agency(ies)	At the time of preparatory survey: Ministry of Public Works and Transport (Ministère des Travaux Publics et des Transports) At the time of project completion and final inspection: Ministry of Infrastructures and Transports (Ministère des Infrastructures et des Transports) At the time of ex-post evaluation: Ministry of Public Works (Ministère des Travaux Publics)
Project Completion	October 2019
Target Area	Kara River in the Kara region and Koumongou River in the Savanes region
Main Contractor(s)	Konoike Construction Company Ltd.
Main Consultant(s)	Central Consultant Inc.
Preparatory Survey	April-December 2014
Related Projects	[Technical Cooperation] <Technical Cooperation for Development Planning> “The Project for the Study on Togo Logistics Corridor Development in the Republic of Togo” (2012-2013) <Dispatch of Experts> “Program Coordination” (2013-2017, 2018-2020, 2021-2023) [Grant Aid] “The Project for Construction of the Sokodé Bypass Road” (2023-)

2. Outline of the Evaluation Study

2.1 External Evaluator

Maki Hamaoka, Atsushi Kimura,¹ Foundation for Advanced Studies on International Development

2.2 Duration of Evaluation Study

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

Duration of the Study: November 2022-February 2024

Duration of the Field Study²: February 27-March 3, 2023 (field survey by local consultant)

May 29-June 2, 2023 (field survey by evaluator, capital city only)

June 6-9, 2023 (field survey by local consultant)

2.3 Constraints during the Evaluation Study

The entire Savanes region and the northern part of Kara region were classified as “Level 2: Do

¹ Kimura (in charge of satellite data utilization) belongs to Pasco Corporation and participated as a reinforcement.

² Considering the security situation in the target areas, the evaluator conducted interviews with relevant organizations and explained and discussed the evaluation results in the capital city, and field surveys in the above two regions were conducted by the local consultant accompanied by military policy of the Government of Togo.

not travel unless absolutely necessary” in the Ministry of Foreign Affairs’ overseas safety information because of the growing terrorist threat due to the deteriorating security situation in the border area with Burkina Faso. Therefore, the field survey at the target site was conducted by the local consultant accompanied by the military police of the government of Togo. While the military police’s accompaniment made it possible to carry out the survey safely, their presence created a sense of tension among the residents who cooperated with the interviews.

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 Development Plan of Togo

At the time of ex-ante evaluation, the *Second Poverty Reduction Document 2013-2017* prioritized the development of the Lomé-Ouagadougou corridor as well as the national roads and road network in rural areas. At the time of project completion, the government of Togo, in its *National Development Plan 2018-2022 (Plan National de Développement 2018-2022 [PND])*, had announced that for Togo to achieve structural transformation of its economy, it would need to establish a competitive logistics hub and a development corridor (Lomé-Ouagadougou corridor) with landlocked countries in the medium to long term. To do so, it emphasized the development of a logistics and transportation network centered on the port of Lomé.

In addition, the West African Economic and Monetary Union (Union Économique et Monétaire Ouest-Africaine [UEMOA]) developed a *Community Action Programme for Infrastructure and Road Transport (Programme d’Actions Communautaire des Infrastructures et du Transport Routier)* in 2001, which identified the Lomé-Ouagadougou corridor as one of the priorities for development. The Lomé-Ouagadougou corridor has been under development with the support of the government of Togo and other donors.

In light of the above, from ex-ante evaluation to project completion, the government of Togo has attached importance to developing the Lomé-Ouagadougou corridor, and the objectives of the project are consistent with the policies of the government of Togo.

3.1.1.2 Consistency with the Development Needs of Togo

The Lomé-Ouagadougou corridor consists of National Road 1, which runs through Togo from north to south, and National Road 17, which branches westward from Sokodé, a city in the Centrale region and rejoins National Road 1 in the north. National Road 1 is a mountain road with sharp curves and steep grades that begins in northern Kara, which is in the northern part of Sokodé, and the road surface in this section is severely damaged due to the passage of large trucks and

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

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

flooding during the rainy season. National Road 17, which branches off from Sokodé, is expected to serve as an alternative to National Road 1, but as shown in Figure 1, there are still unpaved sections. Therefore, from the time of planning to the time of ex-post evaluation, National Road 17 has not fully functioned as an alternative to National Road 1, and the need for the maintenance of National Road 17 remained high.

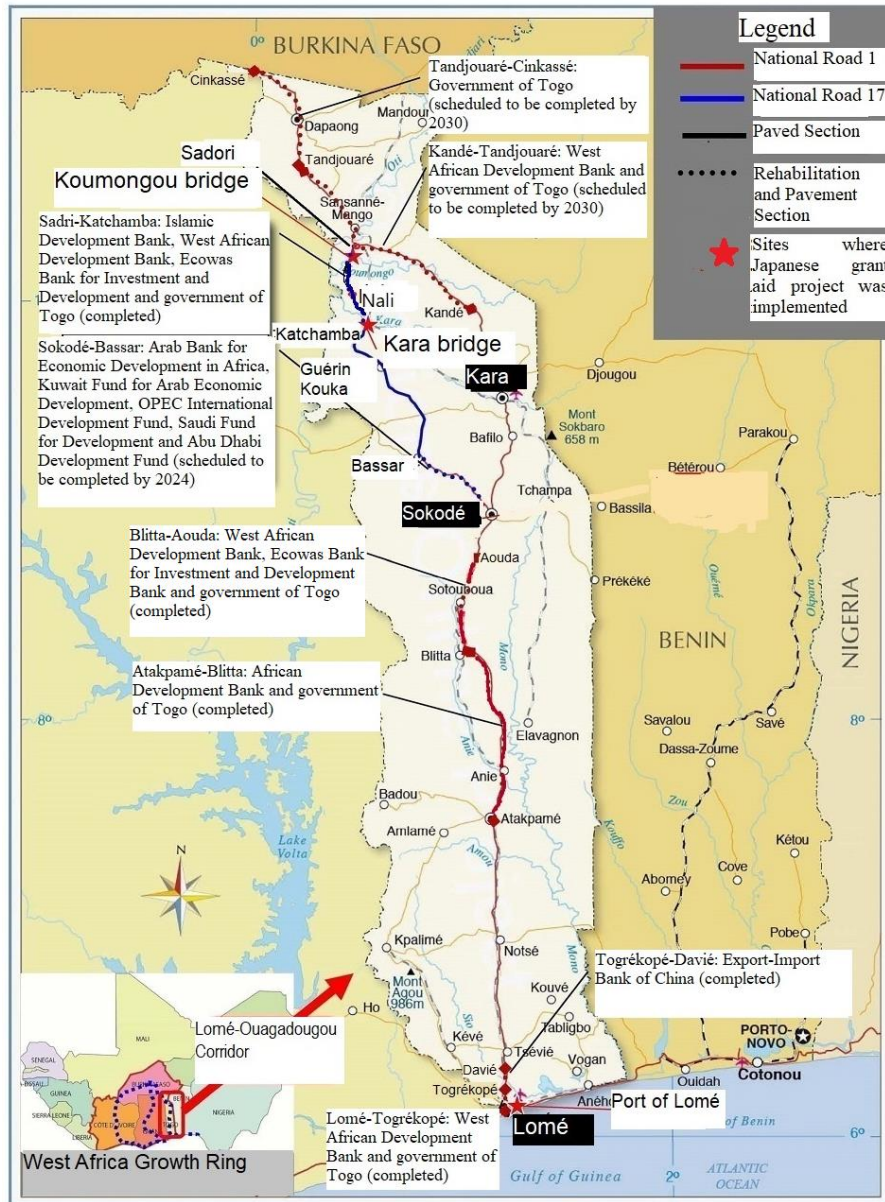


Figure 1 Road Development Status of National Road 1 and National Road 17

Source: Prepared by the evaluator based on the Preparatory Survey Report for the Project for the Construction of Sokodé Bypass Road, p. 1-6.

3.1.1.3 Appropriateness of the Project Plan and Approach

The ex-ante evaluation sheet specified the following three points regarding the utilization of lessons learned from past similar projects. The following are the results of a review of the utilization of these lessons learned during the ex-post evaluation.

Regarding the first point, “To explain to the counterpart government the need for a systematic operation and maintenance plan for periodic inspections and repairs, as well as the budget plan associated with the plan, and confirm the operation and maintenance skills of the counterpart government officials,” the preparatory survey team briefed officials of the government of Togo on a systematic operation and maintenance plan and budget plan. The consultant also provided guidance to the executing agency on operation and maintenance at the completion of the project before handing it over. However, as described in Section 3.4, Sustainability, the Regional Directorate of Public Works of Kara region (Direction Régionale des Travaux Publics de Kara, hereinafter referred to as “DRTP Kara”) and the Regional Directorate of Public Works of Savanes (Direction Régionale des Travaux Publics de Savanes, hereinafter referred to as “DRTP Savanes”), which are branch offices of the General Directorate of Public Works of the Ministry of Infrastructure and Transport (Direction Générale des Travaux Publics, hereinafter referred to as “DGTP”) that has jurisdiction over the subject bridges, have not conducted regular inspections since the completion of the project. Although explanations and confirmation on operation and maintenance were appropriately carried out at the planning stage, it seemed necessary to repeatedly explain specific methods of periodic inspections and how to compile records at the implementation stage, as well as to consider a system that does not rely solely on the executing agency.

As for the second point, “Regarding the setting of loading conditions, the French and Japanese standards will be compared to influence future operation and maintenance, and the Japanese standard, which is adapted to heavier loads, will be adopted,” the consultant compared the French and Japanese standards in the preparatory survey, and the Japanese standard, which is more suitable for heavier loads, was adopted.

Regarding the third point, “Since the development of the unpaved section of National Road 17 is a prerequisite for securing access to the target bridges, JICA should communicate and coordinate closely with the government of Togo and the donors concerned, including coordination of the timing of opening,” close communication and coordination with the government of Togo and the donors concerned were conducted appropriately. In response to the delay in the construction works of National Road 17, JICA officials (JICA headquarters, JICA Cote d’Ivoire Office, and JICA expert in program coordination in Togo) and the consultant urged the executing agency to expedite improvements to National Road 17 on a preparatory survey, detailed design survey, contract negotiations at the time of tender, etc. See “3.1.2.3 External Coherence” for details.

Based on the above, it can be said that the three lessons learned from past similar projects, which were mentioned during the ex-ante evaluation, were addressed appropriately during the implementation stage, and that the lessons learned from similar projects were utilized.

3.1.2 Coherence (Rating: ②)

3.1.2.1 Consistency with Japan's ODA Policy

Based on the government of Togo's *Second Poverty Reduction Document 2013-2017*, the Japan's ODA policy for Togo was to support the promotion of sustainable economic growth through strengthening Togo's economic corridors and reducing poverty and inequality through strengthening basic social services to realize Togo's port-nation status. In addition, the government of Japan had set "revitalization of the economic infrastructure" as a priority area for assistance to Togo and had indicated an assistance policy to revitalize the Lomé-Ouagadougou corridor. In the *TICAD V Yokohama Action Plan (2013-2019)*, the government of Japan indicated that it would support "Growth Corridor Development" and a "Strategic Master Plan for Infrastructure Development." Concerning technical cooperation for the "Strategic Master Plan Development Project for West Africa Growth Ring Corridor Development" (2015-2018) based on these assistance policies, the Lomé-Ouagadougou corridor is one of the targets, and the development of the bypass road (including this project) was considered conducive to enhancing the corridor in the subject area and developing the region.

Based on the above, it can be judged that there was coherence with Japan's ODA policy at the time of ex-ante evaluation.

3.1.2.2 Internal Coherence

Synergies and interlinkages with other JICA projects were not envisaged in this project at the time of planning. According to the responses to the questionnaire to JICA officials, synergies and interlinkages with other JICA projects were not implemented at the same time as the project implementation.

3.1.2.3 External Coherence

As mentioned in "3.1.1.1 Consistency with the Development Plan of Togo," the government of Togo and UEMOA identified the Lomé-Ouagadougou corridor as a priority regional corridor to be developed, and the development of National Road 17 has been promoted with support from the government of Togo and other donors. At the time of project formation, during the second field study of the preparatory survey in October 2014, JICA confirmed the implementation schedule and the status of funds attached to the improvement between Katchamba-Sadori with the executing agency, the African Development Bank, the Ecowas Bank for Investment and Development, and the Islamic Development Bank, which was a prerequisite for securing access to the target bridges. At that time, JICA informed the government of Togo that it would make its best efforts to negotiate with the government of Japan to approve the implementation of the project at the cabinet meeting in December 2014, provided that the government of Togo submitted a detailed project implementation schedule for the road improvement between Katchamba-Sadori

by October 20, 2014. The government of Togo also needed to submit documents signed by the three donors and the Ministry of Public Works and Transport (at that time) certifying that they approved the implementation of the road improvement in this section in accordance with the above-mentioned implementation schedule. If the documents were not submitted in time for the December cabinet meeting, the government of Togo was requested to submit the above documents by December 2014 for the February 2015 cabinet meeting. As a result, the government of Togo submitted a letter of commitment for the construction of the road between Katchamba-Sadori with the above-mentioned donors' funds and Togo's budget, and the implementation of this project was approved by the cabinet in February 2015.⁵ Thus, JICA, the executing agency, and other donors were coordinating the improvement of National Road 17 at the time of project formation. Although the road improvement of the described section was planned to be implemented in parallel with the project, construction was delayed significantly, which affected the traffic volume in the section covered by the project. However, construction was completed in January 2023, and the effects of the coordination and collaboration are partially being realized.

The objectives of the project are consistent with the development plans of the government of Togo emphasizing the development of the Lomé-Ouagadougou corridor, and with the development needs of Togo, as there is a strong need to develop National Road 17 as an alternative to National Road 1, the lifeline between Togo and landlocked West African countries. Furthermore, the approach was appropriate in that lessons learned from past similar projects were used in project implementation.

In addition, the objectives of the project were consistent with the Japan's ODA policy for Togo at the time of ex-ante evaluation. Synergies and interlinkages with other JICA projects were not envisaged at the time of planning. At the time of project formation, JICA had agreed and coordinated with the executing agency and other donors on the content of collaboration regarding the development of National Road 17 to enhance the Lomé-Ouagadougou corridor, which was partially effective, and there was external coherence.

Therefore, its relevance and coherence are high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

The planned and actual outputs of the project are shown in Table 1. As a result of the detailed structural calculations during detailed design, the bridges were constructed as planned, except for some changes in the geometry of the substructure and the following items.

⁵ Although the specific date of submission of the above documents could not be confirmed, the document submitted by JICA to the Ministry of Finance of Japan on December 2, 2014 specified that a commitment letter was submitted by the government of Togo.

- Additional excavation of the fracture zone in the foundation rock of abutment A1 of the Kara bridge and replacement concrete placement

Regarding the spread foundation of abutment A1 of the Kara bridge, a fracture zone was found in a part of the bedrock that was designed as a support layer, so the zone was excavated, and replacement concrete was placed to ensure the soil's bearing capacity. To ensure frictional resistance between the top of the replacement concrete and the bottom of the footing, insert bars were embedded and grouted into the top edge of the replacement concrete.

- Installation of brackets for attaching steel pipes for optical cables on the Kara and Koumongou bridges

In response to a request from Togo Telecom, which was laying fiber-optic cables throughout Togo, concerning the installation of fiber-optic cable pipes on the Kara and Koumongou bridges, this project included procurement of bracket materials for pipe attachments and installation of the brackets on the outside of the bridge railings, laying of conduit from the slope shoulder of the access road embankment to the point beyond the ditch, and fabricated and installed handholes.

- Installation of height limit signs on the access roads of Kara and Koumongou bridges

In response to a request from the Ministry of Security to install height limit signs in front of and behind the bridges to alert freight vehicle drivers, 5.5 m height limit signs were installed in front of and behind both bridges.

- Change in location of downstream revetment of pier P1 of the Koumongou bridge

On the Koumongou bridge, significant erosion of the low water revetment downstream of the proposed construction location of the P1 pier on the left bank during the 2018 rainy season's rising water level was observed at the end of the rainy season, when the water level dropped. In the original design, a revetment was planned to be installed to prevent erosion and scour around the P1 pier by installing gabions in front of the P1 pier. To prevent erosion and scour around the P1 pier during future periods of high water, the gabions in front of the P1 pier were placed in such a way as to wrap around the downstream side of the pier.

Table 1 Planned and Actual Outputs of the Project

Article		Plan	Actual
<Kara Bridge>			
Width	Bridge	Roadway 3.5 m x 2 = 7.0 m, shoulder 0.5 m x 2 = 1.0 m, sidewalk 1.5 m x 2 = 3.0 m; total 11.0 m (effective width) Coping 0.4 m x 2 = 0.8 m; total 11.8 m (total width)	As planned.
	Access road	Roadway 3.7 m x 2 = 7.4 m, shoulder 1.5 m x 2 = 3.0 m; total 10.4 m (total width)	As planned.
Bridge type		PC3-span connected post-tension T-beam	As planned.
Bridge length, number of spans		40.0 m x 3 = 120 m	As planned.
Bridge surface pavement		Concrete pavement (minimum thickness of roadway 80 mm)	As planned.
Bridge abutment		A1 (Katchamba side) type: reversed T-type abutment, height of structure: 13.0 m, foundation works: spread foundation. A2 (Sadori side) type: reversed T-type abutment, height of structure: 11.5 m, foundation works: spread foundation.	As planned.
Pier		P1 type: oval-shaped type, height of structure: 11.4 m, foundation works: spread foundation. P2 type: oval-shaped type, height of structure: 11.4 m, foundation works: spread foundation.	P1 type: oval-shaped type, height of structure: <u>11.5 m</u> , foundation works: spread foundation. P2 type: oval-shaped type, height of structure: <u>11.5 m</u> , foundation works: spread foundation.
Access road	Length	A1 (Katchamba side) approx. 327 m, A2 (Sadori side) approx. 456 m	As planned.
	Pavement	Concrete pavement (280 mm thick)	
Bank protection work	Both sides	Gabion bank protection work	As planned.
<Koumongou Bridge>			
Width	Bridge	Roadway 3.5 m x 2 = 7.0 m, shoulder 0.5 m x 2 = 1.0 m, sidewalk 1.5 m x 2 = 3.0 m; total 11.0 m (effective width) Coping 0.4 m x 2 = 0.8 m; total 11.8 m (total width)	As planned.
	Access road	Roadway 3.7 m x 2 = 7.4 m, shoulder 1.5 m x 2 = 3.0 m; total 10.4 m (total width)	As planned.
Bridge type		PC4-span connected post-tension T-beam	As planned.
Bridge length, number of spans		40.0 m x 4 = 160 m	As planned.
Bridge surface pavement		Concrete pavement (minimum thickness of roadway 80 mm)	As planned.
Bridge abutment		A1 (Katchamba side) type: reversed T-type abutment, height of structure: 9.5 m, foundation works: cast-in-place concrete pile. A2 (Sadori side) type: reversed T-type abutment, height of structure: 10.5 m, foundation works: cast-in-place concrete pile.	As planned.

Pier		P1 type: oval-shaped type, height of structure: 14.3 m, foundation works: spread foundation. P2 type: oval-shaped type, height of structure: 14.2 m, foundation works: spread foundation. P2 type: oval-shaped type, height of structure: 14.3 m, foundation works: spread foundation.	P1 type: oval-shaped type, height of structure: <u>14.1 m</u> , foundation works: spread foundation. P2 type: oval-shaped type, height of structure: <u>14.3 m</u> , foundation works: spread foundation. P3 type: oval-shaped type, height of structure: <u>14.1 m</u> , foundation works: spread foundation.
Access road	Length	A1 (Katchamba side) approx. 163 m, A2 (Sadori side) approx. 177 m	As planned.
	Pavement	Concrete pavement (280 mm thick)	
Bank protection work	Both sides	Gabion bank protection work.	As planned.
Bed protection work	Bridge abutment	Gabion bed protection work.	As planned.

Source: Preparatory Survey Report and documents provided by JICA.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The total project cost was planned at 3,191 million yen (Japanese side: 3,187 million yen, Togolese side: 4 million yen), while the actual cost was 3,056 million yen, within the plan (96% of the plan). The actual project cost on the Japanese side was 3,055 million yen and 0.8 million yen⁶ on the Togo side. The difference between the plan and the actual results was because no preparatory expenses were incurred, although construction costs increased due to the above-mentioned design changes, and that the cost of leasing land and the cost for preparation of temporary yards on the Togo side were less than the planned cost.

3.2.2.2 Project Period

The project period slightly exceeded the plan (117% of the plan), with an actual result of 56 months compared to the planned 48 months. The duration by process is shown in Table 2. The difference between the plan and the actual results was mainly because the period from the detailed design to the tender was much longer than planned, because it took time to adjust the estimated bidding prices before the second prequalification to select a contractor due to exchange rate fluctuations and price changes, after the prequalified bidder in the first prequalification withdrew from the bidding process.⁷

⁶ The actual cost on the Togo side is recalculated at the IFS rate (average) for 2016-2019 for a total of 4,690,500 FCFA for environmental considerations cost and temporary yard construction cost. 1FCFA = 0.19 yen.

⁷ Source: Answers to the questionnaire by the consultant.

Table 2 Planned and Actual Project Period

	Plan	Actual
Total ^{Note 1}	48 months (March 2015-February 2019)	56 months (March 2015-October 2019)
<Detail>		
Signature of G/A (detailed design)	n.a.	March 2015
Signature of G/A (construction)	n.a.	July 2015
Detailed design-tender	10 months (March-December 2015)	17 months (March 2015-July 2016)
Bidding	November 2015	July 2016
Contracting with contractor	December 2015	July 2016
Start of construction	January 2016	September 2016
Construction period	38 months (January 2016-February 2019)	38 months (September 2016-October 2019)
Completion of construction	February 2019	October 2019

Source: Documents provided by JICA.

Note1: Starting point is the signature of G/A, ending point is the completion of construction.

In light of the above, although the project period slightly exceeded the plan, the project cost was within the plan; therefore, efficiency of the project is high.

3.3 Effectiveness and Impacts⁸ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

At the time of planning, the following operation and effect indicators were set for the project: (1) travel time between Katchamba, Dankpen prefecture in Kara region and Sansanné-Mango, Oti prefecture, Savanes region, including the two bridges of the project; (2) possible period of crossing the rivers; and (3) average daily traffic volume. Operation and effect indicators are shown in Table 3.

⁸ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

Table 3 Operation and Effect Indicators

	Baseline	Target value	Actual value
	2014	2022	2023
	Before Project Implementation	3 Years After Completion	3.5 Years After Completion
Indicator 1: Travel time between the following two locations, including the two bridges of the project (in minutes) (Katchamba, Dankpen prefecture, Kara region to Sansanné-Mango, Oti prefecture, Savanes region)	Dry season 200 Rainy season 290	60 in dry and rainy seasons	45-60 in both dry and rainy seasons (Note 3)
Indicator 2: Possible period for crossing the rivers	January-May	All year round	All year round
Indicator 3: Average daily traffic volume (vehicles, excluding motorcycles)	Market day in dry season 4 (Kara bridge) 3 (Koumongou bridge) 0 in rainy season (Note 1)	Both dry and rainy seasons 1,473 (Kara bridge) 1,284 (Koumongou bridge) (Note 2)	n.a.

Source: Ex-ante Evaluation Sheet, field survey.

Note 1: Results of the observation of vehicles crossing both rivers in May 2014.

Note 2: Future traffic demand forecast in the “Project for the Study on Togo Logistics Corridor Development in the Republic of Togo.”

Note 3: Actual measurements during the field survey and answers to the questionnaire by the executing agency. Reference speed: 80 km/h.

(1) Travel Time between the Two Locations including the Two Bridges of the Project

For Indicator 1 in Table 3, “Travel time between two locations including the two bridges of the project (Katchamba, Dankpen prefecture, Kara region to Sansanné-Mango, Oti prefecture, Savanes region),” the target was achieved, as the traveling time was 45-60 minutes by 4x4 based on actual measurements during the ex-post evaluation, compared to the target value of 60 minutes. For reference, according to interviews with five residents living in Katchamba before project implementation, the average time required for the same section was 270 minutes before and 168 minutes after the project in the dry season, and 372 minutes before and 168 minutes after the project in the rainy season. This difference is due to the fact that during the field survey for the ex-post evaluation, the two target locations were actually measured at the standard speed of 80 km/h as assumed by the indicator, while the residents’ responses included the time from their residence to National Road 17 via an unpaved road and the time for the minibus to stop in the middle of the road, which are different conditions. In any case, the time required to reach Sansanné-Mango has been significantly shortened by the project. Before project implementation, during the rainy season, when it was not possible to cross the river, residents had to take a detour to National Road 1 via an unpaved road to reach Sansanné-Mango, but since project completion, residents can now travel directly to Sansanné-Mango via National Road 17 all year round. This

has significantly reduced travel time, especially during the rainy season. See also “Box 2 Cost-Distance Analysis” for a detailed analysis of reduction of travel distance and time.

(2) Possible Period for Crossing the Rivers

Before project implementation, crossing the Kara and Koumongou Rivers was possible only from January to May. According to interviews with residents at five sites⁹ near the Kara and Koumongou bridges, both rivers can now be crossed year-round.¹⁰ This has significantly reduced travel time and improved access to education, medical care, and other administrative services for residents in areas that had been isolated during the rainy season, as described later in “3.3.2.1 Intended Impacts.”



Residents crossing the Koumongou River during the dry season before project implementation (source: Preparatory Survey Report)



Residents crossing a sunken bridge on the Kara River in the early rainy season before project implementation (source: Preparatory Survey Report)

(3) Average Daily Traffic Volume

Neither the executing agency nor the maintenance agency conducted a traffic volume survey of the project’s target section after project completion,¹¹ and the actual value of the relevant indicator after project completion could not be confirmed, so quantitative comparisons could not be made. In addition, developing all sections of National Road 17 was a prerequisite for the achievement of this indicator, but the prerequisite was delayed significantly. For example, prior to the start of construction in April 2016, financing was approved for Katchamba-Nali (30 km) and for Nali-Sadori (30 km). The Board of Directors of West African Development Bank approved financing in March 2015 and the Board of Directors of Economic Community of West African States’ Bank for Investment and Development in December 2015, and construction was scheduled to begin in the fourth quarter of 2016. However, the actual start of construction was

⁹ Interviews were conducted with 14 males and 10 females in the five sites of Sansanné-Mango, Koumongou, Katchamba, Takpamba, and Nali. The breakdown is as follows: Sansanné-Mango (2 males, 2 females), Koumongou (3 males, 2 females), Katchamba (3 males, 2 females), Takpamba (3 males, 2 females), and Nali (3 males, 2 females).

¹⁰ Source: Answers to the questionnaire by the executing agency, interviews with 24 residents.

¹¹ This indicator is a forecast of future traffic volumes analyzed within “The Project for the Study on Togo Logistics Corridor Development in the Republic of Togo,” but it was not examined how to measure the indicators after completion of the project. In addition, the Ministry of Public Works has not conducted a traffic volume survey for this section of the corridor.

delayed significantly to May 2021 for Katchamba-Nali and April 2020 for Nali-Sadori due to the time required for procurement procedures within the government of Togo. The Katchamba-Sadori section was completed in January 2023. In addition, the Sokodé-Bassar section, which was incomplete at the time of ex-post evaluation, is scheduled for completion in 2024, but it is partially in service.

In interviews with residents at five sites near the Kara and Koumongou bridges, 20 out of 24 residents indicated that the volume of heavy-vehicle traffic traveling through the target area has increased since the project completion. Although the traffic volume seems to have partially increased compared to before project implementation, the traffic volume is not expected to reach the predicted value because the prerequisite for the completion of the entire section of National Road 17 has not been fulfilled.

(4) Enhancement of Function of National Road 17 as an Alternative Road

In addition to the indicators established at the time of planning described above, during the ex-post evaluation, the enhancement of function of National Road 17 as an alternative road was added as an indicator. The construction of the bridges and access roads increased driving comfort, and the average speed was observed to increase. In fact, when the Sansanné-Mango to Sokodé section of National Road 17 was in service after 2022, transporters in trucks began to pass National Road 1, which is paved all the way from the port of Lomé to Burkina Faso when transporting goods by truck, but they avoid National Road 1, which is mountainous and has many ups and downs. They use National Road 17, which is a short route, for the return trip.¹² This is the result of prioritizing driving comfort, even though there are sections that have not been completely paved in National Road 17. Before project implementation, it took 7 hours to travel from Sansanné-Mango to Sokodé via National Road 1, but after completion of the two bridges, the time required for the same section has been significantly reduced to 4 hours. It can be said that National Road 17 is beginning to function as an alternative to National Road 1.

3.3.2 Impacts

3.3.2.1 Intended Impacts

At the time of planning, “Improvement of access to administrative services such as education and health for the inhabitants along National Road 17 around areas of bridge construction that were isolated during the rainy season” and “Increase in logistics between Burkina Faso and Togo” were expected as impacts of the project. In addition, “Revitalization of the local economy” was added as a complementary indicator at the time of ex-post evaluation. The status of these impacts

¹² Source: Interviews with four drivers of large trucks waiting to load supplies at the port of Lomé. The local consultant attempted to interview minibus operators along National Road 17 in the vicinity of the bridges at the time of first and second field surveys, but was unable to meet with the minibus operators, so the use of the National Roads before and after project implementation was compared, using large trucks as an example.

is as follows.

(1) Improvement of Access to Administrative Services such as Education and Health for the Inhabitants along National Road 17 around Areas of Construction of the Bridges which were Isolated during the Rainy Season

(a) Access to Medical Services

Results of interviews with residents in the target areas showed that 20 out of 24 respondents cited improved access to medical facilities as a benefit of the project. At the time of planning, residents in the target area visited medical facilities in Sansanné-Mango when they needed to receive advanced medical care. The four medical facilities¹³ interviewed during the ex-post evaluation all cited significantly reduced time required to transport injured and sick people to Sansanné-Mango and the ability to transport sick and injured people regardless of the season, day or night, as benefits of the project. In addition, as described in “3.3.1.1 Quantitative Effects (Operation and Effect Indicators),” before construction of the bridges, pregnant and nursing women had to travel from their residential areas to Sansanné-Mango via an unpaved road to National Road 1, making a major detour, and therefore, they had irregular prenatal checkups to avoid long travel time that was physically painful. However, after project completion, they were able to receive regular prenatal checkups at the hospital from the first visit to delivery. In addition, family planning awareness and echo diagnosis were made possible through mobile clinics. Thus, access to medical services was improved after project completion.

(b) Access to Education Services

At the five sites where residents and schools were interviewed during the ex-post evaluation, school-aged children were crossing the river to go to primary and secondary schools before the project implementation. The project enabled the two rivers to be crossed year-round, and the significant reduction in commuting time led to a decrease in tardiness and absences from school. In the ex-post evaluation, 24 residents and school officials¹⁴ from these five sites were interviewed regarding commuting time, whether there are periods of time when students are unable to attend school, school enrollment, and school attendance before and after the project implementation. As a result, 20 out of 24 students mentioned positive changes such as “it is easier to go to school than before,” “tardiness and absences have decreased,” “positive results have been achieved in academic performance,” “I dropped out before the bridge construction because it was difficult to

¹³ Source: Interviews with four local clinics (Unité de Soins Périphériques, “USP”) in Koumougou, Katchamba, Nali, and Takpamba; the USP provides simple diagnosis and first aid at the local clinic managed by the village development association. For treatment of illnesses and injuries that cannot be treated at the USP, and for deliveries, residents usually go to the Prefectural Hospital in Sansanné-Mango.

¹⁴ School directors and teachers of Complexe Islamique Al’Nour (secondary school) in Sansanné-Mango, Ecole Primaire Koumougou (primary school) in Koumougou, CEG Katchamba (secondary school) in Katchamba, Lycée Takpamba (high school) in Takpamba.

go to school, but returned to school after the bridge completion,” “it is easier to go to high school in Sansanné-Mango,” etc. Access to education services has improved as a result of the project.

(2) Increase in Logistics between Burkina Faso and Togo

Figure 2 shows the overall export value from Togo to Burkina Faso from 2015 to 2021 and the value of exports by road transport. Because Figure 2 shows the value of exports by road transport overall, logistics by road could not be determined. However, when large vehicles travel from Togo to Burkina Faso, they are loaded with heavy goods and travel on National Road 1 instead of National Road 17, which has unpaved sections.¹⁵ Therefore, this project’s contribution to increasing logistics is considered low at this moment.

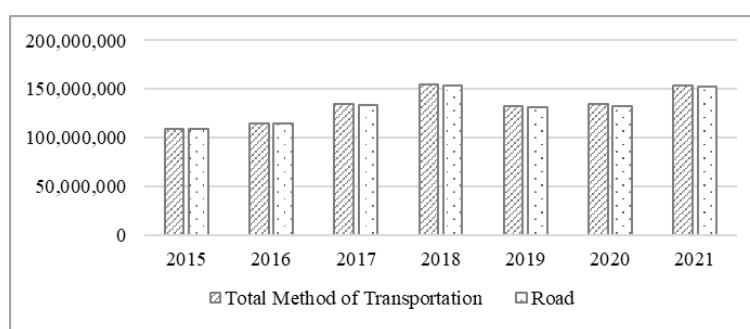


Figure 2 Value of Exports from Togo to Burkina Faso

Unit: US dollars.

Source: Prepared by the evaluator based on UN Comtrade Database.

(3) Revitalization of the Local Economy (including verification by satellite data)

In interviews with residents, 16 of the 24 residents cited an increased number of customers in the market and in the local population after project implementation. In fact, a comparison of village populations for which data were available at the time of planning and at the time of ex-post evaluation shows a significant increase in population at three sites except for Koumongou.

Table 4 Population of Target Sites (People)

Villages	2014	2023	Increase/Decrease (%)
Koumongou	7,230	7,167	99%
Nali	8,349	11,284	135%
Katchamba	7,164	9,121	127%
Takpamba	9,989	12,423	124%

Source: Preparatory Survey Report and field survey.

In addition, this ex-post evaluation identified changes over time in the intensity of nighttime

¹⁵ Source: interviews with four drivers of large vehicles. National Road 17, which has unpaved sections, is not used on the outbound route from Togo to Burkina Faso because of the loaded goods and does not contribute to logistics, but National Road 17 is used on the return route to save time when trucks are lighter.

light at sites around the bridges, where changes in nighttime light are considered significant. This analysis utilizes the fact that the intensity of nighttime light is assumed to reflect economic activity at night, and that an area's economic activity status can be determined by understanding the areal extent of nighttime light in the targeted area.

Based on the results of the above interviews with residents and the analysis of satellite data shown in Box 1, it was confirmed that the target area economy was revitalized to a certain degree after project completion.

Box 1 Applications of Satellite Data

During the ex-post evaluation, the impacts of the project on areas along National Road 17, especially around the Kara and Koumongou bridges, were evaluated quantitatively and visualized using satellite data. In areas where satellite data indicated developments, on-site investigation was conducted to check the presence and changes of buildings and electricity after project implementation. In addition to the surveys, building and population data were obtained and compared with satellite data. The details of the study sites, data used, analysis methods, and results are as follows.

Five sites located around the Koumongou and Kara bridges (Sansanné-Mango, Koumongou, Nali, Takpamba, and Katchamba) were selected as the study sites (Figure 1). The data used were satellite nighttime light data,¹⁶ building data,¹⁷ and population data.¹⁸ To verify the volume of nighttime light after construction of the bridges, satellite data before the construction in 2015 and after the construction in 2021 were used.

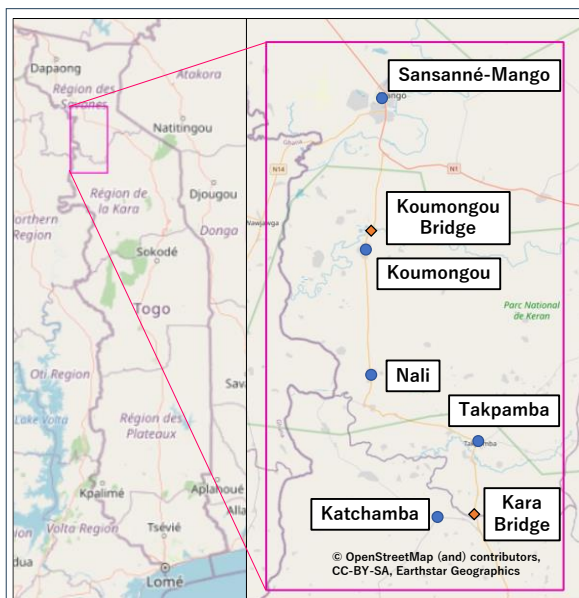


Figure 1 Study Sites

¹⁶ SUOMI NPP (VIIRS) Monthly VNL V1 data which has about 500 m resolution were used. Pixel values of the data represent monthly average of nighttime light radiance (nW/cm²/sr), and values get larger as night light gets brighter. Monthly VNL V1 data were obtained from Earth Observation Group, Payne Institute for Public Policy. C. D. Elvidge, K. E. Baugh, M. Zhizhin, and F.-C. Hsu, "Why VIIRS data are superior to DMSP for mapping nighttime lights," *Asia-Pacific Advanced Network* 35, vol. 35, p. 62, 2013.

¹⁷ Polygon data of buildings was obtained from Google Open Buildings. Because it is an open data, we could not find when the data was created. Therefore, we limited the use of data as a reference. <https://sites.research.google/open-buildings/>

¹⁸ Population data, which have a spatial resolution of 1 km, of 2014 and 2020 were obtained from World Pop: Unconstrained individual countries UN adjusted. The raster grids represent population per 1 square kilometers. <https://hub.worldpop.org/>

As an analysis, first, the difference between the satellite data of the above two scenes was calculated, and the locations where the intensity of nighttime light changed were visualized (Figure 2). At the selected five study sites, an increase in the intensity of nighttime light of 0.6 (nW/cm²/sr) or more was observed.

Next, field surveys and interviews with residents at 14 locations at the five sites were conducted. During the survey, the presence of buildings and electricity (wires, streetlights, indoor lights) were verified as of the time of the first field survey in February to March 2023 and as of 2015. Afterwards, the results of the field survey with building and population data were compared. In the field surveys, buildings were observed at all locations, and at six locations out of 14, it was confirmed that the number of buildings increased after project completion. In addition, electricity was installed at all locations after project completion, and streetlights or indoor lights were observed at 13 locations.

When comparing the results from satellite data analysis with the building data, it was found that the number of buildings tended to be high where a notably large increase in night light intensity after bridge construction was observed (Table 1). Additionally, when the satellite data concerning population from 2014 and 2020 were compared, it was confirmed that the locations where nighttime light intensity increased generally overlapped with the places where the population had increased (Figure 3).

According to these results, the population and number of buildings have increased along National Road 17 due to increased convenience; before project implementation, residents had to take a long detour via National Road 1 to get to Sansanné-Mango, but it has become possible

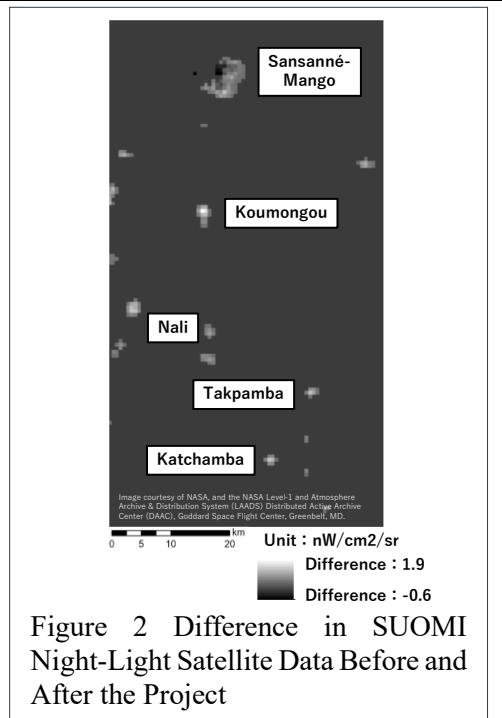


Figure 2 Difference in SUOMI Night-Light Satellite Data Before and After the Project

Table 1 Difference in SUOMI Data and Number of Buildings According to Building Data

Town	No.	Difference in SUOMI data (nW/cm ² /sr)	Number of buildings according to building data
Sansanné-Mango	1	0.788	191
	2	1.300	229
	3	0.855	137
Koumongou	1~3	1.915	378
Nali	1	0.805	73
	2	0.625	157
Takpamba	1	0.645	376
	2	1.320	620
	3	0.845	107
Katchamba	1~3	0.685	101

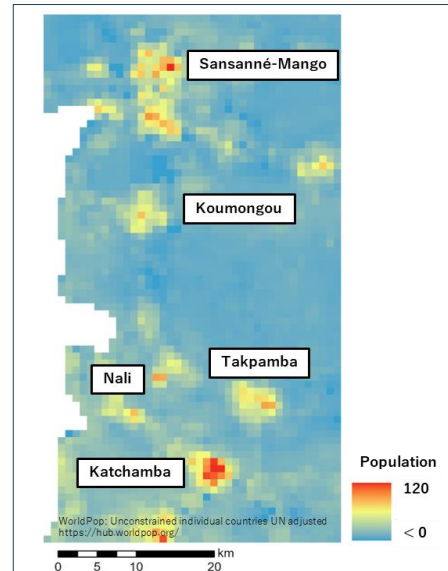


Figure 3 Population Data Difference Before and After the Project

to take a direct route after project completion. Furthermore, economic activity in areas along the road has been stimulated as the population has increased, resulting in increased nighttime light.¹⁹

Thus, satellite nightlight data before and after construction of the bridges enables quantitative analysis of changes in the target area, and satellite data can add supplemental information to field surveys and building and population data.

(4) Effects in Improving Mobility (Verification of Effects through Cost-Distance Analysis)

In this ex-post evaluation, a cost-distance analysis was conducted to verify the effects of mobility improvement by analyzing routes based on ground travel from the point of departure to the destination, rather than simply the linear distance between the two points. Specifically, the route information from interviews with residents regarding the distance from the isolated areas to Sansanné-Mango during the rainy season was converted into digital data, and a distance analysis was conducted. The bridges reduced the distance as well as the time spent to travel between all areas. The results of the analysis based on the cost-distance analysis are shown in Box 2.

¹⁹ As shown in the text, the reason of an increase in nighttime light seems to be related to the increase in population and buildings. However, the correlation between the increase in population and houses and the increase in the amount of electricity supplied to this project sites by commercial power and other power sources is not considered in this project evaluation.

Box 2 Cost-Distance Analysis

For the area centered on the Kara and Koumongou bridges constructed through the project, an analysis was conducted to calculate values based on the route from each village to the main town before and after construction of bridges, using the distance traveled as the cost (cost-distance analysis). The calculated travel distances were calculated from digital data on maps (GIS data) and were not simple straight-line distances between two points, but rather distances along actual roads (km). The following is a description of the specific areas analyzed, data used, analysis methods, and results.

The major sites that use the two bridges constructed were selected as the targets of the analysis (Figure 1). The data used was information on routes during the rainy season before and after construction of the bridges, obtained from interviews with residents during the field survey.

For the section between each village that was isolated during the rainy season and Sansanné- Mango, 24 residents were interviewed about the routes they used before and after the bridge construction, and they traced these routes on a paper map. The first step of the analysis was to convert the route information into digital data and present it on a map. Using this data, the distance from each village to Sansanné-Mango (the length of the route line) was calculated and whether the distance was shortened after construction of the bridges was confirmed. Additionally, as a reference, the evaluator calculated the differences between the travel distance predicted in the preparatory survey report and the result of distance analysis in the ex-post evaluation. Figure 2 shows digitized route data before and after the bridge constructions.

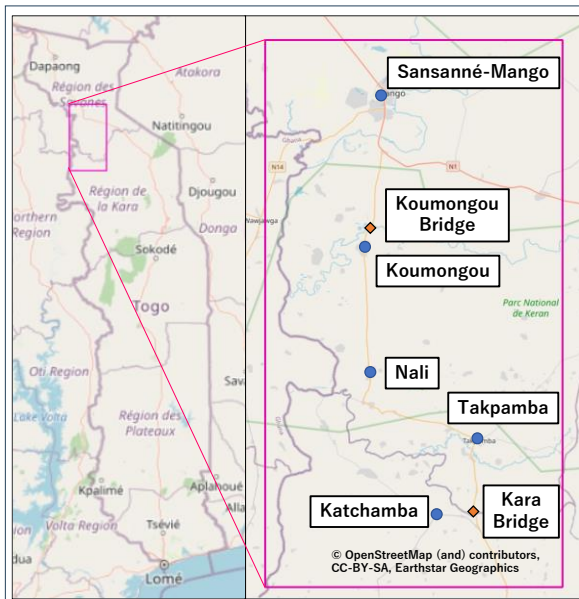


Figure 1 Study Sites

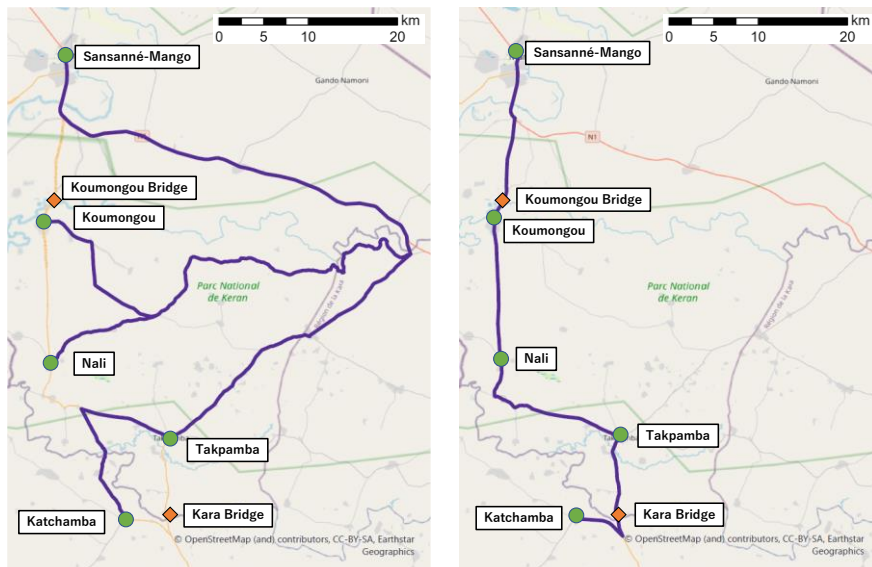


Figure 2 Routes from Each Village to Sansanné-Mango Before and After Construction of Bridges (left: before the bridging, right: after the bridging)

In addition, Table 1 shows the results of distance analysis from each village to Sansanné-Mango calculated with digital data, and the predicted distance in the preparatory survey report.

Table 1 Analysis of Distances from Each Site to Sansanné-Mango Before and After Bridging and Predicted Distances After Construction of Bridges in the Preparatory Survey

From	To	Distance before bridging (km) ①	Distance after bridging (km) ②	Differences between before and after bridging (km) (① - ②)	Predicted distance after bridging (km) ③	Difference between predicted and analyzed values (km) (② - ③)
Koumongou	Sansanné-Mango	109.2	19.4	89.8	15.0	-4.4
Nali		104.2	35.2	69.0	40.0	4.8
Takpamba		85.9	54.6	31.3	60.0	5.4
Katchamba		110.8	72.0	38.8	65.0	-7.0

As a result of distance analysis using digital data, among areas that only use the Koumongou bridge, the distance from Koumongou to Sansanné-Mango was shortened by 89.8 km after the project. Although Koumongou is close to Sansanné-Mango when considering direct distance, residents had to take a long detour south and east to get Sansanné-Mango before the bridge was constructed. Therefore, the biggest reduction of travel distance among all target sites of this analysis was observed in this area. The distance from Nali has been reduced by 69.0 km, and that from Takpamba has been reduced by 31.3 km. The distance from Katchamba, which uses both the Koumongou and Kara bridges, has been reduced by 38.8 km. Before the bridges were constructed, residents in Katchamba had to detour around two rivers, so the distance shortened was larger than that of Takpamba (31.3 km).

By comparing the predicted distance to Sansanné-Mango in the preparatory survey report with the results of distance analysis after the bridge constructions using GIS data, the distance analysis results from Nali and Takpamba (35.2 km and 54.6 km, respectively) achieved the predicted values in the pre-project report (40.0 km and 60.0 km, respectively). For Koumongou, the result of the distance analysis (19.4 km) was close to the predicted value in the report (15.0 km), so it is concluded that the project objective was generally achieved. On the other hand, Katchamba showed the largest difference between the distance analysis result (72.0 km) and the predicted distance (65.0 km). The distance is assumed to have been underestimated at the time of prediction because the predicted value in the pre-project report was calculated by estimating the distance between Koumongou and Takpamba, the town on the way, as only 5 km, but even a direct distance between them turns out to be more than 10 km.

Thus, it was confirmed that not only the travel time but also the travel distance in the study areas were shortened after construction of the bridges.

3.3.2.2 Other Positive and Negative Impacts

(1) Impacts on the Environment

The project did not fall under the large-scale road and bridge sector listed in JICA's Guidelines for Environmental and Social Considerations (April 2010). It is judged to have no significant undesirable effects on the environment, and it does not fall under the sensitive characteristics and areas listed in the guidelines; therefore, the project was classified as Category B.²⁰ As an environmental consideration, the contractor measured water and air quality every 6 months and noise every month, based on a plan in which measures such as periodic water sprinkling, leachate treatment, and work hour restrictions were taken to ensure that air quality, water quality, and noise

²⁰ Source: Ex-ante Evaluation Sheet, p. 2.

met the emission and environmental standards of Togo's national laws during construction. The results of the monitoring showed that no particular problems were encountered. The executing agency conducted no monitoring after project completion.²¹

The construction site of the Koumongou bridge is located approximately 100 m from the Oti National Park, which is registered with the Ministry of Environment and Forests of Togo. However, because the construction site is located downstream from the national park boundary, it was assumed that undesirable effects on the environment would be minimal. In fact, there were no undesirable effects on the environment during construction or its service.²²

(2) Resettlement and Land Acquisition

The planned site of approximately 3.77 ha was acquired in accordance with the resettlement plan prepared based on JICA guidelines and Togo's national procedures. Specifically, the compensation committee and the executing agency scrutinized compensation costs in July and August 2015, discussed land acquisition and compensation with affected residents in August and September 2015, concluded an agreement on compensation, and completed payment of compensation costs by April 2016.²³

(3) Gender equality/marginalized people/social systems and norms, human well-being, and human rights

As mentioned regarding the improvement of access to administrative services such as education and medical services, after project completion, the impact on women was confirmed in terms of reduced transport time for deliveries, regular antenatal checkups, and reduced physical burden when traveling for checkups due to shorter travel time and improved road travelability.

(4) Unintended Positive/Negative Impacts

The bridges have eliminated accidents (drowning and death by drowning) that used to occur during the rainy season before project implementation, improving safety during travel. The bridges' construction also reduced household expenditures by eliminating the payment for bike cabs and canoe rides on the river crossing, which had been paid for before project implementation, and increased sales for market traders.

Regarding the operation and effect indicators, the indicators on the decrease in the travel time and the increase in the possible period for crossing the rivers achieved their targets as planned. As for the increase in traffic volume, no quantitative change has been confirmed at this time, but

²¹ Source: Interview with the executing agency.

²² Source: Answer to the questionnaire by the consultant.

²³ Source: Answer to the questionnaire by the consultant.

based on interviews with transporters traveling between Togo and Burkina Faso, it appears that the project has partially contributed to increased traffic on National Road 17. Regarding the impacts, the bridge’s completion has manifested certain impacts, including improved access to basic social services such as medical and education services. No negative environmental impacts were observed, and resettlement and land acquisition were carried out in accordance with Togo’s national laws.

In light of the above, this project has mostly achieved its objectives. Therefore, effectiveness and impacts of the project are high.

3.4 Sustainability (Rating: ②)

3.4.1 Policy and System

In *PND2018-2022*, the government of Togo states that in order for Togo to achieve structural transformation of its economy, it is necessary to work on developing the logistics and transport network around the port of Lomé to connect it to the transport network and create a competitive logistics hub and development corridor.²⁴ Therefore, sustainability of the policy aspects necessary to maintain the project effects is ensured.

3.4.2 Institutional/Organizational Aspect

The executing agency for the project is the Ministry of Public Works, while the DRTP Kara is responsible for the operation and maintenance of the Kara bridge and the DRTP Savanes is responsible for the operation and maintenance of the Koumongou bridge.

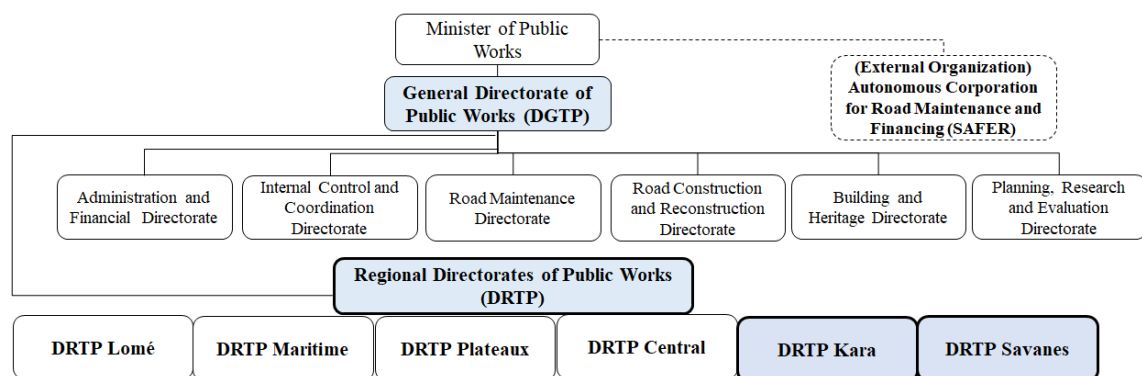


Figure 3 Operation and Maintenance System of the Project

Source: Prepared by the evaluator based on documents provided by the executing agency.

The DRTP is responsible for supervising the implementation of construction work, conducting annual inspections of roads and bridges after construction, and reporting to the DGTP when residents and municipalities report problems with roads and bridges. The DGTP budgets for areas

²⁴ Source: *Plan National de Développement (2018-2022)* p. 35.

in need of repair based on reports from the DRTP, and the repairs are carried out by private contractors after a bidding process through the Autonomous Corporation for Road Maintenance and Financing (Société Autonome de Financement de l'Entretien Routier, hereinafter referred to as "SAFER"). No periodic inspections of the two bridges have been conducted since the project completion in 2019, and awareness of preventive maintenance seems to be lacking.²⁵

As for staffing, at the time of ex-post evaluation, there are 11 staff members (including six technical staff) in the DRTP Savanes and 21 staff members (including 10 technical staff) in the DRTP Kara. DRTP's technical staff have basic technical skills.²⁶

DGTP, DRTP Savanes, and DRTP Kara responded that staffing is insufficient as answer to the question on the sufficiency of personnel for operation and maintenance. In particular, DRTP Kara needs about 10 more technical staff and five administrative staff, considering the large area it covers.²⁷ In addition, DRTP Savanes had planned to replenish its workforce following the results of the April 2022 general recruitment examination, whereas at the time of ex-post evaluation, it had not replenished its retirees and was short of engineers, accountants, secretaries, drivers, security guards, and maintenance personnel.²⁸

Given that the staff of the two DRTPs are insufficient and that periodic inspections have not been conducted since the project completion, the sustainability of institutional/organizational aspect seems to be an issue.

3.4.3 Technical Aspect

The maintenance items for the bridges planned at the time of the preparatory survey are shown in Table 5. According to interviews conducted during the field survey, DRTP Kara and DRTP Savanes, which have jurisdiction over the two bridges, have not had a single periodic inspection in the three years since the project completion. The reason for this was confirmed, but no clear answer was given. As shown later in "3.4.7 Status of Operation and Maintenance," at the time of ex-post evaluation, a number of damaged of the gabion of the bank protection work had been left unattended.

The consultant explained the maintenance items in Table 5 to the two DRTPs during the project implementation, but no specific methods were explained to compile them.²⁹ The final inspection was held remotely in December 2020, and in August 2021, the consultant made a request to then-Minister of Infrastructure and Transport to secure a budget for maintenance, indicating maintenance items, frequency, and estimated costs. A final inspection report was

²⁵ According to interviews with DRTP Kara and Savanes during the field survey, they were aware for the first time through this ex-post evaluation of the damage to the wire mesh of the gabion of the bank protection work, which is indicated in "3.4.7 Status of Operation and Maintenance". At that time, the two DRTPs commented that they would encourage regular inspections in the future.

²⁶ Source: Answer to the questionnaire from the executing agency.

²⁷ Source: Answer to the questionnaire by DRTP Kara.

²⁸ Source: Answer to the questionnaire by DRTP Savanes.

²⁹ Source: Answer to the questionnaire by the consultant.

submitted to JICA in March 2022, after COVID-19 was contained. Because of the influence of COVID-19, the consultant was not able to directly confirm the way of inspection or provide practical guidance onsite after project completion.³⁰

JICA is planning to launch a technical cooperation project, “Advisor on Enhancement of Road Asset Management” (individual expert dispatch) in FY2023, with the aim of improving the operation and maintenance capacity of key roads such as National Roads 1 and 17, considering that the Sokodé City bypass road construction project, which will contribute to the Lomé-Ouagadougou corridor development, will also be under consideration. This technical cooperation includes the technology transfer of preventive maintenance to the DRTP and is expected to strengthen the operation, maintenance system, and technical capacity in the future.

As mentioned above, the technical issues have been addressed, but the sustainability of the technical aspects is judged to be somewhat low due to the operation and maintenance status issue that periodic inspections were not conducted at all until the time of the ex-post evaluation, and the facility was left in a state of disrepair.

Table 5 Main Maintenance Items

Type	Frequency	Part to be inspected	Contents of work
Maintenance of drains, etc.	Twice a year	Bridge surface drainage	Removal of sediment deposits
		Ditch	Removal of sediment deposits
Maintenance of traffic safety	Once a year	Marking	Re-marking
Maintenance of road	Twice a year	Road shoulders and slope	Weeding
Repair and inspection of bank and bed protection work	At the time of floods (estimated to be once every two years)	Bank protection/bed protection	Repair of damaged parts
Maintenance and repair of pavement	Once every 10 years	Pavement surface	Sealing of pavement cracks, repair of potholes, etc.
Painting balustrades	Once every 10 years	Surface of metal parts	On-site painting
Replacement of expansion joints	Once every 10 years		

Source: Preparatory Survey Report, p. 103.

3.4.4 Financial Aspect

Maintenance and management of local roads and intra-city roads are handled by SAFER, which has secured specific financial resources from gasoline tax and toll revenues (ratio 7:3). In addition, a toll was revised in March 2021 to cope with future increases in maintenance costs, and efforts

³⁰ Source: Answer to the questionnaire by the consultant.

are being made to sustainably secure financial resources.³¹ At the time of planning and the ex-post evaluation, SAFER’s road maintenance budget was generally stable (see Table 6). However, according to SAFER, while financial resources are limited, the road network is aging and the maintenance needs are increasing, and the financial resources for maintenance are not sufficient. As a measure to secure future financial resources, SAFER has proposed to the government of Togo to increase the gasoline tax from the current 35 CFA francs per liter to 60 CFA francs per liter.

Concerning the future cost of major repairs, because sufficient funds have been set aside for major repairs to National Road 1 in FY2022, the budget for the once-every-10-year repairs (major repairs) estimated for this project is expected to be similarly secured.³²

Table 6 Revenues and Expenditures on Road Maintenance of SAFER

Unit: millions of euros

	2014	2015	2016	2017	2018	2019	2020	2021	2022
(1) Revenues									
Gasoline tax	7.9	11.3	9.1	10.5	12.1	8.5	9.1	16.5	25.7
Toll revenue	2.7	3.7	4.0	4.5	5.1	5.4	5.4	10.6	13.1
Total	10.6	15.0	13.1	15.0	17.2	13.9	14.4	27.0	38.7
(2) Expenditures	n.a.	10.5	4.0	12.4	14.7	14.4	12.6	12.1	32.8
Balance	n.a.	4.5	9.1	2.6	2.5	-0.5	1.9	14.9	6.0

Source: Documents provided by SAFER.

Based on the above, it was determined that the road maintenance budget is generally stable, and that financial sustainability is assured, as there are no concerns about spending on major repairs.

3.4.5 Environmental and Social Aspect

There were no specific unanticipated negative environmental or social impacts, as stated in “3.3.2.2 Other, Positive and Negative Impacts.”

3.4.6 Preventative Measures to Risks

No risks were assumed at the time of planning, nor were any risks encountered during the implementation of the project.

3.4.7 Status of Operation and Maintenance

Although the condition of the two bridges at the time of ex-post evaluation was generally good,

³¹ Source: Documents provided by JICA.

³² Source: Answers to the questionnaire by SAFER.

the following problems were identified.

- Sediment has accumulated in the bridge surface drainage ditch.
- The road surface markings are detached and have not been repainted.
- The wire meshes of the gabions in the bank protection work have been destroyed.³³ There were 31 destroyed spots identified onsite during the second field survey.

The DRTPs in the two regions were aware of the above points only after the results of the field survey of the ex-post evaluation were shared with them. These are items that can be inspected once or twice a year, and preventive maintenance can be performed as needed, as shown in Table 5, which was established at the time of planning.

Based on the above, although there are no major problems in the use of the bridge, issues with operation and maintenance were identified due to the lack of frequency of inspections and repairs.



Damage to wire mesh of gabion in the bank protection work (source: Field survey)



Road surface markings are detached (source: Field survey)

Some minor issues have been observed in the technical aspect including the current status of operation and maintenance. They are not expected to be improved/resolved. Therefore, sustainability of the project effects is moderately low.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented to improve the transportation capacity of National Road 17 by constructing bridges and an access road on National Road 17, thereby contributing to the development of a smooth, stable international logistics network in Togo and neighboring countries as well as to the improvement of access to basic social services.

The objectives of the project are consistent with the development plans of the government of Togo, which emphasizes the development of the Lomé-Ouagadougou corridor, and with the development needs of Togo, as there is a strong need to develop National Road 17 as an alternative to National Road 1, the lifeline between Togo and landlocked West African countries. The objectives of the project were consistent with Japan's ODA policy for Togo at the time of ex-ante

³³ According to interviews with residents, there are various reasons why wire mesh is destroyed and taken away, including using it as fencing in their houses, selling it for cash, and tearing up the wire mesh when rats get inside it.

evaluation. Synergies and interlinkages with other JICA projects were not envisaged at the time of planning. At the time of project formation, JICA had agreed and coordinated with the executing agency and other donors on the content of collaboration regarding the development of National Road 17 to enhance the Lomé-Ouagadougou corridor, which was partially effective, and there was external coherence. Therefore, relevance and coherence are high. Although the project period slightly exceeded the plan, the project cost was within the plan, and therefore efficiency of the project is high. Among the operation and effect indicators, the indicators on the decrease in the travel time and the increase in the possible period for crossing the rivers achieved their targets as planned. As for the increase in traffic volume, no quantitative change has been confirmed at the time of ex-post evaluation, and the development of all sections of National Road 17, which is a prerequisite for the achievement of this indicator, was not completed. However, interviews with transporters traveling between Togo and Burkina Faso indicated that the project contributed to the increase in traffic volume to some extent. In addition, the impact of improved access to basic services such as health and education for the local population was also identified after project completion. No negative impacts on the environment were observed, and resettlement and land acquisition were carried out in accordance with Togo's national laws. In this regard, this project has achieved its objectives, and effectiveness and impacts of the project are high. Some minor issues have been observed in the technical aspect including the current status of operation and maintenance. Although the concerned parties began to take measures to improve and resolve the situation, the results of such measures could not be confirmed at the time of ex-post evaluation. Therefore, sustainability of the project effects is moderately low.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

It is recommended that DRTP Kara and DRTP Savanes implement on-site inspections once or twice a year as planned. In particular, because the number of thefts of wire meshes of the gabions in the bank protection work is substantial, it is desirable to prevent recurrence by raising awareness among residents living near the bridges, in addition to repairing the meshes as soon as possible. If it is difficult to increase the frequency of on-site inspections due to personnel and budget constraints, it is desirable to establish a system for early detection of problems, such as a combined system of having residents and local governments in the vicinity report any problems with the bridges (road guard).

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Creation of a System to Ensure that the Facilities Constructed in the Project are Maintained Regularly

At the time of final inspection of the project, a recommendation was made to secure the budget necessary for the maintenance items specified at the time of planning. However, it was found during the ex-post evaluation that periodic inspections had not been conducted on the two target bridges since project completion, for unknown reasons.

Although the parties concerned on the Japanese side briefed the DRTP on maintenance during the implementation phase, it was not necessarily practical for the DRTP, which had not conducted preventive maintenance in the past. In addition, the Kara bridge, in particular, is far from the center of the region, and it would not be easy for the limited number of personnel to visit the site regularly. If direct on-site inspections are difficult, one idea would be to conduct awareness-raising activities for local governments and residents living along the bridge, who are well aware of the bridge's usefulness, and to create a system that would enable early detection and response to any problems with the facility, involving the surrounding local governments and residents as well.

5. Non-Score Criteria

5.1. Performance

5.1.1 Objective Perspective

None.

5.2. Additionality

None.

(End)