FY2023 Simplified Ex-Post Evaluation Report of Japanese Grant Aid Project

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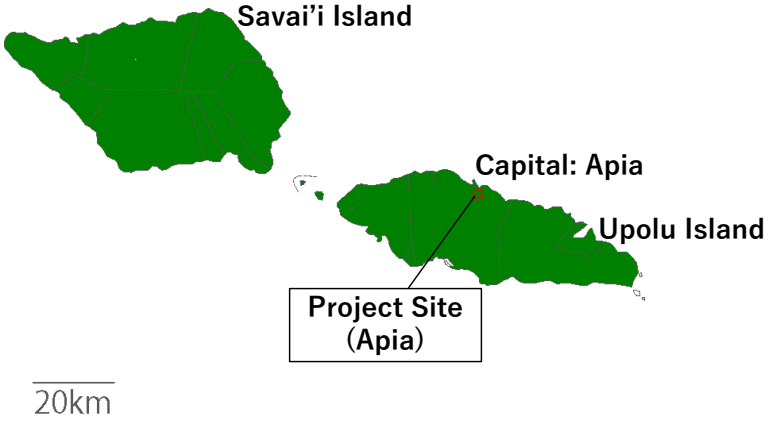
Duration of the Study: September 2023 – September 2024

Duration of the Field Study: 6 December 2023 – 19 December 2023

Country Name	The Project for Reconstruction of Vaisigano Bridge
Independent State of Samoa	



Location of the Project site (Source: Prepared by the External Evaluator based on the materials provided by JICA)

Vaisigano Bridge reconstructed by this project (Source Photo taken by the External Evaluator)

I. Project Outline

Background	The Vaisigano Bridge is located on the main highway connecting the capital city of Apia having the country's only commercial port, Apia Port, and Fagali'i Airport (domestic flights), and important bridge in the road network of Upolu Island. The Vaisigano Bridge, built in the early 20th century as a steel bridge, was rebuilt in 1953 as a concrete bridge after reinforcing the existing substructure. Although repair work for salt damage such as rebar corrosion and concrete delamination was carried out in 1994, similar damage occurred again, and the bridge has been closed to large vehicles since 2002. As a result, large vehicles transporting goods from Apia Port to the Vaitele Industrial Park in the west of Apia were forced to divert to the Lelata Bridge, located on the upstream side of the Vaisigano River. In addition, the 2012 cyclone "Evan" damaged the foundation protection of the lower part of the Vaisigano Bridge, and the salt-induced deterioration has progressed to such an extent that the bridge may fall if it is left in its present condition, making bridge replacement an urgent issue.			
Objectives of the Project	The objective of this project was to strengthen the Vaisigano Bridge against natural disasters by building it as a new bridge that can withstand large natural disasters, thereby contributing to the sustainable economic development of Samoa.			
Contents of the Project	1. Project Site: Apia, Upolu Island 2. Japanese side 1) Civil engineering works Construction of the new bridge (75 m), Construction of approach roads (425 m), River and coastal revetment, Road lighting installation, Demolition of existing bridge (approximately 75 m) 2) Consulting service Detailed design, Support for tenders, Construction supervision 3. Samoan side: Removal of facilities affected by construction, Securing land for temporary yards, Relocation of fuel lines, water pipes, communication cables, utility poles, electric lines and others			
Implementation Schedule	E/N Date	22 May, 2017	Disbursement Date	
	G/A Date	27 July, 2017	Completion Date	11 August, 2020 (Date of commencement of service of the facility)
Project Cost	E/N Grant Limit / G/A Grant Limit: 1,806 million yen, Actual Grant Amount: 1,806 million yen			
Executing Agency	Samoa Land Transport Authority: LTA			
Contracted Agencies	Main Contractor: KONOIKE CONSTRUCTION CO., LTD. Main Consultants: Central Consultant Inc. and CTI Engineering International Co., Ltd.			

II. Result of the Evaluation

Summary

This project aimed to strengthen the Vaisigano Bridge, which was regarded as an important bridge in Upolu, against natural disasters by constructing a new bridge that could withstand large natural disasters. Although this project was not specifically envisaged in collaboration or coordination with other projects of JICA or other donors, it was in line with the direction of development of Samoa's road network and needs for replacing bridges on the main roads in the development strategy of Samoa at the time of planning. In addition, the project was also consistent with Japan's ODA policy. Therefore, Relevance/Coherence is high. With regard to effectiveness, it was confirmed that the expected qualitative effects were sufficiently achieved. As for the quantitative effect, since sufficient data on indicators to measure its achievement were not available, the number of registered vehicles in Samoa was used as an alternative indicator. Except for a slight decrease in FY2020/21, when mobility restrictions were imposed due to the impact of the global spread of COVID-19, vehicle registrations were on an increasing trend, and it is considered that the traffic volume in the capital of Apia, including the Vaisigano Bridge, increased accordingly. Therefore, it can be estimated that the quantitative effects of the project were partially achieved. On the other hand, the impacts of the project in terms of the contribution to the sustainable economic development of Samoa were limited. Therefore, the effectiveness and impacts of the project are moderately low. Regarding the implementation of the project, the outputs were almost as planned, and both the project cost and the project period were within the plan. Therefore, the efficiency of the project is very high. The sustainability of the project is considered to be high, as there are no particular aspects of the project that may have a negative impact on the sustainability.

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

Overall Rating[1]	**B**	**Relevance & Coherence**	③[2]	**Effectiveness & Impacts**	②	**Efficiency**	④	**Sustainability**	③

1 Relevance/Coherence

<Relevance>

・Consistency with the Development Policy of Samoa at the Time of Ex-Ante Evaluation

In "*Strategy for the Development of Samoa 2012 – 2016*", which was the national development policy of Samoa at the time of the ex-ante evaluation of this project, infrastructure development was positioned as one of the priority areas, and the expansion of road construction to be resilient to climate change was set as a goal. Also, in "*Samoa National Infrastructure Strategic Plan*" formulated in 2011, the Samoa Economic Corridor identified the development of connecting roads to key locations such as ports and airports, and the development of roads that are resilient to disasters such as cyclones, as priority issues. This project, "The Project for Reconstruction of Vaisigano Bridge", was positioned as one of the priority projects.

Therefore, it can be considered that this project was consistent with the development policy of the Government of Samoa, since the development policy at the time of ex-ante evaluation identified infrastructure development in response to climate change as a priority area, and this project was positioned as one of the priority projects within that area.

・Consistency with the Development Needs of Samoa at the Time of Ex-Ante Evaluation

The Vaisigano Bridge, which was replaced by this project, was repaired in 1994 to fix damage caused by salt damage such as rebar corrosion and concrete delamination, but similar damage occurred again, and the bridge had been closed to large vehicles since 2002. As a result, large vehicles transporting goods from the Apia Port to the Vaitele Industrial Park in the west of Apia were forced to reroute to the Lelata Bridge located on the upstream side of the Vaisigano River. In addition, it was confirmed that the Vaisigano Bridge had deteriorated due to salt damage from the large cyclone "Evan" in 2012, which flooded the upper part of the bridge and damaged the protective foundation at the bottom, and that the bridge could fall if it remained in its existing condition. With this background, it was an urgent issue to replace the bridge. This project constructed the new Vaisigano Bridge as a bridge that could withstand large natural disasters, and it can be said that this project fully met the development needs at the time of planning.

・Appropriateness of Project Design/Approach

This project replaced the Vaisigano Bridge, a major bridge in Apia City, with a bridge that could withstand large natural disasters, and the project targeted all users of the bridge without any bias. In similar projects implemented in the past, it was pointed out that steep longitudinal gradients of the roadway in front of and behind the bridge could negatively affect the durability of the roadway pavement. However, in this project, based on this lesson learned, the attachment roads at both ends of the bridge were not steeply sloped, and measures were taken to prevent salt damage.

Therefore, it can be considered that the project design and approach were appropriate.

<Coherence>

・Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation

At the time of the ex-ante evaluation of this project, the "*Fukushima Iwaki Declaration*" adopted at the 7th Pacific Islands Leaders Meeting held in May 2015, identified the development of economic and social infrastructure for the Pacific region that is resilient to natural disasters as one of the prioritised area of Japanese assistance. In addition, "*JICA Country Analysis Paper*

[1] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

[2] ④ : Very High ③: High, ②: Moderately low, ①: Low

for the Pacific Region" (December 2014) identified "strengthening the infrastructure for economic activities/maintaining lifelines" as a priority area for cooperation in the transport sector. For Samoa, the "Country Assistance Policy for the Independent State of Samoa" (April 2012) stipulated support for the development and appropriate maintenance of economic infrastructure that forms the basis for economic activities and social life.

Therefore, this project is consistent with Japan's ODA policy for the Pacific and Samoa at the time of ex-ante evaluation.

・Internal Coherence

During the implementation period of this project, JICA was implementing a grant aid project, "The Project for Enhancement of Safety of Apia Port", targeting the Apia Port. Although this project was implemented in the same area as this project, it was a project in a different sector, port improvement and bridge improvement, and no particular coordination or collaboration was observed, nor were there any effects associated with this project. Other than that, there were no other JICA projects that were coordinated or linked during the planning and implementation periods of this project.

・External Coherence

The World Bank / Government of Australia-supported Leone Bridge[3] replacement, the UNDP-supported Vaisigano River flood control project, and the New Zealand-supported Apia Waterfront Improvement Project were related projects that took place in neighbouring areas during the planning and implementation period of the Project. However, there was no specific linkage or coordination during planning and implementation with this project, which developed the Vaisigano Bridge and the approach roads.

<Evaluation Result>

In light of the above, the relevance and coherence of the project are high[4].

2 Efficiency

・ Project Outputs

The outputs of this project were almost as planned as shown in Table 1, with the difference that the river revetment extension (left bank side) was 6 m longer than the plan. This was due to the fact that the river revetment extension separately implemented by the Government of Samoa in the adjacent area prior to the implementation of this project turned out to be 6 m short in length and the gap was addressed by extending the revetment by 6 meters in this project. This was a necessary response from the perspective of ensuring river safety.

Table 1 Planned and Actual Outputs of the Project

Items		Plan	Actual
Civil Engineering Works	Demolition of existing bridge	75 m	75 m
	Construction of the new bridge	75 m	75 m
	Construction of approach roads	Apia city side: Approx. 199 m Fagali'i Airport side: Approx. 155.5 m Apia port side: Approx. 70 m Total: Approx. 424.5 m	Apia city side: Approx. 199 m Fagali'i Airport side: Approx. 155.5 m Apia port side: Approx. 70 m Total: Approx. 424.5 m
	River revetment	Right bank: 35 m, Left bank: 30 m Total: 65 m	Right bank: 35 m, Left bank 36 m Total: 71 m
	Coastal revetment	Apia city side: 120 m Fagali'i Airport side: 130 m Total: 250 m	Apia city side: 120 m Fagali'i Airport side: 130 m Total: 250 m
	Road lighting installation	4 for bridges, 20 for roadways, 13 for road sidewalks	4 for bridges, 20 for roadways, 13 for road sidewalks
Consulting Service		Detailed design, Support for tenders, Construction supervision	Detailed design, Support for tenders, Construction supervision

Source: Ex-Ante Evaluation Report, Preparatory Survey Report, documents provided by JICA and information provided by the project consultant

・ Project Cost

The actual project cost on the Japanese side was 1,806 million yen, which was in line with the plan. The actual project cost on the Samoan side was 33 million yen (800,000 Tala), which was also in line with the plan.

The actual project cost on the Japanese side was in line with the plan by utilising the reserve fund, although there was a change in the additional development of the river revetment. The project cost on the Samoan side was also in line with the plan in yen conversion, as there were almost no exchange rate fluctuations.

[3] The Leone Bridge is a bridge in the Apia city over the Vaisigano River, located several hundred meters upstream of the Vaisigano Bridge; it was damaged by Cyclone Evan in 2012 and replaced by a new bridge in 2017. In addition, the Lelata Bridge, which was used as a detour route by large vehicles prior to the implementation of this project, is located several hundred meters further upstream of the Leone Bridge.

[4] Relevance: ③, Coherence: ②

Therefore, the total project cost was 1,840 million yen as planned (100% of the plan).

・ Project Period

The period for this project was 38 months, from July 2017 (signing of the Grant Agreement) till August 2020 (commencement of service of the bridge), which was within the planned period of 41 months (93% of the planned period). The actual completion inspection and delivery of the bridge was in October 2020. However, the bridge had been in service since August of the same year, and only the removal of the old bridge and remaining work such as revetment work were carried out thereafter.

<Evaluation Result>

Based on the above, both the project cost and the project period were within the plan. Therefore, the efficiency of the project is very high.

3 Effectiveness/Impacts[5]

<Effectiveness>

[Quantitative Effects]

The project had five indicators for measuring quantitative effects: traffic volume, travel time, and transportation volume.

As shown in Table 2, it was assumed that traffic and transportation volumes would increase and travel times would decrease three years after project completion (2023) from the baseline values measured at the time of planning (2016). In reality, however, these data are not usually measured by the executing agency, and it was difficult to measure the level of achievement for each indicator during the ex-post evaluation.

Specifically, the annual average daily traffic for all vehicles has not been monitored since the traffic volume survey conducted in 2021 as part of the Enhanced Road Access Project supported by World Bank. In 2021, the annual average daily traffic at the road location near the Vaisigano Bridge was 12,979 vehicles, far below the target. According to the executing agency, traffic volumes were low in 2021, a period of restricted travel and reduced economic activity due to the global spread of COVID-19. 2022 onward has seen a significant recovery, but exact figures are not available because no traffic volume surveys were conducted. Regarding the annual average daily traffic of freight vehicles, large freight vehicles entering and leaving the Apia Port were prohibited from passing through the Vaisigano Bridge due to structural concerns about the old bridge before the project was conducted. After the project implementation, although there is no structural problem, traffic is still prohibited on the Vaisigano Bridge due to the possibility of frequent traffic congestion caused by large freight vehicles entering the city centre. As a result, traffic volumes are significantly lower than the target. Large freight vehicles travel between the west of Apia and the Apia Port, including the Vaitele Industrial Park, on a route through the Leone Bridge, which was replaced in 2017 with World Bank and Australian assistance and is now strong enough for traffic.

The travel time for freight vehicles could not be measured because there were no freight vehicles travelling on the route assumed during the planning of this project (the route from the Apia Port through the Vaisigano Bridge and the centre of Apia), and it could not be ascertained from interviews with the executing agency and logistics providers. The actual driving by a car during the field research resulted in a time reduction of about 2 minutes, thus the time is listed as 14 minutes in the table below. However, depending on the situation of the signals on the route, the effect of time reduction may not be fully achieved.

The transportation volume, both in terms of passengers and freight, has never been monitored, as no survey has ever been conducted by the executing agency.

Table 2 Quantitative Effects of This Project

Indicators		Baseline (2016)	Target (2023, 3 years after the completion)	Actual	
				2021	2024
1	Annual average daily traffic, all vehicles (vehicles/day)	15,490[6]	17,300	12,979	N/A
2	Annual average daily traffic, freight vehicles (vehicles/day)	563	580	12	N/A
3	Freight vehicle travel time from Apia Port to Vaitele Industrial Zone (minutes)[7]	16.2	13	N/A	14
4	Transportation volume: Travellers (people/year)	15,630,000	16,330,000	N/A	N/A
5	Transportation volume: Freight (tons/year)	300,000	320,000	N/A	N/A

Note: Data for indicators were not available at the time of ex-post evaluation because indicators 1, 4, and 5 were not measured by the executing agency, and indicators 2 and 3 were not obtained because freight vehicles were prohibited from using the Vaisigano Bridge (for indicator 3, travel time for actual driving by passenger vehicle is indicated in the table).

Source: Ex-Ante Evaluation Report, documents provided by the executing agency, actual measurements at the time of field research

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

[6] Traffic volume excluding vehicles diverted from the upstream Leone Bridge, which is closed due to the cyclone disaster.

[7] Daytime

In this ex-post evaluation, considering that the data on traffic and transportation volumes were not fully compiled, it was decided to determine the number of vehicle registrations in Samoa as an alternative reference indicator. Table 3 shows that except for FY2020/21, when travel restrictions were imposed due to COVID-19, the number of vehicle registrations has been increasing, with vehicle registrations in FY2022/23 being 1.37 times higher than those in FY2016/17. Since the Vaisigano Bridge is located along the coast of Apia City and is on the main road connecting the eastern part of Apia to the city centre, it can be estimated that the traffic volume has also increased with the increase in vehicle registrations.

Table 3 Number of Vehicle Registration

(Unit: number of vehicles)

FY	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Private vehicle	19,489	21,393	23,363	24,468	19,889	22,120	24,083
Taxi	2,151	1,787	2,007	2,319	1,889	1,787	1,752
Bus	271	323	334	232	261	242	243
Other	134	158	89	189	4,452	3,892	4,230
Total	22,045	23,661	25,793	27,208	26,491	28,041	30,308

Note: From FY 2019/20 to FY2020/21, there is a decrease in "Private vehicle" and an increase in "Other" due to the reclassification of the government vehicles, rental cars, diplomatic corps vehicles and heavy equipment categories from "Private vehicle" to "Other".
Source: Annual Reports of the executing agency (up to FY2019/20), data provided by the executing agency (FY2020/21 and beyond)

Based on the above results, it can be concluded that at the time the traffic volume survey was conducted (2021), when traffic volumes were much lower due to COVID-19, and at the time of the ex-post evaluation, the Vaisigano Bridge was functioning as a bridge with a structure that could accommodate large vehicles, thus contributing to safe and smooth traffic. Although data on transportation volume is not available, it can be estimated from the number of vehicle registrations that both traffic and transportation volumes have increased proportionally, and the bridge is considered to be fully performing its role in smoothly supporting all economic and social activities.

When this project was planned, it was designed to accommodate the passage of large vehicles in order to achieve the project objective of "strengthening the project against large natural disasters". However, in order to avoid inducing traffic congestion in the centre of Apia, the executing agency decided to establish a route that would not allow large vehicles to use the Vaisigano Bridge (not to pass through the city centre). However, according to the executing agency, it is possible to use the Vaisigano Bridge if the large vehicle route at the time of the ex-post evaluation is closed due to a malfunction, and the bridge is in good condition to function as a detour route in the event of a disaster. Therefore, although the traffic volume of large vehicles was not measurable, it is not considered problematic to prohibit the passage of large vehicles from the perspective of avoiding inducing traffic congestion in the urban area of Apia.

In terms of the travel time for freight vehicles, a certain improvement can be seen (although the ex-post evaluation measured the time required by a passenger car). However, although the time is reduced when all traffic lights are green, the time reduction effect may not necessarily occur on routes through urban areas, where there are more stops at signals and higher traffic volumes.

Therefore, although some aspects could not be adequately evaluated due to unavailability of certain data and the situation of restricting the passage of large freight vehicles, it can be estimated that the quantitative effect is partially achieved, since it can be assumed that traffic volume is increasing based on the changes in the number of registered vehicles.

[Qualitative Effects]

The following qualitative effects were expected to be achieved.

1) Shorter travel time to improve convenience
2) Creation of disaster-resilient arterial roads
3) Increased load-bearing capacity to ensure reliable passage

The ex-post evaluation confirmed the following results on these effects[8].

1) The availability of the Vaisigano Bridge enables smooth traffic in and out of Apia, especially between the city centre and the eastern coastal area of Apia City.
2) The Vaisigano Bridge is located on the main route connecting Apia City centre and the suburbs. By increasing the bridge span length (the number of diameter spans was reduced from seven to three), driftwood and debris from the Vaisigano River are less likely to be blocked by the bridge piers. In addition, since the bridge was raised 1.5 m higher than the old bridge, it is now a sturdier bridge that is less susceptible to damage in the event of a disaster.
3) Although the passage of large vehicles continues to be restricted during the ex-post evaluation, the road has a capacity that could serve as an alternate route in an emergency, and all vehicles can safely pass through at all times.

As shown in the quantitative effects, there is no significant reduction in travel time, but there is no particular increase in the time required to travel between the urban area and the eastern coastal area of Apia City compared to the old bridge, and smooth traffic continues to be achieved. Regarding the structure of the bridge, it can be considered that a disaster-resistant bridge was

[8] Based on interviews with the executing agency. Regarding (1), a similar opinion was additionally heard from the Samoa Chamber of Commerce and Industry.

constructed in this project, and that a highway with enough resilience to disasters has been secured. As for ensuring safe traffic by increasing the load-bearing capacity, as mentioned above, although large freight vehicles are not passing through, safety is ensured for all other vehicles passing through. From the above, it can be concluded that the qualitative effects have generally been achieved.

<Impacts>

(1) Expected Impacts

Although the expected impact of the project is "contributing to the sustainable economic development of Samoa" in light of the project objectives, no indicators to measure the impact were set at the time of project planning. Since this project may contribute to the development of activities of companies using the Apia Port, "the sustainable economic development of Samoa" was taken more specifically as "the development of business activities of companies using the Apia Port", and the actual status of use and changes in business activities due to the use of the Apia Port were confirmed.

Interviews with the Chamber of Commerce and Industry and logistics companies using the Apia Port indicated that the positive impact of the improvements to the Vaisigano Bridge is that it has greatly enhanced safety for vehicles and pedestrians, and that access from the city centre to the Apia Port side has always been easier, including during bad weather conditions. On the other hand, it was found that logistics companies using the Apia Port did not observe any particular business impact from the replacement of the Vaisigano Bridge, as large vehicles still do not pass through the bridge, but through the Leone Bridge, which is located several hundred meters upstream from the mouth of the Vaisigano River.

Therefore, it can be considered that the Vaisigano Bridge is an infrastructure facility that provides safe and smooth traffic in Apia and functions as a foundation to support economic activities, but it has not been confirmed that it has any particular impact on the sustainable development of the Samoan economy or logistics companies using the Apia Port.

(2) Other Positive or Negative Impacts

i. Impacts on the Environment

The guidelines for environmental and social considerations applied to this project were the "JICA Guidelines for Environmental and Social Considerations" (2010), with an environmental category of B.. This project was not considered to be a large-scale project in the road and bridge sector, the unintended environmental impacts were not considered to be significant, and the project did not correspond to any sensitive features or sensitive areas in the Guidelines.

An Environmental Impact Assessment (EIA) report was prepared and submitted to the Planning and Urban Management Agency during the planning phase of the project. As a result, the environmental permit was issued on 5 February, 2018, prior to the commencement of the road and bridge construction. In addition, according to the executing agency, the following actions were taken during the implementation of the project.

- Environmental monitoring by the contractor was regularly conducted and reported to the executing agency.
- The Planning and Urban Management Agency also conducted periodic environmental monitoring during the project implementation and confirmed that measures against air pollution, water contamination, noise and vibration were properly taken and no problematic situations occurred.
- No particular complaints were received from neighbouring residents.

There were no particular negative environmental impacts after the project completion or after the Vaisigano Bridge was put into service, and no particular environmental pollution was observed in the site survey during the ex-post evaluation.

ii. Resettlement and Land Acquisition

Since the project was implemented within a site owned by the Government of Samoa, neither land acquisition nor resettlement occurred.

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

In this project, from the perspective of promoting social development, the sidewalks of the Vaisigano Bridge to be constructed were planned to be wider than those of the old bridge, and road lighting was planned to be improved to ensure safety for night-time driving and to prevent crimes.

In fact, the Vaisigano Bridge has the widest sidewalks in Samoa at 2.5 m wide at both sides, which makes it easier for people with disabilities to walk, and the necessary number of road lights have been installed to ensure adequate lighting even at night. No traffic accidents have occurred due to the structure, and it can be considered that the bridge functions for safe and convenient use by all people. In addition, there were no negative gender impacts from the implementation of the project, and no people were prevented from equitable participation in society.

iv. Other Positive or Negative Impacts

The Vaisigano Bridge, constructed under this project, was recognised as one of five projects in the 6th JAPAN Construction International Awards in 2023 as a construction project that demonstrated Japan's strengths in overseas locations and was a symbol of "high quality infrastructure". In particular, the bridge was recognised for its efforts to prevent driftwood accumulation by extending the span length, its consideration for pedestrian safety by installing 2.5-meter-wide sidewalks on both sides, and its efforts to extend the service life of the bridge by selecting the materials and construction methods that take salt damage countermeasures into consideration. The project also received the OCAJI Project Award, which was established by the Overseas Construction Association of Japan (OCAJI) to help the Japanese construction industry increase its presence overseas and promote continuous and stable overseas activities. The project was highly commended for its safer and more disaster-resistant bridge, its contribution to the creation of employment opportunities by employing a Samoan company as a subcontractor, and

its excellent process management with technology transfer.

<Evaluation Result>

Although quantitative indicators of the project were not sufficiently monitored and the achievement of quantitative effects could not be fully verified, it was estimated from the number of vehicle registrations that the bridge has covered the traffic demand that has been increasing year by year. It was confirmed that the qualitative effect of "safe and smooth passage" was fully realised, and the outcome of "withstanding large natural disasters" was generally considered to have been achieved. As for the impacts of the project, no data was obtained to clearly demonstrate that the project "contributes to the sustainable economic development of Samoa", and the positive impact on the logistics business was limited because large freight vehicles using the Apia Port continue to use the upstream Leone Bridge instead of the Vaisigano Bridge even after the implementation of this project. On the other hand, no environmental or social issues were observed, and the bridge was confirmed to benefit all users as a disaster-resistant bridge with sufficient width.

Quantitative effects of the project could not be fully verified, and effects of the project could only be confirmed to a certain extent compared to the plan. Therefore, the effectiveness and impacts of the project are moderately low.

4 Sustainability

・Policy and System

At the time of ex-post evaluation, Samoa's national development plan was "*Pathway for the Development of Samoa 2021/22 – 2025/26*" (PDS), which emphasises the safety and resilience of infrastructure facilities. Consistent with PDS, "*Transport and Infrastructure Sector Plan 2022/23 – 2027/28*" was formulated in 2023, and one of its five goals is to "improve connectivity, mobility, and accessibility through safe and climate-resilient road infrastructure". In addition, the Samoa Land Transport Authority continues to be the agency responsible for implementing the development and maintenance of transportation infrastructure.

Based on the above, both PDS and the Transport and Infrastructure Sector Plan clearly state the importance of developing and maintaining safe and resilient infrastructure as a key priority policy, and there is no change in the positioning of the executing agency. Therefore, the sustainability of policy and system is high.

・Institutional/Organisational Aspect

The executing agency, the Samoa Land Transport Authority (LTA), is a government agency under the Ministry of Works, Transport and Infrastructure, and is responsible for the asset management and maintenance of all roads in Samoa. The Road Operations Division (ROD) and Procurement and Programming Division (PPD) of LTA are responsible for road development and maintenance. ROD (a team of 16) is responsible for the design and supervision of all locally funded work. PPD (a team of 19) is responsible for most of the procurement of government-funded work and for planning the annual maintenance programme. The actual maintenance of roads and bridges is carried out by dividing Upolu into 11 zones (Apia is in Zone 1) and dividing ROD staff into 4 teams for weekly inspections. The actual repair work is outsourced to private contractors.

Thus, there are no particular problems with the road and bridge maintenance structure, and it can be considered that the institution and organisation for constant inspection and repair is in place.

・Technical Aspect

LTA utilises the maintenance manual prepared under this project and provides training to its staff members every year, and there were no concerns about the technical skills required for normal maintenance and periodic repairs. It was confirmed that a framework for training is in place, and that the programme has institutionalised the provision of training and other programmes inside and outside the LTA based on the needs of personnel[9]. On the other hand, there is a longstanding issue in Samoa of staff with high technical skills emigrating overseas, and LTA needs to constantly strive to improve the technical skills of the new staff.

As a whole, LTA generally possesses the technical skills necessary for the maintenance of the Vaisigano Bridge, and since efforts are being made to maintain and improve the technical skills, there are no concerns regarding the sustainability of the technical aspects of the project.

・Financial Aspect

The budget for LTA at the time of ex-post evaluation has increased overall from the time of planning. From FY2019/20 onward, the maintenance budget accounts for 35%-49% of total expenditures, which is the minimum required maintenance budget. Although it was not possible to identify the amount of expenditures for maintenance for the Vaisigano Bridge alone, there have been no maintenance tasks that could not be performed due to budgetary constraints, and financial sustainability is generally considered to be secured[10].

[9] At the time of the ex-post evaluation, a capacity development framework called "LTA STAFF TRAINING & DEVELOPMENT FRAMEWORK 2024-2026" was in operation, and after an assessment of capacity building needs in February of each year, necessary training was to be provided to staff. For PPD and ROD, training on asphalt, quality management systems, design, and others are prepared.

[10] Although road maintenance budgets increase or decrease depending on the previous year's repairs and the amount of budget allocated to road maintenance, one aspect of road maintenance is that the budget required for road maintenance can be reduced by performing road maintenance. Considering the increasing trend in road maintenance budgets, it was concluded that the decreasing trend in road maintenance budgets for FY2020/2021 and FY2021/2022 does not represent a particular financial challenge.

Table 4 Revenue and Expenditure of the Executing Agency

(Unit: thousand Tala)

FY	2017/18	2018/19	2019/20	2020/21	2021/22
Revenue	**36,572**	**42,898**	**48,258**	**50,894**	**47,404**
Government Grants	21,293	26,667	32,856	50,497	46,785
Operating revenues, etc.	15,279	16,231	15,402	397	619
Expenditure	**37,993**	**36,354**	**49,614**	**53,553**	**45,643**
Road capital and maintenance costs	28,536	28,277	41,575	46,107	37,441
of which road development costs	*8,081*	*8,985*	*17,451*	*27,553*	*20,656*
of which road maintenance costs	*20,455*	*19,292*	*24,124*	*18,554*	*16,786*
Personnel costs	4,610	5,247	4,084	3,399	3,938
Other operating expenses	4,848	2,829	3,955	4,046	4,263
Balance	**-1,421**	**6,544**	**-1,356**	**-2,658**	**1,761**

Note: Until FY2019/20, vehicle registration fees were accounted for as LTA operating revenues, but since FY2020/21, these fees have been handled as government revenues and LTA receives allocations as a government budget, thus resulting in a significant change in the amount of revenue breakdown.

Source: Prepared based on the annual reports of the executing agency

・Environmental and Social Aspect

As mentioned above, no specific negative environmental impacts have been observed to have occurred. The area near the outlet where the Vaisigano Bridge is located is prone to sedimentation, but the area is regularly dredged, and there are no particular concerns in terms of environmental and social considerations.

・Preventative Measures to Risks

No specific risks were identified and are not considered to be of concern.

・Current Status of Operation and Maintenance

As noted in "Institutional/Organisational Aspect", inspections of roads and bridges in Zone 1, including Apia, are always conducted by the ROD team (basically visual inspection of the bridge), and necessary repairs are carried out by a contracted private operator. During the field research, it was confirmed that the Vaisigano Bridge had not been damaged to date and was maintained in good condition, and that adequate measures against salt damage had been taken in the construction of the bridge, with no particular signs of rusting or deterioration.

During the defect inspection conducted 18 months after the completion of the project, the project consultant and LTA agreed to implement the following five actions.

1) Inspection and maintenance of telescopic device sections
2) Inspection and maintenance of drainage structures
3) Inspection and maintenance of road lighting facilities
4) Inspection and maintenance of road surface markings
5) Landscape conservation

It was confirmed that these actions are independently inspected by LTA's ROD team twice a week and jointly inspected once a month with the contractor to whom the maintenance work is outsourced.

<Evaluation Result>

In light of the above, the sustainability of the project effects is high.

III. Recommendations & Lessons Learned

・Recommendations to Executing Agency

The area near the outlet of the Vaisigano River, which flows into Apia Harbour, is prone to damage in the event of a disaster, and is also prone to accumulation of debris such as sediment and driftwood. The Vaisigano Bridge, which was developed in this project, has been in service for only a few years, and was in good condition at the time of the ex-post evaluation, even without any major maintenance work. Since the bridge plays a very important role in facilitating traffic in the Apia City, it is essential to continue to accurately inspect, repair, and dredge the river channel as the bridge ages, in order to extend its service life and ensure its safety.

・Recommendations to JICA

None.

・Lessons Learned

The necessity of establishing quantitative indicators based on data that can be collected independently by the executing agency

Although the quantitative indicators were set up in this project to measure effectiveness, some data that were not routinely collected by the executing agency were used[11]. In addition, no indicators were defined to measure the impacts, and it was difficult to adequately verify the effects. Therefore, at the time of ex-post evaluation, the executing agency did not have the appropriate data, which hindered the analysis. Since the measurement of project impacts is critical to the improvement of the project and the formulation of future projects, when setting indicators for measuring impacts at the time of planning, it is necessary to set the indicators that the executing agency possesses or that the executing agency can monitor after the project is completed, rather than the data that can only be ascertained through measurement in the preparatory survey. Therefore, it is essential for JICA and the executing agency to fully consider the logic of achieving effects at the time of project planning, and to set practically collectable indicators as the indicators for measuring the effects of the project for accurate understanding and analysis of the project effects. In addition, it is desirable to improve the capacity of related stakeholders of the project if the data are the basic ones that need to be newly measured and collected by the executing agency on its own.

IV. Non-Score Criteria

- Performance
  - Objective Perspective

  None

- Additionality

  None

Photo 1: Attachment road and roundabout on the Apia Port side
(Source: Photo taken by the External Evaluator)

Photo 2: Revetment along the Vaisigano River
(Source: Photo taken by the External Evaluator)

(end)

[11] Among the quantitative indicators, "Freight vehicle travel time from Apia Port to Vaitele Industrial Zone" could not be measured as large vehicles continued to be restricted from using the Vaisigano Bridge after the completion of the project due to the government's concern about the induced traffic congestion in downtown Apia caused by the use of the Vaisigano Bridge by large vehicles. Therefore, this lesson learned focuses on the indicators related to traffic and transportation volumes that can be collected regardless of the existence of this restriction.