

Republic of Indonesia

FY2015 Ex-Post Evaluation of Japanese Grant Aid Project

“The Project for the Improvement of Bridges in Nias Island”

External Evaluators: Yuko Kishino and Makiko Oleynikov, IC Net Limited

0. Summary

This project was implemented in Nias Island of the Republic of Indonesia to ensure safe and efficient traffic by reconstructing six bridges¹ that were damaged by the earthquakes² and were in a structurally dangerous condition, thereby contributing to improving accessibility to public services for residents and the reconstruction and revitalization of socio-economic activities. This project is highly relevant to the development policy of the country both at the time of the project planning and at the time of the ex-post evaluation, as well as Japan’s ODA policy at the time of the project planning, and responds to Indonesia’s development needs. Therefore, the relevance of this project is high. The effectiveness and impact of this project are high because the six bridges are fully used, and safe and efficient traffic has been secured by implementing this project. The project cost of the Japanese side was within the planned amount, however the project period exceeded the planned time. Therefore, the efficiency of the project is fair. Five bridges on national roads are maintained under a stable personnel structure by the Nias Branch of the national implementing agency, the Ministry of Public Works (Pada Pelaksana Kegiatan, hereinafter referred to as “PPK”), which is the subordinate organization of the North Sumatra Province, the Directorate General of Highways of the Ministry of Public Works (Balai Besar Pelaksanaan Jalan Nasional-1, hereinafter referred to as “BBPJN1”) and the Medan Office of National Road and Bridge Design and Supervision Bureau of the North Sumatra Province, the Directorate General of Highways of the Ministry of Public Works (Perencanaan dan Pengawasan Jalan Nasional, hereinafter referred to as “P2JN”). Although Nou A Bridge was transferred to Gunung Sitoli City from the Ministry of Public Works, procedures for asset registration have not been done yet and the maintenance has not been implemented. Although no major problems have been found in the technical and financial aspects for maintenance, improvement of the institutional aspect is indispensable. Therefore, the sustainability of the project is fair.

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

¹ The six bridges are Nou Bride, Nou A Bridge, Gido Si’ite Bridge, Idano Gawo Bridge, Mezaya Bridge and Sa’au Bridge.

² The North Sumatra Offing Earthquake (December 2004) and the Northern Nias Offing Earthquake (March 2005)

1. Project Description



Project Location



Gido Si'ite Bridge improved by this project

1.1 Background

Nias Island is an isolated island located 125 kilometers west off-shore from Sumatra Island of the Republic of Indonesia³ and is included in the jurisdiction of the North Sumatra Provincial Government. The island is one of the poorest areas in the country: the GDP per capita of the island in 2014 was US\$ 390⁴, which is about 31% of the national average (US\$ 1,283)⁵. Roads on the island consist of national roads (No. 75, 77, 78 and 79)⁶ covering the periphery of the island except for a part on the west side, and the national road (No. 76) crossing the central part of the island (Figure 1) where large and small bridges exist. These bridges had deteriorated markedly and had problems that were previously identified from the perspective of construction and maintenance. There have also been many natural disasters. In 2001, an unprecedented flooding occurred, which caused damage to the pile heads of bridge foundations and inclination of piers and abutments because of ground settlement and flow, while abutment was slanted along with superstructure collapsing. Such situations were coped by emergency restoration and construction of bailey bridges⁷, however the prospect for full-scale recovery and reconstruction could not be foreseen.

³ The Republic of Indonesia is the world's largest archipelagic country composed of approximately 18,000 islands. The area of the country is about 1,940,000 square kilometers (about five times as large as Japan) with a population of 222 million in 2006, which is the fourth largest in the world.

⁴ Statistics Office of Nias Island

⁵ Data from the World Bank

⁶ The roads were promoted to national roads from provincial roads in 2012.

⁷ A bailey bridge is a pre-fabricated bridge that is easy to construct.



Source: Basic Design Study Report

Figure 1: Project Bridges (at the time of project planning)

National road No. 75 is a major artery linking Gunung Sitoli, the largest city on the island, with Teluk Dalam, the second largest city on the island, and 500,000 residents, about 70% of the island population, live along this road. After the earthquakes, reconstruction by the World Bank and the Government of Indonesia went ahead until 2009, though some bridges with fallen girders and inclined abutments remained. These bridges had the risk of falling during the next earthquake and early recovery was called for.

1.2 Project Outline

The objective of this project is to ensure safe and efficient traffic in Nias Island by reconstructing Nou Bridge, Nou A Bridge, Gido Si'ite Bridge, Idano Gawo Bridge, Mezaya Bridge and Sa'au Bridge which were damaged by the earthquakes of the North Sumatra offing and the Northern Nias offing and are in a structurally dangerous condition, thereby contributing to improving the accessibility to public services for residents and the reconstruction and revitalization of socio-economic activities.

| | |
|--|---|
| E/N Grant Limit/ Actual Grant Amount | 1,522 million yen/1,265 million yen |
| Exchange of Notes Date/ (/Grant Agreement Date) | Mar. 2009 (detailed design), Dec. 2009 (main construction)/ Mar. 2009 (detailed design), Jan. 2010 (main construction) |
| Implementing Agency | Directorate General of Highways, the Ministry of Public Works |

| | |
|-------------------------|--|
| Project Completion Date | January 2013 |
| Main Contractor | Katahira & Engineers International |
| Main Consultant | Takenaka Civil Engineering & Construction Co., Ltd. |
| Basic Design | October 2008 |
| Detailed Design | September 2009 |
| Related Projects | <p>【ODA loan】</p> <ul style="list-style-type: none"> ● Rehabilitation of Bridges for Java North Line (II) (1995 – 2002) ● Twelve Provinces Bridge Replacement & Rehabilitation project (1995) ● Heavy Loaded Road Improvement Project (II) (1992) ● Road Maintenance Improvement Project (II) (1996) ● Rural Road Project (III) (1997) ● Sumatra East Coast Highways Project (1996) ● Urban Arterial Roads Improvement In Metropolitan And Large Cities Project (1996) ● Construction Project of the Northern Extension of the South-West Arc (1994) ● North Java Corridor Flyover Project (2005) ● Tanjung Priok Access Road Construction Project (Phase-I) (2005) ● Tanjung Priok Access Road Construction Project (Phase-II) (2006) <p>【Grant aid】</p> <ul style="list-style-type: none"> ● The Project for Bridge Construction in the Central and North Sulawesi Provinces (2003) ● The Project for Bridge Construction in the Province of Nusa Tenggara Timur (2006) ● The Project For Construction of Bridges in The Province of Nusa Tenggara Barat (2006) <p>【Other international organizations and aid organizations, etc.】</p> <ul style="list-style-type: none"> ● Rehabilitation and Reconstruction Agency of Aceh and Nias, Government of Indonesia: Earthquake Disaster Reconstruction Project (2005) ● The World Bank: Infrastructure Reconstruction Enabling Program (2006) |

2. Outline of the Evaluation Study

2.1 External Evaluators

Yuko Kishino, IC Net Limited

Makiko Oleynikov, IC Net Limited

2.2 Duration of Evaluation Study

In the ex-post evaluation this time, the study was implemented as follows.

Duration of the Study: July 2015 – September 2016

Duration of the Field Study: November 15–29, 2015; February 13–23, 2016

2.3 Constraints during the Evaluation Study

In the first field study of this evaluation, there was limited cooperation by the implementing agency in regards to the questionnaire survey. Interviews with relevant organizations were also limited. In the second field survey, cooperation was obtained from the Public Works Department of Gunung Sitoli City, which is the maintenance organization for Nou A Bridge. However, detailed information of the five bridges other than Nou A Bridge remained lacking. Under such circumstances, during this evaluation, information was supplemented by literature searches, a questionnaire survey to a Japanese construction management consultant and a beneficiary survey in addition to fragmentary information obtained in the field. Therefore, it was not possible to conduct a full analysis of the efficiency, effectiveness and sustainability, and a decision was made based only on the limited information available. Accordingly, the possibility of bias in the results of the evaluation cannot be denied.

3. Results of the Evaluation (Overall Rating: B⁸)

3.1 Relevance (Rating: ③⁹)

3.1.1 Relevance to the Development Plan of the Republic of Indonesia

At the time of project planning, the National Development Plan was formulated under the Suharto regime based on the “National Long Term Development Plan (RPJPN) of 25 years” and the “National Medium Term Development Plan (RPJMN) of 5 years.” Under the “National Medium Term Development Plan (2004–2009)”, the government highlighted poverty reduction and positioned economic growth as its means. In the wake of the great earthquakes in December 2004 and March 2005, the Government of Indonesia started to move toward the reconstruction of disaster-stricken areas with the aim of improving Aceh and Nias Island to a condition better than the pre-disaster one. The government established the Rehabilitation and Reconstruction Agency of Aceh and Nias (Badan Rehabilitasi dan Rekonstruksi, hereinafter referred to as “BRR”) and formulated, together with the ministries and agencies concerned, the master plan “Rehabilitation and Restoration Plan of Nanggröe Aceh Darussalam Province and Nias Island” for recovery and reconstruction after emergency relief. Under the plan, the agency implemented reconstruction programs comprised of the following four pillars: (1) reconstruction of houses and communities, (2) recovery of infrastructures, (3) development of local economy, and (4) enforcement of organization and human resource development. This project was intended to support the earthquake reconstruction project of the Government of Indonesia.

The long-term development plan at the national level of Indonesia at the time of the ex-post evaluation was the “National Long Term Development Plan (RPJPN 2005–2025)” which came into force in 2007. In the plan, the improvement of large-scale infrastructure networks, such as

⁸ A: Highly satisfactory; B: Satisfactory; C: Partially satisfactory; D: Unsatisfactory

⁹ ③: High; ②: Fair; ①: Low

roads connecting the entire island and the irrigation system, was indicated to be important. The “National Medium Term Development Plan (RPJMN 2015–2019)” focuses on the following five points: maritime country initiatives; modernized industry; sovereignty of Indonesia, regional development; and improvement of infrastructure investment environment. Above all, regarding regional development, importance is placed on the construction of 2,000 kilometers of roads, expansion of economic growth from the center to the regions, distribution of profits through economic growth, and linking the major industrial areas of each region to promote connectivity throughout Indonesia.

The Government of Indonesia emphasizes on the poverty reduction through promoting the connectivity of the entire country both at the time of the project planning and at the time of the ex-post evaluation. Therefore, this project is highly relevant to the country’s development plan.

3.1.2 Relevance to the Development Needs of the Republic of Indonesia

After the earthquakes, BRR, which was established under the direction of the National Development Planning Agency of the Government of Indonesia (Badan Perencanaan Pembangunan Nasional, hereinafter referred to as “BAPPENAS”), carried out repairs to roads and bridges damaged by the earthquakes as part of the infrastructure recovery project of Nias Island. However, the project was not completed before the time limit of dismantling BRR because of substantial delays in the processes. Thus, the World Bank provided support for the construction of roads and bridges which BRR was not capable, and implemented repairs to 98 kilometers of roads, repairs to 28 kilometers of local roads and construction of 11 bridges through its Infrastructure Reconstruction Enabling Program. This project was implemented to support a series of these earthquake restoration projects of the Government of Indonesia.

Nou Bridge and Nou A Bridge crossing the central part of Gunung Sitoli City in Nias Island play an important role in stimulating the economic activities of residents as access roads to the market. At the time of the ex-post evaluation, the project national road was designated as an evacuation route in case of disaster, and it is considered that bridge repairs under this project were essential to improve the level of disaster prevention and to secure routes for evacuation and transporting relief goods in the event of a disaster. Out of the project bridges, five bridges are supporting socio-economic development of the project area as part of the major artery connecting Nias/Gunung Sitoli airport, Gunung Sitoli port and Teluk Dalam port in the south. In this way, the project bridges are important routes for the reconstruction and revitalization of socio-economic activities and fully align with the development needs of Indonesia consistently from the time of the project planning to the time of the ex-post evaluation.

3.1.3 Relevance to Japan’s ODA Policy

In “Japan’s Country Assistance Program for the Republic of Indonesia in 2005,” which was

Japan's ODA policy at the time of the project planning, a subprogram for post-independence Aceh recovery and reconstruction support was planned as peace-building and reconstruction assistance under the important area of "peace and stability." At the same time, urgent recovery and reconstruction support for the disaster caused by the earthquake and tsunami off the coast of the Northern Sumatra was also placed importance. This project, which aims to "ensure safe and efficient traffic, thereby contributing to improving accessibility to public services for residents and the reconstruction and revitalization of socio-economic activities," is relevant to Japan's ODA policy at the time of the project planning.

In light of the above, this project has been highly relevant to Indonesia's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

Table 1 shows the planned and actual outputs of this project. The project outputs of the Japanese side were implemented wholly as planned. According to the construction management consultant, these bridges adopt a structure that reduces maintenance cost and has an excellent durability of 50 years, unless there is any large-scale salt damage, water immersion, earthquake or deterioration caused by overloaded trucks.

Table 1: Plans and Actual Results of the Project Outputs (unit: meters)

| Item | Nou Bridge | Nou A Bridge | Gido Si'ite Bridge | Idano Gawo Bridge | Mezaya Bridge | Sa'au Bridge |
|-------------------------------------|----------------------|--------------|--------------------|-------------------|---------------|--------------|
| Bridge length | 41.5 | 49.5 | 40.0 | 151.0 | 94.0 | 53.5 |
| | As planned | As planned | As planned | As planned | As planned | As planned |
| Bridge width | Carriageway | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| | | As planned | As planned | As planned | As planned | As planned |
| Sidewalk | 1.0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| | As planned | As planned | As planned | As planned | As planned | As planned |
| Approach road length | 70.8 | 90.5 | 180.0 | 209.0 | 181.0 | 186.5 |
| | As planned | As planned | As planned | As planned | As planned | As planned |
| Road width | Approach carriageway | 7.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| | | As planned | As planned | As planned | As planned | As planned |
| Shoulder | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| | As planned | As planned | As planned | As planned | As planned | As planned |
| Approach road retaining wall length | 39.0 | 73.0 | 0.0 | 0.0 | 95.0 | 129.0 |
| | As planned | As planned | As planned | As planned | As planned | As planned |

Source: Materials provided by JICA

There were three changes from the detailed design that were implemented without any problems in response to requests from the Government of Indonesia. Here is an outline of the changes.

- (1) Change of the pier foundation at Nou A Bridge and Sa'au Bridge (approved on March 24,

2011).

Change was proposed to use steel tubes with a thickness of nine millimeters instead of pipes for the bridge pier piles and to keep the piers after placing the concrete. There were no changes in the main body and such change was judged to be appropriate to improve the safety and reliability of the river works.

(2) Change of revetment of PC sheet piles¹⁰ at Nou Bridge (approved on September 24, 2012):

When implementing the temporary bypass of water pipes which were the responsibility of the Government of Indonesia, the installation position of a temporary water pipe bridge was changed for cost reduction. In line with the change, the need to shorten the PC sheet piles to protect the abutments of Nou Bridge occurred.

(3) Addition of PC sheet piles to the revetment at Sa'au Bridge (approved on September 24, 2012):

The impact from waves and tides was larger than the initial estimate and construction works were found to be difficult under the initial design. Therefore, sand movement was prevented by placing PC sheet piles as shielding layers. These were necessary measures for the construction work and local materials were diverted.

The design changes were fully discussed between the construction management consultant and JICA, and such changes were found to be appropriate.

Matters that were the responsibility of the Indonesian side included compensation for land acquisition and resettlement, relocation of telephone lines, electric poles and water pipes, and removal of existing bridges. These matters were implemented as planned.



Nou A Bridge in Gunung Sitoli City
(at the time of the ex-post evaluation)



Idano Gawo Bridge
(at the time of the ex-post evaluation)

¹⁰ PC (pre-stressed concrete) sheet piles increase the bending strength by causing tension on the PC cables and by introducing compression force to the concrete.

3.2.2 Project Inputs

3.2.2.1 Project Cost

This evaluation was judged only from the cost of the Japanese side because the amount of the Indonesian side for the total cost was unknown. The total projected cost was planned at 1,566.8 million yen (1,555 million yen on the Japanese side and 11.8 million yen on the Indonesian side). The actual cost of the Japanese side was lower than planned at 1,265 million yen (81% of the plan). According to the construction management consultant, competitively quoted prices could be obtained because the builder was in a good financial position and proposed good payment conditions to local subcontractors who had a proven track record. Moreover, site management cost could be curbed by building the construction management system with a higher ratio of local staff through the long-term employment of local workers and continuous business transactions with good subcontractors.

3.2.2.2 Project Period

The project period was planned to last 34 months from March 2009 to December 2011, but actually took 47 months from March 13, 2009 (signing of the Grant Agreement) to January 23, 2013 (completion date). The project was implemented at 138% of the plan including the work that was the responsibility of the Indonesian side. The background of this were delays in land acquisition by local governments, delays in relocation of existing lifelines, and delays due to disturbance by residents' throwing stones and floods and landslides caused by heavy rains, all of which accumulated to a total of ten months delay.

Consequently, although the project cost was within the plan, the project exceeded the plan. Therefore, the efficiency of the project is fair.

3.3 Effectiveness¹¹ (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

Indicators set for the ex-ante project evaluation were “number of lanes,” “load limit” and “traffic speed.” That is to say, by replacing each bridge, it was anticipated to increase the number of lanes, shorten the traveling time from Gunung Sitoli City to Teluk Dalam by improving the travelling performance, and making it passable for large vehicles, which were expected to increase because of the restoration works. Replacing each bridge was also aimed to secure safe and efficient traffic, evacuation routes in the event of a disaster, and transportation routes for relief goods.

In the evaluation of effectiveness, whether or not the indicators mentioned above actually attained their target was identified in order to determine any “improvement of travelling performance” first. Secondly, “average daily traffic volume” was added as an indicator to

¹¹ Sub-rating for Effectiveness is to be put with consideration of Impact.

identify whether traffic demand on this major artery had increased and whether appropriate traffic diversion had been carried out. Moreover, “transportation volume of passengers and goods” was set to identify whether efficient city transportation had been secured.

(1) Improvement of travelling performance

Before the implementation of this project, the bridges had been damaged by the earthquakes and vehicles were forced to travel at low speeds. Because the width of Nou A Bridge in Gunung Sitoli City and Sa’au Bridge near Teluk Dalam City with heavy traffic volume was only for a single lane, traffic jams occurred during peak times. At the time of the ex-post evaluation, although the traffic volume on the bridges does increase substantially, traffic jams do not occur, as shown later.

Table 2 shows the baseline and the target for indicators shown in the ex-ante project evaluation. According to the interview from the implementing agency, two vehicle lanes and a load limit of 20 tons were established as planned. As for the traveling speed, because no data were available, the time required to travel the 100.4 kilometers between Nou A Bridge in Gunung Sitoli City and Sa’au Bridge¹² was actually measured at the time of the ex-post evaluation. The results were that it took 137 minutes during morning peak time (southward) and took 134 minutes during afternoon off-peak time (northward) with no impact from traffic jams being seen. The average traveling speed on the six bridges was about 45 kilometers per hour. During the field survey, no traffic jams were seen on each bridge even during peak times and it was possible to travel safely at the same speed as the target value. Because road repair works were implemented by the Ministry of Public Works at two points between Mezaya Bridge and Idano Gawo Bridge, areas of about 50 meters were gravel road. However, this did not have much effect on the travelling performance. It is fair to say that the replacement of the bridges has helped secure safe and efficient traffic.

Table 2: Plans and Actual Results of Quantitative Effect Indicators

| | Baseline | Target | Baseline | Target | Baseline | Target | Actual* |
|----------------------------|-------------------------|--------------------------|-------------------|--------------------------|------------------------|--------------------------|--------------------------|
| | 2008 | 2014 | 2008 | 2014 | 2008 | 2014 | 2015 |
| | | 3 years after completion | | 3 years after completion | | 3 years after completion | 4 years after completion |
| Bridge name/Indicator name | Number of lanes (lanes) | | Load limit (tons) | | Traveling speed (km/h) | | |
| Nou Bridge | 2 | 2 | 20 | 20 | 20 | 30 | 30 |
| Nou A Bridge | 1 | 2 | 15 | 20 | 20 | 30 | 30 |
| Gido Si’ite Bridge | 2 | 2 | 20 | 20 | 20 | 60 | 60 |
| Idano Gawo Bridge | 1 | 2 | 6 | 20 | 10 | 60 | 60 |
| Mezaya Bridge | 1 | 2 | 20 | 20 | 5 | 40 | 40 |
| Sa’au Bridge | 1 | 2 | 6 | 20 | 5 | 40 | 40 |

Source: Ex-ante project evaluation

* Actual measurement taken during the ex-post evaluation field survey between Nou A Bridge and Sa’au Bridge

¹²From the 0.6 km point on the Nou A Bridge to the 101.0 km point on the Sa’au Bridge.

(2) Increase in average daily traffic volume

As shown in Table 3, the average daily traffic volume in 2014 increased substantially to 1.5- to 5.3-fold over 2008, at the time of planning. Such an increase is considered to be generally attributable to the increase in registered vehicles¹³ in Nias Island and the increase in population of Gunung Sitoli City¹⁴, the largest city in Nias Island, but the effect of the completion of this project in 2013 is notable. Because traffic was controlled for reconstruction work of this project from 2011 to 2012, traffic volume decreased compared to that of the time of project planning. After completion of the project, however, traffic controls were lifted and it became possible to drive smoothly across each bridge.

Table 3: Average Daily Traffic Volume (unit: vehicles/day)

| Bridge name | Baseline ^{Note1} | Estimate | Actual | Actual | Actual | Actual |
|-------------------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-----------------|-------------------------|
| | 2008 | 2018 | 2011 | 2012 | 2013 | 2014 |
| | | 5 years after completion | 2 years before completion | 1 year before completion | Completion year | 1 year after completion |
| Nou Bridge | 17,227 | 22,170 | 3,781 | 7,026 | 35,364 | 44,785 |
| Nou A Bridge | 3,371 | 10,788 | 1,839 | 5,056 | 9,091 | 11,381 |
| Gido Si'ite Bridge ^{Note2} | 2,578 | 4,125 | 700 | 1,011 | 3,060 | 3,825 |
| Idano Gawo Bridge ^{Note2} | 1,815 | 2,903 | | | | |
| Mezaya Bridge ^{Note3} | 1,232 | 1,972 | 438 | 1,480 | 5,942 | 6,485 |
| Sa'au Bridge ^{Note3} | 1,619 | 2,591 | | | | |

Source: Baseline and Estimate figures are from the basic design study report. Actual figures are from materials provided by P2JN

Note1: Based on the traffic volume survey implemented at the time of the basic design survey. The measurement value is in 12-hour (6:00-18:00) measurements. Daily traffic volume indicates 24-hour traffic volume in both directions (1.3-fold of the 12-hour traffic volume)

Note2: Actual figures of both Gido Si'ite Bridge and Idano Gawo Bridge are the same because there is only one monitoring point on the road section, including both bridges.

Note3: Actual figures of both Mezaya Bridge and Sa'au Bridge are the same because there is only one monitoring point on the road section, including both bridges.

Looking at each bridge individually, Nou Bridge, which has the highest traffic volume, reached 44,785 vehicles in 2014 and became 2.6-fold over the 2008 level and 2-fold over the estimate of 2018. The daily traffic volume of Nou A Bridge in 2014 was 11,381 vehicles, which is 3.4-fold over the 2008 level and about 10% more than the estimate value of 2018. The traffic volumes of Gido Si'ite Bridge and Idano Gawo Bridge in 2014 were 3,828 vehicles, and the traffic volume of Gido Si'ite Bridge became 1.5-fold over the 2008 level although it did not exceed the estimate of 2018. On the other hand, the Idano Gawo Bridge, became 2.1-fold over the 2008 level and slightly exceeded the estimated volume of 2018. The traffic volume of Mezaya Bridge and Sa'au Bridge in 2014 increased 4 to 5-fold compared to that of 2008, and exceeded the

¹³The number of registered vehicles of all vehicle types including trucks, passenger cars and motorcycles was recorded at almost 40,000 units each year and this increasing tendency is not slowing down.

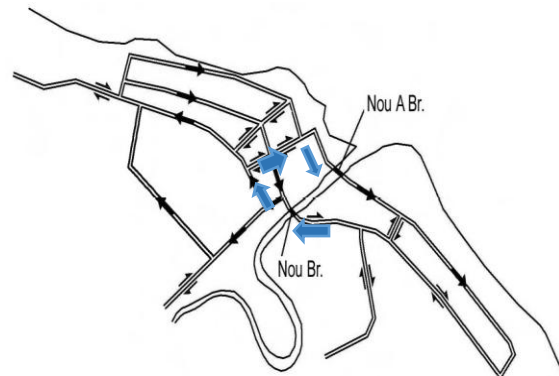
¹⁴Population in 2014 was 790,000 and shows a 1% growth each year on average from 750,000 in 2010 (Statistics Office of Nias Island).

estimated traffic volume in 2018 by 2 to 3-fold. In this way, the traffic volume of all bridges except Gido Si'ite Bridge exceeded the estimated value of 2018 by 2014, which shows the substantial increase in the traffic volume. It is because vehicles must cross the Nou Bridge to go north by National Road No. 75 from the south part of the island, which is behind the high traffic demand flowing into Gunung Sitoli City. Traditionally, traffic volume outgoing from the central part of the city is lower than the incoming traffic volume. Therefore, the increase rate of Nou A Bridge (3-fold) was lower than that of Nou Bridge.

It should be noted that the said two bridges became one-way traffic from December 2014, and traffic is controlled by the traffic flow incoming to the central part of the city crossing over Nou Bridge and by traffic flow outgoing from the city crossing over Nou A Bridge (Figure 2).

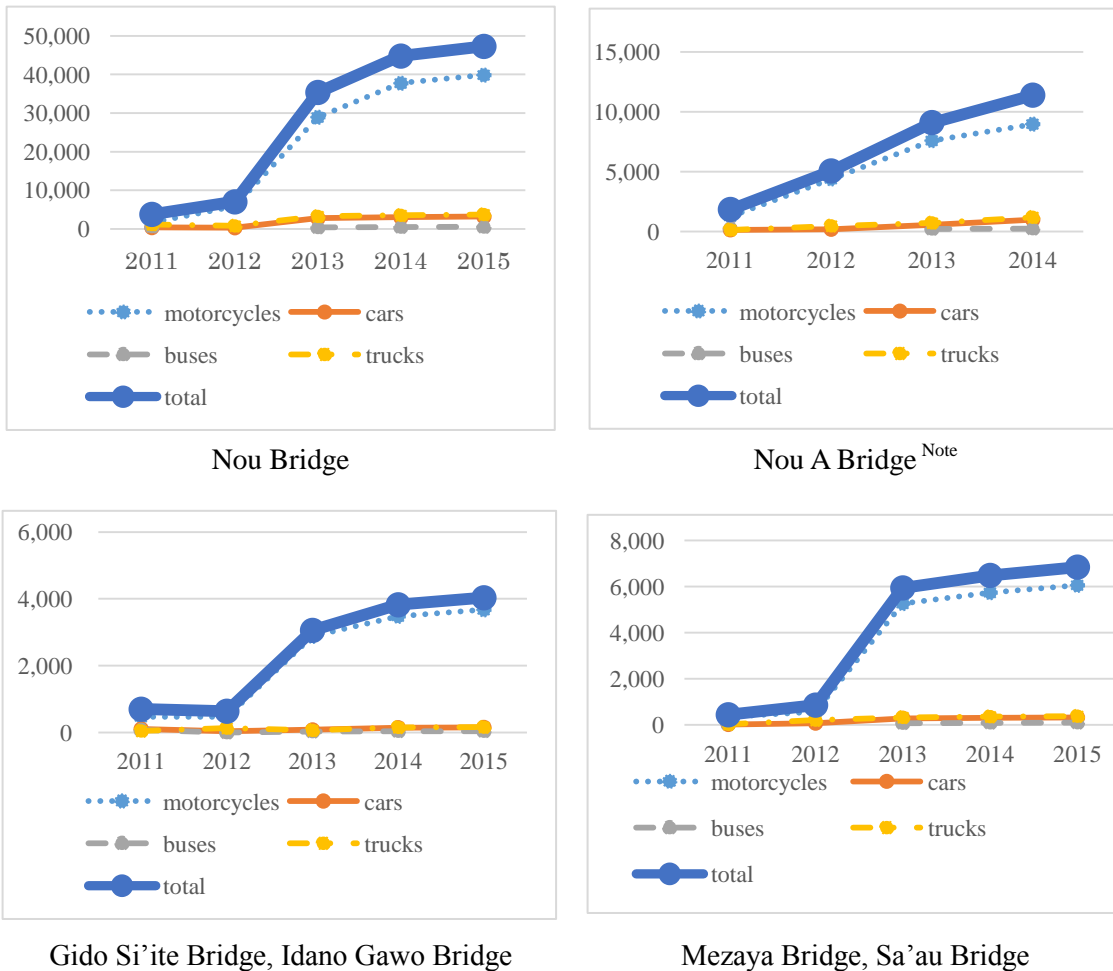
At Sa'au Bridge close to Teluk Dalam City and Mezaya Bridge around the city, the average daily traffic volume in 2013 became 4-fold over the previous year. In the past, traffic volume used to decrease as one moved further south from Gunung Sitoli City. However, the increase in traffic volume was also seen in the south part due to repairs of these bridges. According to BAPPENAS of South Nias Regency, they say that traffic demand within Teluk Dalam City increased in line with the development of the city itself. On the other hand, Gido Si'ite Bridge and Idano Gawo Bridge which are located in the middle between the said two cities showed low values compared to other areas because there are less facilities there that are involved with urban functions.

Looking at the daily average traffic volumes by type of vehicle in Figure 3, the traffic volume of motorcycles, which are indispensable for the everyday traveling of island residents, increased sharply after the completion of all bridges for the project. According to port-related people and carriers, the loading weight limitation was eased to 20 ton-level from 8 tons-level because of the implementation of this project. Thus, the number of large trucks delivering motorcycles to the city center increased, which were shipped by container ships.



Source: Basic design study report
 Note: Blue arrows show the parts where two-way traffic was changed to one-way traffic under city traffic control.

Figure 2: Traffic Guidance of Nou Bridge and Nou A Bridge



Source: Materials provided by P2JN
 Note: Lack of 2015 data

Figure 3: Daily Average Traffic Volume by Type of Vehicle

(3) Increase in the volume of cargo transportation in Nias Island

Table 4 shows the changes in the volume of cargo transportation in Nias Island at Gunung Sitoli Port. The volume of cargo transportation increased by 20% to approximately 270,000 tons in 2014 from approximately 230,000 tons in 2010. Traditionally, 98% of goods transported from outside Nias Island passed through Gunung Sitoli Port and were transported to each commercial area of the island by large trucks along National Road No. 75. According to port-related people and carriers, many trucks were replaced by 20 ton-level trucks because of the increased loading limitation to 20 ton-level on National Road No. 75 after completion of the bridge repairs. Although the data before 2008, the commencement of the project was not confirmed, it can be said that distribution within the island which passes through Gunung Sitoli Port has been vitalized and the volume of cargo transportation within Nias Island increased.

Table 4: Cargo Transportation Volume in Nias Island at Gunung Sitoli Port (unit: tons/year)

| Actual 2010 | Actual 2011 | Actual 2012 | Actual 2013 | Actual 2014 |
|------------------------------|------------------------------|-----------------------------|-----------------|----------------------------|
| 3 years before completion | 2 years before completion | 1 year before completion | Completion year | 1 year after completion |
| 228,738 | 245,667 | 249,456 | 266,283 | 274,769 |

Source: Materials provided by Gunung Sitoli Port



Loading cargos at Gunung Sitoli Port



Transport trucks at Gunung Sitoli Port

3.4 Impacts

3.4.1 Intended Impacts

The intended impacts of this project at the time of the project planning were as follows: (1) accessibility to public services for residents are improved; (2) socio-economic activities are reconstructed and revitalized; and (3) bridges are used as evacuation routes in the event of a disaster and transportation routes for relief goods. To identify these impacts, a beneficiary survey¹⁵ and an interview survey to carriers¹⁶ were conducted along the national road from Gunung Sitoli City to Teluk Dalam City, and the perception of the road users was identified. The contents of the beneficiary survey were about the frequency of using the bridges in traveling in everyday life¹⁷ and traveling methods both at the point of 2010 and at the point of the ex-post evaluation. The results found that almost no change was seen between the said two points. In

¹⁵The population of direct beneficiaries of this project is about 500,000 people along the project roads of the entire Nias Island. Among them, sampling was carried out in accordance with each population rate. The interviewer visited the houses of 35 residents in the vicinity of Nou Bridge and Nou A Bridge within 1 kilometer radius close to the bridges in the center of Gunung Sitoli City, 20 residents in the vicinity of Gido Si'ite Bridge and 20 residents in the vicinity of Idano Gawo Bridge in the central part of the island, 20 residents in the vicinity of Mezaya Bridge and 25 residents in the vicinity of Sa'au Bridge in the south part of the island, and hearing survey was carried out on weekdays and holidays. The number of valid responses was 99 people. The breakdown is as follows: 64 men (65%) and 35 women (35%); two people in the teens (2%), 28 people in the 20s (28%), 30 people in the 30s (30%), 26 people in the 40s (26%), 11 people in the 50s (11%), one person in the 60s (1%) and one person in the 70s (1%). No differences between men and women were seen in the beneficiary survey results.

¹⁶Interview survey was implemented for five carriers in Gunung Sitoli City by using questionnaire regarding maintenance cost, fuel cost, business performance and fare before and after the project.

¹⁷The following six items: traveling to workplace; traveling at the time of providing products and services, etc.; traveling to government offices; traveling to educational institutions; traveling to hospitals; and traveling to market for shopping, etc.

addition, for the impacts that involved data that were not obtainable through these surveys, statistical data were used for analysis.

(1) Accessibility to public services for residents are improved

More than 60% of beneficiaries replied that community offices, hospitals and schools are in the same village and they do not use the bridges. Also, for residents who do use the bridges, there was almost no difference in time required for each journey. Therefore, the improvement of accessibility to public services for residents due to the replacement of bridges under this project is regarded to be limited.

(2) Socio-economic activities are reconstructed and revitalized

According to data from the Statistics Office of Nias Island as shown in Table 5, the Gross Regional Domestic Product (GRDP) between 2012 and 2014 has grown each year. The growth rate of the regional economy is at the 5% level, which shows the growth is at a pace slightly higher than that of the national Indonesia average which is at the 4% level.

Table 5: GRDP within Nias Island and the Growth Rate (unit: 1 billion rupiah)

| Area | 2012 | 2013 | 2014 |
|----------------------------|---------|-----------|-----------|
| Gunung Sitoli City | 2,276 | 2,418 | 2,565 |
| Nias Regency | 1,776 | 1,889 | 1,992 |
| West Nias Regency | 878 | 923 | 971 |
| North Nias Regency | 1,646 | 1,750 | 1,843 |
| South Nias Regency | 3,074 | 3,218 | 3,357 |
| Total | 965,052 | 1,019,775 | 1,072,721 |
| Growth rate of Nias Island | 5.7% | 5.2% | N/A |
| Domestic growth rate | 4.6% | 4.2% | 3.7% |

Source: Statistics Office of Nias Island, World Bank statistics

In the beneficiary survey, questions were asked about the ease of access to stores selling daily commodities, the quantity, types and prices of daily commodities, and any change in purchase cost of daily commodities. For ease of access, and quantity and types of daily commodities, all people responded “access became easier,” 60% responded “quantity has increased” and more than 90% responded “varieties increased.” Concerning the prices of daily commodities, on the other hand, nearly 60% responded “prices became cheaper” and 90% responded that their expenditure “increased.” These answers seem to indicate the possibility that the replacement of bridges under this project has contributed to increasing the quality and quantity of people’s daily commodities.

Also, in the survey of carriers, all five carriers responded “monthly maintenance cost reduced by 500,000 rupiah on average” although the transport distance did not change because of this project. To the question on what change, if any, occurred to their business performance after the

implementation of the project, all five carriers replied that their business performance “improved.” Although it is unknown how much this project affected the reduction of maintenance cost and improvement of business performance, all five carriers responded that their degree of satisfaction with this project was satisfactory (four carriers) or highly satisfactory (one carrier).

(3) Bridges are used as evacuation routes in the event of a disaster and transportation routes for relief goods

After repairs to the bridges, no large-scale disasters have occurred. Thus, the bridges had not been used either as evacuation routes or for the transportation of relief goods at the time of the field survey. According to each regency and the Department of Disaster Assistance of Gunung Sitoli City, tsunami/flood evacuation route maps have been prepared for the national roads where the bridges were improved so that these roads and bridges are ready for use as the route to transport relief goods. Evacuation route signs and evacuation towers are currently being placed on this national road.

In light of the above, although an impact on “the improvement of accessibility to public services for residents” is limited, it can be inferred that positive impacts are provided in relation to “reconstruction and revitalization of socio-economic activities” and “use as evacuation routes in the event of a disaster and transportation routes for relief goods.” Therefore, it can be said that there is a certain level of impact in general.

3.4.2 Other Impacts

3.4.2.1 Impacts on the Natural Environment

This project involved repairs to existing bridges and did not include construction of new bridges. Accordingly, the impacts on the natural environment were considered to be minor. This was confirmed with the implementing agency during the field survey, and no environmental problems were found to have occurred. In addition, no negative impacts on the environment were found during the field inspection. According to the construction management consultant, environmental monitoring was carried out regularly and no problems have been found.

3.4.2.2 Land Acquisition and Resettlement

Land acquisition and resettlement were planned for one house located at Nou A Bridge and two houses adjacent to Mezaya Bridge. The Government of Indonesia has no records regarding resettlement and provided no information on the resettlement. Therefore, the situation is unknown regarding the resettlement and the restoration of the resettled residents’ livelihoods.

3.4.2.3 Unintended Positive /Negative Impacts

According to personnel related to Nias Regency BAPPENAS, a university, which was planned to be built in Gunung Sitoli City, was changed to be newly built near Idano Gawo Bridge because the transportation environment had improved substantially. The Ministry of Public Works is now implementing a feasibility study regarding a plan to expand the width of the bridge. In addition, two bridges were newly built in Nias Regency and another two bridges in South Nias Regency with designs similar to the bridges that were improved under this project. According to the Public Works Department of each regency, the departments intend to build bridges with a higher degree of earthquake resistance based on the Japanese design. They showed a strong desire to learn bridge design technologies continuously into the future.

In light of the above, although information regarding resettlement and land acquisition was not obtainable, in other aspects this project has largely achieved its objectives. Therefore, the effectiveness and impact of the project are high.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

Concerning the maintenance of the project bridges after construction, at the time of the project planning, it was planned that maintenance of the five bridges on a local road in Gunung Sitoli City except Nou A Bridge was to be implemented by the North Sumatra Provincial Road & Bridge Maintenance for Nias Branch, and maintenance of Nou A Bridge was to be implemented by the Nias Regency Housing and Infrastructure Department. As a result of the progress made in restructuring the ministries and agencies as part of the decentralization of Indonesia, the maintenance organizations have also been changed as shown in Table 6¹⁸. In 2012 during the period of project construction, provincial roads were promoted to national roads and the local road where Nou A Bridge passes was designated as a city road. Therefore, the five bridges except Nou A Bridge were placed under the jurisdiction of the national government from the jurisdiction of the North Sumatra Provincial Government. Apart from this, BRR, which was the reconstruction operating entity, was dismantled in 2009 and its personnel were moved to PPK Nias Branch. Accordingly, it was decided that maintenance of the five bridges, instead of the North Sumatra Provincial Road & Bridge Maintenance for Nias Branch, was to be carried out by PPK Nias Branch, which is a subordinate organization of BBPJN1, and P2JN; daily maintenance/simple repairs by PPK Nias Branch and periodic inspections/large-scale repairs¹⁹ by P2JN.

¹⁸Three administrative regions of West Nias Regency, North Nias Regency and Nias Regency were created in 2011 in Nias Regency in line with the population increase. Moreover, Nias Island is anticipated to be designated as a Province within one year from 2016 due to the population increase.

¹⁹PPK Nias Branch carries out site supervision at the time of large-scale repairs.

Table 6: Change of Maintenance Organization for Each Bridge
(At the time of the project planning and at the time of the ex-post evaluation)

| Name of bridge | At the time of the project planning | At the time of the ex-post evaluation | |
|--|--|---|---|
| Nou Bridge Gido Si'ite Bridge Idano Gawo Bridge Mezaya Bridge Sa'au Bridge | North Sumatra Provincial Road & Bridge Maintenance for Nias Branch | P2JN | Periodic inspections (twice a year), large-scale repairs, traffic surveys, design/planning, contract management ²⁰ |
| | | PPK Nias Branch | Daily maintenance/simple repairs, site supervision of large-scale renovations and new constructions |
| Nou A Bridge | Nias Regency Housing and Infrastructure Department | Public Works Department of Gunung Sitoli City | |

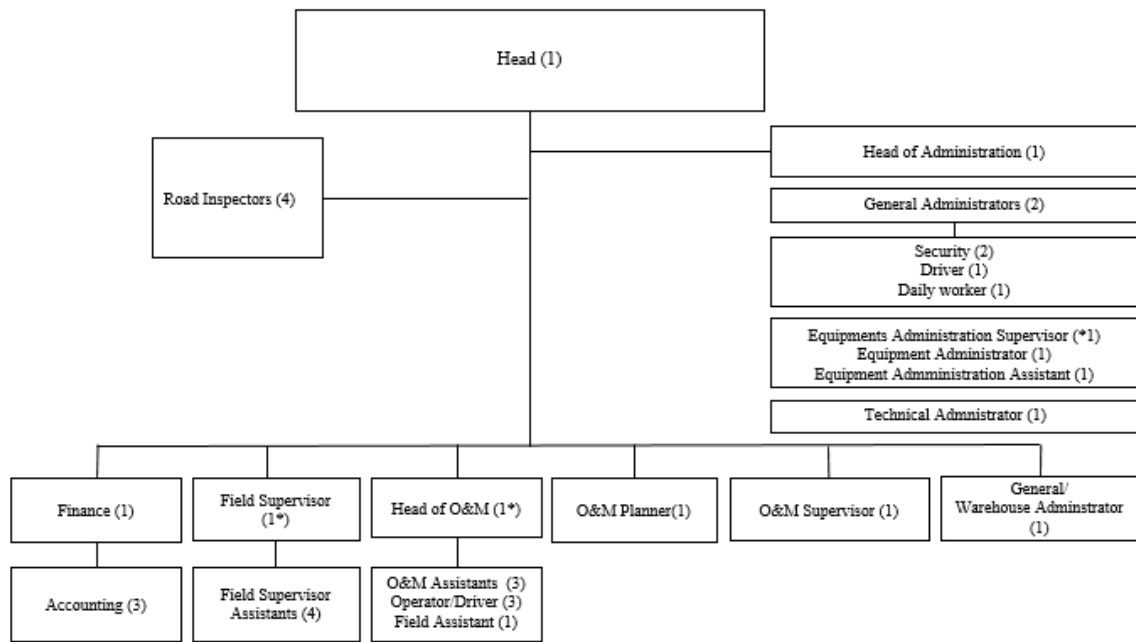
Source: Prepared by the evaluators

Concerning Nou A Bridge, Gunung Sitoli City took over the bridge from the Ministry of Public Works in an agreement concluded in December 2013. According to the Mayor of Gunung Sitoli City and the Ministry of Public Works, the Mayor has not yet filed an application with the Ministry of Finance pertaining to the transfer and the bridge has not been recognized as an asset of Gunung Sitoli City at the time of the ex-post evaluation. Gunung Sitoli City needs to start asset transfer procedures to the Ministry of Finance as soon as possible. According to the Mayor, the maintenance budget for Nou A Bridge has not been appropriated. However, the Mayor said that budgetary action would be taken as soon as the formal asset delivery is carried out so that cleaning and daily inspections would be ready to be carried out immediately.

After 2010, PPK Nias Branch carried out the cleaning, painting and other maintenance of the five bridges except Nou A Bridge with 36 people, four times a year. More than half of the personnel are engineers. These engineers are dispatched for on-site works and carry out cleaning and simple repair work. The number of personnel is appropriate and no major problems have been identified from an institutional aspect.

On the other hand, the Public Works Department of Gunung Sitoli City, the agency in charge of cleaning, painting and other maintenance of Nou A Bridge, has 9 civil engineers and 8 to 12 cleaning staff members. Information was not obtainable concerning the number of bridges subject to maintenance. According to the interview with the maintenance manager, however, the minimum required organizational system and personnel in each section are in place even if Nou A Bridge is added. Accordingly, no major problems have been identified from an institutional aspect other than the transfer of Nou A Bridge.

²⁰When building a new bridge or replacing a bridge, there are several bridge maintenance subcontractors in the island and full technical capabilities can be ensured.



Source: Materials provided by PPK Nias Branch
 *denotes one person concurrently serves on these positions.

Figure 4: Organizational Chart of PPK Nias Branch

3.5.2 Technical Aspects of Operation and Maintenance

At the time of the project planning, a contract was signed with the contractors in North Sumatra Province as well as Nias Regency and South Nias Regency, who carried out large-scale roads and bridge rehabilitation works. Because special technologies are not necessary for cleaning, painting and other daily maintenance of facilities that were built under this project, it was considered that there would be no technical problems using a traditional maintenance system. A well-coordinated system that includes the following aspects has been established: P2JN has inspection manuals according to the scale of the roads and bridges, and engineers implement periodic inspections every year using these manuals with inspection records being electronically documented. P2JN carries out the basic design of large-scale repairs or replacement works of bridges and formulates the budget necessary for such works, and then the works are implemented by work contractors. P2JN has much experience of bridge renovations and no major problems have been identified from a technical aspect. According to the interview with PPK Nias Branch, the branch carries out only cleaning, painting or site supervision of the renovation works. Repair works are entrusted to several local island companies. The section manager of PPK Nias Branch liaises and closely coordinates with P2JN regarding repair works and no major problems have been identified regarding the contract management and work management.

By contrast, the Public Works Department of Gunung Sitoli City is considered to have many issues with periodic inspections although no major problems have been identified regarding

bridge cleaning/painting or daily inspection. The city has been maintaining mainly wooden bridges and it is difficult to say that the city has enough knowledge and information about concrete bridges. An interview with the Public Works Department of Gunung Sitoli City has revealed that the department has no maintenance inspection manuals or hammers or other inspection equipment. It is important for the department to obtain the knowledge and techniques necessary for maintenance and to create a system.

In light of the above, problems remain regarding the maintenance of Nou A Bridge because the Public Works Department of Gunung Sitoli City does not have the appropriate technical capabilities as part of its operations.

3.5.3 Financial Aspects of Operation and Maintenance

A survey was conducted on the change of BBPJNI's budget and PPK's road maintenance budget from the financial aspects of operation and maintenance of this project (Table 7). At the time of the project planning, the estimated annual cost necessary for maintenance, including periodic inspections of the five project bridges was 75 million rupiah. The Nias Island maintenance budget of the Directorate General of Highways of the Ministry of Public Works fully satisfied this estimate at the time of the project planning. According to BBPJNI 1 and PPK Nias Branch, the annual budget for simple maintenance which was estimated at the time of the ex-post evaluation has been secured. They say that the maintenance budget is expected to increase as the construction of roads and bridges are predicted to increase in the future.

Table 7: Budget of BBPJNI (unit: 1 billion rupiah)

| Year | Budget of PPK Nias Branch (A) | Budget of BBPJNI (B) | Ratio of Nias Island maintenance cost to budget of BBPJNI (A/B) |
|------|-------------------------------|----------------------|---|
| 2010 | 183 | 18,341 | 1.00% |
| 2011 | 298 | 27,975 | 1.07% |
| 2012 | 403 | 40,339 | 1.00% |
| 2013 | 390 | 38,834 | 1.00% |
| 2014 | 403 | 42,754 | 0.94% |
| 2015 | 574 | N/A | N/A |

Source: BBPJNI

Note: Nias Island maintenance budget of the Directorate General of Highways under the Ministry of Public Works is included in BBPJNI.

On the other hand, the maintenance budget of the Public Works Department of Gunung Sitoli City which is to maintain Nou A Bridge is shown in Table 8. According to the Public Works Department, the amount to be appropriated for the maintenance budget of roads and bridges in the city fluctuates every year, but the amount necessary to carry out cleaning and simple repairs/daily inspections has been secured, and the budget is totally executed. Replacement of bridges is executed using the regular budget of the city. If the amount exceeds the budget, however, an application is filed with the national government. Applications are filed every year

and the total amount is almost always appropriated. According to the interview with the Public Works Department of Gunung Sitoli City where most of the bridges are wooden bridges, if large-scale renovation takes place for a concrete bridge like Nou A Bridge, the necessary amount would be appropriated from the national special budget. The maintenance cost is estimated at 12 million rupiah annually. According to the interview with the Mayor, the maintenance budget of Nou A Bridge has not been appropriated. However, the Mayor said that budgetary action would be taken as soon as the formal asset delivery is carried out.

In light of the above, no major problems have been identified from a financial aspect of the maintenance system.

Table 8: Maintenance Budget of Public Works Department of Gunung Sitoli City
(unit: 10,000 rupiah)

| Year | Public Works Department budget and execution amount | Road and bridge maintenance budget and execution amount | Ratio of maintenance budget accounting for the total budget (%) |
|------|---|---|---|
| 2011 | 68,124 | 33,079 | 49% |
| 2012 | 80,054 | 8,905 | 11% |
| 2013 | 95,889 | 11,748 | 12% |
| 2014 | 131,555 | 17,450 | 13% |
| 2015 | 142,992 | 31,390 | 22% |
| 2016 | 190,454 | 18,650 | 10% |

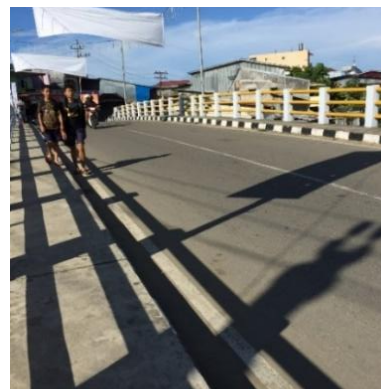
Source: Public Works Department of Gunung Sitoli City

3.5.4 Current Status of Operation and Maintenance

At the time of the ex-post evaluation, P2JN carried out periodic inspections of the five bridges every year. Although operation and maintenance records were not disclosed by PPK in the field survey, the engineers reportedly kept records of cleaning works on photos. Weeding around the drainage ports and trash cleanup, etc., were carried out four times a year for all bridges. For the periodic inspections implemented at the time of the ex-post evaluation, no problems were identified for any of the five bridges.



A PPK worker is carrying out weeding work at Sa'au Bridge (at the time of the ex-post evaluation)



Nou Bridge (at the time of the ex-post evaluation)

PPK Nias Branch carries out cleaning of the bridge surface/catch basin, cleaning the side ditches of the approach road, mowing the shoulder four times a year, and repainting of the guardrails and edge stones, and inspections for road surface cracks, deformation and destruction of the bridge structure, destruction of the slopes and loss of erosion protection structures, etc., are carried out twice a year. At the time of the ex-post evaluation, five bridges were found to be in good condition because not so much time had passed since completion of this project. However, the nameplates of Gido Si'ite Bridge and Mezaya Bridge showed external damage and the national flags were peeled off.

At the time of the ex-post evaluation survey, the Mayor of Gunung Sitoli City made remarks to the effect that daily inspections, cleaning, painting and other maintenance of Nou A Bridge will be implemented when the transfer procedures have been completed. The Ministry of Public Works also explained that the sharing of technical manuals will be promoted. In the near future, the institutional and technical aspects are expected to be improved.

In light of the above, some minor problems have been observed in terms of the institutional and technical aspects of the operation and maintenance system. Therefore, the sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented in Nias Island of the Republic of Indonesia to ensure safe and efficient traffic by reconstructing six bridges that were damaged by the earthquakes and were in a structurally dangerous condition, thereby contributing to improving accessibility to public services for residents and the reconstruction and revitalization of socio-economic activities. This project is highly relevant to the development policy of the country both at the time of the project planning and at the time of the ex-post evaluation, as well as Japan's ODA policy at the time of the project planning, and responds to Indonesia's development needs. Therefore, the relevance of this project is high. The effectiveness and impact of this project are high because the six bridges are fully used and safe and efficient traffic has been secured by implementing this project. The project cost of the Japanese side was within the planned amount, however the project period exceeded the planned time. Therefore, the efficiency of the project is fair. Five bridges on national roads are maintained under a stable personnel structure by PPK Nias Branch, which is the subordinate organization of BBPJN1, and P2JN. Although Nou A Bridge was transferred to Gunung Sitoli City, procedures for asset registration have not been done yet and the maintenance has not been implemented. Although no major problems have been found in the

technical and financial aspects for maintenance, improvement of the institutional aspect is indispensable. Therefore, the sustainability of the project is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

(1) Immediate action on asset transfer procedures

According to the interview survey to the Ministry of Public Works, cleaning and inspection have been implemented four times a year and twice a year respectively for the five bridges on roads which were promoted to national roads from provincial roads in 2012, and no problems have been observed in the sustainability of this project. As for the remaining Nou A Bridge, however, the Department of Public Works of Gunung Sitoli City has not been carrying out maintenance except for the installation of outdoor lights to reduce traffic accidents, although the bridge was delivered to Gunung Sitoli City from the national government in 2013. To secure sustainability of the project effects, regular maintenance work needs to be implemented by taking immediate budgetary measures for the maintenance of the said bridge.

Gunung Sitoli City needs to apply for asset registration of the bridge with the Ministry of Finance through the Mayor. The city is expected to initiate procedures during the present mayor's office term.

(2) Technical transfer on bridge maintenance from the Ministry of Public Works to the city

It has been stated above that it is vital for the Public Work Department of Gunung Sitoli City to improve their technical maintenance capabilities. The department does not have maintenance inspection manuals or inspection equipment such as hammers. Because the maintenance of Nou A Bridge can be carried with relative ease, deterioration or damage is less than it would be for a regular bridge. However, as stated above, a concrete bridge's maintenance and inspection cycles are largely different from those of a wooden bridge. The department can handle daily inspection and cleaning within the scope of everyday works, but it does not have enough knowledge or experience of periodic inspections. It must also improve its recordkeeping capabilities. On the other hand, P2JN, which implements similar maintenance of five bridges in Nias Island, has much experience and knowledge, such as bridge inspection manuals and inspection record formats, as well as an electronically-documented information management system. It is desirable that the Ministry of Public Works share these to improve the technical capabilities of bridge maintenance and carry out training. This would lead to extending the life of bridges involved in this project and ensure sustainability of the project effects.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Support concerning asset transfer accompanying decentralization

Amid the ongoing decentralization in the Republic of Indonesia, there are cases where public properties are transferred either from the nation to a province, from a province to a regency, or from a regency to a city. In this project, an agreement for transferring Nou A Bridge to Gunung Sitoli City from the Ministry of Public Works was signed. However, the city has either not fully recognized that fact, or has not understood the procedures necessary to register the bridge as an asset of the city. Therefore, Nou A Bridge is still not being maintained. Newly established regencies and cities through decentralization have only a short administrative history and do not have much knowledge and information about administrative procedures. Moreover, in Gunung Sitoli City of Nias Island and other cities far from the capital city, it is difficult to obtain information. Therefore, support from the Ministry of Public Works is necessary to process these transfer procedures smoothly.

In this way, in a country where decentralization is ongoing, the administrative bodies are restructured and applications for asset registration and other procedures are likely to become more complicated. To cope with such situations, it is essential to share information between the implementing agency and JICA from the stage of project planning, identify the administrative procedure concerned with any asset transfer which might be anticipated in the future, and incorporate the system for managing such procedures into the document, such as the Minutes of Discussion between the implementing agency and JICA. During implementation of the project, the implementing agency must not fail to work with any organization to which authority is transferred in accordance with the agreed plan with JICA even when decentralization is accelerated.

Furthermore, it is important that the implementing agency improves the system through which guidance and support can be provided regarding maintenance after completion of the asset transfer, and shares information with the organization which has taken over the asset. It is expected that JICA will consider a technical assistance project or provide other maintenance support, as necessary, so that maintenance can be implemented as planned even after the transfer.

End