The Republic of the Philippines

Ex-Post Evaluation of Japanese ODA Loan
Arterial Road Links Development Project (VI)

External Evaluator: Ryujiro Sasao, IC Net Limited

0. Summary

This project is aimed at making passenger and freight transportation in the Philippines-Japan Friendship Highway Visayas Section more efficient, less expensive, and more convenient and safe by improving the section, an arterial road leading to local economic bases for agriculture, fishery, manufacturing, commerce, tourism, and other industries.

The relevance of this project is high, as it is fully consistent with the Philippines' policy and development needs, as well as Japan's ODA policy. This project has produced effects as expected in the original plan, such as shorter transit times and increased traffic volumes. Economic, health and other impacts have also been confirmed in this evaluation study as, among others, farmers, fishermen, and other residents living along the road have seen their incomes increase and they have better access to large hospitals. However, the efficiency of this project is low, as it was completed with the project expenses slightly larger than planned after a project period that greatly exceeded the original plan. The overall sustainability of this project is fair, as maintenance for this project is performed at the minimum necessary level, even though this is not necessarily ideal in terms of the institutional, technical, and financial aspects.

In light of the above, this project is evaluated to be (C), partially satisfactory.

1. Project Description

Project Site

Project Road in Calbiga

1.1 Background

In the Philippines, road transport is the major means of transportation, accounting for 90 percent of the passenger transport and 50 percent of the freight transport (at the time of the project appraisal in 2002). Up to the early 1980s, the country had invested heavily in the construction of national arterial and secondary roads, arteries of its road network. However, it could not afford to regard the functionality and quality of these roads as more than a problem of secondary importance. As of 2000, only 70 percent of its national arterial roads and 51 percent of the national secondary roads were paved, with merely 21 percent of the pavement ratio of the entire road network. Thus, these roads failed to work effectively as traffic arteries. In addition, damage from natural disasters, and lack of alternative routes often impaired traffic efficiency.

The road for which this project was carried out (hereinafter the "project road") is a part of the Philippines-Japan Friendship Highway, an arterial road completed in 1979 (total length of 2,100 km). One of the longest highways in the country, it runs through the three regions of Luzon (northern part of the Philippines), Visayas (central part), and Mindanao (southern part), and it has played a critical role in their economy and society. However, in the many years since its completion, the highway has been suffering rapid deterioration due to growing traffic volumes and natural disasters. In order to recover the functionality of the Friendship Highway, the main artery for physical distribution in the country, and to ensure safety, large-scale strengthening and upgrading have been required. The project road is a part of the Friendship Highway that goes through the Visayas region.

1.2 Project Outline

The objective of this project is to make passenger and freight transportation in the Philippines-Japan Friendship Highway Visayas Section[1] more efficient, less expensive, and more convenient and safe by improving the section, an arterial road[2] leading to local economic bases for agriculture, fishery, manufacturing, commerce, tourism, and other industries, thereby contributing to the development of the local economy.

Loan Approved Amount/ Disbursed Amount	6,723 million yen/6,624 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	March, 2002/March, 2002
Terms and Conditions	(Civil Work) Interest Rate: 2.2% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General Untied (Consulting Service) Interest Rate: 0.75% Repayment Period: 40 years (Grace Period: 10 years) Conditions for Procurement: Bilateral tied
Borrower/Executing Agency	Government of the Republic of the Philippines/ Department of Public Works and Highways (DPWH)
Final Disbursement Date	September, 2009
Main Contractors	Sumitomo Mitsui Construction, China Road and Bridge Corporation (People's Republic of China), and E.C. de Luna Construction Corp. (the Philippines)
Main Consultant	1. For construction work for the Philippines-Japan Friendship Highway Visayas Section: Katahira & Engineers International (Japan), Proconsult, Inc. (the Philippines), Development Engineering and Management Corp., Techphil Inc. (the Philippines), Engineering and Development Corp. of the Philippines (EDCOP) (the Philippines), Multi-Infra Konsult, Inc. (the Philippines), and Filipinas Dravo Corporation (the Philippines)(JV);

[1] This project includes some work for the "Cebu North Coastal Road," but this is just research for the road. No construction work for this road is included.

[2] The section for which this project was carried out is composed of two sub-sections in the Visayas region, "Allen - Calbayog - Calbiga, Samar Island" (190 km) and "Agas-Agas Bridge, Leyte Island" (about 1.5 km which includes a bridge part of about 350 meters).

	2. Cebu North Coastal Road (detailed design, etc.) Pacific Consultants International (Japan), Philipp's Technical Consultants Corp (the Philippines), and Cebu Engineering and Development Corporation. Inc. (the Philippines) (JV);
Related studies (Feasibility studies (F/S), etc.)	In 1985, JICA performed a feasibility study for the Philippines-Japan Friendship Highway Visayas Section; In 2000, DPWH prepared an implementation program for the Philippines-Japan Friendship Highway Visayas Section; and In 2000, DPWH performed a feasibility study for the Cebu North Coastal Road;
Related Project	Arterial Road Links Development Project (I) - (V)

2. Outline of the Evaluation Study

2.1 External Evaluator

Ryujiro Sasao, IC Net Limited

2.2 Duration of Evaluation Study

The following are the duration of this ex-post evaluation study and that of the field study for it.

Duration of the Study: November 2011 - September 2012 (from the month of the contract coming into effect to the month of the deliverables being submitted)

Duration of the Field Study: February 4 - March 3, 2012; and April 22 - May 7, 2012;

2.3 Constraints during the Evaluation Study

There was no specific constraint.

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

3.1 Relevance (Rating: 3)

3.1.1 Relevance with the Development Plan of the Philippines

The Medium-Term Development Plan 2001 - 2004, formed under the Arroyo administration and effective at the time of project appraisal, stated the "delivery of safe and reliable transportation services for supporting the social and economic development of the Philippines" as one of the development objectives in the transportation sector. Specifically, the plan set the target of the percentage of paved roads to be achieved by 2004 through appropriate construction and maintenance. It said that 90 percent of the entire national arterial roads should be paved (70 percent paved as of 2000), and that 65 percent of the national secondary roads should also be paved (51 percent paved as of 2000). As a priority task to achieve the target, the plan pointed out the development of higher-standard arterial roads to link local cities, that are regional economic centers, and neighboring areas. The project road is a main highway in Eastern Visayas.

The Philippine Development Plan 2011 - 2016, effective at the time of this ex-post evaluation study, has a section on the "Strategic Plan and Focus" in "Chapter 5 Accelerating Infrastructure Development," and in this it refers to "Develop strategic transport infrastructure and maintain/manage transport infrastructure assets." It states that while transport connectivity is of utmost importance, the upgrading of the quality and capacity of existing transport infrastructure will be prioritized before expanding the coverage of the networks. The strategy covers roads, as well as seaports, airports, and railways. In terms of the maintenance of roads, the plan specifically mentions a policy of additional funding for maintenance.

The Eastern Visayas Regional Development Plan (2011 - 2016) also emphasizes the importance of the development of roads for promoting the distribution of agricultural produce and other goods.

In light of the above, this project was relevant to the development policy of the Philippines for the road sector from the time of the project appraisal through to the time of ex-post evaluation study.

3.1.2 Relevance with the Development Needs of the Philippines

At the time of the project appraisal, the project road had related development needs for each of its sections as described below.

(1) Philippines-Japan Friendship Highway Visayas Section

① Allen - Calbayog - Calbiga, Samar Island

The main industries of Samar Island are agriculture and fishery. The island lagged behind in economic and social development[3], partly because it is located in the path of typhoons. After the completion of the Philippines-Japan Friendship Highway in 1979, only parts of the sub-section were repaired. The road was severely damaged, with cracks opening in the pavement, parts of the asphalt coming off, and depressions found in its surface level. Urgent restoration was needed.

② Agas-Agas Bridge, Leyte Island (Tacloban - Liloan)

The Agas-Agas sub-section is in the province of Southern Leyte, in the southern part of Leyte Island. The sub-section located between Tacloban and Liloan in the Philippines-Japan Friendship Highway Visayas Section, had been closed since mid-2001 due to a landslide caused by a typhoon. As vehicles going between the two cities had no choice but to take a long way around, going along the coast in the southwestern part of the island, urgent restoration was needed.

(2) Cebu North Coastal Road, Cebu Island

Metro Cebu, an area that extends around Cebu City, had only one arterial road going through it, linking the northern and southern parts of Cebu Island, and suffered chronic heavy traffic congestion.[4] The Cebu North Coastal Road, for which this sub-project was carried out, extends from Mandaue, a city next to Cebu City in the north, to Liloan, a town located further north. It was expected to work as a bypass for the existing arterial road, helping alleviate its congestion.

As seen in data provided later in "3.2 Effectiveness," traffic increased after the implementation of this project. A source of transportation demand in the region is the number of cars registered there. As shown in the table below, a constantly increasing number of cars were registered in Eastern Visayas (Region III). Between 2005 and 2009, the total number of registered cars grew 4.7 percent year by year on average.

[3] The average annual GDP growth of the Philippines as a whole between 1995 and 2000 was 12.0 percent, while Region 8 (Eastern Visayas), which includes Samar Island, saw its economy grew merely 3.7 percent during the same period. (The project appraisal was conducted in November 2001.)

[4] According to interviews with members of a DPWH's District Office, before this project it took around 45 minutes to go through an about 13-km part of the existing arterial road due to traffic jams. After the construction of the bypass (Note: Only a bridge has been completed, and construction of the road has not been finished.), some of the traffic is diverted, and cars can pass through the section in a shorter time, some 15 minutes.

Table 1: Number of cars registered in Eastern Visayas

Year	Private sector	Government	Others (for hire & diplomat cars)	Total
2005	88,355	2,182	15,337	105,874
2006	93,952	2,053	14,891	110,896
2007	102,851	2,066	15,029	119,946
2008	107,221	1,999	14,788	124,008
2009	109,970	2,189	15,195	127,354

Source: LTO (Land Transport Office), Region III
Note: The entire road project was completed in 2010.

In addition to the direct development needs mentioned in documents filed for the project appraisal, transportation demand was confirmed in the region along the project road after the appraisal, as demonstrated above. Therefore, a need for this project was evident.

3.1.3 Relevance with Japan's ODA Policy

According to documents filed for the project appraisal, JICA had a policy of supporting the Philippines in developing its economic infrastructure especially in the transportation sector to relieve bottlenecks in its economic growth for the purpose of securing sustainable development of the Philippines. In terms of the development of arterial road networks, JICA had been engaged in the construction of north-south arterial road networks, including projects related to the Philippines-Japan Friendship Highway, focusing on the structure of its land, extending from the north to the south. JICA also formed a policy of helping the country develop in a well-balanced way by constructing arterial roads going through the country from east to west in addition to those running north to south, as well as ring roads linking islands.

Based on the development themes of the Philippines and the policy of the Japanese government on aid for the country, JICA formed the "Policy for Overseas Economic Cooperation Operation" in December 1999, selecting the four issues below as priority areas for its aid to the Philippines: (1) Strengthening economic fundamentals for sustainable growth, and overcoming constraints on growth (operating the macro economy appropriately, strengthening the industrial structure, and developing the economic infrastructure); (2) Alleviating poverty, and narrowing the gaps between regions; (3) Working on environmental preservation, including disaster prevention, and measures to mitigate damage due to natural disasters; and (4) Developing human resources and institutions. This project was carried out for "developing the economic infrastructure" mentioned above in (1). The improved road, when used in an effective manner, is expected to contribute to economic growth in the Philippines. Therefore, the project is relevant to Japan's ODA Policy.

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

3.2 Effectiveness (Rating: 3)

3.2.1 Quantitative Effects (Operation and Effect Indicators)

The targets set at the time of the project appraisal and the actual results are shown below. As the construction work was completed two years behind the plan schedule, the results should not be evaluated against the figures as of 2009 (2nd year after the completion), for which original targets were set. However, with traffic volumes on the project road in 2010, after the completion of the

construction work, larger than the targets set at the time of project appraisal even before the second year after the completion, the targets were substantially achieved.

Table 2: Operation indicators for the project

Indicator	Road	Baseline[*1]	Target[*1]	Results[*2]	Remarks (when completed, etc.)
		2001	2nd year after completion (2009)	2010	
Traffic (cars/day)	1) Allen (north end of the project road) - Calbayog	1,088	1,570	3,721	Allen - Malaga (September 2010) Malaga - Calbayog (November 2010)
	2) Calbayog - Gatanguit (middle section of the project road)	932	1,342	2,372	Section to the left completed in November 2009
	3) Gatanguit - Calbiga (south end of the project road)	932	1,394	2,372	Section to the left completed in December 2009
	4) Agas-Agas Bridge	953	1,386	Unavailable	Section to the left completed in August 2009

*1. Source: Ex-ante evaluation table

*2. Source: DPWH

Table 3: Effect indicators for the project

Indicator	Road	Results[*1]	Targets[*1]	Results
		Present state (2001)	2nd year after completion (2009)	2010
Reduction in vehicle operation cost (million peso/year)	1) Allen - Calbayog	–	164.90	771*[2] (Total of 3 sections left)
	2) Calbayog - Gatanguit	–	125.63	
	3) Gatanguit - Calbiga	–	153.03	
	4) Agas-Agas Bridge	–	66.94	Unable to estimate
Reduction in driving time (minutes)	1) Allen - Calbayog	96	62	60*[3]
	2) Calbayog - Gatanguit	70	45	Unavailable
	3) Gatanguit - Calbiga	86	56	Unavailable
	4) Agas-Agas Bridge	99	29	Unavailable

*1. Source: Ex-ante evaluation table

*2 Estimated by a consultant based on data provided by the DPWH. However, the figure should be treated as reference information as details of the calculation method adopted at the time of the project appraisal cannot be confirmed, and a direct comparison between the estimate and the actual results is impossible.

*3 Not an actual measurement, but an estimate based on the opinions of (interviews with) the stakeholders.

The table above shows some figures that suggest effects produced by the project[5], although only insufficient data are available in terms of actual results in the effect indicators.

3.2.2 Qualitative Effects

A questionnaire survey was conducted with respondents[6] selected randomly as samples among the beneficiaries (residents) living along the project road at the sub-section of "Allen - Calbayog - Calbiga, Samar Island" of the Philippines-Japan Friendship Highway Visayas Section. According to the findings of the survey, this project produced results almost as originally expected; it reduced the time and cost needed to go through the sub-section, promoted the transportation of goods, and offered better access to facilities. Specifically, 81.5 percent of the respondents said it took a shorter time to go through this road section. (77.1 percent of them said that while it had taken one hour to go through a part of the sub-section, now they could go more than 20 minutes faster.) A significant number of respondents pointed out effects to reduce maintenance and fuel costs for their cars. Almost 90 percent of them recognized this project had helped increase the amount of agricultural produce shipped. Many respondents pointed out better access to markets and stores as effects of the project, and some of them also mentioned easier access to schools for children and hospitals. (Details of the survey findings can be found in Appendix 1.)

In addition, the External Evaluator interviewed five respondents living along the project road at the subsection of "Agas-Agas Bridge, Leyte Island." In the interviews, achievement of the effects originally expected - shorter time needed to go through the sub-section, promotion of the transportation of goods, and better access to facilities - was confirmed.

3.3 Impact

3.3.1 Intended Impacts

(1) Philippines-Japan Friendship Highway Visayas Section

The agriculture and fishing industry is expected to benefit clearly from the development of the roads.[7] The amount of rice and corn produced in Samar, the province which the project road goes through, is increasing year by year. (See Appendix 3.) However, given that the entire project road was completed only in 2010 (partially finished in 2009), it cannot be concluded that the good harvest in 2010 in Samar was delivered due to this project.

Findings of the beneficiaries survey (questionnaires survey of local residents) and interviews with the stakeholders are summarized below.

① Findings of the beneficiaries survey

As described above, a beneficiaries survey was conducted among 168 respondents selected from residents living along the Philippines-Japan Friendship Highway Visayas Section, and below are the results of their evaluation of the impacts delivered by the project. (Details of the survey findings can be found in Appendix 1.)

Economic impacts have been achieved for residents living along the road, as originally expected. Growth in income is observed, and it is delivered mainly by the shorter time needed to go through the section, and reduced driving costs. As the survey was conducted among people living along the road, increased sales of stores there are also counted as benefits of the project. The

[5] For reference: According to interviews with stakeholders, this project has succeeded in reducing the average time needed to go through the 250-km section between Allen and Tacloban, 190 km of which was upgraded in this project, from eight hours to six hours.

[6] A total of 168 respondents.

[7] In addition to the agriculture and fishing industry, "manufacturing, commerce, tourism and other industries" were mentioned as objectives for this project. However, data for industries other than agriculture and fishery were unavailable.

External Evaluator visited a local police station to obtain statistics on traffic accidents, but no data were available. However, more than 70 percent of the residents pointed out an increase in accidents, and many were concerned about this. Asked about environmental issues, a rather large number of respondents chose an option better then "neutral" for most of the issues, suggesting there are no specific environmental problems. For a general evaluation of the benefits of the project,[8] more than 70 percent of the respondents chose "Excellent," or "Good," which is quite a positive evaluation.

Most of the respondents of the beneficiaries survey were chosen from people living along the road. An additional interview survey was conducted with interviewees selected only from farming and fishing households living along the project road (20 interviewees from each household group). In both of the groups, all the 20 interviewees said their annual income increased after the project. The growth in income came mainly from higher prices for agricultural or marine products that they sold to dealers. The selling prices became higher because better road conditions allowed dealers to bring agricultural and marine products to large cities far from where they were produced or caught, and sell them at a higher price, which in turn enabled them to offer a higher buying price to farmers and fishermen. This additional survey was conducted with a small number of samples, and answers obtained in the survey should not be generalized. However, if they actually reflect typical benefits farmers and fishermen living along the road received, it can be assumed that the project generated a great amount of benefits all around the area along the road. (Details of the survey findings can be found in Appendix 4.)

② Findings of interviews with other stakeholders

Interviews with parties related to local governments, transportation companies, businesses located along the road, the Department of Health, hospitals, and other institutions suggest that this project is beneficial to local communities. Among the aspects pointed out as specific benefits the project had produced are the active distribution of agricultural produce, an increase in the number of customers for transportation companies, and a larger number of people who were taken to large hospitals among the residents (patients) living along the load. (Details of the interviews can be found in Appendix 2.)

(2) Agas-Agas Bridge

Interviews with members of the local governments and local residents have revealed that they rate the project highly not only because the project has shortened the time needed to go through the sub-section and reduced driving costs, but also because landslides by rain no longer occur along the bridge section. It should be concluded that the project has had a substantial positive impact. No specific negative impacts on the number of traffic accidents or environmental issues have been observed. (Details of the interview survey can be found in Appendix 5.)

This project road (the section of Allen - Calbayog - Calbiga and the Agas-Agas Bridge) is part of what is called the Pan-Philippine Highway. This 2500-km highway is a transport artery of the Philippines, which starts from Northern Luzon, going through Manila, and leading to Davao. This project has not only made traffic in Eastern Visayas smoother, but also shortened the time needed to go through the sections before and after passing through the region, promoting the long-distance transportation of people and goods. Specifically, after the project more people go by bus from Tacloban to Manila (changing to a Roro boat[9] on the way). As shown in Appendix 2, the numbers of bus companies and buses in service have clearly increased.

[8] On a scale of five, Excellent, Good, Neutral, Slightly negative, and Very negative.

[9] A Roro (roll on roll off) ferry is designed to allow cars to go into and out of it by themselves, and carries passengers as well.

Changes in the traffic measured in vehicle-kilometers[10] on a 380-km section of the Pan-Philippine Highway between Northern Samar and Southern Leyte, which includes this project road, show that traffic volume grew between 2006, before the project, and 2010, after the project, at an annual rate of 8.6 percent on average. It is well known that traffic is closely correlated with economic indicators, such as GDP. In this regard, the growth in traffic implies that the development of the Pan-Philippine Highway, the contribution of this project, has stimulated economic activity in regions along the highway.

3.3.2 Other Impacts

(1) Impacts on the natural environment

For the Cebu North Coastal Road, a study was conducted to choose a route. Environmental impact study was conducted for the finally selected route in May 2004 and an Environmental Compliance Certificate (ECC) was issued in November 2004.

With regard to impacts on the environment during the engineering (construction) period, the executing agency says all conducted measures corresponded with the descriptions in the ECC.

As seen in the findings of the beneficiaries survey mentioned above, no specific negative impacts on the natural environment occurred. The External Evaluator personally visited a point of the site survey to examine its actual state, and found the natural environment there was generally maintained in good conditions in terms of air, water quality, noise, vibration, and other aspects.

(2) Land Acquisition and Resettlement

The table below outlines cases of land acquisition and resettlement for this project. Consequently, work for land acquisition started later than originally planned and took longer. However, delays in land acquisition had only a limited impact on the construction work itself, as it also got started largely behind schedule due to a substantial delay in the preceding processes. As is also seen in the table, the compensation policy for land acquisition and resettlement was well designed and in accordance with the Philippines' legal system. It is estimated that explanation to residents and procedure were implemented appropriately[11]. No serious problems occurred during or after the resettlement. Therefore, it should be concluded that, except for some delay in work, land acquisition was generally carried out in an appropriate manner.

[10] The number of vehicles multiplied by the distance (km). Here passenger car units (PCU), which translates the number of vehicles in different categories into that of passenger cars, is used to measure traffic volumes.

[11] There are records of related activities in "Implementation of the Resettlement Action Plan Final Report".

Table 4: Outline of land acquisition and resettlement

Issue	Plan (Resettlement Action Plan, February, 2002)	Results (Implementation of the Resettlement Action Plan Final Report)	Difference analysis
No. of households affected	5,336	2,831 (This is the total of affected houses. 1,829 out of these are for pure residence and others are for commercial use and other purposes.)	Among four contract packages for the project road, CP1 and 2*, two packages carried out directly under the control of the Philippine government, focused on construction of the main part of the road to save construction costs, and work for the shoulders and gutters was limited to the minimum level, with fewer households affected by the construction work in consequence. The left figure of affected houses includes relocation within the relocatees' land and relocation to other places. Cases of relocation to other places are 246 out of the total relocation. (Source: "Implementation of the Resettlement Action Plan Final Report")
Compensation policy	According to documents filed for the project appraisal, applicable Philippine laws, the Republic Act (RA) 8974 and RA 7297, had no detailed rules at that time, and a compensation policy was prepared for this project.	After the policy mentioned to the left came into effect, the DPWH introduced detailed rules as Implementation Rules and Regulations (IRR) attached to RA8974.	The left compensation policy includes both resettlement and land acquisition. The compensation policy*[1] set out at the time of the project appraisal complies with the IRR mentioned to the left. * It has detailed rules on the amount of compensation to be paid for sites acquired by type of land. For instance, for a permanent structure the owner receives 6,000 pesos per square meter, while for a temporary structure 2,000 pesos is paid per square meter.

Total compensation	327,205,862.28 pesos	106,273,594.92 pesos	The left compensation amount includes both resettlement and land acquisition. As stated above, with fewer households affected, total compensation was less than planned. Payment is underway, but only a portion of the eligible residents have filed the required documents, with no more than 42 million pesos paid out so far.
Period of Land acquisition*[2]	February 2002 - December 2003 (23 months)	July 2003 - August 2007 (50 months)	Land acquisition took longer than planned because: • A consultant was chosen behind schedule, which delayed the start of the land acquisition work; • Delay in the payment of compensation due to financial difficulties of the government led to a delay in land acquisition at the early stage; and • It often took a long time to identify the landowner.

* Note

1. CP is the abbreviation for contract package, referring to a construction section. This project was divided into five CPs: CP1: Allen - Malaga; CP2: Malaga - Calbayog; CP3: Calbayog - Gatanguit; CP4: Gatanguit - Calbiga; and CP5: Agas-Agas Bridge.
2. Detailed information on resettlement was not obtained.

(3) Other impacts

As described above, this project had impacts on many aspects, including the economy, health, and mitigation of damage from bad weather.

However, although no statistical data are available, a questionnaire survey and interviews suggest that many residents are concerned about the increasing number of traffic accidents. Not a few of them insist that some measures should be taken, such as the installation of more traffic signs along the road.

In light of the above, this project has largely achieved its objectives. Therefore, its effectiveness is high.

3.4 Efficiency (Rating: 1)

3.4.1 Project Outputs

(1) Civil work: Philippines-Japan Friendship Highway Visayas Section

① Allen - Calbayog - Calbiga (about 190 km)

(a) Repair of the pavement: Almost as planned;

(b) Construction of the shoulders: Work for CP 3, 4 and 5 was completed as planned, but work for CP 1 and 2 was limited to the minimum necessary level due to the lack of funds;

(c) Bridge: “Repair of 28 bridges and the rebuilding of five” was planned, and “Repair of 23 bridges and the rebuilding of two” was completed.

② Construction of the Agas-Agas Bridge section (about 1,500 m, of which the bridge span is 350 m): As planned

Construction of the road was completed almost as planned, except for the shoulders, with no major change made to the scope of the project. Some minor changes were made in the specifications based on items identified in the course of formulating a detailed plan.

However, construction work originally planned for the bridges in PC 1 (Allen - Malaga) and PC 2 (Malaga - Calbayog) was canceled due to the lack of funds of the Philippine government.[12]

As described above, almost all of the project objectives have been achieved. It should be concluded that changes in the scope of the project had only a slight impact on the objectives of the entire project.

(2) Consulting services

① Philippines-Japan Friendship Highway Visayas Section

The planned tasks were as below:

(a) Revision of the detailed design (Calbayog - Calbiga);
(b) Support for procurement;
(c) Supervision of the work;
(d) Support for the implementation of action plans for land acquisition and resettlement;
(e) Monitoring of the implementation of considerations for the environment and the terms and conditions attached to the ECC;
(f) Provision of necessary support for the DPWH; and
(g) Training of staff members of the DPWH;

The tasks above were carried out as planned.

② Cebu North Coastal Road

The planned tasks were as below:

(a) Support for implementation of a study for route selection;
(b) Support for implementation of an environmental impact assessment (EIA); and
(c) Detailed planning (including support for the preparation of action plans for land acquisition and resettlement).

The above tasks were carried out as planned.[13] The executing agency says constructors and consultants generally performed well. Reviewing records of the project (JICA's internal documents), the External Evaluator has concluded that the Pre Qualification (P/Q) was conducted in an appropriate manner according to evaluation criteria established in advance.

[12] At that time, the bridges, though still old and decrepit, were considered to remain passable. In the sub-section of "Allen - Malaga," the bridges are being repaired or rebuilt. In the other sub-sections of this project road, repair and rebuilding work has been completed.

[13] Products of the consulting services for the Cebu North Coastal Road were effectively used in implementing this project. Based on the detailed design (D/D), the government of the Philippines carried out the construction work. However, the Philippine government was short of funds, and completed none of the planned scope of the project except for the bridges. With regard to road, only the existing routes are now under construction to expand their width.

3.4.2 Project Inputs

3.4.2.1 Project Cost

The original plan estimated that the project cost would be 8,964 million yen in total, 4,894 million yen in foreign currency and 1,770 million pesos in the domestic currency (4,070 million yen[14]). It assumed 6,723 million yen would come as a yen loan, and that the remaining 2,241 million yen would be financed by the Philippine government.

Actually, the project was completed with a project cost of 10,452 million yen in total, 3,538 million yen in foreign currency and 3,578 million pesos (6,914 million yen[15]). Of the amount, 6,624 million yen came as a yen loan, and the remaining 3,828 million yen was financed by the Philippine government.

On a yen basis, the actual project cost was slightly higher than planned, 116.6 percent of the original plan.

Table 5: Comparison between the planned and actual project costs

(Unit: Million Yen)

Items	Original plan (project appraisal)			Results		
	Foreign currency	Local currency	Total	Foreign currency	Local currency	Total
Civil work*	4,173	2,267	6,440	3,115	6,099	9,214
Contingency	209	113	322	423	436	859
Consulting services	512	629	1,141	0	299	299
Land acquisition expenses	0	262	262	0	80	80
Administration cost	0	225	225	0	299	299
Tax	0	574	574			
Total	4,894	4,070	8,964	3,538	6,914	10,452

Note: The exchange rate at the time of the project appraisal (August 2001) was 1 peso = ¥2.3, while the actual rate (weighted average) was 1 peso = 1.9323.

* The actual cost of the civil work includes taxes.

Although some of the project scope were canceled, the project cost exceeded the budget mainly due to increased civil work. civil work cost 40 percent, 1254 million pesos, more than the budget, given that taxes were almost the same as the original plan. Specifically, civil work expenses increased mainly because:

- Calbayog - Gatanguit: Fine cracks recognized at the time of the project appraisal widened over time, and larger-scale work was required (up 386 million pesos);
- Gatanguit - Calbiga: Same as the section above: (up 225 million pesos);
- Agas-Agas Bridge: In the detailed design, the need to reinforce its strength was recognized, and a stronger structure was adopted for its piers. To meet requests from the local municipalities, toilets and parking lots were built around the bridge, and street lamps were installed along it (up 155 million pesos);
- Restoration work was added at some points due to typhoons and landslides that occurred after the project review (up 136 million pesos);

A significant part of the increased cost seems to have been inevitable as it was needed to repair cracks widening over the time after the project appraisal and damage to the road caused by typhoons and landslides.

[14] Exchange rate: 1 peso = ¥2.3 (August 2001)
[15] Exchange rate: 1 peso = ¥1.9323 (weighted average)

As stated above in the section on outputs, part of the project scope was canceled. Even compared with a budget revised to reflect the change, the actual project cost was slightly higher at 121.5 percent of the revised budget.

3.4.2.2 Project Period

This project was designed to be completed in five years and two months, from the conclusion of the loan agreement (L/A) due in March 2002 to the completion of civil work due in April 2007.[16] The loan agreement was actually concluded in March 2002 as planned. However, civil work was completed in November 2010. The project period, estimated to be 62 months in the original plan, actually lasted for 105 months, or 169.4 percent of the plan, significantly longer than planned.

The project was delayed mainly due to the factors below:

- Delay in the start of the activity of the consultant due to financial difficulties of the Philippine government (delay of about one year);
- Delay in the choice of constructors (delay of 19 months). This was caused by (1) that it took longer to confirm the qualifications of the applicants for the bidding for CP5 (Agas-Agas Bridge), (2) that at first no applicants had previously participated in work for building a bridge high enough to satisfy the standards set for this project, and that the standards needed to be relaxed as a result, and (3) that it took time to obtain ICC-CC's approval for a change in the scope[17] and project costs for CP 3, 4 and 5; and
- Delays in the start of the construction work for CP1 and 2 due to financial difficulties of the Philippine government (delay of about two years and a half).

3.4.2.3 Consulting services

The plan and actual results of the man-months for consulting services are as follows.

(1) Philippines-Japan Friendship Highway Visayas Section

With a trimmed project scope and other factors, the section was completed with fewer man-moths than originally planned.

Table 6: Man-months for consulting services
(Philippines-Japan Friendship Highway Visayas Section)

Category	Plan	Result
1. Foreign engineers	122	100
2. Philippine engineers	625	588
3. Assistants	738	664

(2) Cebu North Coastal Road

The section was completed with the man-months almost as planned, as detailed below.

[16] In general, the project period starts on the day a loan agreement is concluded. However, the appraisal document did not refer to the date of the loan agreement in their descriptions about the project period. Nevertheless, regarding the first activity for this program, the "choice of a consultant," as the start of the project period would deny this project consistency with others. Therefore, this project should also be dealt with as having started on the date of the conclusion of the loan agreement, just as in normal cases.

[17] Investment Coordination Committee, Cabinet Committee. The committee, chaired by the Minister of Finance, is composed of several cabinet ministers and holds meetings to give approval to any project with a budget of 500 million pesos or more.

Table 7: Man-months for consulting services
(Cebu North Coastal Road)

Category	Plan	Result
1. Support for the implementation of a study for the route selection and an environmental impact assessment (EIA)		
A. Foreign engineers	24	22
B. Philippine senior staff	86	85
2. Detailed design (including support for the implementation of action plans for land acquisition and resettlement)		
A. Foreign engineers	23	21
B. Philippine senior staff	61	59
C. Technical support staff (for A & B)	228	211

3.4.3 Economic internal rate of return

The table below shows the original estimation of the economic internal rate of return (EIRR) and the EIRR recalculated based on data and information received.

Table 8: Calculation of the EIRR of the project for Allen - Calbiga[18]

	Estimation at a project appraisal	Recalculation at the ex-post evaluation
EIRR	24.5%	19.8%
Project life	20 years	20 years
Cost	Construction and maintenance costs	Construction and maintenance costs
Benefit	Lower vehicle operation and maintenance costs, as well as shorter traveling time delivered by the road constructed	Lower vehicle operation and maintenance costs, as well as shorter traveling time delivered by the road constructed

Although traffic on the project road grew faster than expected, the actual EIRR was slightly less than originally estimated, as the construction costs were much higher than originally planned.

As described above, the project costs slightly exceeded the plan, and the project period significantly exceeded the plan. Therefore the efficiency of the project is low.

3.5 Sustainability (Rating: 2)

3.5.1 Structural Aspects of Operation and Maintenance

As originally planned, maintenance after completion of the project is under the charge of a Regional Office of the DPWH, and is carried out by three District Offices under the supervision of the Regional Office. The three District Offices are responsible for the sections below:

(1) Allen - Calbayog: 1st Samar District Office;
(2) Calbayog - Gatanguit: 2nd Samar District Office;
(3) Gatanguit - Calbiga: 2nd Samar District Office;
(4) Agas-Agas Bridge: Southern Leyte District Office;

Below are the descriptions of the District Offices.

[18] EIRR of the Agas-Agas Bridge section could not be recalculated since the necessary information, such as traffic data, was unavailable.

① 1st Samar District Office

The Office has 32 full-time employees, among which four workers for the Maintenance Department. They have ten years or more of work experience, and expertise (diplomas) and the qualification needed for their job. The annual turnover among the employees is 10 percent or less. They said that the number of employees working for the office is not necessarily sufficient for maintenance. However, it satisfies the national standard (one worker per 3.5 km)

② 2nd Samar District Office

The Office has 60 full-time employees, among which 19 workers for the Maintenance Department. The annual turnover among its employees is five percent or less, which helps keep the organization stable. Its employees have qualifications or an academic background that is sufficient for their job. They say the number of staff is sufficient for ordinary times, but that more are needed in the event of an emergency.

③ Southern Leyte District Office

The Office has 66 full-time employees, among which 24 workers for the Maintenance Department, with a clear division of duties. The annual turnover among its employees is virtually nil, which helps keep the organization stable. Its employees have qualifications or an academic background that is sufficient for their job. The current number of employees is not sufficient for the entire range of maintenance required for the roads according to the interview, although it satisfies the national standards. (The Office has a plan to increase its staff.)

As stated above, the District Offices are stable organizations, but seem to be slightly short of manpower.

3.5.2 Technical Aspects of Operation and Maintenance

Regular maintenance of the roads is carried out according to the manuals[19] in the manner as shown below (in almost the same way among the Offices). When necessary, emergency repair work is also carried out.

Table 9: Regular maintenance work

Activity	Frequency
Work to fill in holes in the roads (asphalt or concrete surface)	Monthly
Vegetation management	Daily (regularly)
Cleaning of gutters	Daily (regularly)
Management of road signs	Daily (regularly)
Maintenance of bridges	Quarterly

Below are additional descriptions of the District Offices.

(1) 1st Samar District Office

The Office has no specific technical weaknesses. It also gives training to its maintenance workers on an as-needed basis. Its machines and equipment are old, although they work properly.

[19] "Activity Standard Book and the DPWH Standard Specification", "List of Activity Standards on the New Highway Maintenance Management System, Revised 1985", "New Highway Maintenance Management System (NHMMS) & Road Board Manual", and other manuals are used.

(2) 2nd Samar District Office

The Office has no specific technical weaknesses. Several members of the Maintenance Department have more than 20 years of work experience. The Office also gives training to its maintenance workers, although not on a regular basis. Its machines and equipment are very old. The office has service vehicles, trucks, payloaders, and road graders.[20] However, they were all obtained in the 1970s or 1980s. They often break down, causing delays in the maintenance work. Spare parts for such old vehicles and machines and equipment are difficult to procure from local suppliers.

(3) Southern Leyte District Office

Its core employees have a certain level of work experience, and some have been working for the Office for more than 20 years. However, the Office itself considers the technical level of its workers to be insufficient. It is also short of machines and equipment. The office has service vehicles, loaders, road graders, and other machines, but they are old and have some problems. Spare parts are difficult to obtain from local suppliers because they do not have enough stock. Especially when a disaster occurs, the office has difficulty in working properly to repair the roads only with the vehicles and machines it owns at present.

Employees of the District Offices have a sufficient level of experience and skills for practical operations. However, it is pointed out that two of the three Offices use old machines and equipment, and are short of machines and equipment in the first place. The overall conditions are not ideal.

3.5.3 Financial Aspects of Operation and Maintenance

Below are the financial conditions of the District Offices.

(1) 1st Samar District Office

Expenditures for the maintenance of the roads under the charge of the District Office in 2011 amounted to 10 million pesos for regular maintenance and 2 million pesos for the maintenance of road shoulders. (Data for up to 2010 are unavailable.) The Office says the amount was the minimum level of expenditures needed for the maintenance of the road.

(2) 2nd Samar District Office

Expenditures for the maintenance of roads under the charge of the District Office in 2011 amounted to 15.5 million pesos for regular maintenance. The budget was below the sufficient level, and the Office had difficulty in carrying out repair work for eroded sections of the roads.

(3) Southern Leyte District Office

Expenditures planned for maintenance of the roads under the charge of the District Office in 2010 and 2011 were 4 million pesos and 2.6 million pesos, respectively. However, the funds have not yet been paid out, and the Office is still waiting for their appropriations as of May 2012. The Office is obviously short of funds, unable to buy the necessary machines and equipment.

As described above, two of the three District Offices are obviously short of funds for maintenance, and indeed have difficulty in conducting the maintenance work. However, in its latest development plan, the government has set out a policy of increasing the maintenance budget for roads,[21] and some improvement in the conditions is likely to take place.

[20] A payloader, or loader, is a type of tractor designed to scoop up and carry soil and sand with a shovel attached to its front part. A road grader is a machine used to level the ground for road construction and other work.

[21] As mentioned in the section on relevance (3.1.1), the Philippine Development Plan 2011 - 2016 refers to the issue in "Chapter 5 Accelerating Infrastructure Development."

3.5.4 Current Status of Operation and Maintenance

Road conditions are generally good, although only a few sections of the road have an eroded surface, which should be repaired immediately. (Summary of the opinions of the External Evaluator and surveyors who went to see the roads.)

In the beneficiaries survey for this project, 127 out of 168 respondents (75.6%) said they were satisfied with the maintenance of the road, while slightly more than 20 percent of them answered that maintenance was insufficient.

In light of the above, the operation and maintenance is not ideal with regard to any structural, technical or financial aspects. However, the minimum necessary level of maintenance is being carried out, and the road is generally kept in good condition at present. Therefore the sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The relevance of this project is high, as it is fully consistent with the Philippines' policy and development needs, as well as Japan's ODA policy. This project has produced effects as expected in the original plan, such as shorter transit times and increased traffic volumes. Economic, health and other impacts have also been confirmed in this evaluation study as, among others, farmers, fishermen, and other residents living along the road have seen their incomes increase and they have better access to large hospitals. However, the efficiency of this project is low, as it was completed with the project expenses slightly larger than planned after a project period that greatly exceeded the original plan. The overall sustainability of this project is fair, as maintenance for this project is performed at the minimum necessary level, even though this is not necessarily ideal in terms of the institutional, technical, and financial aspects.

In light of the above, this project is evaluated to be (C), partially satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

- As stated above in the section on sustainability, the three District Offices in charge of the project road all have some challenges to resolve in structural (human resources), technical (sufficiency of the machines and equipment), and financial (sufficiency of the budget) aspects. In its latest development plan, the government has set out a policy of increasing the maintenance budget. The government should secure a budget that is sufficient to strengthen the overall sustainability. With this budget, the District Offices should repair roads that have an eroded surface immediately.
- Although no statistical data are available, a questionnaire survey and interviews have revealed that many residents are concerned about the increasing number of traffic accidents. It is desirable that field surveys be carried out to discuss appropriate measures, such as installing road signs, if necessary.

4.2.2 Recommendations to JICA

To help the executing agency carry out the recommendations above, JICA should monitor the state of its implementation.

4.3 Lessons Learned

One of the factors that caused a substantial increase in construction costs for this project was the great number of minor changes in the project scope were necessary, because the situation which was not recognized initially was revealed at the time of the detailed design (D/D) study. Over a long period of time after the feasibility study (F/S), the environment of the road changed due to typhoons and other events in a manner that had not been anticipated. As a result, the project was forced to make large-scale modifications in terms of construction methods and project costs. This kind of situation has a negative impact on the project in the form of a shortage of funds.

Efforts should be made to prevent such a delay in the first place. However, once a delay arises and any increase in costs becomes inevitable at the time of the detailed design, work should be carried out to reconsider the scope of the project and help the executing agency to secure the additional budget as soon as possible, taking into consideration the effects the project is expected to produce.

Comparison between the plan and the results

Item	Plan	Result
(1) Output		
1. Civil work		
1-1 Repair of the pavement, and construction of the shoulders		
1) Allen - Malaga	35.70 km	34.46 km
2) Malaga - Calbayog	36.76 km	38.10 km
3) Calbayog - Gatanguit	52.70 km	52.70 km
4) Gatanguit - Calbiga	59.35 km	59.35 km
5) Agas-Agas Bridge	1 bridge 350 m	1 bridge 350 m
1-2 Other bridges (total along the project road)		
• Repair	28	23
• Rebuilding	5	2
2. Consulting services (total man-months)		
2-1 Philippines-Japan Friendship Highway Visayas Section	1,485	1,352
2-2 Cebu North Coastal Road	422	398
(2) Period	March 2002 - April 2007 (62 months)	March 2002 - November 2010 (105 months)
(3) Project costs		
Foreign currency	4,894 million yen	3,538 million yen
Domestic currency	4,070 million yen (1,770 million pesos)	6,914 million yen (3,578 million pesos)
Total	8,964 million yen	10,452 million yen
of which the yen loan	6,723 million yen	6,624 million yen
Exchange rate	1 peso = ¥2.3 (As of August 2001)	1 peso = ¥1.9323 (weighted average)

Appendix 1 Findings of the beneficiaries survey (Philippines-Japan Friendship Highway Visayas Section: Allen - Calbayog - Calbiga, Samar Island)

The survey was conducted with a total of 168 respondents chosen from the residents living somewhere along and around the project road. More than half of them (52.4%) were women. Major occupations among them were self-employed persons, farmers, no regular job, and (private-sector) company employees. About half of the respondents, 76, said they used the road every day.

Asked about direct benefits brought by this project, they pointed out:

- That this project helped increase the shipment of goods, especially agricultural produce (89.3% of the respondents);
- That the project made traffic smoother, helping goods, especially agricultural produce, to be shipped to and carried from more distant places (59.5% and 58.9%, respectively);
- That after the project, they can pass through the road section in a shorter time (81.5%. And 77.1 % of the respondents said that while it had taken one hour to go through a certain section, now they could go more than 20 minutes faster.);
- That the project helped reduce driving costs (Reduced maintenance and fuel costs for vehicles were pointed out by 38.1 % and 52.4 % of the respondents, respectively); and
- That access was improved as shown below in Table 1.

Table 1: Improved access after the project

Destination	Percentage of respondents who recognized improvement in access (%)
Market/Store	75.0
School (commute of children)	25.0
Hospital	23.2
Government office	8.3
Workplace	11.9

Below are specific answers to questions about the impacts of this project.

(1) Benefits: No specific change is seen in the work, but better road conditions brought benefits in terms of reduced time and costs (48.2%), Respondents' business has grown (13.7%),[22] After this project, respondents had a new job opportunity (3.6%).[23]
(2) Change in income: (Do you earn more income on a household basis after the project?) Yes (78.0%), No (10.1%), NA (11.9%)
(3) Change in the number of traffic accidents: Increased (72.6%), No change (26.2%), Decreased (1.2%)
(4) Impacts on land owned for business and/or houses: Yes (29.8%). Specifically, their land was acquired for the construction.
(5) Change in the environment after the construction work (percentage among the respondents: %)

[22] A typical example is the increased sales of stores located along the road.
[23] This is because improved traffic access allows people to commute within a wider area.

Table 2: Changes in the environment after the construction work

Item	Much worse	Slightly worse	No change	Slightly better	Much better
Air	1.2	24.4	33.9	25.0	15.5
Noise	0.6	30.4	7.1	37.5	24.4
Water quality	0	2.4	70.8	16.1	10.7

6) Overall evaluation of the benefits obtained from the project

Table 3: Overall evaluation

Item	% among the respondents*
Excellent	6.0
Good	67.3
Neutral	17.9
Slightly negative	3.0
Very negative	0.0
No reply	6.0

*Note: Total exceeds 100 percent due to rounding.

Appendix 2 Findings from interviews with the parties concerned on the impacts of the project road

1. Province and municipal governments

- Samar province government: The chief of the Planning and Development Department rated the project high, saying the project road contributed to communities in terms of their economy, healthcare, education, and other aspects. No specific trouble was reported between DPWH and the residents in terms of land acquisition.
- Jiabong Samar: The chief of the city's Planning and Development Department, responsible for part of the project road, praised the project, saying it helped promote the distribution of agricultural produce.

2. Transport operators: The External Evaluator visited a service counter at a bus terminal in Tacloban to ask about the operation of buses going on the project road before and after the project, and found there were evidently more bus companies in the market and more buses in service after the project. In the interviews that the External Evaluator had with six companies operating buses and/or vans separately, the Evaluator also found they all benefited from the project in the form of increased net profits. However, three of them pointed out increasing traffic accidents as a negative impact of the project.

3. Companies located along the road (four companies): They all benefited from the project in the form of increased net profits. Half of them, or two companies, pointed out increasing traffic accidents as a negative impact of the project.

4. 8th Regional Office of the Department of Health: No statistical data suggested any effect produced by the improved project on, among others, the transportation of patients in a serious condition. However, a medical officer whom the External Evaluator interviewed said that the project road has district hospitals, a provincial hospital, and Tacloban's regional hospital along it, and that better access provided by the upgraded road for seriously ill patients taken to such rather large hospitals seemed to be a contribution that this project had produced.

5. A hospital in Tacloban: Clerks that the External Evaluator interviewed at one of the largest hospitals in the city, Divine Word Hospital (with 140 beds in total), said the hospital saw an increasing number of outpatients coming to it, 11,689 persons in 2009, 16,642 in 2010, and 33,592 in 2011*. At least half of them probably came from Samar. This suggests that the improved road conditions led to an increase in the number of outpatients.

*Note: A sharp increase in outpatients in 2011 came from an outbreak of dengue fever.

Appendix 3 Trends in production of rice and corn

Year	2004	2005	2006	2007	2008	2009	2010
1. Production of rice							
Eastern Visayas (ton)	721,932	788,857	830,808	948,827	1,030,621	952,220	964,145
Year-on-year		109.3%	105.3%	114.2%	108.6%	92.4%	101.3%
Eastern Samar	31,875	34,772	39,529	43,734	47,153	46,291	51,795
Year-on-year		109.1%	113.7%	110.6%	107.8%	98.2%	111.9%
Samar	66,347	68,218	71,673	86,768	105,896	114,168	124,084
Year-on-year		102.8%	105.1%	121.1%	122.0%	107.8%	108.7%
2. Production of corn							
Eastern Visayas (ton)	59,906	68,416	76,162	88,252	96,594	94,821	90,215
Year-on-year		114.2%	111.3%	115.9%	109.5%	98.2%	95.1%
Eastern Samar	170	227	280	364	433	495	559
Year-on-year		133.5%	123.3%	130.0%	119.0%	114.3%	112.9%
Samar	4,808	5,596	5,776	6,814	7,227	8,318	9,129
Year-on-year		116.4%	103.2%	118.0%	106.1%	115.1%	109.7%

Source: "2011 Regional Social and Economic Trends", NSCB (National Statistical Coordination Board)

Appendix 4 Findings of a questionnaires survey of the farmers and fishermen living along the project road

(Farmers: 20 respondents)

- They grow: upland rice (14 respondents), coconut (3), and pineapple (3);
- Their produce is sold to: local stores (10) and dealers (10);
- Annual income after the project: increased for all of the respondents, among whom a more than 20 percent increase for two, a 10 to 20 percent increase for 11, and a less than 10 percent increase for seven;
- Income increased due to: higher selling price (5 respondents. Specifically, this is because improved road conditions allow dealers to carry and sell their produce to large towns along the road at a higher selling price.), as well as expanded farmland and a consequent increase in production (4), less produce is thrown away (4), and no answer (7);
- Others: Dealers have also benefited from the project (16);

(Fishermen: 20 respondents)

- Their products are sold to: dealers (6), local stores (13)[24], and directly to consumers (1);
- Annual income after the project: increased for all of the respondents, among whom a more than 20 percent increase for one, a 10 to 20 percent increase for 11, and a less than 10 percent increase for eight;
- Income increased due to: higher selling price (14 respondents. Specifically, this is because dealers buy fish from fishermen at a higher price than before.), as well as increased catch (2), and less catch is thrown away (1);
- Others: Dealers have also benefited from the project (14);

[24] Many of the 13 respondents also sell to dealers.

Appendix 5 Findings of interviews of the staff of the local government in charge of the Agas-Agas Bridge and residents living around the bridge

(1) Sogod, municipality responsible for the bridge

The municipality has a population of 43,000. The chief of its General Affairs Department said the bridge contributed much to the distribution of goods and traffic, mainly because the bridge mitigated the impact of weather conditions, such as heavy rain and consequent landslides. The bridge has become a kind of tourist spot, probably visited by 100,000 people a year. The municipality rates the project highly, expressing its gratitude to the government of Japan.

(2) A barangay around the bridge[25]

Its head rates the bridge highly as it provided the district with more convenience in transportation and made it less vulnerable to bad weather. People in the barangay used to suffer from landslides, and seven residents were killed in 2006. Since the completion of the bridge, no such disasters have occurred.

(3) Residents around the bridge (five respondents)

① Benefits: Improved road conditions produced benefits in less travel time (all 5 respondents). They also rate the bridge highly in that they are free from the risk of landslides.

② Change in the number of traffic accidents: Increased (Nil); No change (3); and Decreased (2);

③ Impacts on land owned for business and/or houses: Yes (1);

④ Change in the environment after the construction work (number of respondents)

Item	Much worse	Slightly worse	No change	Slightly better	Much better
Air	0	2	3	0	0
Noise	0	0	5	0	0
Water quality	0	0	5	0	0

⑤ Overall evaluation of the benefits from the project

Item	No. of respondents
Excellent	3
Good	2
Neutral	0
Slightly negative	0
Very negative	0
No reply	0

[25] A barangay, the smallest administrative unit in the Philippines, is administered and managed by its head (barangay captain), who is elected by popular vote, and other members functioning as a contact point for administrative services.