Republic of the Philippines

Ex-Post Evaluation of Japanese ODA Loan

"Arterial Road Links Development Project (V)"

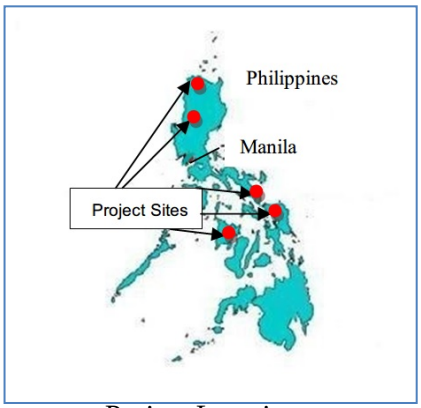
External Evaluator: Kenichi Inazawa, Octavia Japan Co., Ltd.

0. Summary

This project improved roads and bridges for the badly conditioned sections of the arterial roads of the Philippines, with the aim of responding to increasing traffic volumes and to reduce travel time. At the time of the appraisal and ex-post evaluation, the project is consistent with the development policy of the Philippines and with the development needs for paving arterial roads, as well as for expanding and improving road networks. It was also consistent with the assistance policy of Japan; thus, the relevance of the project is high. Through the project, the initial targets have been mostly achieved in terms of average daily traffic volume capacity increases and reduction in travel time. Additionally, a beneficiary survey confirmed that the project is supporting improvements in agricultural productivity in the target areas. It is also contributing to the improvement of living conditions of the residents near the project sites, as well as to the vitalization of the local economy; thus, the project's effectiveness and impact are high. On the other hand, the project cost exceeded the plan and the project period was significantly longer than planned; thus, efficiency is low. There is a staff shortage at the District Engineering Office (hereinafter referred to as "DEO") responsible for the operation and maintenance of the project. Furthermore, the DEO's maintenance is not necessarily sufficient because the organization has not been able to replace old heavy machinery and vehicles for many years; thus, sustainability of the project is fair.

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

1. Project Description



Project Location

The Iloilo East Coast-Capiz Road (the Panay Island)

1.1 Background

Road transportation is the largest transportation means in the Philippines. Although significant investments had been made to improve the national arterial roads and secondary arterial roads[1] that form the backbone of the national road network, many sections remained unpaved and were not fully functional. In addition, roads were frequently damaged by natural disasters such as typhoons and there were not many alternative routes. This hindered the realization of an efficient transportation system. Thus, development of safe and efficient arterial road networks was considered as an urgent task. Japan has been assisting the development of north-south arterial roads via various projects such as "Philippines-Japan Friendship Highway Projects[2]" since the 1960s, given the geography of the Philippines as being long in a north-south direction. However, with a view to placing an importance on geographically-balanced development, Japan also indicated a policy of developing arterial roads connecting in an east-west direction and also connecting the islands' surrounding roads in addition to the north-south system. From the 1990s onwards, Japan has assisted in the implementation of Phase I-IV projects with which arterial roads and bridges have been developed or rehabilitated on Leyte Island, Bohol Island, Cebu Island, Mindanao Island and Samar Island. Following these projects, the government of the Philippines requested a Japanese ODA loan from Japan for the implementation of the project as Phase V, which was intended to develop and rehabilitate the north-south arterial roads, east-west arterial roads and surrounding roads on the islands.

1.2 Project Outline

The objective of the project is to respond to the increasing traffic volume and to reduce travel time by developing and rehabilitating the badly conditioned sections of the Philippine arterial national roads ((1) Ligao-Pio Duran Road in the province of Albay; (2) Patapat Viaduct in the province of Ilocos Norte, (3) Suyo-Cervantes-Mankayan-Abatan Road and Cervantes-Sabangan Road in the Cordillera Administrative Region; (4) Catarman-Calbayog on the Island of Samar; and (5) Iloilo East Coast-Capiz Road on the Panay Island), thereby contributing to the economic and social development in and around the target areas.

[1] Arterial national roads refer to national roads that are the backbone of passenger and freight traffic, while secondary arterial roads refer to national roads connecting arterial national roads and each city/town/village.

[2] A series of road development projects covering a total of about 2,000km from the north-eastern part of Luzon to Mindanao Island in a north-south direction.

Loan Approved Amount/ Disbursed Amount	8,294 million yen / 7,772 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	March 2001 / May 2001
Terms and Conditions	【Main Construction】Interest Rate: 2.2%, Repayment Period: 30 years (Grace Period: 10 years), Condition for Procurement: General Untied 【Consulting Service】Interest Rate: 0.75%, Repayment Period: 40 years (Grace Period: 10 years), Condition for Procurement: Bilateral Tide
Borrower / Executing Agency(ies)	The Government of the Philippines / The Department of Public Works and Highways (DPWH)
Final Disbursement Date	September 2010
Main Contractor (Over 1 billion yen)	E.C. De Luna Construction Corp (the Philippines), China State Construction Engineering Corporation (China), Italian-Thai Development Public Company Limited (Thailand), China Harbour Engineering Company Limited (China)
Main Consultant (Over 100 million yen)	Katahira & Engineers International (Japan), Pacific Consultants International (Japan)
Feasibility Studies, etc.	F/S All of the following were implemented by the Philippine side: Cordillera Road Network Development Project (December 1996), Ligao-Pio Duran Road (May 1997), Catarman-Calbayog Road (June 1999), Iloilo East Coast-Capiz Road (June 1999)
Related Projects	Arterial Road Links Development Project (I) (L/A was signed in December 1994) Arterial Road Links Development Project (II) (L/A was signed in August 1995) Arterial Road Links Development Project (III) (L/A was signed in September 1998) Arterial Road Links Development Project (IV) (L/A was signed in December 1999)

	Arterial Road Links Development Project (VI) (L/A was signed in March 2002) Cordillera Road Improvement Project (L/A was signed in December 1999) Road Upgrading and Preservation Project (L/A was signed in March 2011)

2. Outline of the Evaluation Study

2.1 External Evaluator

Kenichi Inazawa (Octavia Japan Co., Ltd.)

2.2 Duration of Evaluation Study

Duration of the Study: November 2013 – December 2014

Duration of the Field Study: February 15 – March 2, 2014, May 26 – June 1, 2014

2.3 Constraints during the Evaluation Study

Due to time and budget constraints, not all the project sites were visited during this evaluation study. The visited sites are two sections in the Cordillera Administrative Region (Suyo-Cervantes-Mankayan-Abatan Road and Cervantes-Sabangan Road) and East Ilioilo-Capiz Road on the Panay Island. In addition, considering the impacts of Super Typhoon Haiyan (Yolanda) which occurred in November 2013, only two sections in the Cordillera Administrative Region were targeted for the beneficiary survey as these sections were not directly affected by the super typhoon.

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

3.1 Relevance (Rating: ③[4])

3.1.1 Relevance to the Development Plan of the Philippines

The Arroyo administration at the time of the project appraisal formulated the "Medium-Term Philippine Development Plan (2001-2004)", in which "supporting Philippine's socioeconomic development through the provision of safe and reliable transport service" was listed as one of the development goals concerning the transport sector. In addition, the country developed a

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

[4] ③: High, ② Fair, ① Low

strategic goal which aimed to "pave all arterial national roads[5] and to increase paved road ratio of secondary arterial roads[6] to 66% by 2004, by improving quality of the existing infrastructures through appropriate development and maintenance." In order to achieve this goal, an emphasis was placed on the standard improvement (increased paved road ratio and widening of roads) of the arterial roads connecting regional cities—hubs for the local economies—with the surrounding areas.

On the other hand, at the time of ex-post evaluation, the government of the Philippines formulated the "Mid-Term Philippine Development Plan" (2011-2016). The plan highlighted the "strategic development of transport infrastructures as well as maintenance and management of transport infrastructures", listing road network expansion as a priority. In addition, the Department of Public Works and Highways (hereinafter referred to as "DPWH"), the executing agency of the project, developed its "Mid-Term Development Plan" (2011-2016) which indicated that they would pursue safety and efficiency of the transport sector and would strive to improve access in terms of transportation of goods and services by expanding and improving arterial road networks."

Thus, the transport sector was placed an importance at the time of the project appraisal and it remains important at the time of ex-post evaluation. Therefore, it can be confirmed that the project is relevant to the development policy.

3.1.2 Relevance to the Development Needs of the Philippines

Japan had been assisting the development of north-south arterial roads via various projects such as "Philippines-Japan Friendship Highway Projects" since the 1960s given the geography of the Philippines as being long in a north-south direction; however, with the view toward geographically balanced development, Japan indicated a policy of developing arterial roads connecting in an east-west direction and also connecting the islands' surrounding roads in addition to the north-south system at the time of the project appraisal. From the 1990s onwards, Japan has assisted in the implementation of Phase I-IV projects with which arterial roads and bridges have been developed or rehabilitated on Leyte Island, Bohol Island, Cebu Island, Mindanao Island and Samar Island. The project was planned as Phase V with the intention of developing and rehabilitating the arterial roads, east-west arterial roads and the islands' surrounding roads. The development needs concerning each project scope confirmed at the time

[5] The paved road ratio was 71% prior to the project commencement (1998 data), and it was aimed to reach 100% by 2004.
[6] Similarly, the paved road ratio was 47% prior to the project commencement (1998 data).

of the project appraisal are summarized in (1)-(5) below:

(1) The Ligao-Pio Duran Road in the province of Albay (east-west arterial road): Ligao is located north west of the City of Legazpi (with the population of about 150,000), the central city of Bikol (Region V). Ligao's main industry is agriculture, while Pio Duran's main industry is fishery. However, the road connecting the two cities was mostly not paved or paved using a low-cost method. Therefore, pavement was needed to realize efficient transportation of agricultural and marine products in Bikol. (→A need to pave/widen the existing road.)

(2) Patapat Viaduct in the province of Ilocos Norte (east-west arterial road): Patapat Viaduct was constructed under the ninth Japanese ODA loan, the "Philippines-Japan Friendship Highway Project (II)," as a part of the road connecting the two main cities of Northern Luzon, Laoag City and Tuguegarao City. It was inaugurated in October 1986. The traffic volume of this bridge was roughly 2,000 vehicles per day, which was relatively significant for a bridge on the regional arterial road. However, because of the typhoon of October 1991, the scouring of the bridge pier foundations made the structure unstable. Thus, it became necessary to rehabilitate the bridge. (→A need to rehabilitate the existing bridge.)

(3) The Suyo-Cervantes-Mankayan-Abatan Road and the Cervantes-Sabangan Road in the Cordillera Administrative Region (east-west arterial road): Surrounded by high mountains, the Administrative Region's basic infrastructures such as roads and telecommunications were underdeveloped. Especially, road networks were not developed[7] and arterial roads were often interrupted by natural disasters that created serious damages to the infrastructures. It was thus necessary to pave and rehabilitate/improve the existing roads. (→A need to pave and rehabilitate/improve the existing roads.)

(4) The Catarman-Calbayog Road on the Island of Samar (east-west arterial road): The main industries of the Island of Samar are agriculture and fishery. Calbayog, the capital city of the province of Western Samar, and Catarman, the capital city of the province of Northern Samar, were the centers for the island's economic activities. However, the road connecting these cities was not paved. Thus it was considered important to develop this section. (→A need for pavement.)

(5) The Iloilo East Coast-Capiz Road on the Panay Island (the Islands' surrounding roads): The main industries of the Panay Island were agriculture and fishery. Out of the roads connecting the City of Iloilo, the capital of the province of Iloilo, with the City of Roxas,

[7] In the Administrative Region 80% of the roads were not paved.

the capital of the province of Capiz, the Balasan-Ajui section was paved in 1994 as the island's surrounding arterial road connecting the eastern part of the province of Iloilo with the province of Capiz. The traffic volume then increased dramatically. As the road conditions deteriorated with many damaged spots, it was urgently needed to rehabilitate the abovementioned section. (→A need to rehabilitate the existing road.)

On the other hand, the national paved road ratio is 88% (2012) at the time of ex-post evaluation. Along with the high economic growth (6.82%, 2012) in recent years, business opportunities for private companies have been expanding, while the number of households owing automobiles and motorbikes has increased. As a result, traffic volume of the arterial road has also increased. In response to such a situation, DPWH is indicating its policy of developing arterial roads with a view to increasing the national paved road ratio to 97% by 2016.

In light of the above, the Philippines continue to strive to develop arterial road networks at the time of ex-post evaluation. Thus it can be judged that the development needs are high at the time of the project appraisal and ex-post evaluation.

3.1.3 Relevance to Japan's ODA Policy

In December 1999 JICA prepared the "Medium-Term Policy for Overseas Economic Cooperation Operations" based the development issues of the Philippines and Japan's assistance policy for the Philippines. In this document the following fields were listed as priorities: (1) "making economies more resilient while overcoming constraints in order to achieve sustainable growth (e.g., appropriate macroeconomic management, reinforcing industrial structures, and developing economic infrastructures)"; (2) "poverty alleviation and correction of regional disparities"; (3) "environmental protection including disaster prevention as well as disaster prevention measures"; and (4) "human resource development and system building." Out of these the project corresponds to "(1)" which is about economic infrastructure development. Additionally, it is expected that utilization of improved road would lead to economic growth. Thus, the project is consistent with the assistance policy of Japan.

The 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[8] (Rating: ③)

3.2.1 Quantitative Effects (Operation and Effect Indicators)

1) Average Daily Traffic Volume

The project constructed bridges and rehabilitated/paved existing roads. Table 1 shows the baselines and targets concerning average daily traffic volume at the time of the project appraisal as well as the actuals at the time of ex-post evaluation (recent three years). It can be observed that the developed sections are mostly responding to the increasing traffic demands.

Table 1: Average Daily Traffic Volume of Each Targeted Section

(Unit: vehicle per day)

Targeted Section	At Project Appraisal		Actual		
	Baseline (2001)	Target (2007)	2011	2012	2013
(1) Ligao-Pio Duran Road in the province of Albay (completed in April 2011)	273	446	1,407	1,693	2,090
(2) Patapat Viaduct in the province of Ilocos Norte (completed in August 2009)	2,069	2,818	952	4,922	6,503
(3) Cordillera Administrative Region (completed in April 2011)					
a) Suyo-Cervantes-Mankayan-Abatan Road	195	467	N/A	N/A	Approx. 600
b) Cervantes-Sabangan Road (*Note)	209	675	303	388	419
(4) Catarman-Calbayog Road on the Island of Samar (completed in August 2007)	89	435	N/A	N/A	3,050
(5) Iloilo East Coast-Capiz Road on the Panay Island (completed in April 2007)	1,184	1,547	2,019	1,888	N/A

Source: JICA's internal document (at the time of the project appraisal), answers to the questionnaire and results of the interviews with DEOs (at the time of ex-post evaluation)

Note: DPWH is continuing the pavement construction at the time of ex-post evaluation.

Concerning (3-b) Cervantes-Sabangan Road (most of which is mountain road), pavement construction was put off for some sections in 2007 because DPWH faced budget shortage, as it will be explained below in the "Project Outputs" under Efficiency. DPWH resumed the paving work in 2013 using its own fund[9].

[8] Sub-rating for Effectiveness is to be put with consideration of Impact.

[9] According to DPWH Headquarters, all the sections will be completed (paved) by the end of 2014. They expect that traffic volume will increase after the completion. At the time of ex-post evaluation, some vehicles are taking other regional roads to reach their destinations. Additionally, traffic volume is not significant yet partly because the

With regard to the other road sections, the initial targets were exceeded for (1) Ligao-Pio Duran Road and (5) Iloilo East Coast-Capiz Road at the time of the completion of each section (2011). Concerning (2) Patapat Viaduct, while the target was not achieved in 2011, targets have been achieved since 2012[10]. As for (3-a) Suyo-Cervantes-Mankayan-Abatan Road in the Cordillera Administrative Region and (4) Catarman-Calbayog Road on the Island of Samar, 2011 and 2012 data could not be obtained. However, the initial target was achieved in 2013[11].

2) Reduction in Travel Time

As a result of the pavement and rehabilitation of the existing roads through the project, travel time has generally reduced for vehicles. Table 2 shows the baselines and targets after completion set at the time of the project appraisal. It also shows the actual travel time from 2011 to 2013.

Table 2: Reduction in Travel Time by Section[12]

(Unit: time)

Section	At Project Appraisal		Actual		
	Baseline (2011)	Target (2007)	2011	2012	2013
(1) Ligao-Pio Duran Road in the province of Albay	0.72	0.31	0.3	0.3	0.3
(3) Cordillera Administrative Region					
a)Suyo-Cervantes-Mankayan-Abatan Road	6～7	2	1.8 ～2.0	1.8 ～2.0	1.8 ～2.0
b)Cervantes-Sabangan Road *Note	2.27	0.71	0.8 ～1.0	0.8 ～1.0	0.8 ～1.0
(4) Catarman-Calbayog Road on the Island of Samar	2.25	0.65	N/A	N/A	0.7～ 0.8
(5) Iloilo East Coast-Capiz Road on the Panay Island	1.0	0.56	0.5	0.5	0.5

Source: JICA's internal document (at the time of the appraisal), answers to the questionnaire, results of the interviews with DEOs and the actual traffic situations observed during the site visit (for the both sections of (3) Cordillera Administrative Region) (at the time of ex-post evaluation)

Note: DPWH is continuing the paving work at the time of ex-post evaluation.

completion of a long bridge located inside the targeted section on Cervantes side (Aluling Bridge, not part of this project) was postponed until April 2013.

[10] According to DEO responsible for the maintenance of this bridge, the actual travel time was less than the target in 2011 because "the completion of the bridge was not widely known at the time in 2011 and it was not fully responding to the traffic demand. Vehicles tended to take a detour. Later on, when the completion and convenience of the bridge came to be known, transportation of goods and agricultural products using trucks began to increase." (As Table 1 shows, traffic volume has been increasing since 2012.)

[11] As it will be explained in "Project Outputs" under Efficiency, the conditions of the Catarman-Calbayog Road were re-examined at the time of the detailed design. As a result, it turned out that some sections were in good conditions (about 20km). It was thus judged that traffic in these sections would be smooth without pavement, and the pavement work was put off. In other words, the construction was carried out based on the judgment that future traffic volumes could be managed without paving work in some sections.

[12] As the extended part was as short as about 1.1km for Patapat Viaduct in the province of Ilocos Norte, no target was set for this indicator.

Comparing the actuals after completion with the initial targets, the targets were mostly achieved for the following three sections: (1) Ligao-Pio Duran Road; (3-a) Suyo-Cervantes-Mankayan-Abatan Road; and (5) Iloilo East Coast-Capiz Road. However, targets were not achieved in the (3-b) Cervantes-Sabangan Road and (4) Catarman-Calbayog Road, although they came close. The former was not achieved; it takes time for vehicles to pass the road because the paving work was partially cancelled due to budget shortage and the road condition remains not so well at the time of ex-post evaluation. With regard to the Catarman-Calbayog Road, on the other hand, it takes time for vehicles to pass because there are some unpaved parts (about 20km)[13].

Figure 1: (1) Ligao-Pio Duran Road in the province of Albay

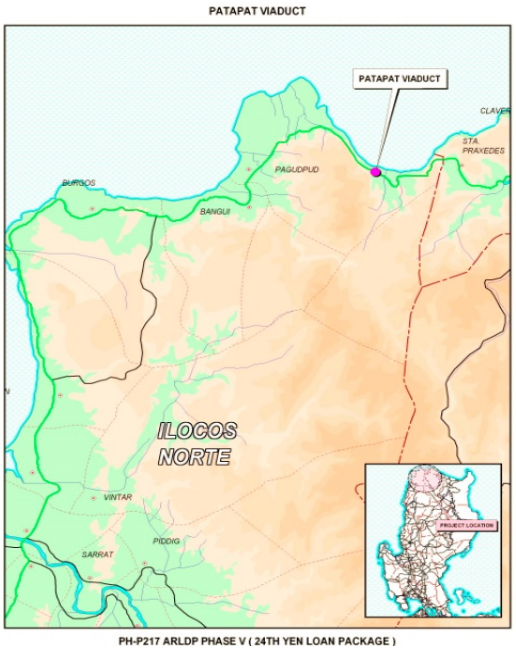


Figure 2: (2) Patapat Viaduct in the province of Ilocos Norte

[13] While traffic volume greatly exceeded the target, travel time has not reduced in this section because the detour (an existing arterial road) is located rather far (refer to Figure 4: the northwest area of the Island of Samar). This is why drivers opt for taking the main road even though it takes time to drive the unpaved section.

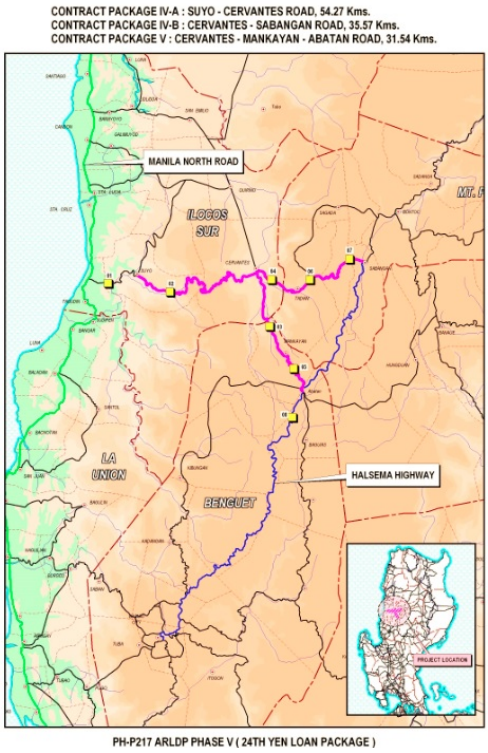


Figure 3: (3) Suyo-Cervantes-Mankayan-Abatan Road
and Cervantes-Sabangan Road
in Cordillera Administrative Region

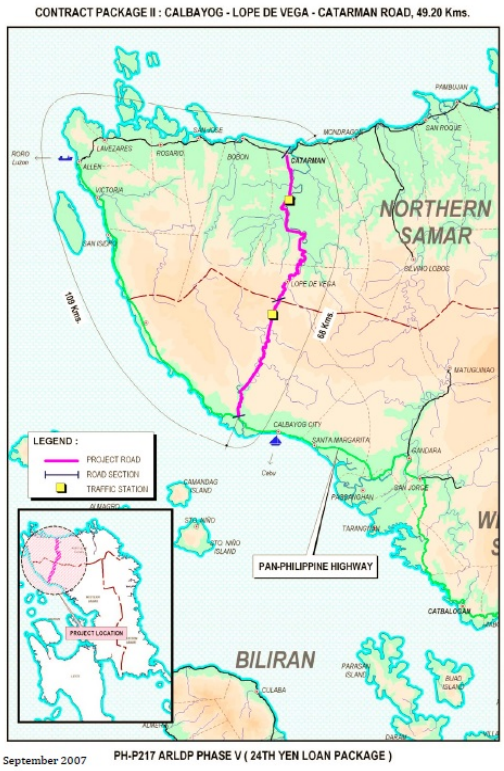


Figure 4: (4) Catarman-Calbayog Road
on the Island of Samar

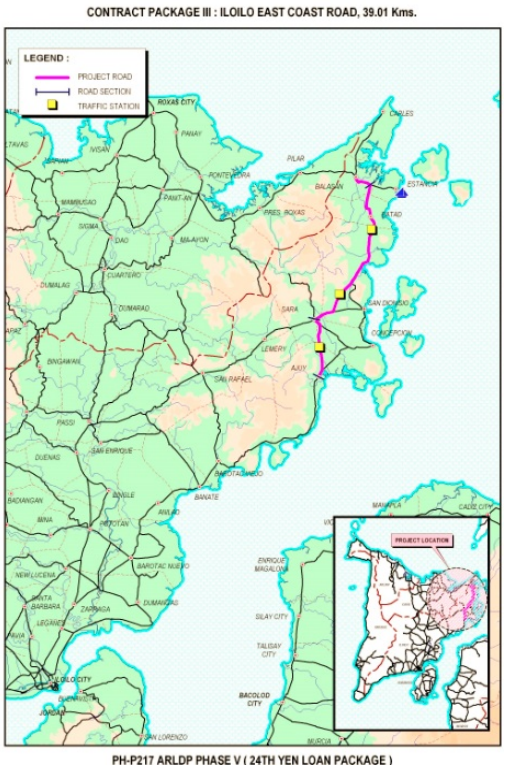


Figure 5: (5) Iloilo East Coast-Capiz
Road on the Panay Island

Photo 1: (3-a)
Suyo-Cervantes-Mankayan-Abatan Road

Photo 2: (3-b) Unpaved section of
Cervantes-Sabangan Road

3.2.2 Qualitative Effects (Improvement in Convenience and Safety)

A beneficiary survey was conducted to capture changes attributed to the project in terms of convenience and safety of travel. The survey targeted drivers and residents along the following roads visited during the field study: (3-a) Suyo-Cervantes-Mankayan-Abatan Road in the Cordillera Administrative Region and (3-b) Cervantes-Sabangan Road. Samples were drawn based on the random sampling method and it used a questionnaire. The results of the beneficiary survey are summarized below:

As it can be seen from Figure 6 and Figure 7, quite a high percentage of drivers and residents living near the project sites think that traffic volume has increased while travel time has reduced. In addition, it can be observed from Figure 8 that many of the respondents think that convenience “improved” or “greatly improved.” With regard to safety shown in Figure 9, a large proportion of the respondents think that it has “not improved.” This is partly because most of the sections in (3) Cordillera Administrative Region are mountain roads. As it will be explained below in “3.3.2.1 Impacts on the Natural Environment,” soil along the cliffs tends to become fragile during heavy rain and typhoons, and there are risks of sediment flow and falling rocks after the completion of the targeted section. Therefore, it can be judged that there are some concerns about the safety of passing vehicles and road conditions with regard to the roads and bridge developed in the Cordillera Administrative Region.

According to the interview with DEO (DPWH Third DEO) responsible for the maintenance of other targeted sections (Iloilo East Coast-Capiz Road on the Panay Island), they commented on the safety of passing vehicles and road condition: “With the project the road has been widened and it has become possible for vehicles to pass smoothly. Driving on the paved road is

comfortable and safe. The maintenance work is also being carried out without problems." Thus it can be judged that the safety situations differ from one section to another.

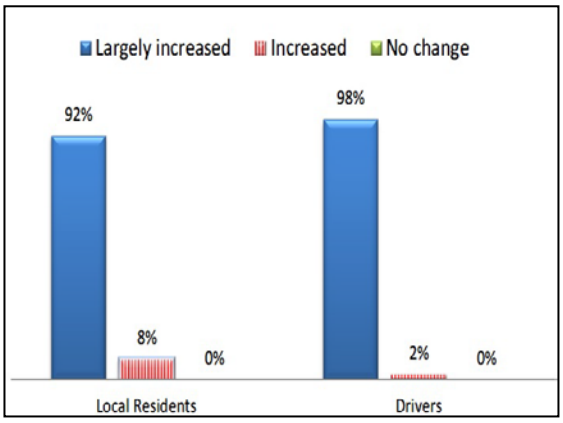


Figure 6: Do you think that traffic volume increased after the completion of the targeted section? (n=64 residents and 50 drivers)

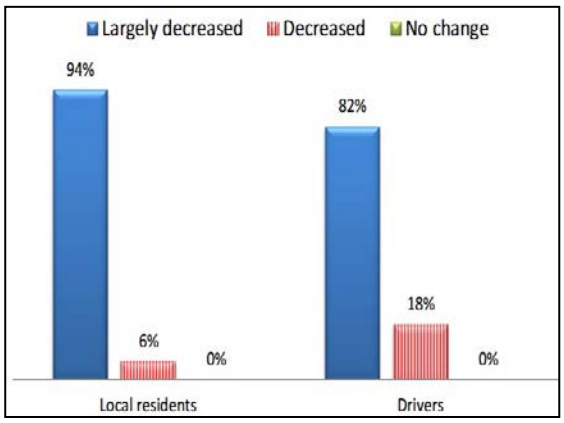


Figure 7: Do you think that travel time reduced after the completion of the targeted section? (n= 64 residents and 50 drivers)

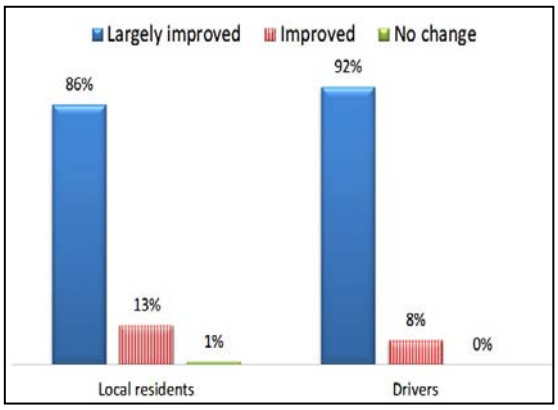


Figure 8: Do you think that comfort in terms of driving on the road/bridge improved after the completion of the targeted section? (n=64 residents and 50 drivers)

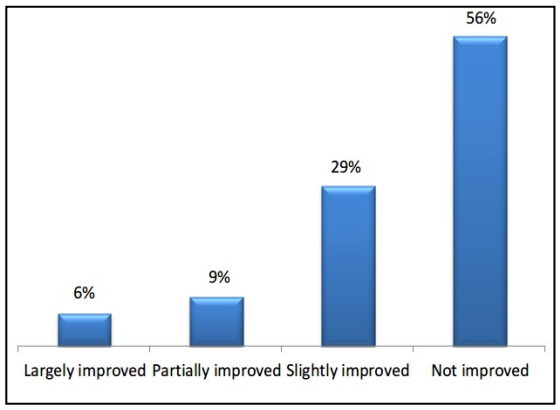


Figure 9: Do you think that safety of the road/bridge improved after the completion of the targeted section? (n=64 residents)

3.3 Impact

3.3.1 Intended Impacts

3.3.1.1 Contribution to Local Economy and Social Development

Table 3 shows the data on productions of agriculture produces in each targeted area at the time of ex-post evaluation (recent 4 years). It can be observed that the productions are generally

on the increase in all the targeted areas. Through the pavement and improvement of arterial roads with the project, it became easier to transport production inputs such as seeds, seedlings and fertilizer. Also, it reduced the cost of transporting agricultural products. As a result, it can be presumed that the project is contributing to improvements in agriculture productivity in each targeted area.

Table 3: Changes in Production of Main Agriculture Products in Project Areas

(Unit: ton)

Area	Agricultural Product	2009	2010	2011	2012
1) The province of Albay ((1) Ligao-Pio Duran Road)	Coconut	155,663	161,104	160,986	171,040
2) The province of Ilocos ((2) Patapat Viaduct, (3) Suyo-Cervantes-Mankayan Road)	Tobacco	24,341	27,325	30,171	32,538
3) Cordillera Administrative Region ((3-a) Cervantes-Sabangan, ((3-b) Cervantes-Mankayan-Abatan Road)	Cabbage	99,155	102,344	98,943	99,362
	Rice	431,656	400,415	428,949	453,461
	Corn	201,773	172,195	218,788	225,135
4) The province of North Samar ((4) the Catarman-Calbayog Road)	Coconut	317,855	327,895	337,690	345,209
5) Western Visayas including Panay ((5) Iloilo East Coast-Capiz Road)	Sugar cane	791,321	642,212	1,258,358	1,149,658

Source: The Bureau of Agriculture Statistics (BAS)

In addition, as shown in Figure 10-12, according to the beneficiary survey targeting farmers and drivers in the Cordillera Administrative Region, many respondents think that their marketing opportunities for agriculture products expanded, that their incomes increased and that transportation of goods improved. These results are thought to confirm the data indicating production increases shown in Table 3. According to some respondents who were interviewed, they think that “transporting goods became easier than before. With improved transportation access to other cities and villages, there are more opportunities to market agricultural products. Improved transportation access also generated competition (among companies) for daily commodities and agricultural products; thus people became able to purchase goods more reasonably than before.” Thus it can be presumed that the development of the roads and bridges through the project has positively impacted agriculture productivity in the targeted areas. In addition, a high percentage of the respondents think that the local economy has “improved” or

"largely improved" as shown in Figure 13; thus it is thought that the project has direct and indirect economic impacts. Furthermore, as shown in Figure 14 and Figure 15, many respondents think that traffic accessibility to commercial and public facilities improved thanks to the project, and it has led to improved relationship with their neighbors. Therefore, it can be thought that the project is contributing to the improvement of social and living conditions of the residents.

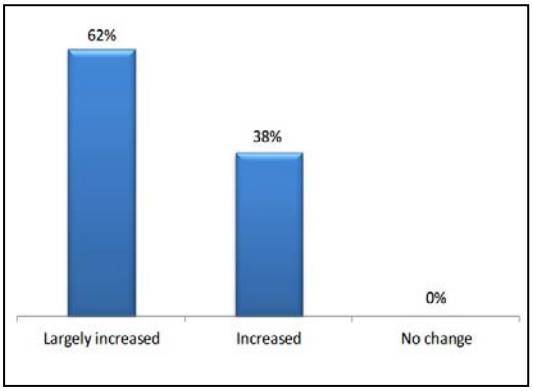


Figure 10: Do you think that marketing opportunities expanded for agricultural products after the completion of the targeted section? (n=39 farmers)

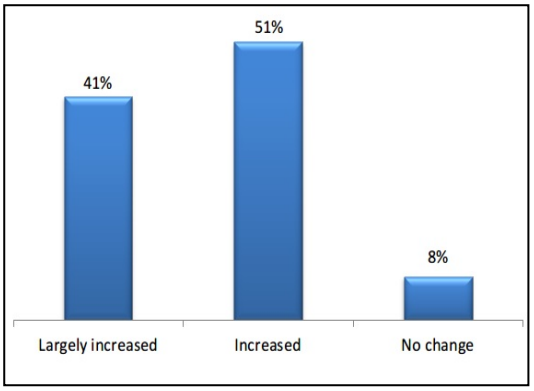


Figure 11: Do you think your agricultural income increased after the completion of the targeted section? (n=39 farmers)

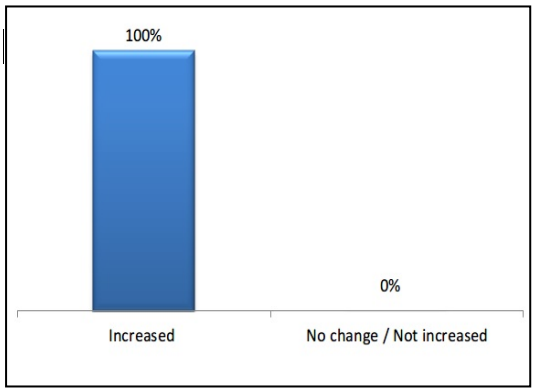


Figure 12: Do you think transportation of goods such as agricultural products increased after the completion of the targeted section? (n=50 drivers)

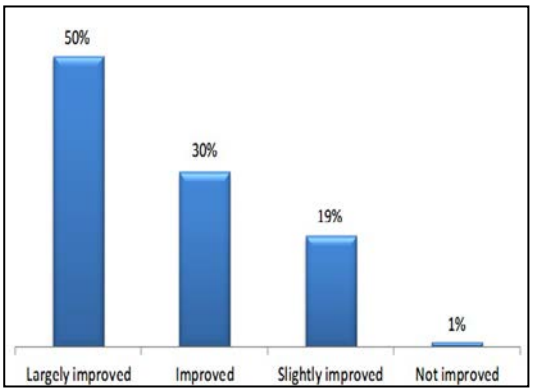


Figure 13: Do you think the local economy improved after the completion of the targeted section? (n=64 residents)

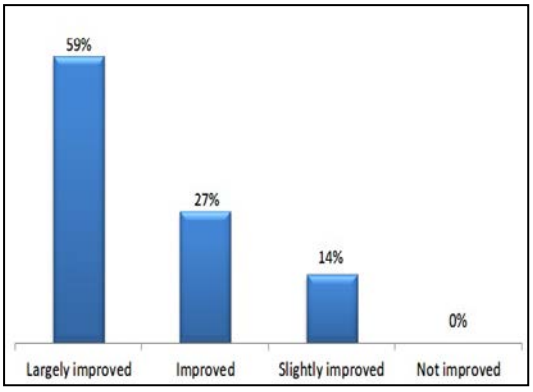


Figure 14: Do you think access to public facilities (church, school, markets, etc.) improved after the completion of the targeted section? (n= 64 residents)

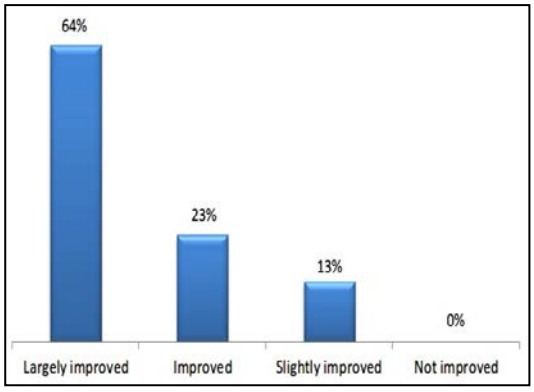


Figure 15: Do you think the relationship with other towns improved after the completion of the targeted section? (n=64 residents)

3.3.2 Other Impacts

3.3.2.1 Impacts on the Natural Environment

At the time of the project appraisal, no negative environmental impacts were foreseen. It was confirmed through the questionnaire and interviews during the field study of this evaluation that there were no negative impacts on natural environment, including air pollution, noise and vibration during the project implementation. During the project implementation DPWH carried out an environmental monitoring together with the Department of Environmental and Natural Resources (DENR), local government offices and NGOs. In the case of the Cordillera Administrative Region visited during the field study, a team was formed every three months to monitor and check the environmental issues such as air pollution, noise and vibration. According to the interviews with DEO in the Region, there were no negative environmental problems or complaints from local residents during the project implementation.

3.3.2.2 Land Acquisition and Resettlement

There was no resettlement associated with the project.

On the other hand, it was foreseen that compensation would be needed for the acquisition of land required for the widening of roads as well as removal of trees and fences along housing boundaries in the flowing sections: (1) Ligao-Pio Duran in the province of Albay (estimated land to be acquired was 109,000m²); (3-a) Suyo-Cervantes-Mankayan-Abatan in the Cordillera Administrative Region (estimated land to be acquired was 665,200m²); and (3-b)

Cervantes-Sabangan in the same region (estimated land to be acquired was 222,200 m²). With regard to (1) and (3-b), concerned parties had no objections and DPWH paid the compensation while covering the removal costs. Regarding (3-a), however, the payment of compensation required for the land acquisition and tree removals (mainly in Mankayan) is delayed at the time of ex-post evaluation. According to the initial Resettlement Action Plan for Land Acquisition obtained during ex-post evaluation, it was foreseen that a total of 273 landowners, 354 plots and 288,637m^2 would be subject to compensation in the amount of 49,336,041 peso[14]. At the time of ex-post evaluation, accurate data concerning the number of persons subject to land acquisition is not calculated. Finally, however, it was mentioned that less than 100 persons (anticipated compensation amount is unknown) would be subject to land acquisition and roughly 30-40 persons would be subject to tree removals (estimated compensation of about 3.8 million peso or 8.7 million yen).

As indigenous people reside in (3-a), the following 1)-4) actions have been taken until the time of ex-post evaluation:

1) The Land Acquisition Plan was developed at the time of the detailed design of the project (February 2002-April 2004). A guideline on acquisition procedures was developed and the estimated compensation amount required for land acquisition was calculated. However, compensation was not promptly paid mainly because DPWH Regional Office of the Cordillera Administrative Region could not manage their internal activities effectively.
2) In July 2002 a governmental organization, the National Commission on Indigenous Peoples (NCIP), began the issuance of Certificates of Ancestral Domain Title (hereinafter referred to as "CADT") for indigenous peoples across the country. CADT recognizes land ownership of indigenous peoples and in principle forbids the selling or foregoing of lands owned by indigenous peoples for generations. At this stage, however, CADT was not in effect in Mankayan.
3) In December 2008 NCIP issued CADT for the indigenous people concerning lands in Mankayan (13,290ha). On the other hand, the construction work of this section began in February 2008 and was completed in October 2010; however, compensation was not paid either before commencement or after the completion of the construction. (It is because processes were delayed by changes of the management at the regional office which led to mismanagement of related documents[15].)
4) Following the issuance of CADT, DPWH's regional office in the Cordillera Administrative

[14] According to DPWH, these initial estimates were calculated based on the F/S.
[15] The management was reshuffled at least four times between the project commencement and ex-post evaluation. Every time it happened, procedures were revisited, creating delays in the processes. It was also said that rationalization, a restructuring/staff optimization policy which began after the commencement of this project, affected the process.

Region, together with DPWH Headquarters and DEOs in the region, began organizing and verifying land acquisition issues concerning this section in November 2013. At the time of ex-post evaluation they are still cautiously considering how to respond to the issues related to legal system development and compensation.

In light of the above, it can be judged that DPWH should have taken the initiative in processing the payment of compensation promptly and responsibly, either immediately after the detailed design or when CADT clearly became effective. At the time of ex-post evaluation DPWH commented, “We will see to it that the compensation is duly paid. However, we will first need to carefully examine the legal framework and verify the steps taken thus far.”

3.3.2.3 Unintended Positive/Negative Impact (Impacts of the project on Tourism)

Regarding the development of roads and bridges in (3-a) and (3-b) in the Cordillera Administrative Region as well as (2) Patapat Viaduct in the province of Ilocos Norte, some impacts are also observed in the area of tourism. The Cordillera Administrative Region visited during the field study has many touristic resources: a UNESCO’s world heritage site (rice terraces) and a number of towns/villages suited for summer resorts. According to the interviews with the residents in the region and DEO responsible for the maintenance of roads and bridges, they commented, “The developed roads have made the traffic smooth. It has increased traffic volume and the number of tourists. There are also more accommodations and shops. The situation is favorable for the local economy.” Based on such a comment, it can be presumed that the implementation of the project has improved tourists’ access to the region, thereby contributing to the increase in tourism incomes and to the vitalization of the local economy.

Photo 3: Bridge Developed by The project

Photo 4: Rice Terrace near Mankayan

(Conclusion on Efficiency and Impact)

With regard to average daily traffic volume, initial targets have been achieved in the (1) Ligao-Pio Duran Road and (5) Iloilo East Coast-Capiz Road. In addition, according to the 2013 data which was just released, targets have been achieved for some sections: (2) Patapat Viaduct, (3-a) Suyo-Cervantes-Mankayan-Abatan Road and (4) the Catarman-Calbayog Road. On the other hand, the initial target has not been achieved in the (3-b) Cervantes-Sabangan Road at the time of ex-post evaluation because DPWH is still carrying out the paving work using its own fund. Nevertheless, its average daily traffic volume has been steadily increasing for the past three years and targets are expected to be achieved after the completion, according to the executing agency.

In terms of reduction in travel time, the initial targets have been achieved in all the sections except for the Catarman-Calbayog Road and Cervantes-Sabangan Road mentioned above. The Catarman-Calbayog Road is being paved because traffic volume increased in recent years and congestion is a serious problem. The agricultural production data and beneficiary survey have confirmed that the project is supporting the improvements in agricultural productivity, contributing to the improvement in living conditions of the residents near the project sites. It is also greatly contributing to the vitalization of the local economy. Considering these facts comprehensively, it can be judged that effectiveness and impact of the project is high. Needles to say, however, the delay observed in the payment of compensation should be addressed as soon as possible in relation to the acquisition of land required for the Cervantes-Mankayan-Abatan section.

3.4 Efficiency (Rating: ①)

3.4.1 Project Outputs

Table 4 shows the planned and actual outputs of the project.

Table 4: Planned and Actual Outputs of The project

Plan (At the time of Appraisal)	Actual (At the Time of Ex-Post Evaluation)
1) Civil Engineering Work (1) Ligao-Pio Duran Road in the province of Albay : Development of roads (about 21.8km) and bridges (3 places) (2) Patapat Viaduct in the province of Ilocos Norte : Protection work for the pier foundation (approx. 1.1km)	1) Civil Engineering Work (1) Ligao-Pio Duran Road in the province of Albay : Development of road (23.6km) and bridges (3 places) (2) Patapat Viaduct in the province of Ilocos Norte : Protection work for the pier foundation (1.1km)

(3-a) Suyo-Cervantes-Mankayan-Abatan Road in the Cordillera Administrative Region and (3-b) Cervantes-Sabangan Road : Development of roads (a total of approx. 111.4km) and bridges (10 places) (4) Catarman-Calbayog Road on the island of Samar : Development or roads (approx. 68.3km) and bridge (1 place) (5) Iloilo East Coast-Capiz Road on the Panay Island : rehabilitation of damaged roads (appox. 39.5km)	(3-a) Suyo-Cervantes-Mankayan-Abatan Road in the Cordillera Administrative Region and (3-b) Cervantes-Sabangan Road : Development of roads (a total of approx. 108km, but partially under construction) and bridges (10 places) (4) Catarman-Calbayog Road on the island of Samar : Development or roads (47.33km) and bridge (1 place) (5) Iloilo East Coast-Capiz Road on the Panay Island : rehabilitation of damaged roads (39.0km)
2) Consulting Services The main TORs are to conduct detailed design (or to review the detailed design), assisting bidding, construction supervision, assisting land acquisition and resettlement, environmental monitoring on the compliance to the environmental compatibility conditions, advising on social and environmental measures implemented by the executing agency and contractors, etc. (Planned MM: a total of 604MM for the detailed design, 1,000MM for construction supervision, and 57MM for the other tasks)	2) Consulting Services The TORs listed on the left-hand column were executed as planned. (Actual MM: 947.17MM for detailed design, 2,126.41MM for construction supervision, and 185.2MM for others)

Source: JICA's internal document (plan), project completion reports and answers to the questionnaire (actual)

Below are the explanations for the disparities between the planned and actual outputs shown in Table 4:

1) Civil Engineering Work

(1), (2) and (5) were mostly as planned. On the other hand, (3) was slightly less than planned, while the road extension of (4) was shorter by approximately 20km than planned. It is mainly because material costs such as that of cement increased during the project implementation. As the construction cost was expected to increase, DPWH faced the need to complete construction with the initially planned project budget. As a result, the project scope was downscaled. Additionally, the (3-b) Cervantes-Sabangan Road in the Cordillera Administrative Region is especially steep and mountainous and landslides were caused by heavy rains; thus the construction was more difficult than expected. As it was expected that the cost would increase, DPWH put off the pavement of some sections during the project implementation in 2007. As a result, the actual extended kilometer was different from the plan[16]. Concerning the extension of

[16] However, as of March 2014 DPWH is paving the section that was once put off using its own fund. It is expected

the (4) Catarman-Calbayog Road, some sections (approx. 20km) were found to be in a good condition when the construction plan was reviewed during the detailed design, which was immediately after the project commencement. This created the disparity[17].

2) Consulting Services

The actual MM was more than planned because the project period was extended as it will be explained below in "3.4.2.2 Project Period."

3.4.2 Project Inputs

3.4.2.1 Project Cost

The total project cost was initially planned to be 11,059 million yen (out of which 8,294 million yen was to be covered by Japanese ODA loan). In reality, the total project cost was 10,950 million yen (out of which 7,773 million was covered by Japanese ODA loan), which is 99% of the plan. However, adding the actual cost (258.8 million peso or 595 million yen) which would have occurred, such as the cost of paving one section of the (3-b) Cervantes-Sabangan Road where the paving work was once put off due to budget shortage (approx.109 million peso or 250 million yen), the cost of completing the construction for one section in which paving work was cancelled because the road condition was good at the time of the detailed design (approx. 146 million peso or 336 million yen to complete the pavement of (4) Catarman-Calbayog Road) and the unpaid compensation concerning the (3-a) Cervantes-Mankayan-Abatan Road (approx. 3.8 million peso or 8.7 million yen for the removal of trees and fences along the housing boundary although the amount only represents what is known), the total project cost is calculated to be 11,545 million yen. This exceeds the initial plan or 104% of the plan. Therefore, efficiency is judged to be low considering the actual outputs versus the actual project cost.

3.4.2.2 Project Period

The project was planned to be implemented for 5 years and 9 months (69 months) from May 2001 to January 2007 as shown in Table 5. In reality, however, the project required 12 years and 11 months (155 months) from May 2001 to March 2014, which is significantly longer than planned (224% of the plan). The reasons are as follows: 1) the central government was late in

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that the pavement of the entire section will be completed by the end of 2014.

[17] Although it was put off, traffic volume of this section has increased in recent years, creating severe traffic congestion. In response to such a situation, DWPH is carrying out the paving work for the remaining sections using its own fund as well as Japanese ODA loan ("Road Upgrading and Preservation Project", for which L/A was signed in March 2011).

allocating local-portion budgets to DPWH[18]; 2) construction was frequently interrupted by unexpected weathers such as heavy rain and floods; 3) the road construction in the Cordillera Administrative Region was delayed because the project needed to increase the number of slope protection sites for safety reasons given the mountainous and steep road; 4) the issue of land acquisition concerning the (3-a) Cervantes-Mankayan-Abatan Road remains unsolved at the time of ex-post evaluation; and 5) the project is considered to be completed at the time of the first field mission (March 2014) because the paving work is on-going in the (3-b) Cervantes-Sabangan Road. Therefore, efficiency is judged to be low considering the actual project period versus the actual outputs.

Table 5: Planned and Actual Project Period

Item	Plan	Actual
1) Employmentof Consultants	July 2000-June 2001	July 2000-June 2001
2) Detailed Design	July 2001-December 2002	February 2002-April 2004
3) Selection of Contractors	May 2002-January 2004	February 2003-April 2004
4) Civil Engineering Work	August 2003-January 2007	May 2003-present[19]
5) Land Acquisition	January-December 2003	September 2005-present
6) Consulting Services	June 2001-July 2005	February 2002-December 2010

Source: JICA's internal document (plan), project completion reports and answers to the questionnaire (actual)

3.4.3 Results of Calculations of Internal Rates of Return (Reference only): Economic Internal Rates of Return (EIRR)

At the time of the appraisal, EIRR was calculated by considering the reduction in travel time and saving on maintenance cost as benefits, the construction cost and maintenance cost as costs, and with the project life of 20 years. The calculated rates were as follows: (1) 19.1% for Ligao-Pio Duran Road in the province of Albay; (2) 16.5% for Patapat Viaduct in the province of Ilocos Norte; (3) 16.5% for Suyo-Cervantes-Mankayan-Abatan Road and 72.1% for

[18] It required significant time to obtain the budget approval for the project from the central government of the Philippines (the National Economic and Development Authority, "NEDA"). Especially, all budget approvals were significantly delayed including that for ODA loan projects due to the tight fiscal policy of the Philippine government from FY2004 to FY2005.

[19] Construction schedules for different sections are follows: (1) Ligao-Pio Duran Road in the province of Albay: October 2009-April 2011; (2) Patapat Viaduct in the province of Ilocos Norte: March 2008-August 2009); (3) Suyo-Cervantes-Mankayan-Abatan Road and Cervantes-Sabangan Road in the Cordillera Administrative Region: June 2006-April 2011 (however, some parts are still under construction); (4) Catarman-Calbayog on the Island of Samar: May 2003-August 2007; and (5) Iloilo East Coast-Capiz Road on the Panay Island: June 2003-April 2007.

Cervantes-Sabangan Road in the Cordillera Administrative Region; (4) 15.4% for Catarman-Calbayog on the Island of Samar; and (5) 26.3% for Iloilo East Coast-Capiz Road on the Panay Island.

On the other hand, it was difficult to recalculate the EIRR at the time of ex-post evaluation because DPWH did not have basic vehicle operating cost (BVOC) after the project completion which is essential for the calculation.

The project cost exceeded the plan, while the project period significantly exceeded the plan. Therefore efficiency of the project is low.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

Each DEO of DPWH is responsible for the operation and maintenance of the roads and bridges developed through the project. The (1) Ligao-Pio Duran Road in the province of Albay is managed by Albay Third DEO, the (2) Catarman-Calbayog on the Island of Samar is by North Samar First DEO, the (3) Iloilo East Coast-Capiz Road on the Island of Pana is by DPWH Third DEO, the (4) Suyo-Cervantes-Mankayan-Abatan Road and Cervantes-Sabangan Road in the Cordillera Administrative Region is by Ilocos Sur Second DEO, Mountain Province DEO and Benguet Second DEO and the (5) Patapat Viaduct in the province of Ilocos Norte is by Ilocos Norte First DEO. Operation and maintenance works carried out by each DEO include cleaning and repair of pavement and bridges, repair of bumps on the roads, weeding and development of shoulders on the sidelines of the roads in order to prevent skidding accidents. DEOs also operate and store maintenance equipment (e.g., heavy machinery such as loaders and vehicles such as trucks for transportation of materials). In addition, each DEO is supervised and monitored by the respective regional office. DEOs submit reports every quarter, while regional offices visit and give guidance to the respective DEOs.

The number of DEO staff responsible for the operation and maintenance of the project is shown in Table 6. According to the interviews with the DEOs in the Cordillera Administrative Region visited during the field study, they commented that there was a constant shortage of site workers while the number of engineers and field superintendents was mostly sufficient. The DPWH's standard for staff allocation says: "It is appropriate to allocate one site worker per 3.5km of road extension." However, quite a number of DEOs across the country are not meeting

this standard due to budget shortage[20] and are maintaining roads and bridges with the limited number of staff. Therefore, it is thought necessary to allocate sufficient number of site workers by increasing maintenance budgets.

Table 6: Number of Staff Responsible for the Operation and Maintenance of the project by DEO

DEO (corresponding section)	Engineers	Field Superintendent	Site Workers	Others	Total
1) Albay Third DEO : (1) Ligao-Pio Duran Road	1	1	20	-	22
2) North Samar First DEO : (4) Catarman-Calbayog Road	2	4	9	1	16
3) DPWH Third DEO : (5) Iloilo East Coast-Capiz Road	2	2	4	3	11
4) Ilocos Sur Second DEO : (3-a) Suyo-Cervantes-Mankayan Road	2	1	15	-	18
5) Mountain Province DEO : (3-b) Cervantes-Sabangan Road	2	2	6	-	10
6) Benguet Second DEO : (3-a) Mankayan-Abatan Road	1	1	11	-	13
7) Ilocos Norte First DEO : (2) Patapat Viaduct	1	3	10	-	14

Source: Answers to the questionnaire

3.5.2 Technical Aspects of Operation and Maintenance

The DEOs responsible for the roads and bridges developed by the project have well-experienced staff members in place. It has been confirmed through interviews conducted during the field study that DEO staff members were fully aware of the importance of operation and maintenance works and knew how to operate and maintain the heavy machinery and vehicles used for maintenance. On the job training (OJT) is provided at each DEO. For newly recruited staff, OJT is usually provided and maintenance techniques and skills are shared among the staff. With regard to training, DPWH Headquarters held training in the use of heavy machinery in November 2013[21]. Therefore, it can be observed that there are no major problems

[20] DPWH Headquarters is also aware that there is a shortage of staff at DEOs across the country.
[21] DPWH is planning to hold training in improvement of safety and maintenance service titled “DEO Maintenance Workshop” for DEO staff across the country after March 2014.

with the technical aspects of the operation and maintenance by each DEO.

3.5.3 Financial Aspects of Operation and Maintenance

Table 7 shows data on operation and maintenance budgets of DEO responsible for the roads and bridged targeted by the project. The budget trends in the past three years[22] vary from one DEO to another. According to DPWH Headquarters and DEOs, DEO tends to receive increased budgets the following year[23] if the road sections and bridges under the DEO required large volume of maintenance work in the previous year. On the contrary, DEO would be allocated smaller budgets compared to the previous year if the roads and bridges managed by the DEO were relatively in good conditions[24]. On the other hand, according to the interviews with DEOs in the Cordillera Administrative Region visited during the field study, they commented, "It is not easy to renew the heavy machinery and vehicles that we own because we are only allocated limited operation and maintenance budget. Although they are still functional, their years of depreciation have passed and they need to be replaced. In addition, with the limited budge we cannot increase the number of site workers; thus we are requesting the headquarters to increase out budgets." Furthermore, it was observed through the field visits that the heavy machinery and vehicles had not been renewed for many years due to budget shortage. Therefore, it can be judged that there are some concerns with the operation and maintenance budgets (financial aspects) of the project[25].

[22] In principle, operation and maintenance budget for arterial roads are calculated by multiplying a flat EMK basic cost (peso) to an equivalent maintenance kilometer ("EMK") determined by the types of road pavement, status, road width and traffic volume.

[23] For example, the road managed by 5) Mountain Province DEO has had many cases of falling rocks. As they needed to remove rocks and carry out slope protection works in 2011-12, the allocated budget increased.

[24] For example, roads managed by DPWH Third DEO (the Panay Island) are mostly flat and hence little maintenance work is needed as compared to Mountain Province; thus their budget has been decreasing.

[25] On the other hand, DPWH has been pursuing the Equipment Procurement Program (EPP) since 2012 (to 2016). This program aims to renew heavy machinery and vehicles owned by DEO. The headquarters procures centrally and provides machinery and vehicles to DEOs. The following budgets have been allocated under this program: 463 million peso for 2014, 554 million peso for 2015 and 664 million peso for 2016. According to the headquarters, the DEOs responsible for the operation and maintenance of this project are not targeted by this program at the time of ex-post evaluation. However, there is a possibility that these DEOs will be covered by the program in the future based on the priorities.

Table 7: Operation and Maintenance Budget for Roads and Bridges in Project Areas

(Recent 3 Years)

(Unit: peso)

DEO	2011	2012	2013
1) Albay Third DEO	3,789,249	3,946,681	3,878,461
2) North Samar First DEO*Note	24,456,976	37,964,532	36,733,806
3) DPWH Third DEO	3,272,000	3,070,000	2,821,000
4) Ilocos Sur Second DEO	3,634,615	3,634,615	3,634,615
5) Mountain Province DEO	4,046,616	8,773,787	8,903,987
6) Benguet Second DEO	1,522,878	1,522,878	1,522,878
7) Ilocos Norte First DEO	1,200,000	1,500,000	1,700,000

Source: Answers to the questionnaire

Note: The budget for North Samar First DEO represents the total budget for all roads and bridges under the office (i.e., including budgets for roads and bridges that are not covered by the project).

3.5.4 Current Status of Operation and Maintenance

The DEOs responsible for the roads and bridges targeted by the project formulate maintenance plans. They then carry out various maintenance works based on the developed plans. Through the field visits to the Cordillera Administrative Region, it has been observed that the roads and bridges managed by DEOs had no major operation and maintenance problems such as serious damages or bumps. However, in some parts of the mountain road (especially the (3-b) Cervantes-Sabangan Road), fallen rocks and sediment were observed, which indicates that rock removal and cleaning works are not sufficiently conducted by the respective DEO. As it was discussed earlier, it is possibly because of the shortage of site workers. It can also be because the steep mountain road makes it more difficult to carry out the needed work including transportation of materials and equipment and assignment of staff. On the other hand, concerning the operation and maintenance status of the other targeted sections, no major problems were observed in the (5) Iloilo East Coast-Capiz Road on the Panay Island presumably because it is mostly flat and easier to maintain than the roads in the Cordillera Administrative Region.

Spare parts necessary for the road and bridge maintenance are stored by each DEO. Spare parts are normally procured by inviting local suppliers to bid; however the procurement takes time for some types of parts[26]. Each DEO has a maintenance manual. DEO staff members refer to this manual in order to carry out maintenance works.

Some problems have been observed in terms of the institutional and financial aspects of the maintenance. Therefore sustainability of the project effect is fair.

[26] However, maintenance has never been disturbed by the shortage of spare parts.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project improved roads and bridges for the badly conditioned sections of the arterial roads of the Philippines, with the aim of responding to increasing traffic volumes and to reduce travel time. At the time of the appraisal and ex-post evaluation, the project was consistent with the development policy of the Philippines and with the development needs for paving arterial roads, as well as for expanding and improving road networks. It was also consistent with the assistance policy of Japan; thus, the relevance of the project is high. Through the project, the initial targets have been mostly achieved in terms of average daily traffic volume capacity increases and reduction in travel time. Additionally, a beneficiary survey confirmed that the project is supporting improvements in agricultural productivity in the target areas. It is also contributing to the improvement of living conditions of the residents near the project sites, as well as to the vitalization of the local economy; thus, the project's effectiveness and impact are high. On the other hand, the project cost exceeded the plan and the project period was significantly longer than planned; thus, efficiency is low. There is a staff shortage at the District Engineering Office responsible for the operation and maintenance of the project. Furthermore, the DEO's maintenance is not necessarily sufficient because the organization has not been able to replace old heavy machinery and vehicles for many years; thus, sustainability of the project is fair.

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

4.2 Recommendations

(1) Recommendations to the Executing Agency (DPWH Headquarters)

1) Compensation has not been paid to landowners for the land acquisition concerning the Cervantes-Mankayan-Abatan Road at the time of ex-post evaluation. It is recommended that DPWH Headquarters and the regional office complete the verification process related to compensation as soon as possible and make efforts to accelerate the payment.
2) There is generally a shortage of site workers (maintenance staff) at DEOs in the areas targeted by the project. It is recommended that DPWH Headquarters increase the allocation and execution of budgets as much as possible, with a view to allocating sufficient staff and improving maintenance levels.
3) As many of the roads developed in the Cordillera Administrative Region are mostly

mountain roads, soil on the roadsides (cliffs) becomes fragile during the rainy season and roads are sometimes covered by sediments. While DPWH can only do so much to increase its budget and human resources, it is recommended that DPWH considers maintenance an issue and makes efforts to remove the sediments and clean the roads.

(2) Recommendations to JICA

While it is necessary to monitor DWPH's payment of compensation, it is also recommended that JICA conducts monitoring (e.g., periodically check the compensation paid) and to communicate with DPWH in order to ensure that the compensation is duly paid.

4.3 Lessons Learned

・Prompt Compensation Payment for Land Acquisition

Concerning the compensation to be paid to landowners for the acquisition of land required for the Cervantes-Mankayan-Abatan Road, it would have been feasible for DPWH to take the initiative in making the payment available based on the land acquisition plan before the commencement of construction operations. The compensation was not paid after the construction began, mainly because the DPWH Cordillera Administrative Region Office could not manage their internal activities effectively. Considering the fact that CADT, which restricted the selling and buying of land owned by indigenous people for generations, was becoming widely known around the time of the detailed design, it would have been feasible either to make the payment immediately or to promptly consider the best course of action in an effort to address the matter in a short period of time.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs	1) Civil Engineering Work (1) Ligao-Pio Duran Road in the province of Albay : Development of roads (about 21.8km) and bridges (3 places) (2) Patapat Viaduct in the province of Ilocos Norte : Protection work for the pier foundation (approx. 1.1km) (3-a) Suyo-Cervantes-Mankayan-Abatan Road in the Cordillera Administrative Region and (3-b) Cervantes-Sabangan Road : Development of roads (a total of approx. 111.4km) and bridges (10 places) (4) Catarman-Calbayog Road on the island of Samar : Development or roads (approx. 68.3km) and bridge (1 place) (5) Iloilo East Coast-Capiz Road on the Panay Island : rehabilitation of damaged roads (appox. 39.5km) 2) Consulting Services The main TORs are to conduct detailed design (or to review the detailed design), assisting bidding, construction supervision, assisting land acquisition and resettlement, .environmental monitoring on the compliance to the environmental compatibility conditions, advising on social and environmental measures implemented by the executing agency and contractors, etc. (Planned MM: a total of 604MM for the detailed design, 1,000MM for construction supervision, and 57MM for the other tasks)	1) Civil Engineering Work (1) Ligao-Pio Duran Road in the province of Albay : Development of road (23.6km) and bridges (3 places) (2) Patapat Viaduct in the province of Ilocos Norte : Protection work for the pier foundation (1.1km) (3-a) Suyo-Cervantes-Mankayan-Abatan Road in the Cordillera Administrative Region and (3-b) Cervantes-Sabangan Road : Development of roads (a total of approx. 108km, but partially under construction) and bridges (10 places) (4) Catarman-Calbayog Road on the island of Samar : Development or roads (47.33km) and bridge (1 place) (5) Iloilo East Coast-Capiz Road on the Panay Island : rehabilitation of damaged roads (39.0km) 2) Consulting Services The TORs listed on the left-hand column were executed as planned. (Actual MM: 947.17MM for the detailed design, 2,126.41MM for construction supervision, and 185.2MM for the other tasks)
2. Project Period	May 2001-January 2007 (69 months)	May 2001-March 2014 (155 months)
3. Project Cost Amount paid in Foreign currency	6,792 million yen	3,707 million yen

Amount paid in Local currency	4,267 million yen	7,243 million yen
Total	11,059 million yen	10,950 million yen
Japanese ODA loan portion	8,294 million yen	7,773 million yen
Exchange rate	1PHP=2.8JPY (May 2001)	1PHP=2.17JPY (average rate for the project period)