Republic of the Philippines

Philippine-Japan Friendship Highway Rehabilitation Project (I) (II)

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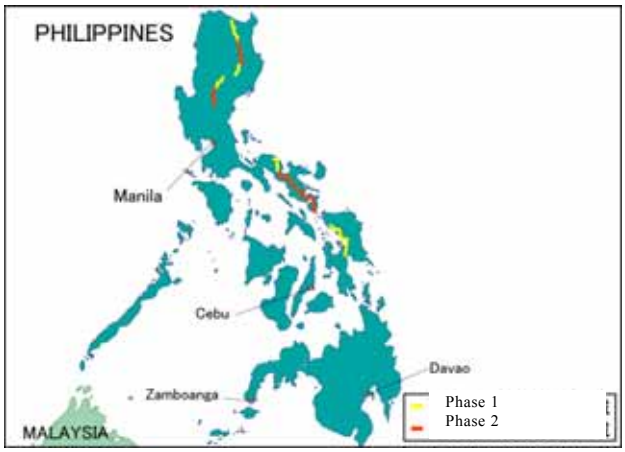
Field Survey: September 2006 – February 2007

1. Project Profile and Japan's ODA Loan



Map of Project Area

The Daraga-Matnog section of PJFH, a part of Phase II

Background

After the Philippines gained independence, economic growth led to a need to develop the road network. Thus in the 1960s, construction began on the Philippine-Japan Friendship Highway, which goes from north to south of the country and is the largest trunk highway in the country. As this highway developed, in the 1970s construction progressed on related roads and regional trunk roads that connect to it. In the 1980s, the road extensions continued, with construction of local access roads and regional road networks. Therefore, the period up to the 1980s was one of quantitative road extension to cope with the growing demand for road transport. As the road network was enhanced, motorization rapidly escalated, and road transport became the primary means of transport in the Philippines. Meanwhile, the high priority placed on increasing the quantity of roads meant that attention to road quality was unavoidably sacrificed. Moreover, serious problems were created by road damage that progressed rapidly due to unsuitable designs and inferior construction work, inadequate operation and maintenance, and incomplete enforcement of laws against overloaded vehicles. Acute problems also resulted from the fact that underdevelopment of alternative routes and inadequate disaster measures left regional areas isolated during disasters due to road closures. For these reasons, ensuring a safe and reliable means of transportation became an important issue in the 1990s. The Philippine government started

shifting emphasis toward strengthening of maintenance and toward enhancing the road system as a functional network.

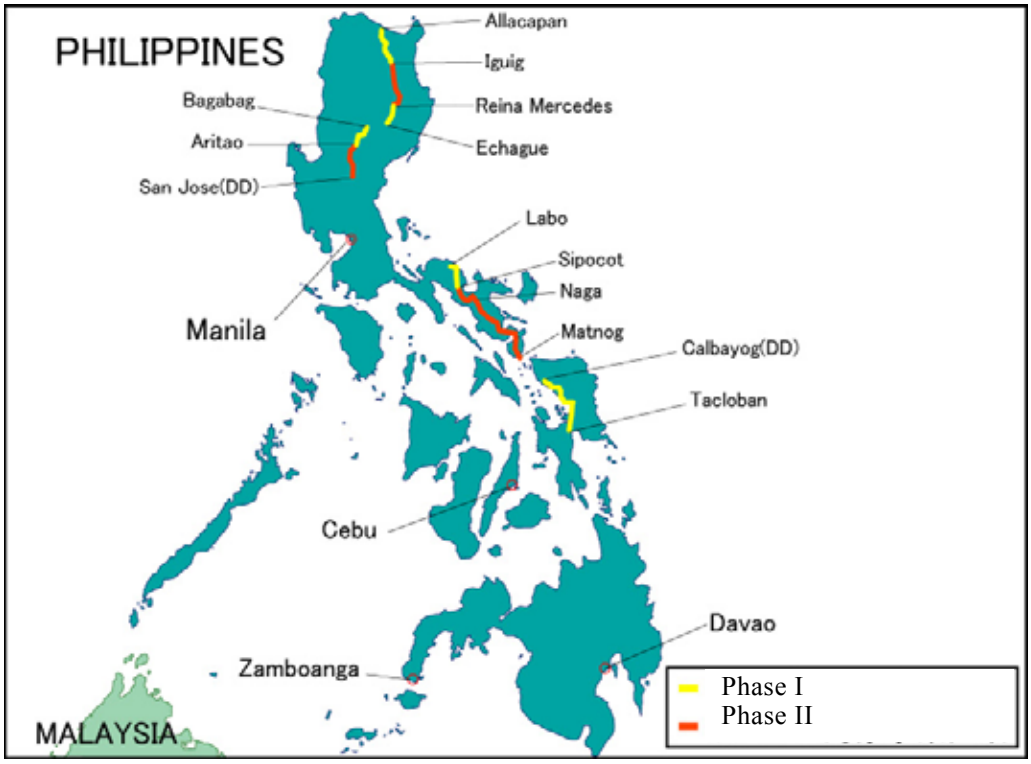
As explained above, a transition point had been reached, wherein the Philippines shifted from the stage of high-quantity road development and construction to the stage of seeking qualitative improvements. Improvement in the quality of the Philippine-Japan Friendship Highway was sought because over 15 years had passed since construction and the road surface and road shoulders were heavily damaged due to natural disasters.

1.2 Objective

This project is to ensure the efficiency of road transportation by carrying out rehabilitations on the Philippine-Japan Friendship Highway, which is the arterial trunk highway of the Philippines, thereby contributing to regional development and the development of the Philippine economy.

Figure 1 shows the location of project sites. The Philippines is divided into 17 regions[1], and this project was implemented in the Regions II and V.

Figure 1: Project Sites



[1] The 12 Regions are following: National Capital Region (NCR), Cordillera Administrative Region (CAR), Ilocos Region (Region I), Cagayan Valley (Region II), Central Luzon (Region III), Calabarzon (Region IV-A), Mimaro (Region IV-B), Bicol Region (Region V), Western Visayas (Region VI), Central Visayas (Region VII), Eastern Visayas (Region VIII), Zamboanga Peninsula (Region IX), Northern Mindanao (Region X), Davao Region (Region XI), SOCCSKSARGEN (Region XII), Caraga (Region XIII), and the Autonomous Region in Muslim Mindanao (ARMM).

1.3 Borrower/Executing Agency

Government of the Republic of Philippines/Department of Public Works and Highways (DPWH)

1.4 Outline of Loan Agreement

Loan Amount/Loan Disbursed Amount	(I) 9,620 million yen/ 9,557 million yen (II) 9,551 million yen/ 8,930 million yen
Exchange of Notes/Loan Agreement	(I) November 1994/December 1994 (II) July 1995/August 1995
Terms and Conditions -Interest Rate -Repayment Period (Grace Period) -Procurement	 (I) 3.0 %; (II) Main: 2.7 %, Consultant: 2.3% (I and II) 30 years (10 years) (I and II) General Untied
Main Contractors (above 1 billion yen per contract)	(I) Kamagong Builders & Developers Corporation (Philippines), Shinsung Corporation(Republic of Korea), Cavite Ideal Construction (Philippines)・Jundy and Company Inc. (Philippines), F.Vergas Construction (Philippines), Philrock Inc. (Philippines) (II) Cavite Ideal International Construction & Development Corp.(Philippines)・Jundy Construction (Philippines), Dilgonz Construction Corp. (Philippines)・Hi-Tri Development Corp. (Philippines)・Persan Construction (Philippines), New San Jose Builders Inc. (Philippines), Keang Nam Enterprises Ltd. (Republic of Korea)
Consultant Services (above 100 million yen per contract))	(I) Pacific Consultants International (Japan)・Renardet S.A.(Italy)・Phillip's Technical Consultants Corp. (Philippines), Katahira & Engineers Int'l.(Japan)・Toko Engineering Consultants, Co., Ltd. (Japan). (II) Renardet S.A.(Switzerland)・Pacific Consultants International (Japan), Katahira & Engineers Int'l (Japan).
Feasibility Study (F/S), etc.	JICA (1993)

2. Evaluation Result (Rating: A)

2.1 Relevance (Rating: a)

2.1.1 Relevance at the time of appraisal

In the Philippines Mid-Term Development Strategy (1993-1998), the highest priority was placed on strengthening maintenance and improvement of existing roads, development of trunk roads, and development of roads that support agriculture, local industrial centers, and tourism development. At the sector level, the priority in the road development plan was placed on operation, maintenance, and rehabilitation in order to effectively utilize the investment in existing roads. Among these, the greatest emphasis was placed on operation, maintenance, and rehabilitation of the trunk road network composed of the north-south route and the east-west route. The Philippine-Japan Friendship Highway, which is the target of this project, is the north-south route, and because it is an arterial trunk road in the

Philippines, it has great importance. Moreover, because this road was completed in stages at the beginning of the 1970s, it was extremely worn and damaged, and so implementation of large-scale rehabilitation was a priority issue.

2.1.2 Relevance at the time of evaluation

At the time of evaluation, the highest priorities in the Mid-Term Development Strategy (2004-2010) were strengthening of operation and maintenance of existing trunk roads, development of a road network to promote distribution of industrial and agricultural products, and development and improvement of the trunk road network composed of the north-south route and the east-west route. This project was to rehabilitate the Philippine-Japan Friendship Highway, which is a trunk road and the major north-south artery in the Philippines, and so the project's priority remained high. Specifically, the project sites were on important sections of the road where demand for road transport is high, and it was expected that these roads would contribute to the stimulation of the local economy.

2.2 Efficiency (Rating: b)

2.2.1 Outputs

Table 1 shows the outline of the project plan and the outputs. The outputs in Phases I and II were basically as planned. However, the length of road rehabilitated was increased due to a slight discrepancy in the designation of the damaged portions of pavement in the detailed design. Specifically, because the deterioration of San Junaico Bridge was confirmed in Phase I, a detailed design of the bridge rehabilitation was added. Based on this detailed design blueprint, the government undertook the rehabilitation work. In Phase II, it was discovered in the detailed design stage that the damaged portions between Naga City – Daraga and Daraga – Matnog were spread over a longer distance than initially expected. To carry out the rehabilitation work, the total length was increased by 44%. With regard to bridges and culverts, replacement work was undertaken for those confirmed through detailed inspection in each phase to be in a deteriorated state. All alterations are judged to have been appropriate.

Alcala-Allacapan section of road, part of Phase I

Tumauini-Iguig section of road, part of Phase II

Table 1: Project Outline and Output

Phase I

Item	Planned	Actual
Roads		
Aritao-Bambang	13.1	12.9
Bambang-Bagabag	37.9	As Planned
Echague-Reina Mercedes	41.9	As Planned
Iguig-Alcala	38.2	As Planned
Alcala-Allacapan	44.1	44.8
Labo-Daet	37.8	As Planned
Daet-Sipocot	38.0	As Planned
Total Length (km)	251.0	251.4
Detailed Design (Calbayog-Tacloban)		As Planned
Detailed Design (San Junaico Bridge rehabilitation)		Additional
Bridges/Culverts		
Bridges		12 sites
Culverts		4 sites
Consulting Services	139MM	133.5 MM

Phase II

Item	Planned	Actual
Roads		
Reina Mercedes-Tumauini	42.5	45.0
Tumauini-Iguig	66.3	67.0
Sipocot-Naga City	48.0	39.0
Naga City-Daraga	48.0	89.0
Daraga-Matnog	45.0	120.0
Total Length	249.8	360.0
Bridges/Culverts		
Bridges	7 sites	12 sites
Detailed Design (Aritao-San Jose)		As Planned
Consulting Services	107MM	147.5MM

2.2.2 Project period

Whereas the project period planned at the time of the appraisal for Phase I was from December 1994 to June 1999 (4 years and 7 months), the actual project period was from December 1994 to May 2003 (8 years and 6 months (final disbursement date)). Meanwhile the construction period was from March 1997 to December 2002, an extension of 3 years and 11 months. This was due to (1) the delay in beginning construction (delayed 1 year and 9 months from March 1997), (2) the interruption in construction of approximately 8 months due to a typhoon and deterioration of public security, and (3) time required due to exacerbation of road damage by a typhoon and a study of pavement methods. The detailed reasons for the delay in the start of construction ((1) above) were the formation of a committee to strengthen the review of the design and improve the quality of the detailed design, a shortage in government counterpart funds, and the time required for the tender procedure[2]. As these processes were complex, time was required to conclude the contracts.

[2] In the Philippines, a technical work group was set up to study some particular matters, and a bidding committee was also set up to publicly announce the bids, depending on the contents of the bidding.

In Phase II, whereas the initially planned project period was from August 1995 to June 2000 (4 years and 11 months), the actual project period was from August 1995 to June 2003 (7 years and 11 months (final disbursement date)). Meanwhile the construction period was from July 1998 to March 2003, a delay of 2 years and 4 months. This was due to (1) frequent interruptions in construction due to typhoons and heavy rains, (2) alterations in the detailed design to suit actual conditions, and (3) the time required to make design alterations and carry out rehabilitation work after the Dalton Pass section, which travels through a steep and mountainous area, suffered typhoon damage (an increase from 18 months to 35 months).

The overall planned project period for Phases I and II was from December 1994 to June 2000 (5 years and 7 months), and the actual project period was from December 1994 to June 2003 (8 years and 7 months), representing a delay of 153% compared to the plan. The delays in construction were unavoidable because the Philippines is a country that experiences many typhoons and the project area was prone to typhoon damage because it lies in a geological fault zone. In both Phases I and II, construction was completed by the final disbursement date.

2.2.3 Project cost

The total project cost of Phase I planned at the time of appraisal was 12,827 million yen (ODA loan portion: 9,620 million yen), and the actual cost was 15,413 million yen (ODA loan portion: 9,557 million yen. The total cost of Phase II planned at the time of appraisal was 12,734 million yen (ODA loan portion: 9,551 million yen), and the actual cost was 11,825 million yen (ODA loan portion: 8,930 million yen). Regarding the project cost, there was a 20% increase in Phase I, a 7% decrease in Phase II, and a 6.6% increase in the total cost of the two phases combined. The main reason for the increase in project cost was the addition of construction work to rehabilitate and newly constructed bridges, which were in extremely poor condition. Furthermore, the foreign currency portion increased by 24% because, in addition to the bridge rehabilitation in Phase II, the total length of the road rehabilitated increased by 44%. However, the local currency portion was decreased by 24% in comparison to the planned amount. Combined with the appreciation of the Peso, the local portion converted into yen decreased by 47%. Hence, the total cost of Phase II decreased by 7%.

2.3 Effectiveness (Rating: a)

2.3.1 Traffic volume on the project's roads

Table 2 indicates the annual average daily traffic in the project sections. In Phase I at the time of the appraisal, there was no estimate of the annual average daily traffic for each

section, but the actual annual average daily traffic is increasing each year. The growth in traffic volume is particularly large on the Echague - Reina Mercedes section and the Iguig - Alcala section. This is because many vehicles that used alternative routes due to the extremely poor condition of the road prior to the project began to shift to these road sections following the completion of the rehabilitation work. In Phase II, the annual average daily traffic increased significantly above the levels forecast on all road sections except the Sipocot - Naga City section. This is due to the fact that many vehicles use the Quirino Highway, which runs parallel to the Sipocot - Naga City section. It is because, compared to the Sipocot - Naga City section, the Quirino Highway is smoother and straighter. Furthermore, the traffic volume increase that was forecast (1995-2003) for the Sipocot - Naga City section was 42%, but the actual increase was larger, at 64%.

Table 2: Annual Average Daily Traffic Volume
on the Philippine-Japan Friendship Highway (unit: vehicles/day)

Phase I [3] Actual

	1995	1999	2000	2002	2003
Aritao-Bambang	3,100	3,404	3,488	3,644	3,796
Bambang-Bagabag	6,789	6,699	7,283	7,172	6,530
Echague-Reina Mercedes	4,466	5,527	5,887	5,906	6,167
Iguig-Alcala	2,229	3,674	3,630	3,881	4,049
Alcala-Allacapan	932	1,604	1,654	1,693	1,768
Labo-Daet	3,666	3,644	4,013	3,938	4,140
Daet-Sipocot	2,957	3,644	4,013	3,938	4,140

Phase II Planned

	1995	1999	2000	2003	2004
Reina Mercedes- Tumaini	2,087	2,489	2,601	2,968	3,101
Tumaini-Iguig	1,309	1,561	1,632	1,862	1,946
Sipocot-Naga City	3,504	4,179	4,367	4,983	5,208
Naga City-Daraga	6,704	7,995	8,354	9,534	9,963
Daraga-Matnog	1,698	2,025	2,116	2,415	2,524

Phase II Actual

	1995	1999	2000	2002	2003
Reina Mercedes- Tumaini	4,481	5,527	5,887	5,906	6,167
Tumaini-Iguig	1,475	1,763	2,144	2,452	2,563
Sipocot-Naga City	2,438	3,564	3,466	3,798	3,995
Naga City-Daraga	4,808	10,317	12,980	10,995	11,556
Daraga-Matnog	1,525	3,088	3,136	3,201	2,837

2.3.2 Traffic accidents and fatality figures

Table 3 summarizes the number of traffic accidents and fatalities on the Philippine-Japan Friendship Highway. Many accidents occur on the Aritao- Bambang – Bagabag section built in Phase I because it is a winding road through a mountainous region. Of the

[3] In Phase I, no planned figures were set at the time of appraisal.

roads built in Phase II, many accidents occur on the Sipocot - Naga City section, which runs through a mountainous region, and on the Naga City - Daraga – Matnog section, which is a straight section running through a scenic area. Judging from Table 3, it cannot be said that the number of traffic accidents is declining, but considering the striking increase in traffic volume in recent years, it seems that the number of fatalities and accidents per vehicle is declining. The executing agency is working to reduce traffic accidents by marking sites where accidents frequently occur, undertaking rehabilitation work at frequent accident sites, and reminding drivers to drive safely.

Table 3: Actual Traffic Accident Figures

Phase I

Road Section	Year	Type of Accident			
		Death	Serious Injury	Light Injury	Property Damage
Aritao Bambang	04	8	8	7	5
	05	7	4	2	4
	06	6	10	3	2
Bambang - Bagabag	04	10	21	13	13
	05	10	23	5	7
	06	9	21	9	5
Echague - Reina Mercedes	04	4	12	12	3
	05	5	7	4	6
	06	9	7	7	8
Iguig - Alcala	04	1	0	0	0
	05	9	4	3	5
	06	4	1	1	1
Alcala - Allacapan	04	0	1	0	1
	05	2	0	0	0
	06	2	1	0	0
Labo - Daet	04	2	6	3	2
	05	4	3	3	0
	06	2	10	3	0
Daet - Sipocot	04	2	5	3	0
	05	2	5	8	2
	06	0	0	0	0

Phase II

Road Section	Year	Type of Accident			
		Death	Serious Injury	Light Injury	Property Damage
Reina Mercedes - Tumauin	04	1	4	0	1
	05	6	5	1	4
	06	5	2	2	2
Tumauini - Iguig	04	2	0	1	0
	05	15	4	2	5
	06	6	2	2	3
Sipocot - Naga City	04	7	55	54	8
	05	1	35	5	3
	06	0	18	0	4
Naga City - Daraga	04	5	36	54	13
	05	23	39	25	29
	06	7	50	15	23
Daraga - Matnog	04	15	46	13	14
	05	10	28	20	10
	06	8	36	11	10

2.3.3 Internal rate of return

The economic internal rate of return (EIRR) at the time of appraisal was calculated with costs as the road construction cost, and the road operation and maintenance cost, and with quantitative benefits as the economic effects due to reduction of running costs, fixed costs, and time costs as compared to alternative means of transportation. As a result of the calculation, the EIRR for Phase I was 22.65% and for Phase II was 34.5%. The economic analysis in Phase I at the time of appraisal seems to be a comparison with an alternative project, but the detailed assumptions are unclear. Therefore, at the time of ex-post evaluation, the EIRR was recalculated on a "with/without project" basis, using the same conditions of the appraisal. The result was 17.72%. The decline in the internal rate of return was due to the fact that the benefit was slightly offset by the cost overrun and the improvement in vehicle operating cost (VOC). For the ex-post evaluation of Phase II, in the recalculation using the same conditions as at the time of appraisal, the internal rate of return was 27.88%. The reason why the internal rate of return is lower than 34.5% is because the occurrence of benefits was postponed by the cost overrun and the delay in the completion of construction. It was, however, pointed out that the EIRR in Phase II at the time of appraisal was larger than the figure presented in JICA's feasibility study. When this figure was recalculated using sensitivity analysis, the result was 14.5%. Comparing the latter EIRR figure, it appears that the increase in traffic volume and the improvement in VOC raised the project's benefits. Because the project has made a high level of contribution to the region, for instance in significant growth in traffic volume and stimulation of the local economy, it is reasonable to conclude that the investment was relevant and that the objectives of this project at the time of appraisal have been adequately achieved.

Table 4: Internal Rate of Return (%)

	Appraisal	Ex-post Evaluation
Phase I	22.65%	17.72%
Phase II	34.5%	27.88%
(Sensitivity Analysis	14.5%	—

2.4 Impact

2.4.1 Socioeconomic Development in Rural Areas

As part of the ex-post evaluation, a beneficiary study in interview form was conducted in the region that benefited from the rehabilitation work conducted by this project on the Philippine-Japan Friendship Highway, and a total of 1,062 valid responses were received.[4] In this study, nearly 80% of respondents replied that access to public facilities had

[4] Of the valid responses, two-thirds were from males, 22% from university graduates, 40% from employed persons, and 79% from persons possessing vehicles.

improved, such as market centers, public services, hospitals, and public-related offices.

Nearly all respondents stated that their income rose by 10% to 20%, and, moreover, 93% of respondents replied that traffic congestion had been alleviated and travel time had been shortened by between 15 minutes to 1 hour following completion of the road rehabilitation work. In addition, many respondents also mentioned an increase in employment opportunities (72%) and improvement in business opportunities (63%). For this reason, there were respondents who said that they planned to expand their commercial space or services, such as by expanding their store. Many respondents mentioned environmental problems such as dust during construction, but it was confirmed that dust stirred up by passing vehicles decreased and the air environment improved following completion of construction.

Sipocot-Naga section of road, part of Phase II of the project

Nearly all respondents mentioned that they had been able to reduce costs because shipment to market of produce such as farm crops had become easier and they no longer needed to depend on middlemen. Moreover, there were respondents who said that the road had contributed to the stimulation of distribution overall in the region because of the increase in traffic capacity due to the improvement of the road surface condition. Especially, Region II is the farming area, where major agricultural projects are shipped to the whole country. It can be said that this project contributed to smooth distribution of goods. Furthermore, according to bus companies, transportation companies, and other companies visited for this evaluation, not only did this project result in more efficient transportation of farm produce and industrial goods, but it also contributed to a reduction in transportation cost. Specifically, it was mentioned that vehicle maintenance expense had greatly decreased due to savings on gasoline and other fuel, reduced replacement of tires and other parts, and other reductions in operation and maintenance expense.

Next, turning our attention to the economic growth rate in the project area, the growth rate of gross regional domestic product (GRDP) following project completion (2004) increased in both project areas (Region II and V), as shown on Table 5 below. It is difficult to verify the correlation between this project and changes in GRDP, but judging from the results of the beneficiary study, the project did assist the economic growth of the region by contributing to smoother economic activities by local residents and improved access to public facilities and economic centers.

Table 5: Trends in GRDP

(unit: billion pesos)

Region	1994	1996	1998	2000	2001	2002	2003	2004	2005
II	35.0	45.5	52.8	73.8	77.1	78.9	79.9	92.4	93.7
Growth rate (%)					4.5	2.3	1.3	15.6	1.4
V	50.5	62.6	75.4	86.4	93.0	102.9	109.8	123.5	136.5
Growth rate (%)					7.6	10.6	6.7	12.5	10.5

2.4.3 Environmental and social impact

This was a project to repair existing roads, and so it exerted no particular negative environmental impact. Effort was made to be thorough in preventing impact on surrounding residents, including sprinkling water around construction sites to prevent dust. Moreover, this project was carried out using the existing road width, and no land acquisition or resident relocation was required.

Iguig-Alcala section of road, part of Phase I

Column 1: Evaluation Capacity Development in Developing Countries

This project was jointly evaluated with the National Economic Development Authority (NEDA) of the Philippines. The initiative was based on the Memorandum of Understanding, signed in May 2006, with an objective to strengthen monitoring and evaluation for development projects. Besides this project, "Nationwide Air Navigation Facilities Modernization Project (3)" was also jointly evaluated for this year. For each project, NEDA staff visited the sites with the External Evaluators, and they collected data and conducted beneficiary surveys. Also, in compiling the report, NEDA staff and the team of External Evaluators collaborated with each other and presented the interim results to executing agencies in February 2007.

According to NEDA staff, they could deepen the understanding of the five DAC criteria (i.e. Relevance, Effectiveness, Efficiency, Impact and Sustainability), while recognizing the importance of acquiring basic data of projects in order to conduct the post-evaluation by themselves in the future. Some proactive responses, such as including the preparation of end-of project reports in NEDA's standard activities, were also heard. This shows their positive attitude towards evaluation through joint evaluation.

Interim Feedback Meeting

2.5 Sustainability (Rating: a)

2.5.1 Executing agency (Department of Public Works and Highways (DPWH))

The project was implemented by the Philippine-Japan Highway Loan-Project Management Office (PJHL-PMO) which is a part of the DPWH. Operation and maintenance is being conducted regularly by each regional office under the supervision of the DPWH.

2.5.1.1 Technical capacity

The technical capacity of the DPWH is suitable and adequate for road development and road operation and maintenance. Over half of its 18,000 employees are engineers. DPWH uses programs for employee training, for road operation and maintenance. DPWH ensures that employees improve their technical capacity by preparing a manual (covering road planning, road design, standard specifications for roads and bridges, road operation and maintenance, and road rehabilitation work) and implementing regular training in pavement techniques and operation of heavy equipment, among others. Moreover, the DPWH has established maintenance standards, and regular rehabilitation work is carried out based on those standards. Consequently, there seem to be no particular problems with regard to the technical capacity of the operation and maintenance staff.

2.5.1.2 Operation and maintenance system

The DPWH headquarters is located in the capital of Manila, and under its headquarters there are 15 regional offices composed of multiple district branches. There are 11 Project Management Offices (PMOs), and these offices are in charge of implementing ODA projects. DPWH's office in charge of operation and maintenance is the Bureau of Maintenance (BOM), and BOM prepares the operation and maintenance budget and verifies the condition of the roads. The actual operation and maintenance work is performed by the district offices and the city engineering offices that are under the supervision of the regional offices and BOM. In addition to specially planned pavement rehabilitations, normal rehabilitation work is periodically carried out (on a quarterly basis). Maintenance work other than paving is entrusted to private local companies selected through competitive bidding. Work such as cleaning roadside ditches and road shoulders and weed removal is performed monthly.

2.5.1.3 Financial status

The budget for operation and maintenance of national roads was formerly calculated by multiplying basic expenses by a factor based on actual road length and traffic volume,

etc., and the amount was allocated from the National Treasury. Even though the Road Fund[5] was established in the year 2000, the allocation from the general budget continued to increase for a few years. However, it has taken a downward trend since 2004 (Table 6).

Table 6: General Budget of the Department of Public Works and Highways (DPWH)

(unit: billion pesos)

1998	1999	2000	2001	2002	2003	2004	2005	2006
47.7	47.6	37.7	44.6	44.4	53.3	47.2	38.7	47.7

The operation and maintenance budget is allocated to the DPWH's finance department from the Road Fund as required for the annual operation and maintenance. The financial status of the DPWH's road operation and maintenance division is shown in Table 7 below. Particularly after the establishment of the Road Fund (see Table 8), a regular operation and maintenance budget of 8.2 billion to 12.8 billion pesos annually was secured. This is more than double the amount allotted prior to the establishment of the Road Fund, and it is adequate for conducting ordinary upkeep and rehabilitation work entailed in regular operation and maintenance. According to the executing agency, however, there remains a concern to secure an adequate budget for major rehabilitation work for roads damaged by unexpected natural disasters. Moreover, to appropriately operate and maintain the roads nationwide in the Philippines, it is reported that the budget needs to be doubled from the current Road Fund, and so the road operation and maintenance budget and its allocation are likely to remain issues in the future.

Table 7: Trends in the Operation and Maintenance Budget

(unit: billion pesos)

1998	1999	2000	2001	2002	2003	2004	2005
3.70	4.09	4.09	4.09	4.07	4.85	3.40	5.74

Table 8: Road Fund

(unit: billion pesos)

2000	2001	2002	2003	2004	2005
4.09	4.09	4.78	5.03	5.92	7.01

Table 9 below indicates the trends in annual costs for road operation and maintenance in Phase I and Phase II. After the project completion (2003), the operation and maintenance costs in the target areas have been decreasing.

5 The Road Fund was established in 2000, funded by a vehicle tax, as a measure against shortages of funds for road operation and maintenance. It is operated and managed by the Board of Directors chaired by the Secretary of the DPWH.

Table 9: Trends in Annual Road Operation and Maintenance Costs by Road Section

（unit: million pesos）

Section	2002	2003	2004
Phase I			
Aritao - Bambang	2.0	1.9	1.1
Bambang - Bagabag	2.7	2.7	1.6
Echague - Reina Mercedes	3.3	3.3	1.9
Iguig - Alcala	2.9	3.0	1.7
Alcala - Allacapan	3.3	3.3	1.9
Labo - Daet	4.4	4.2	2.5
Daet - Sipocot	2.9	4.2	2.5
Phase II			
Reina Mercedes - Tumaini	3.7	3.3	1.9
Tumaini - Iguig	5.0	5.2	3.0
Sipocot - Naga City	3.3	3.8	3.7
Naga City - Daraga	4.6	5.6	3.7
Daraga - Matnog	3.0	2.9	3.3

Source: Bureau of Maintenance, DPWH

2.5.2 Operation and maintenance status

When observing the current condition of the rehabilitated road in this ex-post evaluation, the paved surface in Phase I sections was generally in good condition. However, the road surface condition in some spots had deteriorated due to damage from natural disasters such as floods. The sections are exposed to frequent typhoons, and so damage to the road is unavoidable. The deterioration of the pavement is also considered to be due in part to the effects of overloaded vehicles. Despite the fact that overloading is prohibited, it appears that currently the regulations are not adequately enforced. The Phase II sections of the road are in good condition. It appears that regular rehabilitation work is being undertaken on all sections of the road that benefited from the project.

3. Feedback

3.1 Lessons learned

Some important long-standing baseline information which may be sourced from feasibility studies and the implementation plan prepared by the DPWH are not preserved, making it difficult to compare various aspects of the planned and projected data like the budget, economic indicators, and traffic volume. Although DPWH addresses the issue of information management, such as archiving past data, it requires further improvement.

Moreover, the Project Mmanagement Office (PMO) is examining changing the project scope with a regional office that is in charge of each road. PMO should also thoroughly discuss with the regional office the financial ramifications that may be caused by the change .

3.2 Recommendations

[To the Government of the Philippines and DPWH]

The main cause of delays in construction was the lack of government counterpart funds. The Government should allocate and distribute the counterpart funds in a timely manner in order to avoid any delay in construction.

Moreover, the Philippines are prone to natural disasters, such as typhoons, that also suspend construction. Therefore, it is necessary to prepare a realistic plan for the construction period, taking into consideration potential delays due to natural disasters such as typhoons.

Comparison of Original and Actual Scope

Phase I

Item	Planned	Actual
(1) Output		
Road rehabilitation（km）		
Aritao-Bambang	13.1	12.9
Bambang-Bagabag	37.9	As Planned
Echague-Reina Mercedes	41.9	As Planned
Iguig-Alcala	38.2	As Planned
Alcala-Allacapan	44.1	44.8
Labo-Daet	37.8	As Planned
Daet-Sipocot	38.0	As Planned
Total length （km）	251.0	251.4
Detailed Design Calbayog-Tacloban		As Planned
San Junaico Bridge rehabilitation		Additional
Bridges	None	12 sites
Culverts		4 sites
Consulting services	139 MM	133.5 MM
(2)Project Period	December 1994 – June 1999 (4 years 7 months)	December 1994 – May 2003 (8 years 6 months)
(3)Project Cost (Total Project Cost)		
Foreign Currency	5,777 million yen	9,584.5 million yen
Local Currency	7,050 million yen （1,875 million pesos）	5,828.59 million yen （1,755.6 million pesos）
Total	12, 827 million yen	15,413 million yen
ODA Loan Portion	9,620 million yen	9,557 million yen
Exchange Rate	1 peso = 3.76 yen （as of January 1994）	1 pesos = 3.32 yen （average of 1994 to 2003）

Phase II

Item	Planned	Actual
(1)Output		
Road rehabilitation（km）		
Reina mercedes-Tumauini	42.5	45.0
Tumauini-Iguig	66.3	67.0
Sipocot-Naga City	48.0	39.0
Naga City-Daraga	48.0	89.0
Daraga-Matnog	45.0	120.0
Total length （km）	249.8	360.0
Detailed design Aritao-San Jose		As Planned
Bridges	7 sites	12 sites
Consulting Services	107 MM	147.5 MM
(2)Project Period	August 1995 – June 2000 (4 years 11 months)	August 1995 – June 2003 (7 years 1 month)
(3)Project Cost (Total Project Cost)		
Foreign Currency	7,224 million yen	8,930 million yen
Local Currency	5,509 million yen （1,334 million pesos）	2,895.83 million yen （1,009 million pesos）
Total	12,734 million yen	11,825.83 million yen
ODA Loan Portion	9,551 million yen	8,930 million yen
Exchange Rate	1 peso = 4.13 yen （as of January 1995）	1 peso = 2.87 yen （average of 1995 to 2003）