Philippines

Arterial Road Link Development Project (1) (2)

External Evaluator: Taro Tsubugo

Field Survey: November 2004

1. Project Profile and Japan's ODA Loan

Project site location map

One of the arterial roads improved via the project

1.1 Background

From its independence through the 1980s, the Philippines invested heavily in the expansion of road network in order to respond to a rapid increase in the number of vehicles and, inevitably, demand for road transportation. Extension of the national network of arterial roads was achieved during this period. Function and quality, however, were given a secondary consideration, which ultimately impeded the efficiency and economic effects of the country's road infrastructure. Thus, with a view to ensure an efficient and reliable road network, qualitative improvements (i.e. increase in the paved road ratio, reconstruction from temporary bridges to permanent structures, etc.), were identified as a priority issue for the road sector in the 1990s.

1.2 Objectives

This project's objective was to increase the efficiency of road transportation on the islands of Leyte, Samar and Bohol by developing their arterial road networks, thereby contributing to regional economic stimulation and improvements in the living standards of local residents.

1.3 Borrower/Executing Agency

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

1.4 Outline of Loan Agreement

	Phase 1	Phase 2	Total
Loan Amount/ Disbursed Amount	11,754 million yen/ 11,752 million yen	4,765 million yen/ 3,846 million yen	16,519 million yen/ 15,598 million yen
Exchange of Notes/ Loan Agreement	Nov. 1994/Dec. 1994	Jul. 1995/Aug. 1995	-/-
Terms & Conditions Interest Rate Repayment Date (Grace Period) Procurement	 3.0% 30 years (10 years) General untied	 2.7% 30 years (10 years) General untied	-
Final Disbursement Date	May 2001	Jun. 2002	-
Contractors	Phase 1: Hanjin Engineering and Construction Corporation Co., Ltd. (Korea), Gorones Development Corporation (Philippines) Phase 2: Cavite Ideal International Construction & Development Corp.・E.M. Aragon Enterprises・J.T. Galan Construction (Philippines)		-
Consultants	Phase 1: Nippon Engineering Consultants Co.・Ltd., Construction Consultants Corp. (Japan/ Philippines), Katahira Engineering International・Techniks Group Corp.・Engineering & Development Corp.・Angel Lazaro & Associates (Japan/Philippines), Pacific Consultants International・Renardet S.A.・Philipp's Technical Consultants Corp.・Design Science Inc., Inter-Structure systems, Inc. (Japan/Italy/Philippines) Phase 2: Nippon Engineering Consultants Co., Ltd., Katahira Engineering International		-
Feasibility Study (F/S), etc.	F/S: West Leyte Road: 1978, Philippine Govn. Northwest Leyte Road: 1979, Philippine Govn. South Samar Coastal Road: 1989, Philippine Govn. Bohol Circumferential Road: 1984, Philippine Govn.		-

2. Results and Evaluation

2.1 Relevance

2.1.1 Relevance of project plans at appraisal

The five-year Medium-Term Philippine Development Plan (1993-1998) that was ongoing at the time of appraisal placed a great emphasis on regional economic development and the elimination of regional economic gaps as one of prioritized issues. The same plan also identified the deteriorating quality of arterial roads, due to aging national highways, etc., as one of the main constraints on economic activity in the regions,

and established urgent improvement in provincial arterial road networks as a sector policy. Accordingly, with a view to activate local economies through the development of unpaved roads in the less-developed regions of eastern and central Visayas (namely, the islands of Leyte, Samar and Bohol), this project was in accordance with national and sector strategies in the Philippines.

2.1.2 Relevance of project plans at evaluation

Economic development in the aforementioned regions and the elimination of regional economic gaps are still set forth as key policies in the current five-year Medium-Term Philippine Development Plan (2004-2010). the transport policy framework in this plan places a greater emphasis on, by the improvement of arterial roads in the regions and the timely implementation of maintenance work, better access to regional growth centers, participation in economic activities in rural areas, and efficiency in human mobility and freight. This project, which aimed to achieve these key sector goals, has thus maintained its relevance.

2.2 Efficiency

2.2.1 Outputs

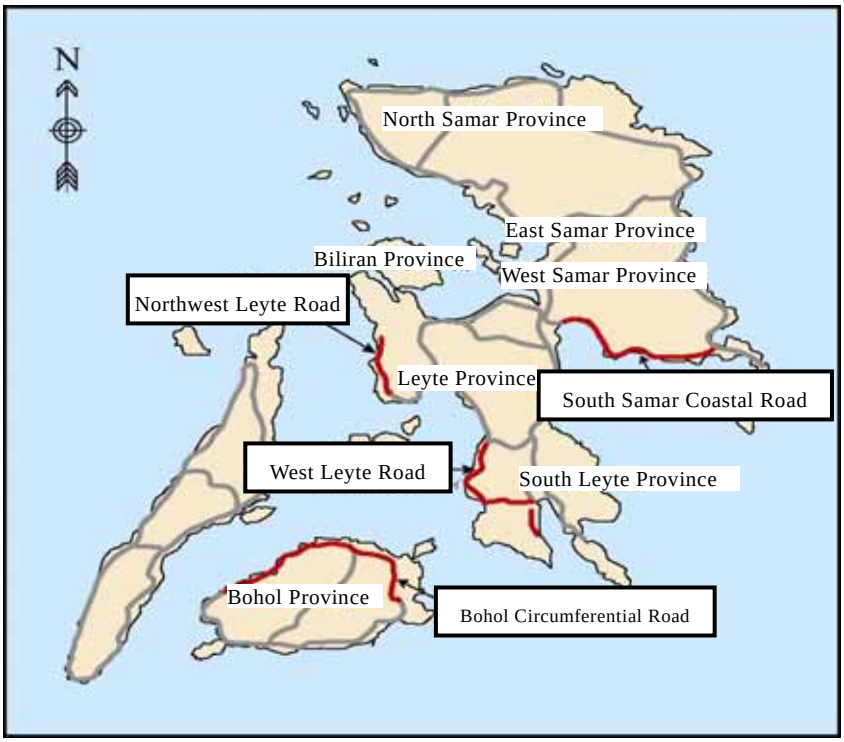
A comparison of project outputs (in terms of planned and actual sections of improved national highway, road extension, the numbers of upgraded bridges) is shown in the table 1 below. As the table illustrates, there were no major difference between planned and actual outputs. For reference, the location of the road sections is shown in Figure 1. The project covers five provinces in eastern and central Visayas with a total area of 23,957 km^2 and a population of approximately 4.11 million. The total length of roads improved by this project is 327.7 km, which equates to approximately 1% of the overall road network of the Philippines (approx. 30,300 km).

Table 1: Comparison of Planned and Actual Outputs

	Planned (appraisal)	Actual
1) Improve gravel/earth roads to 2-lane paved roads and retrofit temporary bridges to convert them into permanent structures		
(Phase 1)		
a) West Leyte Road		
Malitubog - Tomas Oppus	Roads (17.6 km), bridges (12)	Roads (17.9 km), bridges (12)
Bato – Bontok	Roads (23.1 km), bridges (5)	Roads (23.1 km), bridges (5)
b) Northwest Leyte Road		
Isabele – Abijao	Roads (34.6 km), bridges (2)	Roads (30.1 km), bridges (2)
c) South Samar Coastal Road		
Basey – Maslog	Roads (52.0 km), bridges (21)	Roads (58.7 km), bridges (21)
d) Bohol Circumferential Road		
Calape - Candijay	Roads (124.4 km), bridges (5)	Roads (124.4 km), bridges (6)

(Phase 2) a) West Leyte Bato – Baybay b) South Samar Coastal Road Maslog - Buenavista	 Roads (46.5 km), bridges (23) Roads (30.5 km), bridges (5)	 Roads (45.6 km), bridges (26) Roads (27.9 km), bridges (5)
2) Consulting services		
(Phase 1) (Phase 2)	Detailed design (DD) review (Phase 1 construction), technical assistance for bidding, schedule management, DD (Bato- Baybay) DD review (excluding Bato-Baybay), technical assistance for bidding, construction supervision	As planned

Figure 1: Location of Improved Road Sections



2.2.2 Project Period

The implementation schedules of Phase 1 and Phase 2 delayed 34 and 36 months, respectively, holding up completion of the entire project by 37 months and increasing the planned execution period by around 1.5 times. The delays primarily occurred during the construction phase and were mainly due to contractor performance – heavy equipment breakdowns and setbacks in equipment procurement, to additional work on marshy sections where subsidence was a concern due to soft ground and on dangerous sections where landslides and slope failure were imminent, and to a protracted monsoon season. On some sections, a delay was occurred because of land acquisition.

2.2.3 Project Cost

Actual costs for the Phase 1 project amounted to 15,978 million yen, or a slight increase over the planned figure of 15,672 million yen, but actual Phase 2 costs were lower than projected: 4,975 million yen against 6,353 million yen. Aside from the additional works cited above, the rehabilitation of permanent bridges on the Bohol Circumferential Road (Phase 1) and West Leyte Road (Phase 2), which were found more seriously deteriorated than anticipated, resulted in a discrepancy between the number of actual works on some sections (as confirmed after the bids were tendered) and the projected figures at appraisal. However, the depreciation of the peso during the implementation phase resulted in no conspicuous overrun in project costs when denominated in yen. Phase 2 costs were reduced because depreciation of the local currency exceeded inflation.

2.3 Effectiveness

(1) Improvement in travel time and average speed

Through improvement in quality (i.e. road surfaces, etc.), the travel times and average speed on all upgraded sections have improved and, presumably, have contributed to increases in the volume of road traffic.

Table 2: Project Effects – Shorter Journey Times & Faster Travel Speeds

Road name	Section	Pre-project (1994)		Post-project (2003)			
		Time[1)]	Speed[1)]	Time	Reduction	Speed	Increase
West Leyte	Malitubog-Bato	84.0	29.1	37.7	55.1%	65.3	224.4%
	Bato-Baybay	142.6	19.6	64.9	54.5%	42.2	215.3%
Northwest Leyte	Isabele-Abijao	45.8	45.3	19.8	56.8%	91.2	201.3%
South Samar Coastal	Basey-Maslog	98.2	31.8	39.2	60.1%	89.9	282.7%
	Maslog-Buenavista	47.6	38.5	18.4	61.3%	91.2	236.9%
Bohol Circumferential	Calape-Candijay	150.0	49.8	90.0	40.0%	82.9	166.5%

Source: Executing Agency (DPWH)

Note 1): Time is indicated in minutes, speed in average kilometers per hour (km/h) (road length divided by travel time)

Further, according to a survey on road users (132 drivers), 27.3% of respondents stated that the improvements in travel time and running speed have resulted in decreases in their monthly fuel bills, while 38.6% said that there had been a drop, albeit marginal. This survey result suggests that the project has been successful in securing efficient means of transportation for local residents.

Figure 2: Vehicular traffic

(2) Changes in traffic volumes

The improvements made through this project have resulted in steady increases in (average daily) traffic volumes on all upgraded sections. Comparisons of projected increases and actual figures show that, for example, actual traffic on the Bato-Baybay section of the West Leyte Road is 697 vehicles per day against an estimate of 388 vehicles/day, or almost 80% higher than the projected figure[1].

Table 3: Changes in average daily traffic volumes (annual)

(vehicles/day)

Road Name	Section	Pre-project	Post-project			Ratio
		1994	2003	2004	Increase	
West Leyte Road	Malitubog-Bato	521	623	663	2.4%/yr	-
	Bato-Baybay	319	668	697	8.1%/yr	180%
Northwest Leyte Road	Isabele-Abijao	411	496	522	2.4%/yr	-
South Samar Coastal Road	Basey-Maslog	270	928	956	13.5%/yr	-
	Maslog-Buenavista	39	107	137	13.4%/yr	311%
Bohol Circumferential Road	Calape-Candijay	372	-	627	5.4%/yr	-

Source: Executing Agency (DPWH)

Note 1): Projected targets for 2 years post completion (set for Phase 2 only; Bato-Baybay: 388 vehicles; Maslog-Buenavista: 44 vehicles), which include all vehicle types.

Further, according to the beneficiary (road users) survey, 70.1% of respondents stated that they had used the roads more frequently since the completion of the project, while the remainder said that there had been no change in frequency of road use over pre-project levels.

(3) Traffic restrictions due to natural disasters, etc.

After the completion of the project, traffic restrictions due to natural disasters and/or road works have been imposed occasionally as follows; however, excluding the Northwest Leyte Road, which was closed to traffic during the monsoon season, a single lane has been open at all seasons and there have been no major impediment to traffic flow.

Table 4: Traffic restrictions imposed since project completion

Road Name	Duration and Type of Restriction
West Leyte Road	At evaluation, one-way alternating flow restrictions were being imposed on a 100-meter section of the road.
Northwest Leyte Road	A section measuring approx. 700 m was closed to traffic during the monsoon season.
South Samar Coastal Road	At evaluation, one-way alternating flow restrictions were being imposed on a 100-meter section of the road.
Bohol Circumferential Road	One-way alternating flow restrictions have been imposed on two sections in the past.

[1] On the West Leyte Road (Bato-Baybay section) and the South Samar Coastal Road (Maslog-Buenavista section) – the two sections for which it was possible to compare projections with actual figures, the figures for year 2 post completion were used for the comparison.

Source: Executing Agency (DPWH)

On the West Leyte Road one-way alternating flow restrictions were imposed on a 100-meter section (Bontok-Bato) while work was undertaken to address the problem of skidding during the monsoon season. A section of the Northwest Leyte Road (approx. 700m) near Abijao was at risk of slope failure during the wet season and had been closed to traffic since the 2002 monsoon season under the approval of the DPWH director general. Work was undertaken to reinforce bridge approaches on one marshy section of the South Samar Coastal Road where subsidence had become a imminent concern, and one-way alternating flow restrictions were imposed on a 100-meter section.

According to the road user survey, the number of respondents who stated that they had faced traffic restrictions during the wet season has decreased from 26.9% pre-implementation to 6.1% post-completion. This survey result suggests that the project has been successful in securing a reliable means of transport for local residents.

(4) Driving comfort

According to the road user survey, 68.2% of respondents confirmed that there has been a substantial improvement in driving comfort over pre-project levels, while 30.3% stated that there had been some improvement. With the exclusion of the Bohol Circumferential Road, which has an alternative route to the provincial capital, all road users who stated that ride comfort had improved pointed to shorter travel time and faster speed. Further, 74.2% of respondents attributed the improvements in driving comfort to expanded road widths.

(5) Economic Internal Rate of Return (EIRR)

A comparison between the EIRR of the project at appraisal and the actual figures is given in the table below[2].

Table 5: Comparison of EIRR

	Planned	Actual
Phase 1 average	17.3 %	10.8 %
Phase 2 average	12.8 %	11.2 %

The interruption in the construction phase is cited as one of the reasons for lower EIRR than that at appraisal. Although travel times have decreased and traffic volumes have increased over projections (for sections improved by the Phase 2 project), the delay in

[2] The same benefits and conditions as used for the appraisal calculations were used for the 2004 recalculation. Construction costs (amounts and outlay schedules), traffic volumes (actual and percentage increases) and travel times were used for the comparison.

completion retarded the incidence of project benefits derived from shorter travel times and fuel cost savings, both of which dragged down the rate.

2.4 Impact

(1) Economic stimulus

a) Changes in Gross Regional Domestic Product (GRDP)

As the following table shows, GRDP growth in Region VIII, which includes the West Leyte, Northwest Leyte and South Samar roads, has increased since the completion of the project. GRDP growth in Region VII, the region which includes the Bohol Circumferential Road, has slowed since project completion, but the economy of Bohol Province is relatively small in the region and it is difficult to confirm a positive relationship between the project and changes in GRDP.

Table 6: Changes in GRDP (annual average growth rate)

	Pre-project (1991-1993)	Under execution (1999-2001)	Post-project (2002-2003)
Region VII: Bohol/Cebu Provinces	0.4%	6.6 %	4.6 %
Region VIII: Samar Island provinces/ Leyte Island provinces	1.0%	3.2 %	5.2 %

Source: National Statistical Office

As detailed hereunder, this project has promoted agricultural participation in economic activity and improved access to regional growth centers in Region VIII, thereby contributing to improvements in household finances and to the development of local economies.

b) Impact on Agriculture/Fisheries

Farming and fishing are the principal economic activities in the regions covered by this project, and yields of rice and maize – key crops in the target provinces – have increased substantially over pre-project levels.

In the provinces shown in the table below, yields of rice and sweet corn increased by 3.8% and 0.1% per year between 1995 – the year this project was commenced – and 2000 – the latter year of its implementation but surged by 9.6% and 4.5% annually over the three years between 2000 and 2003. The improvements to arterial roads in this project have made it easier to transport production inputs such as seeds/seedlings and fertilizers, and have improved terms of trade including the cost and time required to transport farm produce, and these are considered to be underpinning the increases in agricultural production. The results of a beneficiary survey on people living near the roads (99

residents) also confirm that terms of trade have improved over pre-project levels. More than half of those respondents employed in either farming or fishing stated considerable improvements in the terms of their trade[3].

Table 7: Annual Production of Rice/Maize

(Unit: tons)

	Pre-project and during implementation				Post-completion	
	1995		2000		2003	
	Rice	Maize	Rice	Maize	Rice	Maize
Leyte	214,656	27,030	282,160	31,435	387,326	36,358
South Leyte	46,569	5,614	50,633	4,589	64,378	4,525
South Samar	56,579	6,951	55,712	3,742	65,097	4,546
East Samar	26,130	65	26,796	100	29,785	126

Source: National Statistical Office

(2) Impact on Local Residents

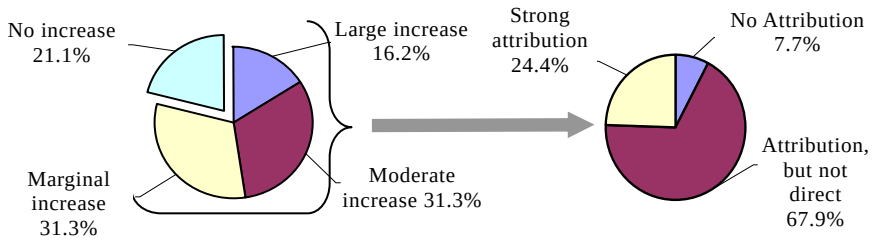
Beneficiaries (residents living alongside target roads) were surveyed in order to ascertain the impact of this project on household finances and transport convenience (the survey covered 99 residents: 40 men and 59 women). Of the respondents, 85.9% stated that they used the roads at least once a day for normal activities (mainly, work, shopping, market trade, and school commutes).

a) Trends in Household Earnings

According to the beneficiary (residents) survey, 16.2% of respondents in all project areas stated a considerable increase in their household income as compared to pre-project levels; 31.3% felt some increase and 31.3% an increase, albeit marginal. Of those residents who experienced a rise in household earnings (78.8%), 24.4% attributed this to the improvement in arterial roads in this project, while 67.9% stated that whilst this was not the direct cause it had been a contributory factor.

[3] In the fishing industry, there have been massive increases in catches in East Samar Province since the road improvement works were undertaken, with yields climbing from 7,723 tons in 2001 to 16,861 tons in 2003. It has been confirmed that while sea routes were generally used to transport marine produce to the main consumption areas (the commercial city of Tacloban on Leyte Island, for example) prior to the implementation of this project, land transport has now become faster and more reliable, indicating that this project has improved road transport conditions. These improvements in transport conditions are considered to have contributed to the increases in fish hauls.

Figure 3: Changes in household incomes after project completion



Examining this trend for individual roads, large percentages of respondents on the Northwest Leyte Road (97%) and the South Samar Coastal Road (88%) who stated that they had seen some increase in their household income, and particularly the approximately 31% of residents on the South Samar Coastal Road, made a direct link between an increase in household income and the upgrades in arterial roads. By contrast, 52% of residents on the Bohol Circumferential Road stated that their household incomes had increased. Unlike the Bohol Circumferential Road, which has an alternative route to the provincial capital even before project implementation, the Northwest Leyte Road and South Samar Coastal Road have longer detouring roads, no alternative route is available. In consequence, greater efficiency and expansion of transportation in both freight and passengers presumably have had a greater impact in these two areas.

b) Service quality of public transportation

Figure 4: Interviewing local residents

Public transport services on jeepneys and buses are the main modes of transport for the majority of residents in the areas covered by this project. According to interviews with workers in major public transportation services, the journey times on bus routes to major cities in each of the regions have been cut by at least 50%, while the number of services/trips has increased approximately two to three fold. This survey result suggests that the project has contributed to the improvement in service quality and the greater number of services.

Table 8: Better public transport and increases in service numbers (as compared with pre-project levels)

Bus Terminal	No. of trips/Frequency	Shorter travel times to major destinations	
South Samar Coastal Road (at Guiuan)	Approx. trebled	Pre-project: 8 hours (to Tacloban)	Post-project: 3-4 hours
Northwest Leyte Road (at Isabele)	Approx. doubled	Pre-project: 1 hour (to Abijao)	Post-project: 20 minutes
Bohol Circumferential Road (at Ubay)	Approx. doubled	Pre-project: 3 hours (to Tagbilaran)	Post-project: 100 minutes

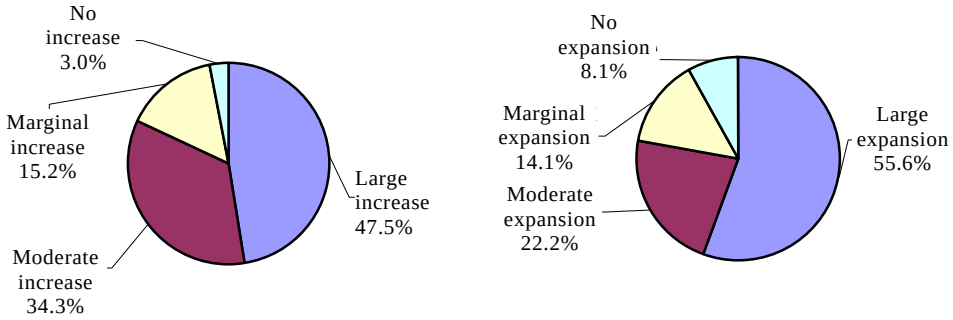
Source: Field survey interview results

These improvements in public transport services have positive impact on road use of local residents. Asked about road use for non-routine activities, 47.5% of respondents to the beneficiary (residents) survey answered that they were using the roads more frequently after project completion, while 34.3% said that the frequency of road use had increased slightly.

Figure 5: A bus waiting to depart

Further, 55.6% of respondents noted a major increase in the distance of their trips over pre-project levels and 22.2% a slight increase. Among those who answered that the distance of their trips had increased, leisure (63.6%), market trading (42.4%) and shopping (40.4%) were cited as purposes of trips. The result also indicates that residents who sell goods at local markets lengthen the distance of their trips for higher prices and trade opportunities with larger numbers of buyers.

Figure 6: Post-project changes in road use frequency and trip distance (for non-routine activities)



(3) Improved Access to Healthcare Facilities

In the beneficiary (residents) survey on the purpose to use the roads improved by this project, 24.2% of respondents (20% of men and 32% of women) cited the use of medical facilities as the purpose of their trips, with all respondents stating that road access had

improved (shorter travel times). Further, 28.3% of respondents answered that they had expanded the distance of their trips for health checks or treatment at medical facilities, citing the opportunity to receive locally-unavailable treatments and these at more reliable facilities as a major reason of their trips.

(4) Other

Some of the residents complained roadside noise due to more traffic. According to the results of the beneficiary (residents) survey, 10.1% of residents answered that the noise was horrendous, while 37.4% occasionally problematic. The local governments have not taken any specific measures to address this issue. Speeds have increased on the improved road sections and speeding has been noted on some sections, which may be one of the reasons for the complaints on roadside noise.

Land acquisition was conducted for this project, but the process did not involve any involuntary resettlement of local residents. Although it took time to reach agreement with some landowners, the land acquisition process was carried out in accordance with Philippine regulations.

2.5 Sustainability

2.5.1 Executing Agency

The maintenance of arterial national highways, including the roads improved by this project, is the duty of the Bureau of Maintenance in the Department of Public Works and Highways (DPWH), while routine, periodic, and emergency maintenance works are that of the Local Government Units (LGU) in each of the provinces (for this project the Leyte I-V LGU, the South Leyte LGU, the Samar I-II LGU, the East Samar LGU, the Bohol I-II LGU and the sub-LGU) under DPWH supervision. Decisions on large-scale maintenance operations are made by provincial branches or the DPWH upon application by the relevant LGU. Maintenance works are conducted under supervision of the provincial branches of DPWH.

2.5.1.1 Technical Capacity

Training in the basic techniques for road maintenance (repairs of partial chipping, surface cracking, and subsidence) is provided on a periodic basis to the staff of LGUs responsible for maintenance operations along with lectures on the operation of heavy machinery. Given these training opportunities, there are no specific problems in this area.

2.5.1.2 Institution

There is no specific problem with the system employed for the Operation and Maintenance (O&M) of the road network. O&M on arterial roads is classified into that executed directly by the LGUs of DPWH (Maintenance by Contractors: MBA) and that outsourced to private sector contractors (MBC)[4]. The executing agency has pointed out the following advantages and disadvantages of the MBC system as compared to MBA. At the time of evaluation, DPWH was introducing long-term, performance-based contracts with the private-sector in order to increase the efficiency of its road maintenance operations.

Table 9: Major merits and demerits of the MBC

Merits	- Higher work efficiency as compared to MBA - Affords access to highly-functional heavy equipment owned by the private sector, expedites the procurement of resources
Demerits	- In some instances, unit work costs are higher as compared to MBA - In some instances, contractors lacking operating funds or those with false qualifications are selected - DPWH lacks staff to supervise/monitor MBC performance

The introduction and improvement of the Road and Bridge Information Application System (RBIAS)[5] that forms a part of the Road Information and Management Support System (RIMSS), being funded by the World Bank to supply data on road maintenance and facilitate timely management, is progressing smoothly.

In addition, a program aimed at improving the administrative system and work processes of the road division of DPWH is being implemented under the World Bank funded National Road Improvement and Management Project (NRIMP). The goal of the project is to strengthen the three tasks of planning, constructing and maintaining arterial roads and five managerial operations (budgeting, assets, human resources, information and procurement).

2.5.1.3 Financial Status

The maintenance budget for national highways is allocated uniformly throughout by multiplying the Equivalent Kilometer for Maintenance (EMK)[6] units (in pesos), which is

[4] The MBC (Maintenance by Contractor) system was introduced in 1990 with the aim of using the private sector to execute efficient, low-priced maintenance work; since then, a portion of the budget for routine and periodic maintenance work has been allocated to MBC.

[5] The RBIA (Road and Bridge Information Application) is one of the components of the RIMSS and is a database comprising information on national roads and bridges (traffic-related data, e.g. traffic volumes; maintenance-related data, e.g. surface conditions, budget data, etc.) and route maps and pictures of each road. The system is designed to integrate planning, operation and maintenance, supervision and monitoring operations, and to avoid duplication and increase efficiency.

[6] Equivalent Kilometer for Maintenance: calculated by the DPWH maintenance bureau on the basis of road width, traffic volumes, surface type, road length, etc.

not affected by region or road type. The O&M budget was reduced in fiscal 2004, dropping from a level of around 70,000 – 82,000 pesos/EMK during fiscal 2001-2003 to 54,000 pesos/EMK (of which 14,623 pesos has been allocated to applications for additional maintenance).

Table 10: Changes in the operation and maintenance budgets for roads

(million pesos)

LGU	2001	2002	2003	2004
Leyte I-V	107.2	106.2	118.7	69.8
West Leyte	45.1	43.2	49.7	29.2
Samar I & II	28.1	28.9	31.9	26.1
East Samar	41.5	45.7	47.0	20.2
Bohol I & II and Sub office	87.3	68.9	n.a	53.0
National Total	4,093.7	4,093.7	4,846.0	3,246.0
EMK unit price (pesos)	75,226	70,798	82,799	54,000

Source: Executing agency (DPWH)

Further, budget allocation from the general budget has been reduced substantially despite the introduction of the Motor Vehicle User Charge (MVUC)[7], a tax specifically earmarked for road maintenance, in 2003. The budget for O&M did not increase to the amount anticipated by the DPWH. The table above shows the changes in O&M budget allocations for the respective LGUs.

According to World Bank estimation ("Better Roads for the Philippines", 1994), the government needs to spend around 13,500 million pesos annually on the maintenance of national roads, but is actually allocating a mere 4,000 million, or approximately 30%. Further, while the EMK takes surface type into consideration, it fails to incorporate actual surface conditions[8] (i.e. damage due to aging, etc.), meaning that the budget allocation system does not cope with the budget needs of rural regions including more aged sections. This budget allocation method is generating further gaps between operation and maintenance costs in rural regions. Added to which, in the allocation of limited budgetary resources, since priority is being given to the maintenance of badly damaged low-cost pavement roads, it is becoming increasingly difficult to undertake routine and periodic maintenance on newly-constructed and improved sections of road. The road operation and maintenance budget request for fiscal 2005 amounts to 5,799 million pesos.

[7] Motor Vehicle User Charge (MVUC): Of which, 80% is allocated to the maintenance of national roads, 5% to regional roads, 7.5% to air pollution controls and the remainder to traffic safety measures.

[8] The decision has been made to abolish budget planning based on the EMK system and there are plans to introduce a new planning technique that takes surface conditions into consideration.

2.5.2 Operation and Maintenance Status

Visual observations[9] of surface conditions on roads in this project were undertaken in fiscal 2003, with the results as shown in the table below. While little time had elapsed since the improvement works were completed, on average, roads (road surfaces, hard shoulders, etc.) and bridges appeared to be in exceptionally good condition. However, on each section, there were a few places in which surface conditions were not being appropriately maintained. In addition, one-way alternating flow restrictions were implemented in several places where work to reinforce subsided sections of bridge approach roads was being undertaken or to deal with monsoon season skidding hazards.

Table 11: Current status of roads and bridges (average for sections improved via this project)[10]

	Roads	Bridges	Criteria
West Leyte Road	Good (93.1%) *	Good (89.6%)*	Good: 87.5-100.0%
Northwest Leyte Road	Good (94.7%) *	Good (100.0%) *	Fair: 75.0-87.5%
South Samar Coastal Road	Good (94.9%)	Good (100.0%)	Deteriorated: 75.0% or less
Bohol Circumferential Road	Good (94.7%)	Good (100.0%)	

Source: Executing Agency (DPWH)

Note *: This includes some sections that have been certified by the contractor.

3. Feedback

3.1 Lessons Learned

None

3.2 Recommendations

Since the road improvement works were executed, the increase in traffic volumes and higher speeds have caused various problems including accidents and noise. In cooperation with the relevant agencies, the executing agency is advised to give consideration to and devise measures for safety and noise on the improved roads.

[9] Visual inspections of surface conditions were abolished as of 2003, and the Roughness Index, which rates surface smoothness, has been being phased in since fiscal 2004. This is an international index that measures the levelness and smoothness of road surfaces. It was not possible to obtain RI data during the field survey as the system was under review.

[10] The data contained in this table is based on visual inspections carried out by the DPWH; actual driving conditions were surveyed on all project sections, which were broadly classified into “roads” and “bridges”. “Roads” were inspected on an area base, with measurements taken of the percentage on which traffic was not being impeded by holes, surface cracking, or vegetation, etc. For “bridges”, beams, guard rails and bridge approach – road connections were rated. Figures in parenthesis in the table indicate the average for sections improved via this project (divided into 1-5km sections).

Comparison of Original and Actual Scope

Item	Planned	Actual
(1) Outputs 1) Road improvements (Phase 1) a) West Leyte Road Malitubog - Tomas Oppus Bontok - Bato Bato - Baybay b) Northwest Leyte Road Isabele – Abijao c) South Samar Coastal Road Basey - Maslog d) Bohol Circumferential Road Calape - Candijay (Phase 2) a) West Leyte Road Bato - Baybay b) South Samar Coastal Road Maslog - Buenavista	 Roads (17.6 km)/bridges (12) Roads (23.1 km)/bridges (5) Detailed design Roads (34.6 km)/bridges (2) Roads (52.0 km)/bridges (21) Roads (124.4 km)/bridges (5) Roads (46.5 km)/bridges (23) Roads (30.5 km)/bridges (5)	 Roads (17.9 km)/bridges (12) Roads (23.1 km)/(5) Detailed design Roads (30.1 km)/bridges (2) Roads (58.7 km)/bridges (21) Roads (124.4 km)/bridges (6) Roads (45.6 km)/bridges (26) Roads (27.9 km)/bridges (5)
2) Consulting services (Phase 1) (Phase 2)	 D/D review (Phase 1 construction), technical assistance for bidding, schedule management, D/D (Bato-Baybay) D/D review (excluding Bato-Baybay), technical assistance for bidding, schedule management	As planned
(2) Project periods (Phase 1) L/A signing Consultant selection Consultant selection–D/D review (D/D: Bato - Baybay) Construction	 May 1994 May 1994 – Apr. 1995 May 1995 – Jul. 1996 Aug. 1995 – Jul. 1996 Aug. 1996 – Jul. 1998	 Dec. 1994 Jun. 1995 onwards From Dec. 1996 Sept. 1995 – Nov. 1995 Nov. 1996 – May 2001
(Phase 2) L/A signing Consultant selection Consultant selection–D/D review Construction	 Jul. 1995 Apr. 1995 – Mar. 1996 Apr. 1996 – Jun. 1997 Jul. 1997 – Feb. 1999	 Aug. 1995 Apr. 1997 onwards From Jan. 2000 Aug. 1997 – Mar. 2002
(3) Project cost (Phase 1) Foreign currency Local currency Total ODA loan portion Exchange rate	 8,073 million yen 7,599 million yen (2,021 million pesos) 15,672 million yen 11,754 million yen 1 Peso = 3.76 yen (Jan. 1994)	 11,534 million yen 4,444 million yen (1,490 million pesos) 15,978 million yen 11,752 million yen 1 Peso = 2.98 yen (1996-2001 average)

(Phase 2)		
Foreign currency	3,470 million yen	2,502 million yen
Local currency	2,883 million yen (698 million pesos)	2,473 million yen (848 million pesos)
Total	6,353 million yen	4,975 million yen
ODA loan portion	4,765 million yen	3,846 million yen
Exchange rate	1 Peso = 4.13 yen (Jan. 1995)	1 Peso = 2.92 yen (1997-2002 average)