

Figure 9-6 Standard Section of L-Shaped Retaining Wall (Iloilo)

Source: JICA Study Team

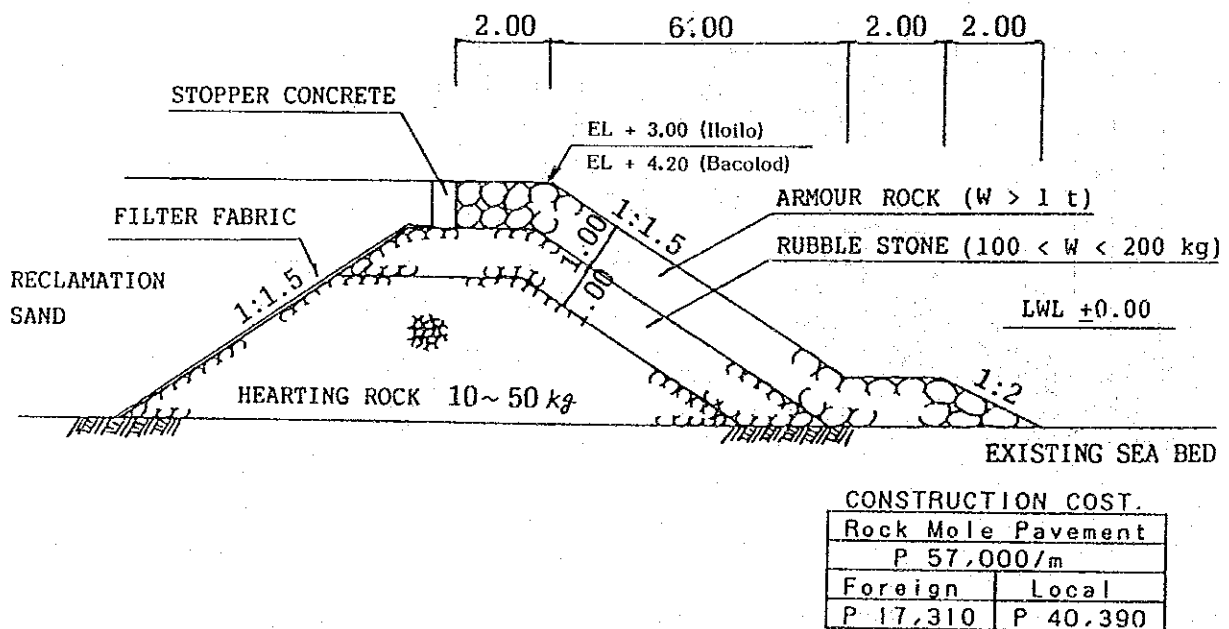
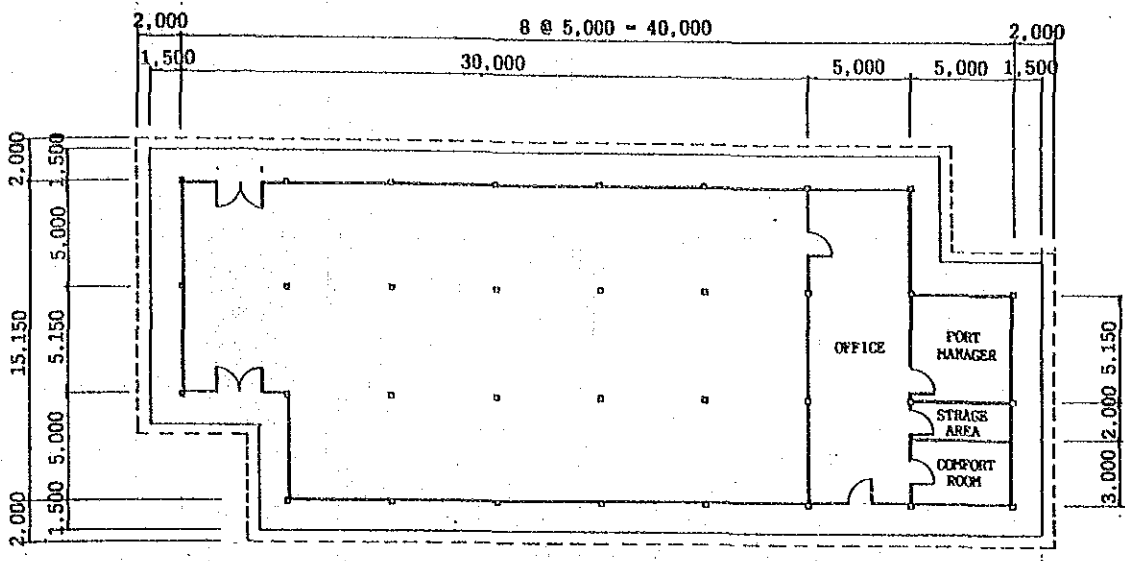
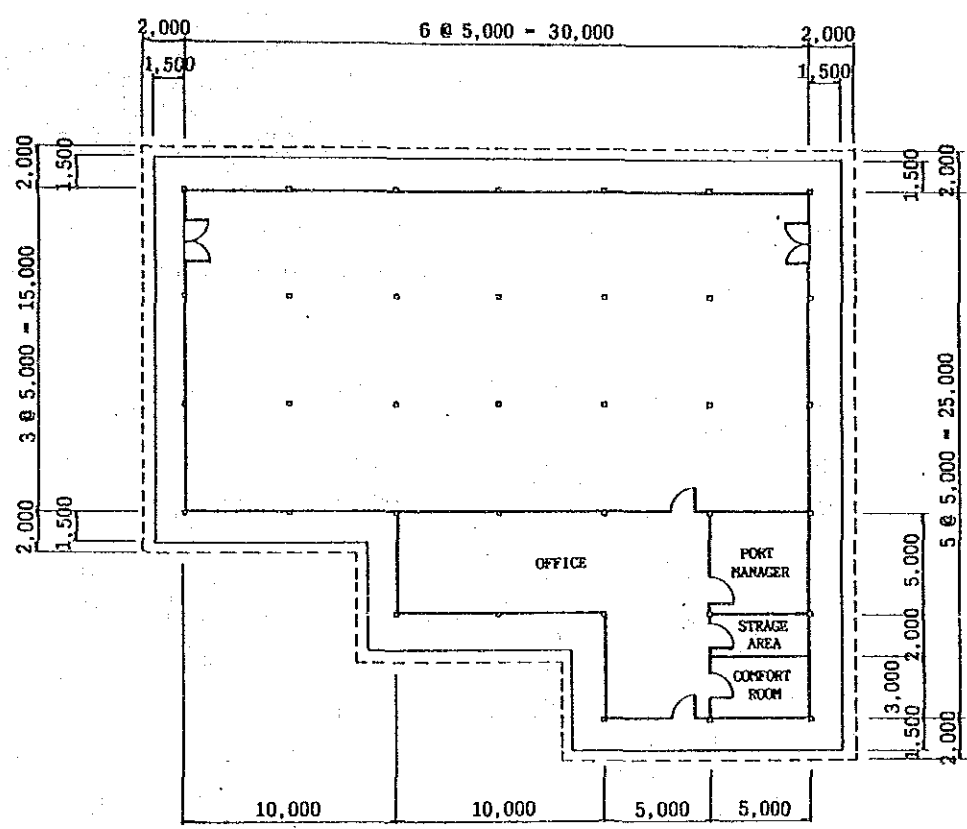


Figure 9-7 Standard Section of Rock Mole Revetment

Source: JICA Study Team



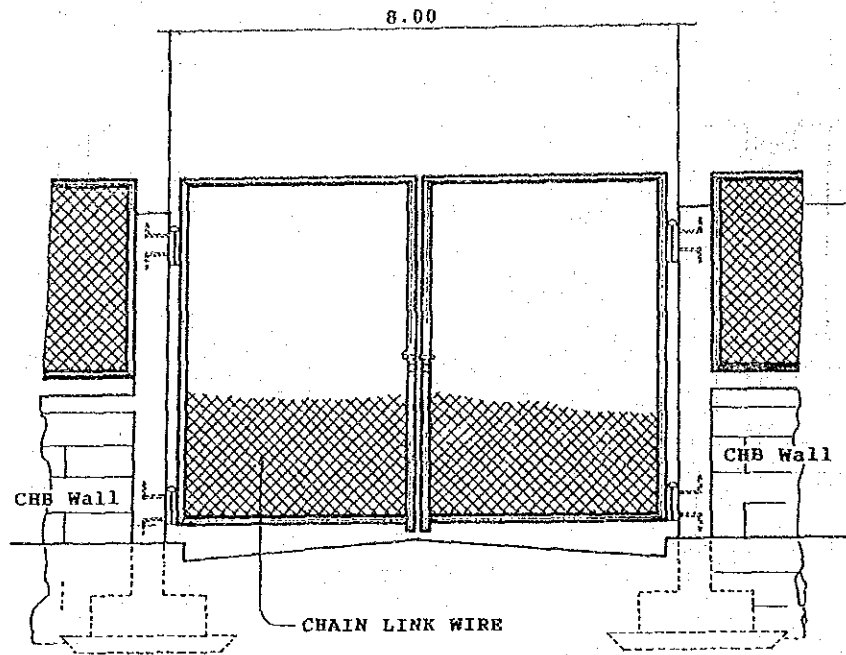
(Iloilo)



(Bacolod)

Figure 9-8 Plan and Elevation of Passenger Terminal Building (Iloilo)
Source: JICA Study Team

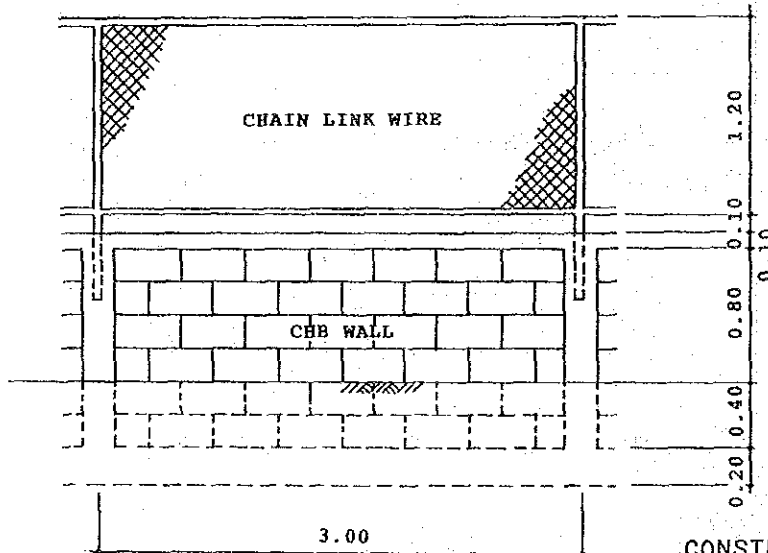
CONSTRUCTION COST	
Building	
P 11,000/m ²	
Foreign	Local
P 3,300	P 7,700



CONSTRUCTION COST	
Gate	
P 33,000/set	
Foreign	Local
P 13,200	P 18,800

Figure 9-9 Elevation of Gate

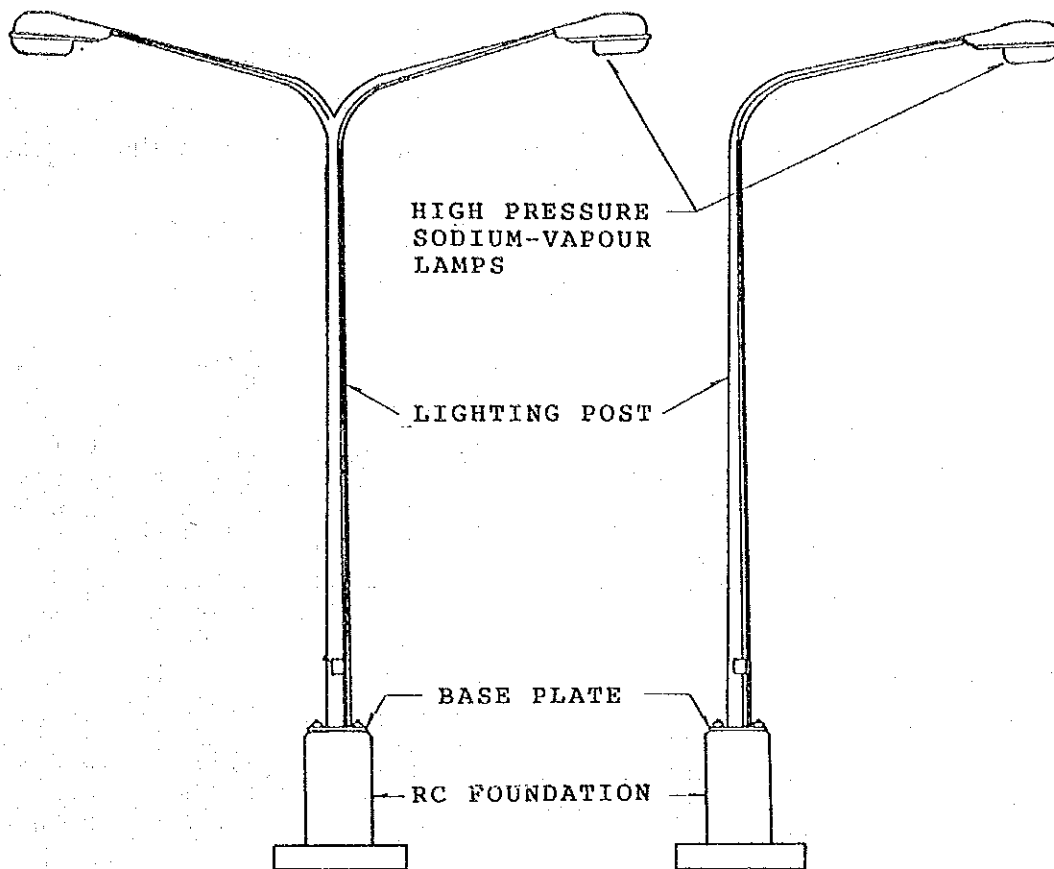
Source: JICA Study Team



CONSTRUCTION COST	
Fence	
P 1,350/m	
Foreign	Local
P 400	P 950

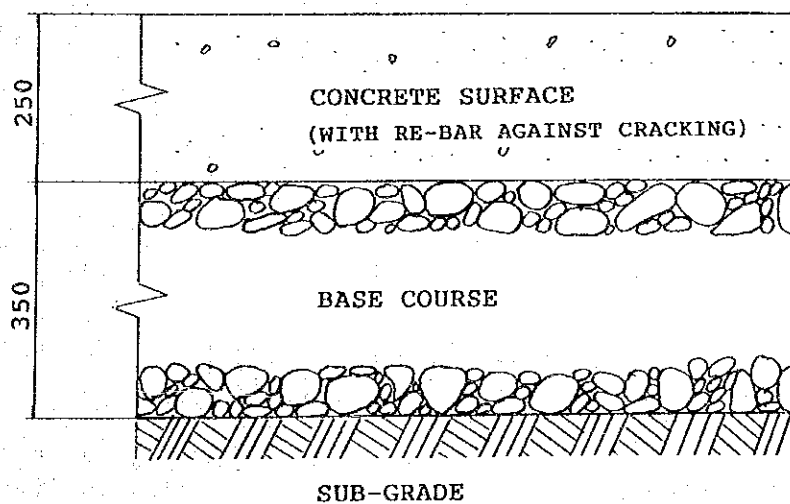
Figure 9-10 Elevation of Fence

Source: JICA Study Team



CONSTRUCTION COST	
Lighting	
P 34,100/set	
Foreign	Local
P 11,400	P 22,700

Figure 9-11 Elevation of Outside Light
Source: JICA Study Team



CONSTRUCTION COST	
Pavement	
P 700/m ²	
Foreign	Local
P 245	P 455

Figure 9-12 Typical Section of Concrete Pavement
Source: JICA Study Team

5. Tables 9-4 show the detailed construction cost (direct cost) for the selected alternative. Project cost which includes the cost for engineering services, contingency and etc. are also computed by the same manner with that of master plan study and shown in tables 9-5.

Table 9-4 Construction Cost (Direct Cost)

Port of Iloilo

ITEM	QUANTITY	UNIT	COST		
			FOREIGN CURRENCY	LOCAL CURRENCY	TOTAL COST
BERTHING PIER	48	m	3,168	4,752	7,920
RO/RO RAMP	1	set	1,412	2,118	3,530
L-SHAPED REVETMENT	82	m	3,608	5,412	9,020
PAVEMENT	4,750	m ²	1,164	2,161	3,325
TERMINAL BUILDING	600	m ²	1,980	4,620	6,600
UTILITY	50	m	35	65	100
WATER SUPPLY LIGHTING					
RECLAMATION	5,350	m ²	642	1,498	2,140
REVETMENT	192	m	3,208	7,486	10,694
TURNING AREA	750	m ²	2,625	3,938	6,563
DREDGING	20,000	m ³	600	1,400	2,000
TOTAL			18,442	33,450	51,892

(Unit in 1000 pesos)

Source: JICA Study Team

Port of Bacolod

ITEM	QUANTITY	UNIT	COST		
			FOREIGN CURRENCY	LOCAL CURRENCY	TOTAL COST
BERTHING PIER	115	m	7,774	11,661	19,435
RO/RO RAMP	1	set	1,265	1,897	3,162
TRESTLE	732	m	19,618	29,426	49,044
OFFSHORE TERMINAL	2490	m ²	7,819	11,728	19,547
PARKING SPACE					
PASSENGER AREA					
OTHERS					
TERMINAL BUILDING	600	m ²	1,980	4,620	6,600
UTILITY	225	m	158	293	450
WATER SUPPLY LIGHTING					
RECLAMATION	1590	m ²	191	445	636
REVETMENT	126.5	m	2,114	4,932	7,046
TERMINAL BUILDING	150	m ²	495	1,155	1,650
TOTAL			41,412	66,157	107,570

(Unit in 1000 Pesos)

Source: JICA Study Team

Table 9-5 Summary of Project Cost

I T E M	PROJECT SITE	
	ILOILO	BACOLOD
1 DIRECT COST	51,892	107,570
OVERHEAD(6%)	3,114	6,454
CONTRACTOR'S PROFIT (10%)	5,189	10,757
SUB-TOTAL	60,195	124,781
V. A. T (10%)	6,019	12,478
TOTAL OF 1	66,214	137,259
2 ENGINEERING SERVICE		
DETAILS DESIGN(8%)	5,297	10,981
SUPERVISION(10%)	6,621	13,726
SUB-TOTAL 2	11,919	24,707
V. A. T(10%) to Local portion	775	1,606
TOTAL OF 2	12,693	26,313
TOTAL (1+2)	78,907	163,572
3 PHISICAL CONTINGENCY (including V. A. T)	10,567	21,905
4 PRICE CONTINGENCY (including V. A. T)	8,462	15,897
TOTAL	97,936	201,373

Unit in 1000 pesos

Note: Phisical cintingency is 15% of Total of 1 and 5 % of Total of 2.

Price contingency is 10% per year

Source: JICA Study Team

B. Construction Schedule

6. In the preparation of construction schedule, the following equipment were assumed to be used:

Crawler crane	Lifting capa. 65t	180 PS
Diesel hammer	D-35	
Dump truck	4t capacity	
Backhoe	0.6m ³	
Cramshell buket	1.0m ³	
Bulldozer	70 PS	
Vibratory Roller	30 PS	1.8t
Berge	400 - 600 grt.	
Truck mixer	4.0m ³ capa.	270 PS

7. When construction Ro/Ro terminals at Iloilo Port and Bacolod Port, existing facilities shall be utilized as access way for transportation of construction materials, and construction works have to be carried out within the areas of port operation. Thus, during development works of the Ro/Ro terminals at Iloilo Port and Bacolod Port, suitable safety such as installation of security fence and close communication with port operator measures should be taken to avoid unexpected incidents.

8. Tables 9-6 and 9-7 show the construction schedule with annual appropriation of the fund and the amount of foreign and local currency.

Table 9-6 Construction Schedule of Ro/Ro Terminal (Iloilo)

Unit: 1,000 pesos

ITEM	QUANTITY	UNIT	CONSTRUCTION YEAR			CURRENCY		TOTAL	
			1st year	2nd year	3rd year	FOREIGN	LOCAL		
PILING WORK	180	pcs		12,600.0 □□□			5,040.0	7,560.0	12,600.0
CONCRETE WORK	1050	m3		14,050.0 □□□			5,620.0	8,430.0	14,050.0
ROCK WORK	9900	m3		10,890.0 □□□			3,267.0	7,623.0	10,890.0
RECLAMATION/DREDGING (INCLUDING PAVEMENT)	43200	m3		1,234.3 □□	6,415.7 □□□□		2,295.0	5,355.0	7,650.0
BUILDING WORK	600	m2			6,600.0 □□		1,980.0	4,620.0	6,600.0
UTILITY WORK	50	m			100.0 □□		35.0	65.0	100.0
OVERHEAD+PROFIT (16% OF DIRECT COST)				6,203.9	2,038.5 □□		2,917.9	5,384.5	8,302.4
V. A. T. (10%)				4,497.8	1,521.4		2,115.5	3,903.7	6,019.2
TOTAL OF COST for CONSTRUCTION				49,476.0	16,735.7		23,270.4	42,941.2	66,211.6
DETAILED DESIGN (V. A. T. 10% of Local)	1	L. S.		5,296.9 344.3			1,853.9	3,443.0 344.3	5,296.9 344.3
PREPARATORY WORK									
SUPERVISORY WORK (V. A. T. 10% of Local)				3,310.6 215.2	3,310.6 215.2		2,317.4	4,303.8 430.4	6,621.2 430.4
TOTAL OF COST for CONSULTANTS				5,641.2	3,525.8	3,525.8	4,171.3	8,521.4	12,692.8
PHYSICAL CONTINGENCY 15% of C/C+5% of E/S				282.1	7,597.7	2,686.6	3,699.1	6,867.3	10,566.4
PRICE CONTINGENCY (10% PER YEAR)					4,947.6	3,514.5	2,880.0	5,582.1	8,462.1
TOTAL				5,923.3	65,547.0	26,462.5	34,034.5	63,898.4	97,932.9
FOREIGN				1,952.6	24,024.6	8,057.2			34,034.5
LOCAL				3,970.6	41,522.5	18,405.3			63,898.4

Source: JICA Study Team

Table 9-7 Construction Schedule of Ro/Ro Terminal (Bacolod)

Unit: 1,000 pesos

ITEM	QUANTITY	UNIT	CONSTRUCTION YEAR			CURRENCY		TOTAL
			1st year	2nd year	3rd year	FOREIGN	LOCAL	
PILING WORK	885	pcs		55,125.0 ■■■■■■■■■■		22,050.0	33,075.0	55,125.0
CONCRETE WORK	4350	m3		36,980.0 ■■■■■■■■■■		14,792.0	22,188.0	36,980.0
ROCK WORK	5580	m3			6,127.0 ■■■■	1,838.1	4,288.9	6,127.0
RECLAMATION	6360	m3			636.0 ■■■■	190.8	445.2	636.0
BUILDING WORK	750	m2			8,250.0 ■■	2,475.0	5,775.0	8,250.0
UTILITY WORK	225	m			452.0 ■	158.2	293.8	452.0
OVERHEAD+PROFIT (16% OF DIRECT COST)				14,736.8	2,474.4	6,640.7	10,570.5	17,211.2
V. A. T. (10%)				10,684.2	1,793.9	4,814.5	7,663.6	12,478.1
TOTAL OF COST for CONSTRUCTION				117,526.0	19,733.3	52,959.2	84,300.1	137,259.3
DETAILED DESIGN (V. A. T. 10% of Local)	1	L.S.	10,980.7 713.7 ■■■■■■■■■■			3,843.3	7,137.5 713.7	10,980.7 713.7
PREPARATORY WORK								
SUPERVISORY WORK (V. A. T. 10% of Local)				6,863.0 446.1 ■■■■■■■■■■	6,863.0 446.1	4,804.1	8,921.9 892.2	13,725.9 892.2
TOTAL OF COST for CONSULTANTS			11,694.5	7,309.1	7,309.1	8,647.3	17,665.3	26,312.6
PHYSICAL CONTINGENCY 15% of C/C+5% of E/S			534.7	17,994.3	3,325.5	8,376.3	13,528.3	21,904.5
PRICE CONTINGENCY (10% PER YEAR)				11,752.6	4,144.0	5,950.3	9,945.3	15,896.6
TOTAL			12,279.2 4,047.9 8,231.3	154,582.0 61,292.9 93,289.1	34,511.9 10,620.4 23,891.5	75,961.2	125,411.8	201,373.1 75,961.2 125,411.8
FOREIGN								
LOCAL								

Source: JICA Study Team

[References]

1. 1990 Philippines Statistical Yearbook,
National Statistical Coordination Board
2. Road Feasibility Studies III, MPWH , Aug. 1981
3. Highway Planning Manual Volume 4, MPWH, Oct. 1982

Chapter 10 Consideration of Environmental Issues

A. Environmental Assessment Procedure in the Philippines

1. The environmental impact statement system in Philippines was set out in PD No.1580. In this PD, "Environmental Management Bureau" (EMB) was declared as the organization responsible for the implementation of environmental assessment.
2. According to PD No.1580, a project classified under the two categories, namely, "Environmentally Critical Project" and "Environmentally Critical Area", is subject to the environmental impact assessment procedure. If the project falls into these categories, the project proponents/planner shall prepare an Environmental Impact Statement (EIS) of the project, and submit it to EMB. EMB evaluates the EIS and decides whether to grant permission for project implementation.
3. The procedure of Environmental Impact Statement Scheme in Philippines is shown in Figure 10-1.

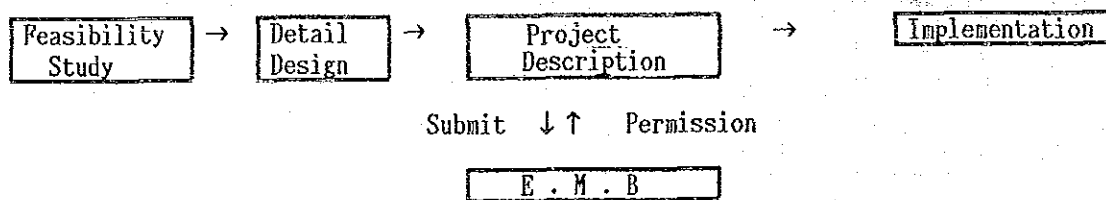


Figure 10-1 Procedure of Environmental Impact Statement System in Philippines

B. EIS Criteria of Project

4. Table 10-1 shows the criteria of project for which the environmental assessment is required, and also shows the together with diagnosis of the Ro/Ro facilities checked against the criteria. The criteria is promulgated in the Office Circular No.3, 1983. From the above consideration it seems to be almost certain that the EIS is not required for the development of Ro/Ro facilities in both Iloilo and Bacolod.

Table 10-1 Environmental Assessment Criteria and Ro/Ro Project

Criteria	Iloilo	Bacolod
1.Environmentally Critical Project		
A.Heavy Industry	non	non
B.Resource Extractive Industries	non	non
C.Infrastructure Project	non	non
	non	non
Dam 20 million m3	non	non
Power Plant 10 megawatt	non	non
Reclamation 1 ha	non	non
Road/Bridges	non	non
2.Environmentally Critical Area		
A.National Park	non	non
B.Tourist Spot	non	non
C.Area living threatened Species/Indigeneous Wildlife	non	non
D.Histric/Scientific Area	*	non
E.Area Occupied by Cultural Communities	non	non
F.Area Hard-hited by Natural Calamities	non	non
G.Area with Critical Slop	non	non
H.Area Classified as Prime Agricultural Land	non	non
I.Recharged Areas of Aquifers	non	non
J.Waterbodies (declared area by appropriate authorities like marine turtle & fish sanctuaries)	non	non
K.Mangrove Area	non	non
L.Coral Reefs	non	non

Source : Office Circular No.3 1983, ECP

Note : * = see paragraph 13

C. Preliminary Observation from the Point of View of Environment

5. The team made an preliminary observation of various aspect of the Ro/Ro development from the point of view concerning various environmental issues based on the Annotated Outline of EMB.

6. Based upon the existing data and site surveys conducted by the team, it can be judged for the Iloilo/Bacolod Ro/Ro project that there may not exist environmental problems in terms of climate/terrain/hydrology/oceanography/atomosphere.

7. Since the project areas have already been developed for port, there are no mangrove along the shore, and undisturbed, rare or unique vegetation or plant are not found so far. Also, the project site are not included in the fish sanctuaries, and there is no wild life around the site.

8. In so far as land and resource use, there are no ecological reserves, nature reserves, military reserves or scenic spots within the project sites.

However, a historical area named "Fort San Pedro" exists in the immediate vicinity of the project site in port of Iloilo. The fort was built by the Spaniards between 1603 and 1616 to defend Iloilo from invading forces which were likely to come through the sea. The walls were approximately 12 feet high from the land surface. While the fort was destroyed in 1945 by the War, the fort and Sta. Maria Stature standing on the head of the fort constitute the landmark for the citizens. Fort San Pedro also represents a port of the Ilonggo heritage in the colonial clays (Photo 10-1, 10-2).

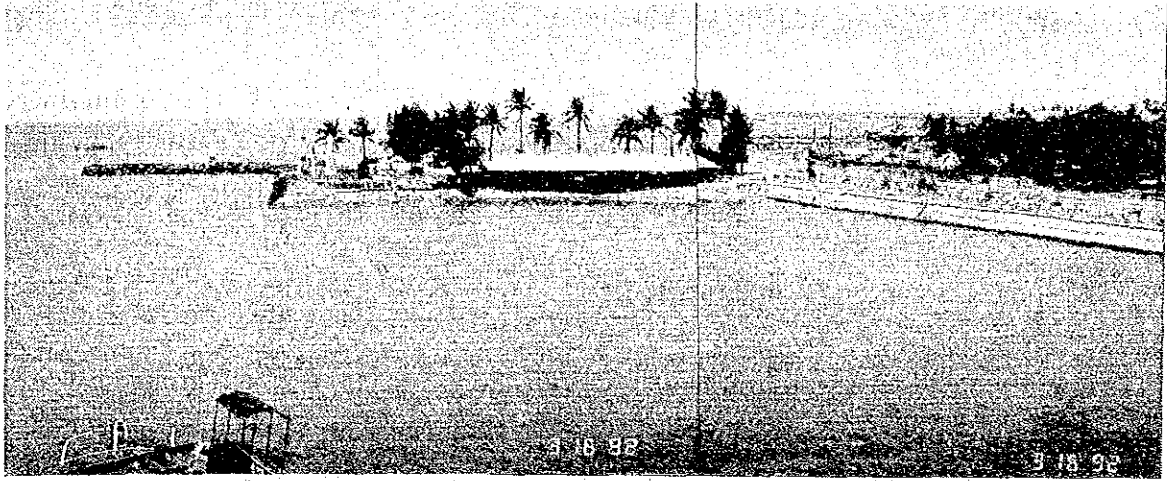


Photo 10-1 Fort San Pedro at Port of Iloilo (1)

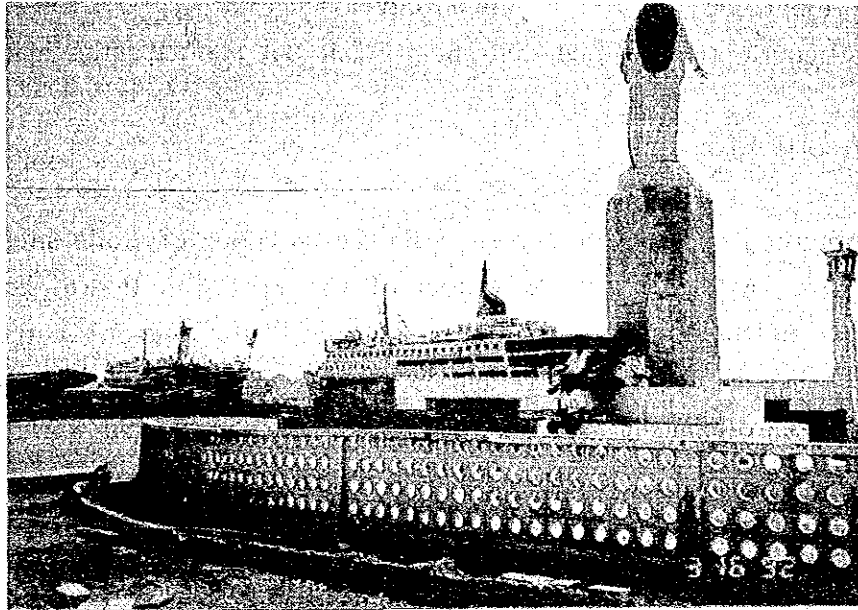


Photo 10-2 Fort San Pedro at Port of Iloilo (2)

9. Cities of Iloilo and Bacolod are centers of the provinces and play important roles in the socio-economic aspects of the region. This fact may advocate development of the Ro/Ro ferry transport system between the cities to stimulate the activities of the provinces.

D. Prediction and Assessment of Impacts

10. Based on the above consideration, the team prepared the preliminary prediction and assessment of impacts in compliance with to the EMB guideline. The results of prediction and assessment of impacts are as follows.

(i) Physical and/or Chemical Effects

An impact on hydrology and quality of the surface and ground water cannot be found at the project site. The impact to the atmosphere, air quality and wind is considered to be negligible.

(ii) Ecological Effect

The project site has already been developed as a port. The impact to wildlife and aquatic species, and their habitats is not significant.

(iii) Aesthetic Effects

The expansion of the Old Foreign Pier in the port of Iloilo might be considered to have an impact on aesthetical of the Fort San Pedro, however, the distance between the pier and the fort may keep the impact at the minimum level. The other aspects such as land, water, atomosphere etc., may not have impacts by the development of facilities as well as construction work.

(iv) Socio-economic Effects

The Ro/Ro project may improve the existing transport situation in the region, which is a favorable effects to the community through encouraging the human activity and stimulating economic growth.

17. The summary of the prediction and assessment of impacts are shown in Table 10-2.

Table 10-2 Summary of the Prediction and Assessment of Impacts

	Iloilo	Bacolod
Physical and/or Chemical Effects		
Surface Water	0	0
Ground Water	0	0
Atmosphere		
Air Characteristics	0	0
Wind	0	0
Inversion	0	0
Ecological Effect		
Terrestrial		
Species		
Vegetation	0	0
Wildlife	0	0
Aquatic Species and Habitats	0	0
Aesthetic Effects		
Land	0	0
Atmosphere	0	0
Water	0	0
Flora and Fauna	0	0
Man-made Objects	△	0
Composition	△	0
Socio-economic Effects		
Demography	+	+
Manpower	+	+
Transportation	+	+
Housing and Community Infrastructure	+	+
Education, Health and Social Service	+	+
Lifestyle	+	+

Legend: 0 = No impact by the project
 + = Good impact by the project
 △ = a little impact by the project

Source: EMB Guideline and JICA Study Team

12. It is common phenomena throughout the world that public works often hindered by inhabitants in the illegal settlements. In such cases, implementing authorities or relevant local governments have to take tasks to get their consent and to resettle them. This kind of inhabitants are not found in and around the sites of the project both in Iloilo and Bacolod (Photos 10-3 - 10-8).

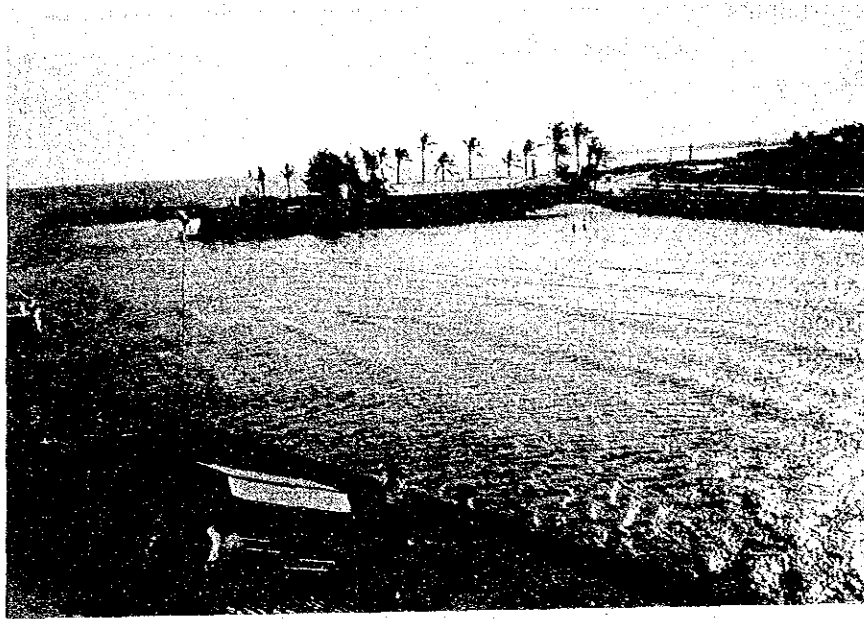


Photo 10-3 Ro/Ro Terminal Site of Port of Iloilo(1)
Source: JICA Study Team

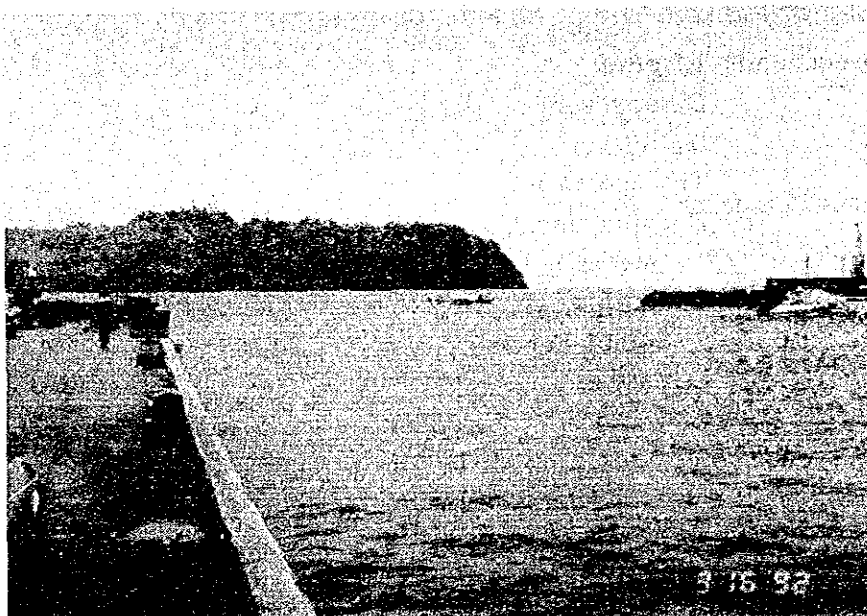


Photo 10-4 Ro/Ro Terminal Site of Port of Iloilo(2)
Source: JICA Study Team



Photo 10-5 Ro/Ro Terminal Site of Port of Bacolod
(Terminal Site)

Source: JICA Study Team



Photo 10-6 Ro/Ro Terminal Site of Port of Bacolod
(Loading Parking Area)

Source: JICA Study Team

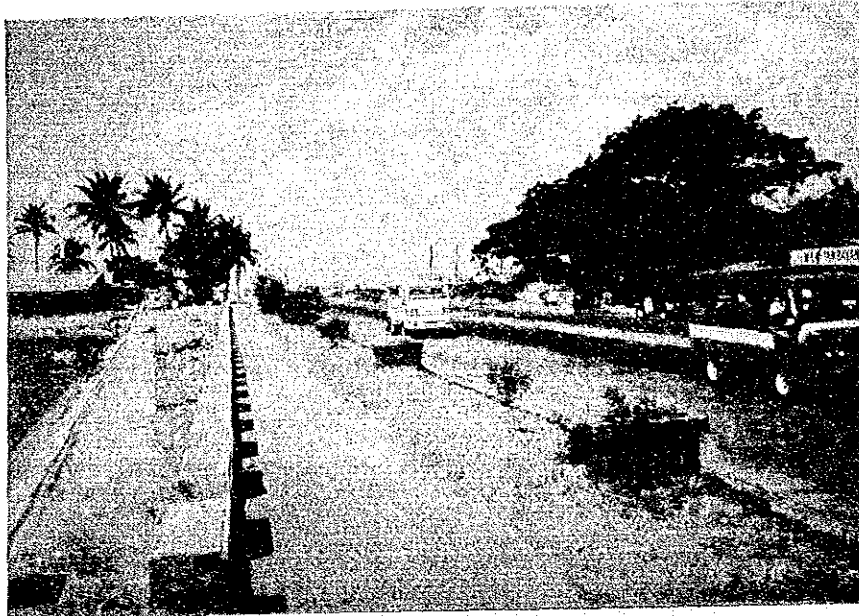


Photo 10-7 Existing Road Condition Connected to Ro/Ro
Terminal (Iloilo)

Source: JICA Study Team



Photo 10-8 Existing Road Condition Connected to Ro/Ro
Terminal (Bacolod)

Source: JICA Study Team

[References]

1. Revised Rules and Regulations Implementing P.D.1586, 1984, NEPC
2. Project Description (Annotated Outline), EMB
3. Office Circular No.3, Series of 1983, EMB
4. Guide Questions to the Perception Study for Environmental Impact Statement, EMB

Chapter II Economic Analysis of Ro/Ro Ferry Transportation

A. General

1. The objective of the economic evaluation is to ascertain the project's desirability in terms of its net contribution to the economic and social welfare of the country as a whole. The project objective is port development through the introduction of the Ro/Ro for the Iloilo-Bacolod link.

Procedures

2. The following four general procedures are usually adopted for economic analysis.

3. Identification of the Project Costs and Areas of Benefits : This entails the identification of the project's additions to (benefits) and reductions from (economic costs) national income as a result of its implementation.

(1) Economic Costs - usually classified into the capital costs and the operating and maintenance costs.

(2) Benefits - constitutes an increase in output, savings in resources, and other effects directly or indirectly resulting from the project. Area of benefits should be identified as they vary by type and location of the project.

4. Valuation of Costs and Benefits : For the measurement of the value of commodity from the economy's viewpoint, adjustment of the financial prices of goods and services (for both costs and benefits) is undertaken. This entails the adoption of shadow prices employed by a country or place wherein the project will be implemented. Taxes, duties and subsidies are called transfer items, which does not use real resources, they should be excluded from the costs for the purpose of economic analysis. The valuation of project costs and benefits are in constant prices at the current year's level.

- (1) Valuation of Costs - involves the differentiation of project inputs that reduce the supply to other users and those inputs that would be supplied from increased production. For the former, the shadow price is the market selling prices. For the latter, the relevant cost estimate is the actual cost of production. For inputs that are imported or substitutes for exports, the foreign exchange cost of the item is corrected with the shadow price of foreign exchange plus its cost of transporting or trade services.
- (2) Valuation of Benefits - involves outputs leading to additional supply for other users or reducing the output of other local producers. For both types of situation, the shadow price is the market price. For goods that substitute imports or add to exports, foreign exchange earnings or savings are corrected by the shadow price of foreign exchange. For goods/services given freely, the judged value is based on the value assigned by the users.

The National Economic and Development Authority (NEDA) of the Philippines assigned the parameters for estimating costs and benefits based on the following shadow values :

- Shadow Exchange Rate : 1.20
- Shadow Wage Rate : 0.60 (for unskilled labor only)

5. Measurement of Economic Desirability : The indicator used for measuring the project's desirability is the Economic Internal Rate of Return (EIRR). The social discount rate (SDR) is used to discount the stream of economic costs and benefits to their present values. It is the rate at which the social value of project costs and benefits decline over time. The SDR is, likewise, used as the hurdle rate for the project's EIRR. SDR currently used by NEDA is 15%.

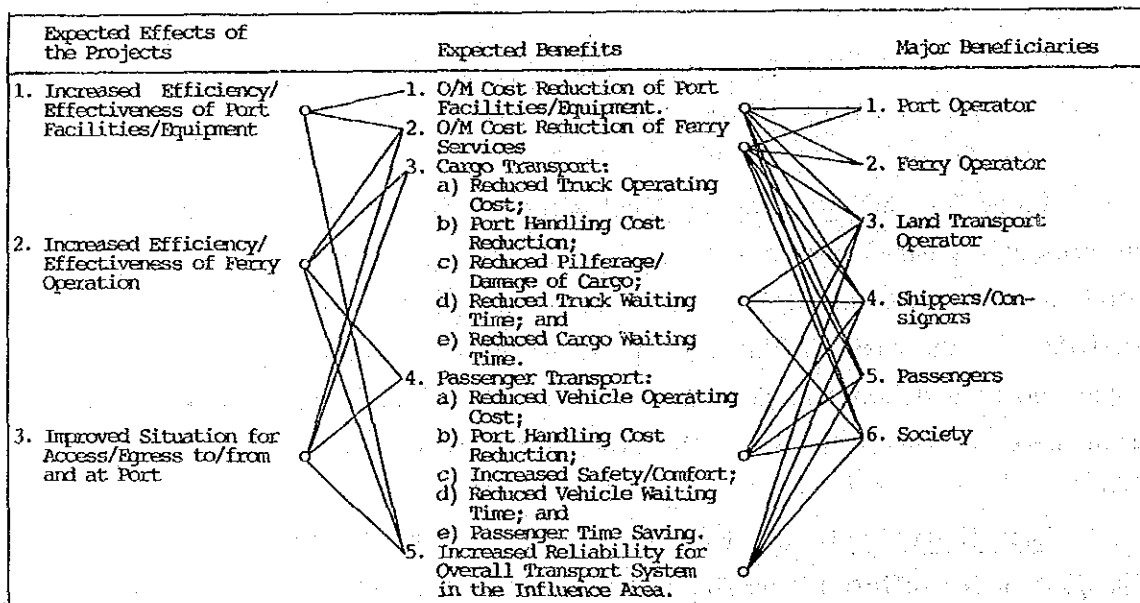
6. Sensitivity Analysis : This analysis is used to determine the feasibility of a project under different cost/benefit scenarios. That is, assumptions are made as to the probable changes in the calculation/projection of cost and benefit values (e.g., + or - certain percentages of estimated values).

Benefits

7. The estimate of the benefits is a primary task of the economic evaluation because there are many areas and aspects which could not be quantified and often involve uncertainties in quantification. Although the expected benefits of the project in general are considered quite extensive as shown in Figure 11-1, the actual benefits calculated in this particular study are as follows:

- (1) Reduction in Port Handling Cost
- (2) Reduction in Truck Transport Cost
- (3) Reduction in Pilferage/Damage of Cargo
- (4) Reduction in Cargo Waiting Time
- (5) Reduction in Truck Waiting Time
- (6) Benefits from Transfer of Passenger Cars
- (7) Benefits of Passenger Time Saving

8. Other benefits either tangible or difficult to quantify are described qualitatively based on the available information.



Remark)
O/M : Operating and Maintenance

Figure 11-1 Expected Benefits

B. Traffic Characteristics and Assumptions

Passenger Traffic

9. The passenger traffic of Iloilo-Bacolod accounted for 6,900 persons during the two days of Origin/Destination Survey conducted on August 1 and 2, 1991. The passengers move almost entirely between Panay and Negros Islands, as shown in Table 11-1 below:

Table 11-1 Distribution of Iloilo-Bacolod Passengers in Panay and Negros Islands

Origin/ Destination		Iloilo → Bacolod		Bacolod → Iloilo	
		No.	%	No.	%
P a n a y	Iloilo	3,543	90.9	2,673	89.7
	Antique	151	3.9	97	3.3
	Capiz	109	2.8	64	2.1
	Aklan	38	1.0	8	0.3
	Panay Is.	3,841	98.5	2,842	95.4
	Gumaras	20	0.5	77	2.6
	Total	3,898	100.0	2,980 ^{1/}	100.0
N e g r o s	Negros Occ.	3,820	98.2	2,926	97.5
	Negros Or.	12	0.3	16	0.5
	Negros Is.	3,842	98.5	2,942	98.0
	Total	3,898	100.0	3,002	100.0

Source: JICA OD Survey

^{1/} includes 22 unknown

The passengers from/to Bacolod side who departed/arrived at Negros Occidental by direction is shown in Table 11-2. It seems that there is a possibility of bus service between Iloilo City and South/North of Bacolod.

Table 11-2 Distribution of Iloilo-Bacolod Passengers in Negros Occidental

	To Bacolod		From Bacolod		Total	
	No.	%	No.	%	No.	%
Bacolod City	2,015	68.9	2,606	68.0	4,621	68.4
North ^{1/}	427	14.6	648	16.9	1,075	15.9
South ^{2/}	476	16.3	561	14.6	1,037	15.3
East ^{3/}	8	0.3	15	0.4	23	0.3
Total	2,926	100.0	3,830	100.0	6,756	100.0

Source: JICA OD Survey

^{1/}East : Murcia, Salvador

^{2/}North: Talisay, Silay City, Enrique B. Magalona, Victorias, Manapla, Cadiz City, Sagay, Escalante, Taboso and Calatrava

^{3/}South: Other Negros Occidental

Accordingly, at present, 70%, 15%, and 15% of Negros Occidental related passengers are to/from Bacolod City, North, and South, respectively. However, it is possible that the passenger to/from South may use Iloilo-Pulupandan route upon its completion. Therefore, it is assumed that the percentage of passengers to/from Bacolod City and to/from North will increase to 82% and 18%, respectively.

10. Access/egress modes of transport at Iloilo and Bacolod ports are shown in Table 11-3. Jeepneys share the largest percentage of between 52% to 65% at both ports, while cars and vans share relatively high percentages of between 25% and 30%. Cars/vans are more used on Iloilo side, while jeepneys, more on Bacolod side. Tricycle is also a relatively significant mode on Iloilo side, while the bus on Bacolod side.

Table 11-3 Access/Egress Modes at Iloilo and Bacolod Ports

	Vehicle Type	Access		Egress		Total	
		No.	%	No.	%	No.	%
I l o i l o	Car/Van	1,160	30.4	831	29.1	1,991	29.8
	Jeepney	2,003	52.4	1,782	62.4	3,785	56.7
	Bus	20	0.5	16	0.6	36	0.5
	Truck	53	1.4	-	-	53	0.8
	Motorcycle	66	1.7	-	-	66	1.0
	Tricycle	429	11.2	160	5.6	589	8.8
	Others	89	2.3	69	2.4	158	2.4
	Total	3,820	100.0	2,858	100.0	6,678	100.0
B a c o l o d	Car/Van	695	25.1	917	26.9	1,612	26.1
	Jeepney	1,816	65.4	2,223	65.3	4,039	65.4
	Bus	209	7.5	153	4.5	362	5.9
	Truck	16	0.6	26	0.8	42	0.7
	Motorcycle	14	0.5	14	0.4	28	0.5
	Tricycle	13	0.5	60	1.8	73	1.2
	Others	12	0.4	12	0.4	24	0.4
	Total	2,775	100.0	3,405	100.0	6,180	100.0

Source: JICA OD Survey

Cargo Traffic

11. The present travelling time and estimated time of Iloilo and Bacolod link are as follows:

Barge 6 hours
 Ferry 2 hours
 Ro/Ro 1 hour 50 minutes

12. Based on PPA Monthly Report in 1991 May, the service time and amount of cargoes are shown in Table 11-4. Transport by 500 grt. class barge is consid-

ered to spend 117 hrs for service time (average cargo volume: 275 MT = 549/2).

Table 11-4 Barge Transport

	Iloilo River Port	Bacolod BREDCO	Total
No. of data	58	55	113
Average GRT	425	221	326
Service Time	85 hrs	84 hrs	85 hrs
200-1,000 GRT only			
No. of data	16	15	31
Average GRT	435	350	394
Service Time	97 hrs	140 hrs	117 hrs
Dischage+Loading	418 MT	690 MT	549 MT

Source: JICA Study Team based on PPA Monthly Report, May 1991

C. Estimate of Benefits

Costs of Benefits

13. The costs of the present system are the following :

(1) Cargo Transport :

Handling Costs - These costs by commodity type are fixed by PPA and BREDCO. The average handling costs are estimated at P35 per MT.

Unit Value Added of Cargo - Table 11-5 shows unit value added for each type of cargo handling at Iloilo and Bacolod. This value added is estimated based on the interview to PPA, BREDCO and some consignors.

Table 11-5 Unit Value Added

(Unit : Peso/MT, MT)

Commodity	Value Added	Demand
Rice	8000	11000
Fruits	10000	9000
Sugar	14900	7000
Fertilizer	4800	32000
Bottled Cargo	16700	1000
Other General Cargo	20000	48000
Total	13000	108000

Note: Total of Volume Added is weighted average.

Source : JICA Study Team based on interview

Pilferage and Damage - Based on the interview to the shipping company, BREDCO and ILIASCO, about 1 or 2% of gross revenue is experienced for damage claims. It is assumed that Ro/Ro will reduce this loss to average 1.5%. For example of palay/rice is as follows.

$$P8,000/MT \times 1.5\% = P120/MT$$

Freight Cost - on barge or cargo vessel is P6.00/bag(50kg) based on the interview to the consignor and BREDCO. On other hand, Ro/Ro Fare is P23.0/NM for jeepney and P36.7/NM for truck based on MARINA.

Cargo Waiting Time - The cost is estimated with the value of cargo and interest rate. For example of palay/rice is as follows.

$$P8,000 \times 0.15 / 365 / 24 = P0.137 /MT/hour$$

day hour

Truck Waiting Time - Waiting time of truck for loading/unloading from barge at port due to congestion is 4- 5 hours for rice and 2 hours for fertilizer according to PPA Port of Iloilo. The average truck waiting time is estimated at 3 hours by weighed future demand by commodity

type.

Benefits from Transfer of Passenger Cars is evaluated at P440 per car. This correspond to the fare and marginal costs of car transfer. The present price for shipments of cars (including handling) is P885. Around 4,000 cars are transferred and its benefit is estimated at 50% of the present cost (P440 per car).

(2) Passenger Transport :

Passenger Time Saving - The passengers can save 10 minutes for travelling time and the users of passenger cars and buses can save twice 15 (=30) minutes more for the waiting time to/from port. Passenger Time Saving are evaluated only for persons travelling at work. 32% passengers are at work on JICA OD Survey.

The unit cost is evaluated as follows.

$$P\ 1,132,404M / 24,525\ (000) = P\ 46,173$$

GNP 1990 Labor Force 1990

$$P\ 46,173 / 365 / 8 = P\ 15.8/\text{hour}$$

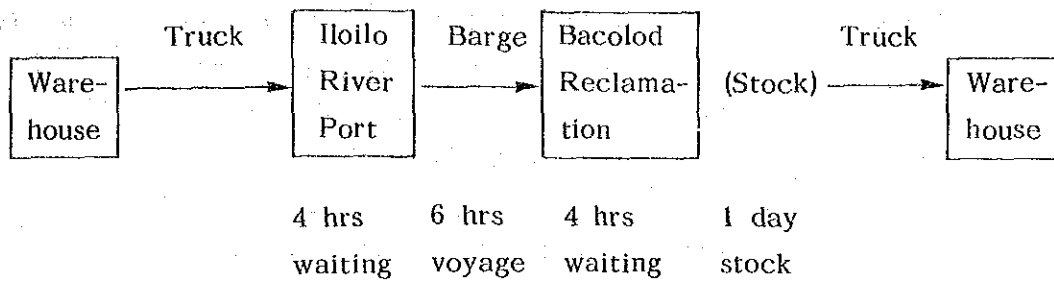
Day Hour

Case of Transporting Palay/Rice

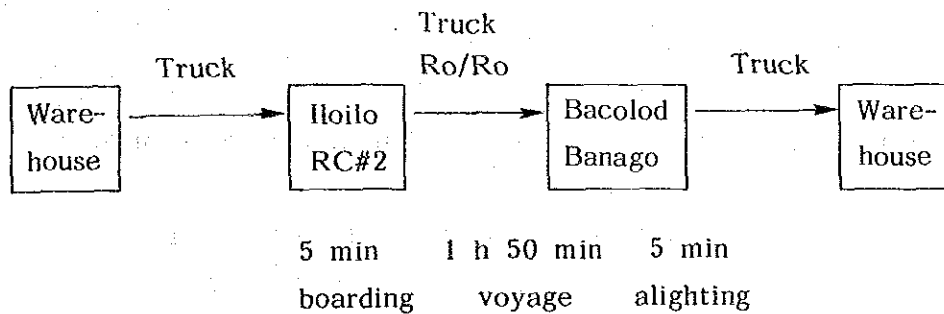
14. Benefit is defined as the difference in the costs of "Do Nothing Situation" and "With Project Situation" for transporting passengers, goods and vehicles between origins and destinations. Taking the example of transporting rice/palay from Iloilo To Bacolod, estimate of the benefit is explained in the following.

- (a) The transport of the rice/palay of "Do Nothing Situation" and "With Project Situation" can be conceptually illustrated below:

(Transportation Without Project : Do Nothing Situation)



(Transportation With Project : With Project Situation)



Assumptions made in this exercise are as follows:

- o 5.2 MT (= 8MT x 65%) of rice from Iloilo to Bacolod
- o 50 kg bag used
- o 5 stevedores for loading/unloading and 1 minute taken by 1 bag, so 20.8 minutes needed for 5.2 MT less than 4 hours waiting due to congestion
- o 1 day to stock at port
- o 5 minutes taken for alighting/boarding truck to Ro/Ro
- o distance from warehouse to Iloilo Port: 1 km; distance from Bacolod Reclamation to warehouse: 1 km; distance from Banago to warehouse: 4 km
- o Truck runs at 40 kph

Relevant transport and handling costs of the goods are estimated for the following:

- truck transport cost which comprises distance related cost and time related cost (Refer to Note A-2-11-1 of Appendices)
- barge transport cost at ₱ 6/bag (50 kg)
- Ro/Ro transport cost at ₱ 36.7/NM
- stevedoring cost at ₱1.75/bag (=₱ 35/MT)
- benefit of reduction in pilferage and damage at ₱120/MT
- cargo time value at ₱ 0.137/MT/hour

(b) Transport cost under "Do Nothing Situation" is composed of:

- truck transport cost from warehouse to Iloilo Port (t1)
- waiting time cost of truck at Iloilo Port (t2)
- handling cost of cargo at Iloilo Port from truck to barge (h1)
- barge transport cost from Iloilo Port to Bacolod reclamation (tb)
- handling cost of cargo at Bacolod reclamation from barge (h2)
- stock cost of cargo at Bacolod reclamation (s)
- handling cost of cargo at Bacolod reclamation from stock to truck (h3)
- waiting time cost of truck at Bacolod reclamation (t3)
- truck transport cost from Bacolod reclamation to warehouse (t4)
- cargo time cost (tc)

The total transport cost, therefore, is estimated as follows:

$$t1 = 1 \text{ km} \times \text{P } 6.705 \text{ (running cost at 40 kph) +} \\ 1 \text{ km} / 40 \text{ kph} \times 60 \text{ min} \times \text{P } 1.045 \text{ (time cost)}$$

$$t2 = 4 \times 60 \text{ min (waiting time)} \times \text{P } 1.045 \text{ (time cost)}$$

$$tb = 5.2 \text{ MT (truck load)} / 50 \text{ kg (bag)} \times \text{P } 6 \text{ (barge transport} \\ \text{cost)}$$

$$t3 = t2$$

$$t4 = 1 \text{ km} \times \text{P } 6.705 + 1 \text{ km} / 40 \times 60 \times \text{P } 1.045$$

$$tc = \text{P } 0.137 \times 5.2 \text{ MT} \times (4 + 6 + 4 + 24) \text{ hours}$$

$$h1 = h2 = h3 = 5.2 \text{ MT} / 50 \text{ kg} \times \text{P } 1.75$$

$$s = 0 \text{ (no charge within 2 days)}$$

Total	P1,715
-------	--------

(c) Transport cost under "With Project Situation" is composed of

- truck transport cost from warehouse to Iloilo Port (T1)
- truck and goods waiting time at Iloilo Port (T2)
- boarding cost of truck to Ro/Ro at Iloilo Port (T3)
- Ro/Ro and truck transport cost (Tr + T4)
- alighting cost of truck from Ro/Ro at Bacolod (T5)
- truck transport cost from Banago to warehouse (T6)
- benefit of reduction in pilferage/damage and waiting time (B)

- cargo time cost (TC)

The total transport cost, therefore, is estimated as follows:

$$T1 = 1 \text{ km} \times \text{P } 6.705 + 1 \text{ km} / 40 \times 60 \times \text{P } 1.045$$

$$T2 = T3 = T5 = 5 \text{ min (waiting time)} \times \text{P } 1.045$$

$$Tr + T4 = 24 \text{ NM} \times \text{P } 36.7 + 120 \text{ min} \times \text{P } 1.045$$

$$T6 = 4 \text{ km} \times \text{P } 6.705 + 1 \text{ km} / 40 \times 60 \times \text{P } 1.045$$

$$-B = 5.2 \text{ MT} \times \text{P } 120$$

$$TC = \text{P } 0.137 \times 5.2 \text{ MT} \times 2 \text{ hours}$$

Total	$\text{P } 1,060 - \text{P } 624 = \text{P } 436$
	(Benefit)

(d) Accordingly, the benefit of Ro/Ro service of transporting 5.2 MT of rice from Iloilo to Bacolod is P1,279 (P1,715 - P436).

Assumed Ro/Ro Traffic

15. Although the potential demand for Ro/Ro traffic is significant, the proposed project comprising construction of a berth and introduction of two Ro/Ro vessels could only meet the traffic which is restrained by the capacity of two Ro/Ro vessels. The estimated transport capacities of the Ro/Ro vessels are:

For Passenger: 1,000 pass x 6 trips/day x 2 vessels
x 340 days/2 directions
= 2,040 thousand passengers/direction

For Cargo : 79.3 ton x 6 trips/day x 2 vessels
x 340 days/2 directions
= 161,772 tons/direction

Annual demand was estimated based on short-term and long-term projection using the following equation and shown in Table 11-6.

$$D_k = D_s \times (1+r)^{(k-1)}$$

where;

D_k = k-th year's demand

D_s = short-term demand (= D_1)

r = growth rate (= $\text{Exp}(\text{Log}(\text{long-term}/\text{short-term})/13)-1$)

Table 11-6 Estimated Ro/Ro Traffic for Passengers and Cargo

Year	No. of Passengers (000) /direction	(000 MT)	
		Cargo from Hoilo	Cargo from Bacolod
1 1997	1,235	81	27
2 1998	1,347	87	29
3 1999	1,470	92	31
4 2000	1,603	99	33
5 2001	1,749	106	35
6 2002	1,908	113	38
7 2003	2,040	121	40
8 2004		129	43
9 2005		138	46
10 2006		147	49
11 2007		157	53
12 2008		162	56
13 2009			60
14 2010			65
15 2011			69
16 2012			74
17 2013			79
18 2014			84
19 2015			90
20 2016			97
21 2017			103
22 2018			110
23 2019			118
24 2020			126
25 2021			135
26 2022			144
27 2023			154
28 2024			162
29 2025			
30 2026			

Source: JICA Study Team

16. The number of Ro/Ro vessels and trips corresponding to the demand is estimated as shown in Table 11-7. In order to meet the above demand, it is assumed that an additional ferry should be introduced by year 1999 if the project is not implemented, because the maximum number of trips to be made by the current ferry is 4 trips (or 2 round trips), while that of Ro/Ro is 6 trips (or 3 round trips)

Table 11-7 Estimated Number of Vessels and Trips

Year	With Project			Without Project		
	No. of Vessel	Trips	No. Trips/Vessel	No. of Vessel	Trips	No. Trips/Vessel
1997	2	4	2	2	4	2
1998	2	4	2	2	4	2
1999	2	5	2.5	3	5	1 and 2
2000	2	5	2.5	3	5	1 and 2
2001	2	5	2.5	3	5	1 and 2
2002	2	6	3	3	6	2
↓	↓	↓	↓	↓	↓	↓
2026	2	6	3	3	6	2

Source: JICA Study Team

17. Introduction of Ro/Ro vessels would expand the transport capacities for cargo as well and likely attract the diversion of the cargo which is currently transported by barge. Since the capacity of a Ro/Ro vessel is relatively small (80 MT), it is assumed that the capacity would be easily met upon introduction. On the other hand, the capacity of a current ferry is estimated to be approximately 20 MT which is the present cargo movement. This means that the remaining 60 MT would be diverted from barge. The estimated share between ferry and barge under Do Nothing Situation is shown in Table 11-8.

Table 11-8 Estimated Share of Cargo Between Ferry and Barge
Under Do Nothing Situation

(Unit:MT)

Year	Ferry from		Barge from	
	Iloilo	Bacolod	Iloilo	Bacolod
1 1997	27,200	27,000	53,800	-
2 1998	27,200	27,200	59,357	1,872
3 1999	34,000	30,875	58,495	-
4 2000	34,000	33,016	64,841	-
5 2001	34,000	34,000	71,621	1,306
6 2002	40,800	37,754	72,067	-
7 2003		40,372	79,811	-
8 2004		40,800	88,085	2,372
9 2005			96,927	5,366
10 2006			106,375	8,568
11 2007			116,472	11,991
12 2008			120,972	15,653
13 2009				19,568
14 2010				23,754
15 2011				28,231
16 2012				33,018
17 2013				38,137
18 2014				43,612
19 2015				49,466
20 2016				55,726
21 2017				62,420
22 2018				69,578
23 2019				77,233
24 2020				85,418
25 2021				94,172
26 2022				103,532
27 2023				113,541
28 2024				120,972
29 2025				113,541
30 2026				120,972

Source: JICA Study Team

Estimated Benefits

18. The benefit of the Ro/Ro service is the difference in the cost of transporting cargo with between conventional system and Ro/Ro under the proposed Project. The benefits quantified in this Study includes (1) reduction in port handling cost, (2) reduction in transport cost, (3) reduction in pilferage/damage to cargoes, (4) reduction in cargo waiting time, (5) reduction in truck waiting time, (6) benefits from transfer of passenger cars and (7) benefits of passenger time saving.

19. As is exercised for rice transport, transport and handling costs of the estimated demand under Do Nothing Situation consist of those by the combination of truck and jeepney on land and ferry and barge on the sea. It is assumed that truck and jeepney share land transport market as follows.

- Year 1997 : Jeepney 89% Truck 11%
- Year 2010 : Jeepney 74% Truck 26%
- Average Loading Factor : 65%

20. The estimated benefits due to the Project are summarized as shown in Table 11-9.

Table 11-9 Estimated Benefits due to the Project

(Unit : Million Pesos)

Year	Trans- port Fare	Damage	Cargo Waiting	Trans- fer of P.car	Truck Waiting	Passeng- er Time Saving	Total
1997	4.15	21.06	2.84	1.81	2.73	4.58	37.17
1998	3.58	22.51	3.23	1.81	3.10	5.00	39.22
1999	7.08	24.06	3.09	1.81	2.95	5.45	44.44
2000	7.48	25.71	3.42	1.81	3.22	5.95	47.59
2001	6.77	27.48	3.85	1.81	3.61	6.49	50.01
2002	10.34	29.37	3.80	1.81	3.55	7.08	55.96
2003	9.75	31.39	4.21	1.81	3.92	7.57	58.65
2004	10.48	33.55	4.77	1.81	4.37	7.57	62.55
2005	10.11	35.86	5.40	1.81	4.92	7.57	65.66
2006	9.80	38.33	6.06	1.81	5.50	7.57	69.06
2007	9.18	40.96	6.78	1.81	6.13	7.57	72.42
2008	10.68	42.55	7.21	1.81	6.41	7.57	76.23
2009	11.26	43.32	7.41	1.81	6.55	7.57	77.93
2010	11.90	44.13	7.64	1.81	6.70	7.57	79.75
2011	12.60	45.01	7.87	1.81	6.86	7.57	81.72
2012	13.40	45.94	8.12	1.81	7.03	7.57	83.87
2013	15.39	46.94	8.39	1.81	7.15	7.57	87.25
2014	15.78	48.01	8.68	1.81	7.36	7.57	89.20
2015	16.82	49.15	8.99	1.81	7.56	7.57	91.90
2016	18.02	50.37	9.32	1.81	7.76	7.57	94.85
2017	20.21	51.67	9.68	1.81	7.92	7.57	98.86
2018	21.74	53.07	10.05	1.81	8.14	7.57	102.38
2019	23.51	54.56	10.46	1.81	8.37	7.57	106.27
2020	24.53	56.16	10.89	1.81	8.65	7.57	109.61
2021	27.41	57.87	11.35	1.81	8.85	7.57	114.86
2022	30.66	59.69	11.84	1.81	9.05	7.57	120.63
2023	37.08	61.64	12.37	1.81	9.09	7.57	129.56
2024	47.90	63.09	12.76	1.81	8.75	7.57	141.89
2025	47.90	63.09	12.76	1.81	8.75	7.57	141.89
2026	47.90	63.09	12.76	1.81	8.75	7.57	141.89

Source: JICA Study Team

D. Summary of Project Cost

21. Project costs consist of construction cost, maintenance cost and operation cost. Construction cost with disbursement schedule and by currency component excluding tax and price contingency of Iloilo and Bacolod ports are summarized in Table 11-10. These costs were adjusted for economic evaluation by multiplying 1.20 to foreign currency portion and 0.60 to unskilled labor to estimate the economic cost of the project as shown in Table 11-10.

Table 11-10 Construction Costs

(Unit : Million Pesos)

Port	Currency Component	Total	Disbursement Schedule		
			1994	1995	1996
Iloilo	Foreign	23,244	1,943	15,514	5,787
	Local	37,204	3,330	23,684	10,190
	Unskilled Labor	14,072	0,278	9,800	3,994
	Total	74,520	5,551	48,998	19,971
	Total (Economic)	73,540	5,828	48,181	19,531
Bacolod	Foreign	57,181	4,016	45,247	7,918
	Local	85,778	6,885	64,785	14,108
	Unskilled Labor	26,086	0,574	20,008	5,507
	Total	169,048	11,475	130,040	27,533
	Total (Economic)	170,049	12,049	131,086	26,914

Source: JICA Study Team

22. The maintenance costs for this project are set to be 1% of the direct cost, engineering service cost and physical contingency shown in Table 11-11 and these costs are excluding taxes.

Table 11-11 Maintenance Costs

(Unit : 000 Pesos)

Component	Iloilo	Bacolod
Direct Cost	60,195	124,781
Engineering Service Cost	11,919	24,707
Physical Contingency	9,510	19,715
Total	81,624	169,203
1% of Total	816	1,692

Source: JICA Study Team

23. The operation costs are composed of personnel costs and administrative costs. After the port development and the introduction of Ro/Ro vessels, no additional persons will be employed because of the transferred persons from the present ferry system. Neither administrative costs nor personnel costs are considered.

E. Cost Benefit Analysis

24. The estimated benefits and costs were then compared over the assumed project period of 30 years. The resultant EIRR are summarized in Table 11-12. Objective of Sensitivity Analysis is to determine whether the project will remain feasible if changes in the assumptions used in the calculation/projections were to take place according to the degree in which they are likely to vary from the estimated or projected values. A series of sensitivity test is also made by the fluctuation of costs and benefits along NEDA Guideline as follows.

- Case I: Increase in projected costs by 10% and 20%
- Case II: Decrease in revenues by 10% and 20%
- Case III: Combination of Cases I and II

Table 11-12 Results of EIRR

Base Case	Sensitivity Analysis							
	Cost Same		Cost +10%			Cost +20%		
	Benefit -10%	Benefit -20%	Benefit Same	Benefit -10%	Benefit -20%	Benefit Same	Benefit -10%	Benefit -20%
Base	Case II	Case II	Case I	CaseIII	CaseIII	Case I	CaseIII	CaseIII
18.4%	17.2%	16.0%	17.1%	16.0%	14.9%	16.0%	14.9%	13.9%

Source: JICA Study Team

Conclusion

25. Port development through the introduction of the Ro/Ro for the Iloilo-Bacolod link is judged to be more than feasible except Case III of combination of cost +20% and benefit -20% from the viewpoint of the national economy based upon the EIRR of the project as well as the unquantified benefits arising from this project.

[References]

1. 1990 Philippines Statistical Yearbook, National Statistical Coordination Board
2. Road Feasibility Studies III, MPWH, Aug. 1981
3. Highway Planning Manual Volume 4, MPWH, Oct. 1982
4. ICC Project Evaluation Procedures and Guidelines, NEDA, 1991

Chapter 12 Financial Analysis

A. Purpose of the Financial Analysis

1. The purpose of the financial analysis is to appraise the financial feasibility of the short-term development plan with regard to the Iloilo Bacolod link. The analysis focuses on the viability of the project itself and the financial soundness of the port management body during the project life. It is conducted for both Iloilo and Bacolod case separately.

B. Methodology of the Financial Analysis

Viability of the Project

2. The viability of the project is analyzed using the Discount Cash Flow Method and appraised by the FIRR (financial internal rate of return). The FIRR is a discount rate that makes the costs and the revenues during the project life equal, and it is calculated using the following formula;

$$\sum_{i=1}^n \frac{B_i - C_i}{(1+r)^{i-1}} = 0$$

n : project life

B_i: revenues in the i-th year

C_i: costs in the i-th year

r : discount rate

In the course of analysis costs and benefits taken into account for the calculation of the FIRR are summarized as follows:

Cost	Benefit
a. Total investment cost including initial capital and reinvestment for renewal	a. Port operating revenue
b. Operating cash expenses	b. Residual value of the fixed assets at the end of the project life

On the other hand, costs and benefits exempt from calculation of the FIRR are summarized as follows:

Cost	Benefit
a. Depreciation cost	a. Fund management income
b. Repayment of the principal loan	
c. Interest on loans	

When the calculated FIRR exceeds the weighted average interest rate of the total funds for the project investments, the project is regarded as financially feasible.

Financial Soundness of the Port Management Body

3. The financial soundness of the port management body is appraised based on its projected financial statements (Income and Expense Account, Cash Flow Statement and Balance Sheet). The appraisal is made from the viewpoints of profitability, loan repayment capacity and operational efficiency.

(1) Profitability

Rate of return on net fixed assets is calculated in the following:

$$\frac{\text{Net Operating Income}}{\text{Total Fixed Assets}} \times 100(\%)$$

This indicator shows the profitability of the investments, which are presented as net total fixed assets. It is preferable to keep the rate above the average interest rate of the funds for the investments.

(2) Loan Repayment Capacity

Debt service coverage ratio is calculated in the following:

$$\frac{\text{Net Operating Income} + \text{Depreciation Cost}}{\text{Repayment and Interest of Long-term Loans}}$$

This indicator shows whether the operating income can cover the repayment and interest of long-term loans. It must be more than 1 and it is preferable that it be over 1.75.

(3) Operational Efficiency

Operating ratio is calculated in the following:

$$\frac{\text{Operating Expenditure}}{\text{Operating Revenue}} \times 100(\%)$$

Working ratio is calculated in the following:

$$\frac{\text{Operating Expenditure} - \text{Depreciation Cost}}{\text{Operating Revenue}} \times 100(\%)$$

The operating ratio shows the operational efficiency of the organization as an enterprise, and on the other hand, the working ratio shows the efficiency of the routine operations of the port.

When the calculated operating ratios are less than 70-75%, and the working ratios are less than 50-60%, the operations are claimed to be efficient.

C. General Prerequisites of the Financial Analysis

Scope of the Analysis

4. The scope of the analysis is as follows:

- a. Each short-term plan, in Iloilo and Bacolod, covers only the Ro/Ro terminal. The cargo volume transported through the terminal is assumed to be the Ro/Ro related ones that is forecast in Chapter 4 of this volume.
- b. The financial analysis takes the port management body as an implementation body. At Iloilo PPA is responsible for the implementation of the project, since facilities are overseen and operated by the PPA. However, for the Port of Bacolod, matters are a bit complicated. The Negros Navigation Co. constructed and is operating Banago Pier which is the site for the Ro/Ro terminal. It is a general rule in the Philippines that after a certain period of time has elapsed following the construction of a facility, that facility should be reverted to the government. Therefore, it is not clear for the moment, who is responsible for implementation at Bacolod. Under the circumstances, an anonymous body is assumed for the implementation. The financial analysis based on this assumption assesses the financial viability of the project independently of the managing condition of the implementing body. Some financial institutions use this method.
- c. It is assumed that the projects are implemented independently between Iloilo and Bacolod, however, they are conducted and operated simultaneously.

With Case and Without Case

5. In conducting a financial analysis, the revenue is generally calculated by determining the amount of income to be lost or gained in two different case scenarios: the "with case" and the "without case".

"Without case" means the income which is lost when the project is actually carried out.

When the implementing body of the project operates existing facilities by which it earns the income prior to the new service begins, the amount should be excluded from the income of the project.

Project Life and Price Level

6. Taking account of the conditions of the long-term loans and the service lives of the port facilities, the project life for the financial analysis is determined to be 30 years, following the 3-year period for the construction of the facilities beginning in 1994.

7. For the estimation of costs, expenditures and revenues prices are fixed at the 1992 level.

Cargo Handling Volume

8. The cargo handling volume is estimated based on the demand forecast as shown in Table 12-1. The cargo volume that can be handled in the Ro/Ro terminal will reach its limit in 2003 in terms of passenger traffic, and will reach its limit in 2008 for cargo volume transferred from Iloilo to Bacolod, and that from Bacolod to Iloilo will reach its limits in 2024. The barge transportation in Iloilo is calculated by 275 MT/barge as loading capacity and 4 days staying in the port.

Table 12-1(1) Assumed Cargo Traffic for Financial Analysis

[Unit: Person, MT]

Year	Passenger	Cargo	Iloilo	
			Iloilo	Bacolod
1997	1,235,000	108,000	81,000	27,000
1998	1,347,204	115,429	86,557	28,872
1999	1,469,603	123,370	92,495	30,875
2000	1,603,122	131,857	98,841	33,016
2001	1,748,771	140,927	105,621	35,306
2002	1,907,653	150,621	112,867	37,754
2003	2,040,000	160,983	120,611	40,372
2004	2,040,000	172,057	128,885	43,172
2005	2,040,000	183,893	137,727	46,166
2006	2,040,000	196,543	147,175	49,368
2007	2,040,000	210,064	157,272	52,792
2008	2,040,000	218,225	161,772	56,453
2009	2,040,000	222,140	161,772	60,368
2010	2,040,000	226,326	161,772	64,554
2011	2,040,000	230,803	161,772	69,031
2012	2,040,000	235,590	161,772	73,818
2013	2,040,000	240,709	161,772	78,937
2014	2,040,000	246,184	161,772	84,412
2015	2,040,000	252,038	161,772	90,266
2016	2,040,000	258,298	161,772	96,526
2017	2,040,000	264,992	161,772	103,220
2018	2,040,000	272,150	161,772	110,378
2019	2,040,000	279,805	161,772	118,033
2020	2,040,000	287,990	161,772	126,218
2021	2,040,000	296,744	161,772	134,972
2022	2,040,000	306,104	161,772	144,332
2023	2,040,000	316,113	161,772	154,341
2024	2,040,000	323,544	161,772	161,772
2025	2,040,000	323,544	161,772	161,772
2026	2,040,000	323,544	161,772	161,772

Source: Calculated by JICA Study Team based on Demand Forecast

Table 12-1(2) Barge Transportation in Iloilo

[Unit: MT, Day*ships]

Year	Cargo Volume		Mooring Barge (Day)
	Ferry	Barge	
1997	27,200	53,800	783
1998	27,200	59,357	863
1999	34,000	58,495	851
2000	34,000	64,841	943
2001	34,000	71,621	1,042
2002	40,800	72,067	1,048
2003	40,800	79,811	1,161
2004	40,800	88,085	1,281
2005	40,800	96,927	1,410
2006	40,800	106,375	1,547
2007	40,800	116,472	1,694
2008	40,800	120,972	1,760
2009	40,800	120,972	1,760
2010	40,800	120,972	1,760
2011	40,800	120,972	1,760
2012	40,800	120,972	1,760
2013	40,800	120,972	1,760
2014	40,800	120,972	1,760
2015	40,800	120,972	1,760
2016	40,800	120,972	1,760
2017	40,800	120,972	1,760
2018	40,800	120,972	1,760
2019	40,800	120,972	1,760
2020	40,800	120,972	1,760
2021	40,800	120,972	1,760
2022	40,800	120,972	1,760
2023	40,800	120,972	1,760
2024	40,800	120,972	1,760
2025	40,800	120,972	1,760
2026	40,800	120,972	1,760

Source: Calculated by JICA Study Team based on Demand Forecast

9. The vehicle composition on vessels in this link is assumed as follows:

Vehicle	Capacity	1997	2010-
Bus	60 persons	3 buses	6 buses
Private Car	4 persons	8 cars	16 cars
Truck	8 tons	6 trucks	9 trucks
Jeepney	2 tons	49 jeepneys	25 jeepneys

Note : Loaded ratios of truck and jeepney are assumed to be 0.65.

Source: Assumed by the JICA Study Team based on the Terminal and Development Plan

10. The number of round trips are also assumed based on the Ro/Ro vessel operation plan in Chapter 11 the Volume II, 4 - 6 times a day until 2009, 6 times a day after 2010.

11. All the trucks and jeepneys which travel from Iloilo to Bacolod are assumed to go back to Iloilo through the Banago Pier. At that time they carry all the cargo transported from Bacolod to Iloilo.

PPA Financial Plan

12. PPA made the financial program from 1987 up to 1995 which overlooks the short term financial position of the organization, where the following conditions are assumed:

- a. Financial data from 1987-1990 are based on the figures of the past performance.
- b. Data of 1991 is provided by the corporative budget of the PPA.
- c. Basis of 1992-1995 are as follows:
 - i) Port revenue, arrastre/stevedoring income and non-traditional income are estimated assuming a 4% yearly increase for 1992, 5.8% for 1993-1995.

- ii) Personnel, dredging costs are 10 % increase per annum.
- iii) Repair and maintenance cost is 2.5% of the fix assets.
- iv) Other administrative cost is 8.4% increase per annum.
- v) Depreciation cost is based on the schedule of treasury department of PPA.
- vi) Loan and interest payment and revenue is calculated based on the agreements with the foreign lenders and the projected loan terms.
- vii) Infrastructure program is based on the PPA intermediate investment scheme.
- viii) Account receivable is calculated as 5% of gross revenue plus the half of the beginning account receivable of the year. On the other hand, account payable is 10% of the administrative, dredging, repair and maintenance costs.

Based on this program, the financial analysis is carried out to forecast the projected financial position of the entire PPA.

Port Charges and Revenues

13. The revenues from the port activities are calculated based on Ro/Ro oriented tariff and the estimated cargo volume. The rates of the tariff taken in the analysis are summarized in Table 12-2(1). Here neither wharfage fees nor stevedoring/arrastre charge are levied. While rates charged at Ro/Ro terminals look much higher than the Ro/Ro arrastre charge of the Batangas port(they vary from 20 to 100 pesos by the weight of the vehicle), they are economical enough for the users of these facilities on account of the lower charge compared to that of the conventional handling system both in Iloilo and Bacolod (these changes range from 350 to 1500 pesos by the type of the vehicle).

Calculated results of the revenue are shown in Table 12-3(1), (2).

In the case of Iloilo, the revenue produced in the without case of the project is to be excluded from the operating revenue. The exempted revenue items are as shown in Table 12-2(2).

On the other hand, in Bacolod, the project is assumed to be implemented by an anonymous new body which accrues no income before the project materializes.

Table 12-2(1) Port Charge on Ro/Ro Services

	Unit	Iloilo	Bacolod	Remark
A. Vessel	1,000 pesos per year	1372.4	1372.4	Prioritized Use
B. Vehicle				
a. Bus				
Outward	pesos/bus	140	140	
Inward		70	70	
b. Private Cars				
Outward	pesos/car	40	40	
Inward		20	20	
c. Truck				
Outward	pesos/truck	120	120	
Inward		60	60	
d. Jeepney				
Outward	pesos/jeepney	60	60	
Inward		30	30	
C. Passenger	pesos/person	1.5	1.5	
D. Ancillary	10% of the above revenue			

Source: Assumed by JICA Study Team

Table 12-2(2) Exemption Revenues and Rates (Iloilo)

	Unit	Rates	Remarks
A. Vessel			
a. Ferry	Pesos/GRT/Day/ Day/Ship	0.188	2 Ferries 1,000GRT
b. Barge	Pesos/GRT/Day/ Day/Ship	0.188	175MT/barge 500GRT
B. Wharfage			
a. Containerized	Pesos/Box	13.16	8 feet container 3MT/box
b. Non Containerized	Pesos/MT	1.65	
C. Stevedoring/Arrastre Share of PPA			
a. Vehicle	Pesos/MT	9.15	
b. Container	Pesos/Box	37.61	
c. Non Container	Pesos/MT	1.97	
D. Passenger Fee	Pesos/person	1.5	

Source: Assumed by JICA Study Team

14. For the estimation of the entire PPA financial statements, an increase of the PPA tariff rate is assumed every 5 years after 2000 as follows:

2000	10	% increase
2005	10	% increase
2010	10	% increase
2015	10	% increase
2020	10	% increase
2025	5	% increase

Initial Investment Costs

15. The initial investments of the short-term project are estimated in Chapter 9, and the costs included in the financial analysis are shown in Table 12-4(1), (2).

Table 12-4(1) Iloilo Disbursement Schedule

[Unit: 1000 Pesos]

Works	Year	1994	1995	1996	Total
A. Piling			19,692.26		19,692.26
B. Concrete			21,958.44		21,958.44
C. Rock			17,019.74		17,019.74
D. Reclamation			1,929.06	11,225.29	13,154.35
E. Building				11,547.75	11,547.75
F. Utilities				174.96	174.96
G. Detail Design		5,923.30			5,923.30
T o t a l		5,923.30	60,599.50	22,948.00	89,470.80

Source: Estimated by JICA Study Team

Table 12-4(2) Bacolod Disbursement Schedule

[Unit: 1000 Pesos]

Works	Year	1994	1995	1996	Total
A. Piling			85,483.64		85,483.64
B. Concrete			57,345.76		57,345.76
C. Rock				12,031.30	12,031.30
D. Reclamation				1,248.88	1,248.88
E. Building				16,200.14	16,200.14
F. Utilities				887.58	887.58
G. Detail Design		12,279.20			12,279.20
T o t a l		12,279.20	142,829.40	30,367.90	185,476.50

Source: Estimated by JICA Study Team

Reinvestment and Maintenance, Repair Costs

16. The facilities and equipment will be renewed based on their service lives which vary from 30-100 years.

- a. Pile: 50 years
- b. Concrete: 50 years
- c. Rock: 100 years
- d. Reclaimed land: 100 years
- e. Building: 35 years
- f. Other Facilities: 30 years

The funds for reinvestment will be financed by the internal resources of the port management body.

17. The annual maintenance and repair costs for the port facilities are calculated by 1% of the initial construction cost taking the service lives in consideration.

Personnel and Administration Costs

18. In the course of the calculation of personnel and administration costs, the increment costs are to be estimated.

In the case of Iloilo, the increment cost is assumed to be negligible because Ro/Ro handling operation is efficient enough offset the increment personnel and administration costs.

As for Bacolod case, it is assumed as 15% of the port operating revenue estimating based on the past performance of PPA in 1988 and 1999.

Depreciation Costs and Income Tax

19. The annual depreciation costs of the port facilities and equipment are calculated by the straight line method based on their service lives.

Income tax is calculated as 35% of the net income only in the case of Bacolod.

Fund Raising

20. The funds necessary for the implementation of the project are assumed to be raised as follows:

(1) Foreign currency

Source: loans from abroad
Interest rate: 3% per annum.
Repayment: 30 years, including a grace period of 5 years

(2) Local currency

Source: Fund from the Philippine domestic resources
Interest rate: 7% per annum
Repayment: 30 years, including a grace period of 5 years

According to the fund raising plan, the weighted average interest rate of the fund is 5.61% in Iloilo, 5.53% in Bacolod unless no inflation is assumed.

D. Appraisal of the Project

Viability of the Project

a. Calculation of FIRR

21. The results of FIRR calculation of the Base Case are shown in Table 12-5(1), (2).

While the FIRR of the Bacolod case is low, the cost portion of the causeway can be excluded from the initial construction cost. In the calculation, the amount of the portion is accepted by port management body as a subsidy for the construction expense. As the causeway is mainly utilized as a road rather than a port facility, the public sector such as the government should compensate the port management body for the partial construction cost with a subsidy.

Table 12-5(3) shows the result of FIRR calculation where the subsidy is adopted. All values of the FIRR exceed the weighted average interest rates (5.61% of Iloilo and 5.53% of Bacolod). We can judge that both projects are feasible as far as profitability is concerned.

Table 12-5(1) Result of FIRR Calculation (Iloilo)

[Unit: 1000 Pesos]

Year	Cost				Revenue	Benefit
		Investment	Expense	Renewal		
1994	5,923	5,923				-5,923
1995	60,600	60,600				-60,600
1996	22,948	22,948				-22,948
1997	895		895		5,828	4,933
1998	895		895		6,086	5,191
1999	895		895		6,365	5,470
2000	895		895		6,524	5,629
2001	895		895		6,831	5,936
2002	895		895		7,136	6,241
2003	895		895		7,442	6,547
2004	895		895		7,734	6,839
2005	895		895		7,885	6,990
2006	895		895		8,186	7,292
2007	895		895		8,549	7,654
2008	895		895		8,442	7,547
2009	895		895		8,278	7,384
2010	895		895		8,231	7,337
2011	895		895		8,170	7,275
2012	895		895		8,105	7,210
2013	895		895		8,035	7,140
2014	895		895		7,960	7,065
2015	895		895		7,880	6,985
2016	895		895		7,794	6,893
2017	895		895		7,702	6,808
2018	895		895		7,604	6,710
2019	895		895		7,500	6,605
2020	895		895		7,388	6,493
2021	895		895		7,268	6,373
2022	895		895		7,140	6,245
2023	895		895		7,003	6,108
2024	895		895		6,901	6,008
2025	895		895		6,901	6,006
2026	-43,369		895	-44,264	6,901	50,270
Total	72,048	89,471	26,841	-44,264	223,766	151,718

Source: Calculated by the JICA Study Team

FIRR=6.20%

Table 12-5(2) Result of FIRR Calculation (Bacolod)

[Unit: 1000 Pesos]

Year	Cost				Revenue	Benefit
		Investment	Expense	Renewal		
1994	12,279	12,279				-12,279
1995	142,829	142,829				-142,829
1996	30,368	30,368				-30,368
1997	3,090		3,090		8,237	5,146
1998	3,157		3,157		8,682	5,525
1999	3,228		3,228		9,154	5,926
2000	3,283		3,283		9,518	6,236
2001	3,364		3,364		10,060	6,697
2002	3,447		3,447		10,612	7,166
2003	3,529		3,529		11,162	7,633
2004	3,594		3,594		11,594	8,000
2005	3,635		3,635		11,871	8,236
2006	3,705		3,705		12,332	8,627
2007	3,784		3,784		12,861	9,077
2008	3,780		3,780		12,834	9,054
2009	3,764		3,764		12,725	8,962
2010	3,802		3,802		12,984	9,182
2011	3,802		3,802		12,984	9,182
2012	3,802		3,802		12,984	9,182
2013	3,802		3,802		12,984	9,182
2014	3,802		3,802		12,984	9,182
2015	3,802		3,802		12,984	9,182
2016	3,802		3,802		12,984	9,182
2017	3,802		3,802		12,984	9,182
2018	3,802		3,802		12,984	9,182
2019	3,802		3,802		12,984	9,182
2020	3,802		3,802		12,984	9,182
2021	3,802		3,802		12,984	9,182
2022	3,802		3,802		12,984	9,182
2023	3,802		3,802		12,984	9,182
2024	3,802		3,802		12,984	9,182
2025	3,802		3,802		12,984	9,182
2026	-67,797		3,802	-71,599	12,984	80,781
Total	223,876	185,477	109,998	-71,599	362,370	138,494

Source: Calculated by the JICA Study Team

FIRR=2.95%

Table 12-5(3) Result of FIRR Calculation (Bacolod)

[Unit: 1000 Pesos]

Year	Costs			Revenue	Subsidies	Benefit	
	Investment	Expense	Renewal				
1994	12,279	12,279			5,952	-6,327	
1995	142,829	142,829			83,949	-58,880	
1996	30,368	30,368			0	-30,368	
1997	3,090		3,090	8,237	0	5,146	
1998	3,157		3,157	8,682	0	5,525	
1999	3,228		3,228	9,154	0	5,926	
2000	3,283		3,283	9,518	0	6,236	
2001	3,364		3,364	10,060	0	6,697	
2002	3,447		3,447	10,612	0	7,166	
2003	3,529		3,529	11,162	0	7,633	
2004	3,594		3,594	11,594	0	8,000	
2005	3,635		3,635	11,871	0	8,236	
2006	3,705		3,705	12,332	0	8,627	
2007	3,784		3,784	12,661	0	9,077	
2008	3,780		3,780	12,834	0	9,054	
2009	3,764		3,764	12,725	0	8,962	
2010	3,802		3,802	12,984	0	9,182	
2011	3,802		3,802	12,984	0	9,182	
2012	3,802		3,802	12,984	0	9,182	
2013	3,802		3,802	12,984	0	9,182	
2014	3,802		3,802	12,984	0	9,182	
2015	3,802		3,802	12,984	0	9,182	
2016	3,802		3,802	12,984	0	9,182	
2017	3,802		3,802	12,984	0	9,182	
2018	3,802		3,802	12,984	0	9,182	
2019	3,802		3,802	12,984	0	9,182	
2020	3,802		3,802	12,984	0	9,182	
2021	3,802		3,802	12,984	0	9,182	
2022	3,802		3,802	12,984	0	9,182	
2023	3,802		3,802	12,984	0	9,182	
2024	3,802		3,802	12,984	0	9,182	
2025	3,802		3,802	12,984	0	9,182	
2026	-67,797		3,802	-71,599	0	80,781	
Total	223,875	185,476	109,998	-71,599	362,370	89,900	228,395

Source: Calculated by the JICA Study Team

FIRR= 7.37%

b. Sensitivity Analysis

22. Sensitivity analysis is conducted to examine the impact of unexpected future changes. The following three cases are envisaged;

Case I: The project cost increases by 10%

Case II: The revenue decreases by 10%.

Case III: The project cost increases by 10% and the revenue decreases by 10%.

Table 12-6 shows the calculation results of each case.

Table 12-6 Results of Sensitivity Analysis

Case	Iloilo	Bacolod (A)	Bacolod (B)
Base Case	6.20%	2.95%	7.37%
Case I	5.46%	2.30%	6.43%
Case II	5.38%	2.24%	6.34%
Case III	4.70%	1.62%	5.46%

Note: Bacolod (A) without subsidy for causeway

Bacolod (B) with subsidy for causeway

Source: Calculated by the JICA Study Team

Financial Soundness of the Organization

23. The projected financial statements with the financial indicators (working ratio, operating ratio, rate of return on net fixed assets and debt service coverage ratio) are shown in Table 12-7, 12-8 (with subsidy only).

Table 12-7 Projected Financial Statements and Indicators (Iloilo)

(1) Cash Flow Statements		[Unit: Million Pesos]																																					
Year		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Year
Cash Inflow		1,830.27	2,208.27	2,247.27	2,227.27	2,111.27	2,225.27	2,267.27	2,431.27	2,481.27	2,438.27	2,333.27	2,369.27	2,394.27	2,428.27	2,458.27	2,494.27	2,536.27	2,584.27	2,638.27	2,698.27	2,764.27	2,836.27	2,914.27	2,998.27	3,088.27	3,184.27	3,286.27	3,394.27	3,508.27	3,628.27	3,754.27	3,886.27	4,024.27	4,168.27	4,318.27	4,474.27	Cash Inflow	
Operating Revenue		1,322.24	1,624.27	1,678.27	1,702.27	1,655.27	1,729.27	1,797.27	1,871.27	1,951.27	1,938.27	1,833.27	1,879.27	1,914.27	1,950.27	1,988.27	2,028.27	2,070.27	2,114.27	2,160.27	2,208.27	2,258.27	2,310.27	2,364.27	2,420.27	2,478.27	2,538.27	2,600.27	2,664.27	2,730.27	2,798.27	2,868.27	2,940.27	3,014.27	3,090.27	3,168.27	3,248.27	Operating Revenue	
Port Charge		850.24	820.27	812.27	815.27	818.27	821.27	824.27	827.27	830.27	833.27	836.27	839.27	842.27	845.27	848.27	851.27	854.27	857.27	860.27	863.27	866.27	869.27	872.27	875.27	878.27	881.27	884.27	887.27	890.27	893.27	896.27	899.27	902.27	905.27	908.27	911.27	Port Charge	
A/S Income		288.24	281.27	282.27	283.27	284.27	285.27	286.27	287.27	288.27	289.27	290.27	291.27	292.27	293.27	294.27	295.27	296.27	297.27	298.27	299.27	300.27	301.27	302.27	303.27	304.27	305.27	306.27	307.27	308.27	309.27	310.27	311.27	312.27	313.27	314.27	315.27	A/S Income	
Non-traditional Income		126.24	125.27	126.27	127.27	128.27	129.27	130.27	131.27	132.27	133.27	134.27	135.27	136.27	137.27	138.27	139.27	140.27	141.27	142.27	143.27	144.27	145.27	146.27	147.27	148.27	149.27	150.27	151.27	152.27	153.27	154.27	155.27	156.27	157.27	158.27	159.27	Non-traditional Income	
ICSI		269.24	264.27	265.27	266.27	267.27	268.27	269.27	270.27	271.27	272.27	273.27	274.27	275.27	276.27	277.27	278.27	279.27	280.27	281.27	282.27	283.27	284.27	285.27	286.27	287.27	288.27	289.27	290.27	291.27	292.27	293.27	294.27	295.27	296.27	297.27	298.27	ICSI	
Other		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Other	
Fund Management Income		133.00	134.00	135.00	136.00	137.00	138.00	139.00	140.00	141.00	142.00	143.00	144.00	145.00	146.00	147.00	148.00	149.00	150.00	151.00	152.00	153.00	154.00	155.00	156.00	157.00	158.00	159.00	160.00	161.00	162.00	163.00	164.00	165.00	166.00	167.00	168.00	Fund Management Income	
Other Management Income		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Other Management Income	
Foreign Loan (accept)		137.60	333.50	484.99	775.12	244.96	569.71	272.95	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	Foreign Loan (accept)	
Other Income		111.56	77.04	328.17	148.33	182.48	175.20	196.48	213.88	232.17	244.41	219.91	270.16	215.59	358.79	351.94	281.81	131.46	459.69	595.17	540.40	576.69	618.17	702.72	754.25	809.12	864.94	921.00	1,035.59	1,134.35	1,214.62	1,281.25	1,433.27	1,581.34	1,707.42	1,851.16	Other Income		
Acct. Rec'ble Beg.		77.04	128.77	148.33	167.89	175.20	196.48	213.88	232.17	244.41	219.91	270.16	215.59	358.79	351.94	281.81	131.46	459.69	595.17	540.40	576.69	618.17	702.72	754.25	809.12	864.94	921.00	1,035.59	1,134.35	1,214.62	1,281.25	1,433.27	1,581.34	1,707.42	1,851.16	Acct. Rec'ble Beg.			
Acct. Rec'ble End		77.04	128.77	148.33	167.89	175.20	196.48	213.88	232.17	244.41	219.91	270.16	215.59	358.79	351.94	281.81	131.46	459.69	595.17	540.40	576.69	618.17	702.72	754.25	809.12	864.94	921.00	1,035.59	1,134.35	1,214.62	1,281.25	1,433.27	1,581.34	1,707.42	1,851.16	Acct. Rec'ble End			
Cash Outflow		1,601.01	2,213.28	2,253.43	2,245.19	2,276.28	2,255.00	2,495.19	2,456.97	2,368.23	2,369.77	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	2,241.37	Cash Outflow		
Operating Expenses		515.82	612.81	650.33	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	646.65	Operating Expenses	
Personnel Cost		139.79	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	152.56	Personnel Cost	
Repair & Maintenance		100.27	156.72	176.47	209.85	231.49	244.36	258.69	268.07	273.80	278.21	282.31	286.11	289.71	293.11	296.31	299.41	302.41	305.41	308.41	311.41	314.41	317.41	320.41	323.41	326.41	329.41	332.41	335.41	338.41	341.41	344.41	347.41	350.41	353.41	356.41	Repair & Maintenance		
Other Adm. Costs		120.99	243.87	261.86	288.56	310.83	336.73	365.01	395.97	428.91	464.94	503.99	546.33	592.22	641.65	694.68	751.31	811.54	875.37	942.80	1,013.93	1,088.76	1,167.19	1,249.22	1,334.85	1,424.08	1,516.91	1,613.34	1,713.37	1,816.00	1,921.33	2,029.36	2,140.09	2,253.52	2,370.75	2,491.78	Other Adm. Costs		
Dredging Cost		64.37	79.50	87.45	88.20	105.81	116.40	128.04	140.81	154.82	170.42	187.48	206.20	226.82	249.54	274.46	301.80	332.07	365.20	401.83	442.01	486.51	534.84	587.32	644.34	705.32	770.70	840.88	915.20	994.00	1,076.80	1,163.20	1,253.50	1,347.50	1,445.00	1,546.00	Dredging Cost		
Non Operating Expenses		408.73	383.39	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	Non Operating Expenses	
Interest on F&W Loan		408.73	383.39	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	388.20	Interest on F&W Loan	
Other Expenses		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Other Expenses	
Infra Project 1997		401.83	1,039.33	1,509.73	1,308.64	476.70	793.19	581.93	465.00	243.00	5.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Infra Project 1997	
Foreign Loan (Repayment)		261.81	281.43	318.64	332.51	379.74	388.59	391.98	404.17	440.15	489.20	408.61	384.36	372.70	354.71	336.65	321.25	308.08	288.10	247.37	224.62	213.14	214.06	214.29	213.87	212.87	211.31	209.27	206.76	203.80	200.40	196.58	192.26	187.54	182.42	176.90	171.08	Foreign Loan (Repayment)	
Other Expenditure		162.73	288.45	400.00	332.51	379.74	388.59	391.98	404.17	440.15	489.20	408.61	384.36	372.70	354.71	336.65	321.25	308.08	288.10	247.37	224.62	213.14	214.06	214.29	213.87	212.87	211.31	209.27	206.76	203.80	200.40	196.58	192.26	187.54	182.42	176.90	171.08	Other Expenditure	
Acct. Pay'ble Beg.		124.94	245.58	327.00	388.59	476.70	581.93	704.17	848.11	1,014.11	1,198.11	1,398.11	1,614.11	1,846.11	2,094.11	2,358.11	2,638.11	2,934.11	3,246.11	3,574.11	3,918.11	4,278.11	4,654.11	5,046.11	5,454.11	5,878.11	6,318.11	6,774.11	7,246.11	7,734.11	8,238.11	8,758.11	9,294.11	9,846.11	10,414.11	10,998.11	Acct. Pay'ble Beg.		
Acct. Pay'ble End		327.00	388.59	476.70	581.93	704.17	848.11	1,014.11	1,198.11	1,398.11	1,614.11	1,846.11	2,094.11	2,358.11	2,638.11	2,934.11	3,246.11	3,574.11	3,918.11	4,278.11	4,654.11	5,046.11	5,454.11	5,878.11	6,318.11	6,774.11	7,246.11	7,734.11	8,238.11	8,758.11	9,294.11	9,846.11	10,414.11	10,998.11	11,600.11	12,214.11	Acct. Pay'ble End		
Balance of the Year		229.26	-707.19	-336.11	-418.01	-161.51	168.98	66.33	132.15	312.04	438.76	628.58	908.99	1,299.60	1,819.99	2,481.91	3,304.91	4,299.91	5,474.91	6,939.91	8,704.91	10,779.91	13,164.91	15,969.91	19,204.91	22,879.91	26,904.91	31,289.91	36,03										

(1) Iloilo

a. Profitability

The rate of return on net fixed assets is less often than the average interest rate of the funds (5.61%) until 1994 but after 1995 it exceeds the average interest rate.

b. Loan repayment capacity

The debt service coverage ratios exceed 1 throughout the project life. There will be no problem with the repayments of the long-term loans using the annual operating revenues.

c. Operational Efficiency

Both the operating ratios and the working ratios maintain favorable levels.

(2) Bacolod (with subsidy case)

a. Profitability

The rate of return on net fixed assets is less than the average interest rate of the funds (5.53%) until 2019 but after 2020 it exceeds the average interest rate.

b. Loan repayment capacity

The debt service coverage ratios exceed 1 throughout the project life except 1997 and from 2001 through 2005. There will be no problem with the repayments of the long-term loans using the annual operating revenues.

c. Operational efficiency

Both the operating ratios and the working ratios maintain favorable levels.

E. Conclusion and Remaining Issues

24. Judging from the above analyses, and assuming that the prerequisites used for the calculation are realized these projects both of Iloilo and Bacolod can be regarded as financially feasible. However, there are some factors to be taken carefully in terms of institutional aspects.

25. In the financial analysis both Iloilo and Bacolod, it is assumed that a fee against vehicle are charged instead of the charge against cargo. The reason is not only that the existing port charges are not sufficient enough to cover the cost of the new installation, but that the existing fare structure does not meet the requirement of facilities and services of Ro/Ro transport. With these points in mind, the study team suggested that the new fare scheme to encourage Ro/Ro transport be adopted for both the port management bodies and stevedore/arrastre firms.

26. As has been mentioned, the project in Iloilo port will be conducted by the PPA (and PMO-Iloilo). Since it is the government agency, it is qualified to obtain loans from foreign or international public lending agencies. On the other hand, in case of port of Bacolod, there might be a possibility that the private firm which is operating the Banago Pier will implement the project. In general terms, private firms may not be qualified to obtain direct public loans. If this is the case, in the financial market situation of Philippines with limited fund resources and hiked interest, the implementation of the project will be jeopardized. However, there are examples in the country that private firms have a loan from foreign or international lending agencies through the government. It is therefore recommended that in view of the importance of the Ro/Ro project of the link, the government makes the arrangement of a public fund being available for the implementing private firm.

[Reference]

1. PPA Financial Plan 1987-1995, PPA

