CHAPTER 11 ECONOMIC AND FINANCIAL EVALUATION

CHAPTER 11 ECONOMIC AND FINANCIAL EVALUATION

11.1 Economic Evaluation

11.1.1 Purposes and Methodology of Economic Analysis

The purpose of economic analysis is to appraise the economic feasibility of the Project from the viewpoint of the national economy. This focuses on whether the benefits of the Project exceeds those that could be derived from other investment opportunities in El Salvador.

All benefits and costs in the economic analysis were evaluated using economic prices. In this study, the Economic Internal Rate of Return (EIRR) and the benefit/cost ratio (B/C ratio) based on a cost-benefit analysis were used to appraise the feasibility of the Project.

11.1.2 Prerequisites for Economic Analysis

(1) Base Year

Costs and benefits estimated in the economic analysis were expressed in the prices applicable in the fixed "Base Year" and throughout the "Project Life" mentioned below. In this analysis, the year 2001 was adopted as the "Base Year" since the costs of the Project were estimated on the basis of current prices in the same year.

(2) Project Life

Taking account of the sum of construction period and probable concession period relating to the Project the period of 30 years was adopted as the "Project Life".

(3) Foreign Exchange Rate

The exchange rate adopted for this analysis was US$1.00 = JY120.00 = ¢ 8.75

(4) "With-the-project" Case and "Without-the-project" Case

A cost-benefit analysis was conducted on the difference between the "With-the-project" case in which an investment is made and the "Without-the-project" case in which no investment is made, that is the benefits and costs arising from the investment for the Project were compared. The current hinterland of the Acajutla Port and the potential hinterland of the La Unión Port after the completion of the Project overlap each other, and therefore, investment for the La Unión Port Project will considerably affect the Acajutla Port in its cargo throughput. Thus, the Acajutla Port was considered in this analysis as well as the La Unión Port.

(5) Cargo Throughput

1) "With-the-project" Case

The cargo volumes under the "With-the-project" case at the ports of La Unión and Acajutla are shown in Table H1.11 in Appendices

2) "Without-the-project" Case

In "Without-the-project" case, the La Unión Port will not provide any port services and the Acajutla Port will be the only commercial port in El Salvador as it is at present. A part of Salvadorean local containers will pass through the Quetzal Port as transit containers as it is at present. The cargo volume under the "Without-the-project" case at the Acajutla Port is shown in Table H1.12 in Appendices.

11.1.3 Economic Prices

(1) General

In the economic analysis, all prices were expressed as economic prices. In general, the construction cost, operation cost and maintenance cost were estimated at market prices. To convert market prices into economic prices, conversion factors were used.

(2) Standard Conversion Factor (SCF)

Import duties and export subsidies create a price difference between the domestic market and the international market. The Standard Conversion Factor (SCF) was applied to determine the economic prices of certain non-traded goods that cannot be valued at border prices. The SCF makes up for this price difference. The SCF is obtained by the following formula:

$$SCF = \frac{I + E}{(I + Di) + (E - De)}$$

where,

I:	Total value of import goods (CIF)
E:	Total value of export goods (FOB)
Di:	Total value of import dutics
De:	Total value of export subsidies

In this report, the average SCF from 1996 to 2000 was adopted for the analysis. The resulting SCF is 0.989 (see Table 11.1.1).

Table 11.1.1 Values for Calculation of SCF and CFC

Unit: million US$

	1996	1997	1998	1999	2000	Average
Export goods value (FOB)	1,788.4	2,415.9	2,459.7	2,500.4	2,950.5	
Import goods value (CIF)	3,221.8	3,739.1	3,968.2	4,093.9	4,948.4	
Import duty	163.1	145.9	146.3	162.0	160.0	
Export subsidy	68.6	80.9	95.1	82.5	94.9	
Import consumer goods value	792.1	917.9	928.6	1,003.0	1,217.3	
Import consumer goods/Total imports	24.6%	24.5%	23.4%	24.5%	24.6%	
Import tax for consumer goods	65.6	61.7	81.7	70.9	81.6	
SCF	0.981	0.990	0.992	0.988	0.992	0.989
CFC	0.924	0.937	0.919	0.934	0.937	0.930

Source: Ministry of Finance, Central Bank

Note. Import tax on consumer goods from 1998 to 2000 was estimated figures.

(3) Conversion Factor for Consumption (CFC)

The Conversion Factor for Consumption (CFC) was used for converting the prices of consumer goods from local market prices to border prices. The CFC was calculated in the same manner as the SCF, replacing the total value of import and export goods by the total imports and exports of consumer goods. The resulting CFC is 0.930 (see Table 11.1.1).

(4) Conversion Factor for Labor

1) Conversion Factor for Skilled Labor (CFSL)

The Conversion Factor for Skilled Labor (CFSL) in the domestic market was used to convert the wages expressed in domestic market prices into border prices. The CFSL was calculated by the following formulas, applying the CFC and assuming that labor costs are closely related to daily necessities:

$$\text{CFSL} = \frac{\text{Opportunity cost of skilled labor}}{\text{Actual market wages}} \times \text{CFC}$$

In computing CFSL, it was also assumed that the market mechanism is properly functioning, and hence the actual market wage is the same as the opportunity cost of skilled labor. In other words, the marginal productivity of a skilled labor is the same as actual market wages. Thus, the resulting figure of CFSL is 0.930, the same as that of CFC.

2) Conversion Factor for Unskilled Labor (CFUL)

The Conversion Factor for Unskilled Labor (CFUL) in the domestic market was used to convert the wages expressed in domestic market prices into border prices. The CFUL was calculated by the following formula, also applying the CFC like in

computing CFSL:

$$CFUL = \frac{\text{Opportunity cost of unskilled labor}}{\text{Nominal wages}} \times CFC$$

In this study, the marginal productivity of an unskilled labor was assumed to be equal to the per capita of the agriculture sector GDP on the assumption that inflow of unskilled labors to the Project is mainly from the agriculture sector, where labors are presumably superabundant. The resulting figure of CFUL is 0.426 under the following conditions:

Agriculture sector GDP current price in 2000:	12.17 billion Colones
Agriculture population in 2000:	655,129
Opportunity cost:	50.91 Colones per day
Nominal wages in 2000:	111.13 Colones per day

11.1.4 Benefits of the Project

(1) Benefit Items

As benefits to be brought about by the Project, the following items were identified:

1) Savings in cost of ship staying at berths
2) Savings in cost of ship waiting in an offshore anchorage
3) Savings in sea transportation cost
4) Savings in land transportation cost
5) Savings in the payment of port tariff to neighboring countries' ports for the handling of Salvadorean cargo to be transited via them
6) Earnings of port tariff from the handling of foreign cargo to be transited via La Unión Port
7) Promotion of regional economic development
8) Increase in job opportunity in the region.

In this study, items 1) to 6) were considered to be countable in monetary benefits, and were adopted in the cost-benefit analysis. The remaining items, 7) and 8) are mentioned qualitatively in this study.

(2) Estimated Benefits

1) Savings in Cost of Ship Staying

Savings in cost of ship staying at berths will be generated from higher cargo-handling productivities to be brought by the investment for infrastructures of marginal type berths and cargo-handling equipment at the La Unión Port (see Tables H1.1 to H1.9 in Appendices).

2) Savings in Cost of Ship Waiting

Savings in cost of waiting in offshore anchorages for conventional ships will be generated from the provision of an additional berth for Salvadorean ports as a whole by the Project (see Tables H1.1 to H1.5 in Appendices).

3) Savings in Sea Transportation Cost

Savings in sea transportation cost will be generated from deeper berths to be brought by the investment at the La Unión Port so as to receive larger vessels (see Tables H1.1 to H1.9 in Appendices).

4) Savings in Land Transportation Costs

Savings in land transportation costs in terms of port cargoes will be generated from the two sources: One will be brought by the provision of a nearer access port, namely the La Unión Port, for the eastern region of El Salvador. The other will be brought by preventing excess cargo traffic from overflowing from the Salvadorean port, namely the Acajutla Port, and diverting to foreign ports such as Quetzal Port. The excess cargoes from the Acajutla Port will be received at the La Unión Port (see Tables H1.1 to H1.9 in Appendices).

5) Savings in the Payment of Port Tariff to Neighboring Countries' Ports

Savings in the payment of port tariff to neighboring countries' ports will be brought in the same manner as the latter case in the previous paragraph 4).

6) Earnings from Handling Foreign Transit Cargo at La Unión Port

Earnings of foreign currencies will be brought by attracting foreign transit cargoes into the La Unión Port (see Tables H1.10 in Appendices).

7) Total Benefits

The resulting total benefits were obtained by summing up the above-mentioned benefit components expressed in economic prices (see Tables 11.1.2).

Table 11.1.2 Summary of Economic Benefits Generated from the La Unión Project

Year	Cintainers		Major Conventional Cargoes		Total
	TEUs	'000 US$	MT	'000 US$	'000 US$
2005	120,600	12,985	550,200	4,327	17,393
2006	133,400	14,130	568,260	4,460	18,661
2007	146,200	15,253	586,320	4,593	19,906
2008	159,000	16,355	604,380	4,725	21,131
2009	171,800	17,438	622,440	4,858	22,337
2010	184,600	18,502	640,500	4,991	23,525
2011	202,800	20,291	660,660	5,228	25,640
2012	221,000	22,080	680,820	5,465	27,754
2013	239,200	23,868	700,980	5,703	29,868
2014	257,400	25,656	721,140	5,940	31,981
2015	275,600	27,444	741,300	6,177	34,095
2016	303,805	30,185	767,957	7,096	37,744
2017	332,010	32,966	794,614	7,750	41,168
2018	360,215	35,792	821,271	8,508	44,773
2019	360,215	35,792	847,928	9,351	45,505
2020	360,215	35,792	874,585	10,179	46,406
2021	360,215	35,792	908,336	15,613	52,154
2022	360,215	35,792	942,087	15,431	52,051
2023	360,215	35,792	975,837	15,646	53,024
2024	360,215	35,792	1,009,588	16,459	53,813
2025	360,215	35,792	1,043,339	17,684	55,014
2026	360,215	35,792	1,086,428	16,983	53,946
2027	360,215	35,792	1,086,428	16,983	53,946
2028	360,215	35,792	1,086,428	16,983	53,946
2029	360,215	35,792	1,086,428	16,983	53,946
2030	360,215	35,792	1,086,428	16,983	53,946
2031	360,215	35,792	1,086,428	16,983	53,946
2032	360,215	35,792	1,086,428	16,983	53,946

Note: In EIRR estimation, the benfits from the latter half of the year 2006 when operations will start to 2032 was considred.

11.1.5 Costs of the Project

(1) Initial Investment Costs

In the economic analysis, project costs were generally divided into two portions, viz the foreign portion for traded goods and services; and the local portion for non-traded goods and services. Then, the local portion that is priced in local market was converted into an amount expressed in economic prices by multiplying by the conversion factors as mentioned in Section 11.1.3, whereas the foreign portion that is priced in the international market was assumed to be expressed in economic prices as it is.

The project costs in the initial investment expressed in economic prices are summarized in Table 11.1.3 by cost component. In the table, the entire project costs are allocated to the two project components, viz. Container Terminal (CNT) and Multi-purpose Terminal (MPT). The common cost items covering the two components such as dredging and access roads were allocated to the two components with a certain percentage so as to obtain the same EIRR (Economic Internal Rate of Return) with the resulting percentages of 76% for CNT and the remaining 24% for MPT (see Tables 11.1.8 and 11.1.9). The resulting percentages in the entire costs are 75% for CNT and the remaining 25% for MPT as shown in Table 11.1.3.

In addition to the equipment comprising two units of container gantry cranes and two tugboats to be procured by the Government of El Salvador (CEPA), the equipment to be possibly procured by private terminal operators as potential concessionaires was considered (see Table 11.1.3). In addition to container yard machines including tractor-trailer units, toplifters (40.6 t), empty handlers (18 t) and forklift trucks (1.6 t) to be used within a CFS at CNT, two units of mobile unloaders to be used mainly for cereals and fertilizer, three units of ship loaders mainly for raw sugar and forklift trucks (16t and 5t) for break-bulk cargoes such as iron and steel products were considered.

(2) Management/Operation and Maintenance Costs

Cost items for management/operation and maintenance are listed below:

1) Maintenance Dredging
   The dredging volume to be conducted in every three years was estimated to be 3 millions m^3 at a unit dredging cost of 2.5 US$/$m^3$

2) Maintenance Cost for Infrastructures
   This cost was assumed to be one percent (1%) of initial investment costs of depreciable infrastructures. Thus, reclamation costs, etc. were excluded.

3) Maintenance Cost for Equipment
   This cost was assumed to be four percent (4%) of initial investment costs of equipment.

4) Fuel and Utilities Costs

These costs were assumed to be five percent (5%) of initial investment costs of equipment

5) Labor Cost

The labor cost will be expended for CNT and MPT which will eventually be operated by private terminal operators as concessionaires.

6) Administrative Cost

The administrative cost will be expended for the three local offices, viz CNT, MPT and CEPA. The major cost item is personnel expense.

7) Renewal Investment Costs

From the start of operation and throughout the project life, the equipment that is procured in the initial stage will be renewed when its useful life expires. Individual useful lives were assumed to be in the range of 5 to 25 years, referring to the actual operational experience in leading ports. The shortest life (5 years) was assumed for top loaders, empty handlers and forklift trucks, followed by tractors (10 years) and trailers (15 years). A longer life (25 years) was assumed for quayside cranes.

8) Total Costs

The total project costs comprising those of initial investment, yearly management/operation and maintenance, and renewal of equipment from time to time during the project life are summarized in Table 11.1.4 together with benefits to be generated from the Project. The result of subsequent EIRR calculation is presented in Section 11.1.6.

Table11.1.3 Summary of Initial Project Costs Expressed in Economic Price

Project Cost Component			Foreign Portion (US$)	Local Portion (US$)	Composite Conversion Factor	Total in Economic Price (US$)	Container Terminal (CNT) (US$)	Multi-purpose Terminal (MPT) (US$)	Cost Allocation Share to CNT
Civil and Building Works	100 General Requiremen		3,065,529	2,435,333	0.854	5,145,586	3,903,921	1,241,666	0.76
	200 Civil Works		32,297,271	36,442,990	0.954	67,053,487	47,376,372	19,677,114	0.71
		2A Dredging Work	21,683,098	7,760,203	0.975	29,252,244	22,193,475	7,058,770	0.76
		2B Container Berth (340m)	3,747,614	8,481,501	0.942	11,737,654	11,737,654	0	1.00
		2C Bulk Berth (220m)	2,700,462	6,738,612	0.944	9,059,192	0	9,059,192	0.00
		2D Passenger Berth	828,596	240,229	0.962	1,059,725	1,059,725	0	1.00
		2E Revetment	595,043	3,006,285	0.922	3,367,078	2,330,262	1,036,817	0.69
		2F Reclamation Work	1,214,400	3,491,400	0.965	4,583,954	3,431,765	1,152,189	0.75
		2G Pavement	195,238	4,899,585	0.967	4,933,000	4,319,168	613,832	0.88
		2H Drainage	114,089	1,745,136	0.948	1,768,126	1,323,703	444,423	0.75
		2I Navigation Aids	1,218,208	26,880	0.871	1,241,607	941,999	299,608	0.76
		2J Security Fence	522	53,159	0.948	50,906	38,622	12,284	0.76
	300 Building Works		31,736	4,130,667	0.939	3,911,424	3,571,029	340,395	0.91
	400 Utilities		306,347	5,298,058	0.939	5,282,495	4,007,792	1,274,703	0.76
	Total Civil and Building Works		35,700,883	48,307,048	0.946	81,392,992	58,859,114	22,533,877	0.72
	500 Consultancy Services		3,990,000	1,710,000	0.939	5,596,442	4,047,052	1,549,391	0.72
	Physical Contingency		2,499,062	3,381,493	0.946	5,697,509	4,120,138	1,577,371	0.72
	Civil and Building Works Total		42,189,945	53,398,541		92,686,943	67,026,304	25,660,639	0.72
Equipment	600 Equipment (Category (1))		19,800,000	0		19,800,000	18,110,851	1,689,149	0.91
		6A Container Gantry Cranes	12,800,000	0		12,800,000	12,800,000	0	1.00
		6B Tugboat	7,000,000	0		7,000,000	5,310,851	1,689,149	0.76
	700 Equipment (Category (2))		7,065,800	0		7,065,800	4,713,800	2,352,000	0.67
		7A Container Handling Machines (L	4,713,800	0		4,713,800	4,713,800	0	1.00
		7B Bulk Handling Machines (LS	2,352,000	0		2,352,000	0	2,352,000	0.00
	Equipment Total		26,865,800	0		26,865,800	22,824,651	4,041,149	0.85
Initial Investment Grand Total			69,055,745	53,398,541		119,552,743	89,850,955	29,701,788	0.75

Source: Estimated by JICA Study Team

Note (1): Categories (1) and (2) in Equipment Item indicate the procurement by the Salvadorian government (CEPA) and private concessionaires for t new terminals at La Union Port, respectively.

Note (2): For the purpose of economic evaluation to show economic return by using economic prices, IVA as well as import duties are excluded. Pri escalation is also not considered to show economic return on real term..

11.1.6 Evaluation of the Project

(1) Calculation of EIRR (Base Case)

The economic internal rate of return (EIRR) based on a cost-benefit analysis was used to appraise the economic feasibility of the Project. The EIRR is the discount rate that makes the costs and benefits of a project equal during the project life. The following formula was used to calculation of EIRR:

$$\sum_{i=1} \frac{Bi - Ci}{(1+r)^{i-1}} = 0$$

Where,

n:	Period of economic calculation (project life)
i:	Year
Bi:	Benefits in the i-th year
Ci:	Costs in the i-th year
r:	Discount rate

The resulting EIRR of the Project is 16.4% (see Table 11.1.4).

(2) Sensitivity Analysis

In order to see if the Project is still feasible when some factors vary, the following cases were examined in a sensitivity analysis:

Case A : The total costs increase by 5% and the benefits decrease by 10%

Case B : The total costs increase by 10% and the benefits decrease by 10%

Case C : The total costs increase by 10% and the benefits decrease by 15%

The resulting EIRRs in Cases A, B and C in the above sensitivity analysis are 14.2%, 13.5% and 12.7%, respectively (see Tables 11.1.5 – 11.1.7).

(3) Benefit-Cost Ratio and Net Present Value

Assuming social discount rates of 8%, 10% and 12%, the respective Benefit-Cost ratios (B/C ratio) of the Project were computed. The resulting B/C ratios of the three cases of 8%, 10% and 12% in the discount rate are 1.88, 1.60 and 1.37, respectively.

On the other hand, the resulting Net Present Values in the above three cases are 145 million (8%), 90 million (10%) and 51 million (12%) US$.

(4) Evaluation

The leading view is that the Project is feasible if the EIRR exceeds the opportunity cost of capital. Considering the opportunity cost of capital in each country, it is generally considered that a project with an EIRR of more than 12% is economically justifiable for infrastructure or social service projects. Apart from the precise definition of the opportunity cost in economics, however, it is not easy to practically find the opportunity

cost in individual country, and hence, the yield on long-term credit adjusted from current price to real price by using deflator could be referred to as substitute for the invisible opportunity cost. Current interest rates on long-term credit in El Salvador as of December 2001 are 9.1% in loans and 5.77% in deposits for over one year, respectively. On the other hand, consumer price index in 2001 is up 1.4% compared to the preceding year. Thus, the opportunity cost of El Salvador could be considered to be at most 8%. From the above, the figure of 10% as the EIRR criterion is considered to be reasonable on the safe side evaluation.

The resulting EIRR of the Project is 15.6% exceeding the above-mentioned criterion in the base case. In addition, even in the cases of defavorable fluctuations as considered in the sensitivity analysis, the EIRR in all of the cases exceeds the criterion. Thus, the La Unión Port Project is judged economically justifiable.

(5) Other Economic Effects

Of the eight benefit items listed in items 1) to 8) of Section 11.1.4 (1), the six items from 1) to 6) were considered in tangible evaluation using EIRR, B/C and NPV indicators mentioned in the previous paragraphs (1) – (4). In this paragraph, the anticipated benefits in the remaining two items of 7) and 8) are qualitatively mentioned below.

Presently the manufacture in operations within "Maquilas" as so-called EPZ (Export Processing Zone) in El Salvador is the largest contributor to the national economy in earnings of foreign currencies in overseas trade and has shown upward trend in production measured in monetary value, whereas traditional industries such as coffee and sugar have shown sluggish trend in the monetary value due to the downward prices in the international market. Naturally "Maquilas" have been generating great job opportunities in regions of El Salvador. "Maquilas", however, are mainly located in the western region including Santa Ana that is closer to the Guatemalan ports of Quetzal and Santo Tomas de Castilla which function as gate ways to the international market, mainly USA, and consequently such disadvantage in terms of far access to the gate ways to the international market has made the eastern region to fall behind the western region.

From the above-mentioned view, La Unión Port is largely expected to trigger the development of the eastern region by attracting main line container ships and consequently functioning as a new vigorous gate way to the international market as well as attracting larger bulkers of Panamax type in conventional cargo handling business. Subsequently to the port development in La Unión, "Maquilas" are expected to be attracted within the eastern region.

In addition, logistics centers are also expected to be placed in the proximity of the port, which will have direct linkage with handling container cargoes through providing various services such as storage, repacking, labeling and inventory control as a part of

supply-chain management extending to not only El Salvador but also neighboring countries in Central America.

As to the increase in job opportunity that would be generated directly from port operations at the La Unión Port.

Table 11.1.4 Summary of Costs and Benefits of the Project during Project Life and EIRR Calculation (Base Case)

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Costs						Renewal Investment	Residual Values	Costs Total (C)	Benefits Total (B)	B-C	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Costs	Administrative Costs						
1	2003	20,007,570									20,007,570		-20,007,570	-20,007,570
2	2004	35,422,963									35,422,963		-35,422,963	-30,433,693
3	2005	42,139,413									42,139,413		-42,139,413	-31,104,844
4	2006	16,285,288			537,316	671,645	405,945	703,080			18,603,274	9,330,317	-9,272,957	-5,880,680
5	2007			424,112	1,074,632	1,343,290	811,890	703,080			4,357,004	19,906,374	15,549,370	8,472,116
6	2008			424,112	1,074,632	1,343,290	811,890	703,080			4,357,004	21,131,451	16,774,447	7,852,303
7	2009		7,500,000	424,112	1,074,632	1,343,290	811,890	703,080			11,857,004	22,337,317	10,480,313	4,214,955
8	2010			424,112	1,074,632	1,343,290	811,890	703,080			4,357,004	23,525,291	19,168,287	6,623,259
9	2011			424,112	1,074,632	1,343,290	811,890	703,080	1,330,000		5,687,004	25,639,763	19,952,759	5,923,265
10	2012		7,500,000	424,112	1,074,632	1,343,290	811,890	703,080			11,857,004	27,753,907	15,896,903	4,054,530
11	2013			424,112	1,074,632	1,343,290	811,890	703,080			4,357,004	29,867,798	25,510,794	5,590,128
12	2014			424,112	1,074,632	1,343,290	811,890	703,080			4,357,004	31,981,490	27,624,486	5,200,699
13	2015		7,500,000	424,112	1,129,064	1,411,330	1,016,490	708,660	1,360,800		13,550,456	34,095,021	20,544,565	3,323,030
14	2016			424,112	1,129,064	1,411,330	1,016,490	708,660	1,778,000		6,467,656	37,744,340	31,276,684	4,346,381
15	2017			424,112	1,129,064	1,411,330	1,016,490	708,660			4,689,656	41,168,262	36,478,606	4,355,270
16	2018		7,500,000	424,112	1,129,064	1,411,330	1,016,490	708,660			12,189,656	44,772,917	32,583,261	3,342,267
17	2019			424,112	1,129,064	1,411,330	1,016,490	708,660			4,689,656	45,504,607	40,814,951	3,596,960
18	2020			424,112	1,129,064	1,411,330	1,016,490	708,660			4,689,656	46,405,574	41,715,918	3,158,552
19	2021		7,500,000	424,112	1,129,064	1,411,330	1,016,490	708,660	4,552,800		16,742,456	52,153,592	35,411,136	2,303,540
20	2022			424,112	1,129,064	1,411,330	1,016,490	708,660			4,689,656	52,051,272	47,361,616	2,646,990
21	2023			424,112	1,129,064	1,411,330	1,016,490	708,660			4,689,656	53,024,119	48,334,463	2,320,878
22	2024		7,500,000	424,112	1,129,064	1,411,330	1,016,490	708,660			12,189,656	53,813,032	41,623,376	1,717,128
23	2025			424,112	1,129,064	1,411,330	1,016,490	708,660	448,000		5,137,656	55,013,882	49,876,226	1,767,782
24	2026			424,112	1,129,064	1,411,330	1,016,490	708,660	1,778,000		6,467,656	53,945,933	47,478,277	1,445,772
25	2027		7,500,000	424,112	1,129,064	1,411,330	1,016,490	708,660			12,189,656	53,945,933	41,756,277	1,092,437
26	2028			424,112	1,129,064	1,411,330	1,016,490	708,660			4,689,656	53,945,933	49,256,277	1,107,149
27	2029			424,112	1,129,064	1,411,330	1,016,490	708,660			4,689,656	53,945,933	49,256,277	951,208
28	2030		7,500,000	424,112	1,129,064	1,411,330	1,016,490	708,660	912,800		13,102,456	53,945,933	40,843,477	677,652
29	2031			424,112	1,129,064	1,411,330	1,016,490	708,660	1,330,000		6,019,656	53,945,933	47,926,277	683,168
30	2032			424,112	1,129,064	1,411,330	1,016,490	708,660		-4,583,954	105,702	53,945,933	53,840,231	659,372
Total		113,855,234	60,000,000	11,026,914	29,457,524	36,821,905	25,197,885	19,083,600	13,490,400	-4,583,954	304,349,508	1,104,841,859	800,492,351	0
													EIRR =	16.4%

Note (1): For the purpose of economic evaluation to show economic return by using economic prices, IVA as well as import duties are excluded. Price escalation is also considered to show economic return on real term.

Table 11.1.5 Result of Sensitivity Analysis in EIRR Calculation (5% Increase in Costs and 10% Decrease in Benefit

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Cost:						Renewal Investment	Residual Values	Costs Total (C)	Benefits Total (B)	B-C	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Costs	Administrative Costs						
1	2003	21,007,948									21,007,948		-21,007,948	-21,007,948
2	2004	37,194,111									37,194,111		-37,194,111	-32,578,542
3	2005	44,246,384									44,246,384		-44,246,384	-33,946,321
4	2006	17,099,552			564,182	705,227	426,242	738,234			19,533,437	8,397,285	-11,136,152	-7,483,548
5	2007			445,318	1,128,364	1,410,455	852,485	738,234			4,574,854	17,915,737	13,340,883	7,852,617
6	2008			445,318	1,128,364	1,410,455	852,485	738,234			4,574,854	19,018,306	14,443,451	7,446,605
7	2009		7,875,000	445,318	1,128,364	1,410,455	852,485	738,234			12,449,854	20,103,585	7,653,731	3,456,352
8	2010			445,318	1,128,364	1,410,455	852,485	738,234			4,574,854	21,172,762	16,597,908	6,565,315
9	2011			445,318	1,128,364	1,410,455	852,485	738,234	1,396,500		5,971,354	23,075,787	17,104,433	5,926,092
10	2012		7,875,000	445,318	1,128,364	1,410,455	852,485	738,234			12,449,854	24,978,517	12,528,662	3,802,085
11	2013			445,318	1,128,364	1,410,455	852,485	738,234			4,574,854	26,881,018	22,306,164	5,929,247
12	2014			445,318	1,128,364	1,410,455	852,485	738,234			4,574,854	28,783,341	24,208,486	5,636,373
13	2015		7,875,000	445,318	1,185,517	1,481,897	1,067,315	744,093	1,428,840		14,227,979	30,685,519	16,457,540	3,356,251
14	2016			445,318	1,185,517	1,481,897	1,067,315	744,093	1,866,900		6,791,039	33,969,906	27,178,868	4,854,879
15	2017			445,318	1,185,517	1,481,897	1,067,315	744,093			4,924,139	37,051,435	32,127,297	5,026,650
16	2018		7,875,000	445,318	1,185,517	1,481,897	1,067,315	744,093			12,799,139	40,295,625	27,496,486	3,768,245
17	2019			445,318	1,185,517	1,481,897	1,067,315	744,093			4,924,139	40,954,146	36,030,007	4,324,976
18	2020			445,318	1,185,517	1,481,897	1,067,315	744,093			4,924,139	41,765,017	36,840,878	3,873,529
19	2021		7,875,000	445,318	1,185,517	1,481,897	1,067,315	744,093	4,780,440		17,579,579	46,938,233	29,358,654	2,703,774
20	2022			445,318	1,185,517	1,481,897	1,067,315	744,093			4,924,139	46,846,145	41,922,006	3,381,690
21	2023			445,318	1,185,517	1,481,897	1,067,315	744,093			4,924,139	47,721,707	42,797,568	3,023,906
22	2024		7,875,000	445,318	1,185,517	1,481,897	1,067,315	744,093			12,799,139	48,431,728	35,632,590	2,205,231
23	2025			445,318	1,185,517	1,481,897	1,067,315	744,093	470,400		5,394,539	49,512,494	44,117,955	2,391,550
24	2026			445,318	1,185,517	1,481,897	1,067,315	744,093	1,866,900		6,791,039	48,551,340	41,760,301	1,982,829
25	2027		7,875,000	445,318	1,185,517	1,481,897	1,067,315	744,093			12,799,139	48,551,340	35,752,201	1,486,900
26	2028			445,318	1,185,517	1,481,897	1,067,315	744,093			4,924,139	48,551,340	43,627,201	1,589,256
27	2029			445,318	1,185,517	1,481,897	1,067,315	744,093			4,924,139	48,551,340	43,627,201	1,392,039
28	2030		7,875,000	445,318	1,185,517	1,481,897	1,067,315	744,093	958,440		13,757,579	48,551,340	34,793,761	972,418
29	2031			445,318	1,185,517	1,481,897	1,067,315	744,093	1,396,500		6,320,639	48,551,340	42,230,701	1,033,802
30	2032			445,318	1,185,517	1,481,897	1,067,315	744,093		-4,583,954	340,185	48,551,340	48,211,155	1,033,746
Total		119,547,996	63,000,000	11,578,260	30,930,400	38,663,000	26,457,779	20,037,780	14,164,920	-4,583,954	319,796,181	994,357,673	674,561,492	0
													EIRR =	14.2%

Table 11.1.6 Result of Sensitivity Analysis in EIRR Calculation (10% Increase in Costs and 10% Decrease in Benefits)

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Cost						Renewal Investment	Residual Values	Costs Total (C)	Benefits Total (B)	B-C	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Costs	Administrative Costs						
1	2003	22,008,327									22,008,327		-22,008,327	-22,008,327
2	2004	38,965,260									38,965,260		-38,965,260	-34,323,941
3	2005	46,353,355									46,353,355		-46,353,355	-35,968,334
4	2006	17,913,817			591,048	738,810	446,540	773,388			20,463,601	8,397,285	-12,066,316	-8,247,711
5	2007			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	17,915,737	13,123,032	7,901,554
6	2008			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	19,018,306	14,225,601	7,545,161
7	2009		8,250,000	466,523	1,182,095	1,477,619	893,079	773,388			13,042,704	20,103,585	7,060,881	3,298,955
8	2010			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	21,172,762	16,380,057	6,741,436
9	2011			466,523	1,182,095	1,477,619	893,079	773,388	1,463,000		6,255,704	23,075,787	16,820,082	6,097,962
10	2012		8,250,000	466,523	1,182,095	1,477,619	893,079	773,388			13,042,704	24,978,517	11,935,812	3,811,783
11	2013			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	26,881,018	22,088,314	6,213,815
12	2014			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	28,783,341	23,990,636	5,945,072
13	2015		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526	1,496,880		14,905,502	30,685,519	15,780,017	3,444,628
14	2016			466,523	1,241,970	1,552,463	1,118,139	779,526	1,955,800		7,114,422	33,969,906	26,855,485	5,164,015
15	2017			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	37,051,435	31,892,814	5,402,153
16	2018		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526			13,408,622	40,295,625	26,887,003	4,011,770
17	2019			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	40,954,146	35,795,524	4,704,808
18	2020			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	41,765,017	36,606,395	4,238,281
19	2021		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526	5,008,080		18,416,702	46,938,233	28,521,531	2,908,876
20	2022			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	46,846,145	41,687,523	3,745,226
21	2023			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	47,721,707	42,563,085	3,368,407
22	2024		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526			13,408,622	48,431,728	35,023,107	2,441,551
23	2025			466,523	1,241,970	1,552,463	1,118,139	779,526	492,800		5,651,422	49,512,494	43,861,072	2,693,456
24	2026			466,523	1,241,970	1,552,463	1,118,139	779,526	1,955,800		7,114,422	48,551,340	41,436,918	2,241,494
25	2027		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526			13,408,622	48,551,340	35,142,718	1,674,577
26	2028			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	48,551,340	43,392,718	1,821,404
27	2029			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	48,551,340	43,392,718	1,604,449
28	2030		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526	1,004,080		14,412,702	48,551,340	34,138,638	1,111,923
29	2031			466,523	1,241,970	1,552,463	1,118,139	779,526	1,463,000		6,621,622	48,551,340	41,929,718	1,203,012
30	2032			466,523	1,241,970	1,552,463	1,118,139	779,526		-4,583,954	574,668	48,551,340	47,976,672	1,212,545
Total		125,240,757	66,000,000	12,129,605	32,403,276	40,504,096	27,717,674	20,991,960	14,839,440	-4,583,954	335,242,854	994,357,673	659,114,819	0
													EIRR =	13.5%

Table 11.1.7 Result of Sensitivity Analysis in EIRR Calculation (10% Increase in Costs and 15% Decrease in Benefits)

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Cost:						Renewal Investment	Residual Values	Costs Total (C)	Benefits Total (B)	B-C	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Costs	Administrative Costs						
1	2003	22,008,327									22,008,327		-22,008,327	-22,008,327
2	2004	38,965,260									38,965,260		-38,965,260	-34,560,567
3	2005	46,353,355									46,353,355		-46,353,355	-36,465,968
4	2006	17,913,817			591,048	738,810	446,540	773,388			20,463,601	7,930,769	-12,532,832	-8,744,985
5	2007			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	16,920,418	12,127,714	7,505,716
6	2008			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	17,961,733	13,169,029	7,228,866
7	2009		8,250,000	466,523	1,182,095	1,477,619	893,079	773,388			13,042,704	18,986,719	5,944,015	2,894,007
8	2010			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	19,996,497	15,203,793	6,565,608
9	2011			466,523	1,182,095	1,477,619	893,079	773,388	1,463,000		6,255,704	21,793,799	15,538,094	5,951,468
10	2012		8,250,000	466,523	1,182,095	1,477,619	893,079	773,388			13,042,704	23,590,821	10,548,117	3,583,476
11	2013			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	25,387,628	20,594,924	6,205,733
12	2014			466,523	1,182,095	1,477,619	893,079	773,388			4,792,704	27,184,266	22,391,562	5,984,400
13	2015		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526	1,496,880		14,905,502	28,980,768	14,075,266	3,336,538
14	2016			466,523	1,241,970	1,552,463	1,118,139	779,526	1,955,800		7,114,422	32,082,689	24,968,268	5,249,660
15	2017			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	34,993,022	29,834,401	5,563,696
16	2018		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526			13,408,622	38,056,979	24,648,357	4,076,968
17	2019			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	38,678,916	33,520,294	4,917,682
18	2020			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	39,444,738	34,286,116	4,461,432
19	2021		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526	5,008,080		18,416,702	44,330,553	25,913,852	2,990,826
20	2022			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	44,243,581	39,084,960	4,001,034
21	2023			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	45,070,501	39,911,879	3,623,831
22	2024		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526			13,408,622	45,741,077	32,332,455	2,603,801
23	2025			466,523	1,241,970	1,552,463	1,118,139	779,526	492,800		5,651,422	46,761,799	41,110,378	2,936,458
24	2026			466,523	1,241,970	1,552,463	1,118,139	779,526	1,955,800		7,114,422	45,854,043	38,739,622	2,454,319
25	2027		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526			13,408,622	45,854,043	32,445,422	1,823,192
26	2028			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	45,854,043	40,695,422	2,028,280
27	2029			466,523	1,241,970	1,552,463	1,118,139	779,526			5,158,622	45,854,043	40,695,422	1,799,000
28	2030		8,250,000	466,523	1,241,970	1,552,463	1,118,139	779,526	1,004,080		14,412,702	45,854,043	31,441,342	1,232,792
29	2031			466,523	1,241,970	1,552,463	1,118,139	779,526	1,463,000		6,621,622	45,854,043	39,232,422	1,364,386
30	2032			466,523	1,241,970	1,552,463	1,118,139	779,526		-4,583,954	574,668	45,854,043	45,279,375	1,396,677
Total		125,240,757	66,000,000	12,129,605	32,403,276	40,504,096	27,717,674	20,991,960	14,839,440	-4,583,954	335,242,854	939,115,580	603,872,726	0
													EIRR =	12.7%

Table 11.1.8 Summary of Costs and Benefits of Container Terminal Project during Project Life and EIRR Calculation (76% of Common Costs are Allocated to CNT)

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Cost:						Renewal Investment	Residual Values	Costs Total (C)	Benefits Total (B)	B-C	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Costs	Administrative Costs						
1	2003	14,468,418									14,468,418		-14,468,418	-14,468,418
2	2004	26,465,198									26,465,198		-26,465,198	-22,737,615
3	2005	32,171,360									32,171,360		-32,171,360	-23,747,012
4	2006	12,625,841			456,493	570,616	374,790	546,457			14,574,197	7,065,167	-7,509,030	-4,762,041
5	2007			293,300	912,986	1,141,233	749,580	546,457			3,643,555	15,252,931	11,609,376	6,325,400
6	2008			293,300	912,986	1,141,233	749,580	546,457			3,643,555	16,354,863	12,711,308	5,950,303
7	2009		5,690,198	293,300	912,986	1,141,233	749,580	546,457			9,333,753	17,437,585	8,103,832	3,259,186
8	2010			293,300	912,986	1,141,233	749,580	546,457			3,643,555	18,502,415	14,858,860	5,134,213
9	2011			293,300	912,986	1,141,233	749,580	546,457	1,043,000		4,686,555	20,291,233	15,604,678	4,632,474
10	2012		5,690,198	293,300	912,986	1,141,233	749,580	546,457			9,333,753	22,079,723	12,745,970	3,250,879
11	2013			293,300	912,986	1,141,233	749,580	546,457			3,643,555	23,867,959	20,224,405	4,431,732
12	2014			293,300	912,986	1,141,233	749,580	546,457			3,643,555	25,655,997	22,012,442	4,144,153
13	2015		5,690,198	293,300	967,418	1,209,273	954,180	552,037	1,360,800		11,027,205	27,443,874	16,416,669	2,655,353
14	2016			293,300	967,418	1,209,273	954,180	552,037	1,491,000		5,467,207	30,184,960	24,717,754	3,434,916
15	2017			293,300	967,418	1,209,273	954,180	552,037			3,976,207	32,966,481	28,990,274	3,461,220
16	2018		5,690,198	293,300	967,418	1,209,273	954,180	552,037			9,666,405	35,792,039	26,125,634	2,679,868
17	2019			293,300	967,418	1,209,273	954,180	552,037			3,976,207	35,792,039	31,815,832	2,803,882
18	2020			293,300	967,418	1,209,273	954,180	552,037			3,976,207	35,792,039	31,815,832	2,408,959
19	2021		5,690,198	293,300	967,418	1,209,273	954,180	552,037	4,265,800		13,932,205	35,792,039	21,859,834	1,422,010
20	2022			293,300	967,418	1,209,273	954,180	552,037			3,976,207	35,792,039	31,815,832	1,778,152
21	2023			293,300	967,418	1,209,273	954,180	552,037			3,976,207	35,792,039	31,815,832	1,527,702
22	2024		5,690,198	293,300	967,418	1,209,273	954,180	552,037			9,666,405	35,792,039	26,125,634	1,077,785
23	2025			293,300	967,418	1,209,273	954,180	552,037	448,000		4,424,207	35,792,039	31,367,832	1,111,782
24	2026			293,300	967,418	1,209,273	954,180	552,037	1,491,000		5,467,207	35,792,039	30,324,832	923,428
25	2027		5,690,198	293,300	967,418	1,209,273	954,180	552,037			9,666,405	35,792,039	26,125,634	683,505
26	2028			293,300	967,418	1,209,273	954,180	552,037			3,976,207	35,792,039	31,815,832	715,134
27	2029			293,300	967,418	1,209,273	954,180	552,037			3,976,207	35,792,039	31,815,832	614,409
28	2030		5,690,198	293,300	967,418	1,209,273	954,180	552,037	912,800		10,579,205	35,792,039	25,212,834	418,317
29	2031			293,300	967,418	1,209,273	954,180	552,037	1,043,000		5,019,207	35,792,039	30,772,832	438,653
30	2032			293,300	967,418	1,209,273	954,180	552,037		-3,431,765	544,442	35,792,039	35,247,597	431,671
Total		85,730,817	45,521,584	7,625,788	25,173,907	31,467,383	23,546,670	14,854,771	12,055,400	-3,431,765	242,544,554	793,983,774	551,439,219	0
													EIRR =	16.4%

Table 11.1.9 Summary of Costs and Benefits of Multi-Purpose Terminal Project during Project Life and EIRR Calculation (24% of Common Costs are Allocated to MPT)

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Costs						Renewal Investment	Residual Values	Costs Total (C)	Benefits Total (B)	B-C	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Costs	Administrative Costs						
1	2003	5,332,704									5,332,704		-5,332,704	-5,332,704
2	2004	8,625,687									8,625,687		-8,625,687	-7,410,773
3	2005	9,600,104									9,600,104		-9,600,104	-7,086,234
4	2006	3,524,840			77,953	97,442	31,155	147,111			3,878,501	2,229,988	-1,648,513	-1,045,446
5	2007			129,465	155,907	194,883	62,310	147,111			689,676	4,592,697	3,903,021	2,126,571
6	2008			129,465	155,907	194,883	62,310	147,111			689,676	4,725,417	4,035,741	1,889,175
7	2009		1,656,069	129,465	155,907	194,883	62,310	147,111			2,345,745	4,858,137	2,512,393	1,010,430
8	2010			129,465	155,907	194,883	62,310	147,111			689,676	4,990,858	4,301,182	1,486,197
9	2011			129,465	155,907	194,883	62,310	147,111	287,000		976,676	5,228,149	4,251,473	1,262,111
10	2012		1,656,069	129,465	155,907	194,883	62,310	147,111			2,345,745	5,465,440	3,119,696	795,683
11	2013			129,465	155,907	194,883	62,310	147,111			689,676	5,702,732	5,013,056	1,098,501
12	2014			129,465	155,907	194,883	62,310	147,111			689,676	5,940,023	5,250,347	988,452
13	2015		1,656,069	129,465	155,907	194,883	62,310	147,111			2,345,745	6,177,314	3,831,570	619,746
14	2016			129,465	155,907	194,883	62,310	147,111	287,000		976,676	7,096,252	6,119,576	850,410
15	2017			129,465	155,907	194,883	62,310	147,111			689,676	7,750,361	7,060,685	842,992
16	2018		1,656,069	129,465	155,907	194,883	62,310	147,111			2,345,745	8,508,056	6,162,311	632,106
17	2019			129,465	155,907	194,883	62,310	147,111			689,676	9,350,784	8,661,109	763,291
18	2020			129,465	155,907	194,883	62,310	147,111			689,676	10,179,180	9,489,505	718,505
19	2021		1,656,069	129,465	155,907	194,883	62,310	147,111	287,000		2,632,745	15,613,111	12,980,367	844,390
20	2022			129,465	155,907	194,883	62,310	147,111			689,676	15,431,029	14,741,354	823,878
21	2023			129,465	155,907	194,883	62,310	147,111			689,676	15,646,031	14,956,355	718,160
22	2024		1,656,069	129,465	155,907	194,883	62,310	147,111			2,345,745	16,459,040	14,113,295	582,229
23	2025			129,465	155,907	194,883	62,310	147,111	448,000		1,137,676	17,683,986	16,546,310	586,457
24	2026			129,465	155,907	194,883	62,310	147,111	287,000		976,676	16,982,796	16,006,120	487,406
25	2027		1,656,069	129,465	155,907	194,883	62,310	147,111			2,345,745	16,982,796	14,637,051	382,938
26	2028			129,465	155,907	194,883	62,310	147,111			689,676	16,982,796	16,293,120	366,226
27	2029			129,465	155,907	194,883	62,310	147,111			689,676	16,982,796	16,293,120	314,643
28	2030		1,656,069	129,465	155,907	194,883	62,310	147,111			2,345,745	16,982,796	14,637,051	242,850
29	2031			129,465	155,907	194,883	62,310	147,111	287,000		976,676	16,982,796	16,006,120	228,160
30	2032			129,465	155,907	194,883	62,310	147,111		-1,152,189	-462,513	16,982,796	17,445,309	213,650
Total		27,083,335	13,248,552	3,366,085	4,131,524	5,164,405	1,651,215	3,971,995	1,883,000	-1,152,189	59,347,923	292,508,154	233,160,231	0
													EIRR =	16.4%

11.2 Financial Evaluation

11.2.1 Purposes and Methodology of Financial Analysis

The purpose of financial analysis is to appraise the financial viability of the Project from the viewpoint of capital investment to confirm whether it could yield sufficient returns. In this study, to measure the financial viability quantitatively, the Financial Internal Rate of Return (FIRR) on a gross capital basis was calculated and compared with the assumed average interest rate of the funds to be raised for the Project to confirm whether FIRR could exceed the interest rate.

In addition to FIRR, other typical financial indices including profitability, loan repayment capacity and operational efficiency were adopted to assess the project financial soundness from various financial points of view.

Financial statements were also made to complementarily confirm FIRR assessment and to reveal yearly financial conditions on both the gross capital basis and the equity capital basis in the terminal operations at the La Unión Port. The terminal operator who owns the equity capital in the above-mentioned sense is an imaginary entity and is not a legal entity. It is further divided into two operational components as legal entities, viz the port authority (La Unión Port office of CEPA) and potential private terminal operators at the La Unión Port. In other words, they are the grantor (the government (CEPA)) and concessionaires (private operators) in terms of contract. Thus, in the first step, the financial statements were made on the above-mentioned imaginary terminal operator that implicitly includes the port authority (CEPA) and the potential private terminal operators. In the second step, the financial statements were made for the grantor and a potential concessionaire respectively by assuming the contract conditions in each terminal, viz CNT (Container Terminal) and MPT (Multi-purpose Terminal).

11.2.2 Prerequisites for the Financial Analysis

(1) Base Year

Incomes and expenses estimated in the financial analysis were expressed in the prices applicable in the fixed "Base Year" and throughout the "Project Life" mentioned below. In this analysis, the year 2001 was adopted as the "Base Year" since the costs of the Project were estimated on the basis of current prices in the same year.

(2) Project Life

Taking account of the sum of construction period and probable concession period relating to the Project, the period of 30 years was adopted as the "Project Life".

(3) Financial Terms of Loans to be Raised for the Project

There are three sources for funds required for the Project, viz Japan Bank for International Cooperation (JBIC), Bank of Central America for Economic Integration

(BCIE), and Salvadorean local banks. Their financial terms are as listed below. Excluding the JBIC loan with already fixed conditions, the conditions of the remaining loans were assumed for this analysis as follows:

1) JBIC Loan

Interest Rate:	2.2% for Civil Works and Equipment, 0.75% for Engineering Service
Repayment Period (grace period):	25 years (7 years) for Civil Works and Equipment

40 years (10 years) for Engineering Services

2) BCIE Loan

Interest Rate:	6.5% for Civil Works and Equipment
Repayment Period (grace period):	20 years (4 years)

3) Local Bank Loans

Interest Rate:	9.1% (over one year) as of December 2001

7.83% (one year or less) as of December 2001

The weighed average of interest rates in the initial investment was estimated to be 4.11%.

(4) Volume of Cargo and the Number of Calling Vessels at La Unión Port

1) Volume of Cargo

Cargo handling operation at the La Unión Port was assumed to be started in mid. 2006. Yearly cargo throughput from the starting year of the port operations through the expiry of the project life, viz 2006 to 2032, is shown in Table 11.2.1 As shown in the table, MPT (Multi-purpose Terminal) for serving conventional cargo was assumed to reach its capacity in 2026 and then to keep the volume constant through 2032. On the other hand, as shown in the same table, CNT (Container terminal) was assumed to reach its capacity in 2018 and then to keep the volume constant through 2032. The CNT will receive four Panamax-type container ships per week. In other words, four container weekly services will be provided at the La Unión Port, presumably two northbound services and the remaining two southbound services, and the container berth will be practically occupied totally four days a week, apart from mathematical calculation of berth occupancy rate.

2) The Number of Calling Vessels

The estimated number of vessels to call at the La Unión Port is shown in Table 11.2.1. Those vessels will generate income to the Project from port tariff levied to

calling vessels.

(5) Port Tariff

To estimate incomes for the Project, almost the same tariff level as that of the existing Acajutla Port was adopted as listed below except for container storage charge with three-day free time in both import and export, which is different from the current tariff of the Acajutla Port. The level is almost the same as that of Quetzal Port as a whole (see Section 10.2.4 of Chapter 10).

1) Vessel Service Charge
   - Mooring and unmooring: US$ 0.37/GRT
   - Berthing: US$ 3.43/m/day (LOA)
   - Navigational aids: US$ 115.79/Vessel

2) Cargo-Handling Charge for General Cargo
   - Stevedorage (from vessel to wharf, vice versa):
     - Iron or steel products: US$ 5.14/MT
     - General cargo: US$ 8.58/MT
     - Vehicles: US$ 21.38/MT
   - Haulage (from wharf alongside to yard or shed of CEPA):
     - Break-bulk (cases, cartons, pallets): US$ 13.23/MT
     - Bags: US$ 8.68/MT
     - Metal, ingots, rolls: US$ 4.26/MT
     - Vehicles: US$ 15.67/MT
     - Sugar in bag: US$ 6.84/MT
   - Storage:
     - First 5 days: US$ 0.08/MT/day
     - 6 days – 15 days: US$ 0.23/MT/day
     - Over 15 days: US$ 0.47/MT/day

3) Cargo-Handling Charge for Dry Bulk Cargo
   - Stevedorage:
     - With belt conveyor: US$ 1.50/MT
     - Without belt conveyor (unloading): US$ 3.85/MT
     - Surcharge (according to cargo condition): US$ 0.38/MT
   - Haulage:
     - With belt conveyor: US$ 2.72/MT
     - With belt conveyor (sugar: CEPA shed): US$ 3.82/MT
     - With belt conveyor (sugar: private shed): US$ 2.28/MT
     - Without belt conveyors: US$ 1.51/MT
     - Surcharge for Receive and Dispatch: US$ 0.40/MT

4) Container-Handling Charge

- Stevedorage: US$ 39.60/cont.
- Haulage (from wharf to yard and vice versa):

- Laden (to shipping lines):	US$ 12.79/cont
- Laden (to consignees/shippers):	5.56/MT
- Empty:	US$ 19.40/cont
- Lift-on/Lift-off:	US$ 16.43/cont.
- Storage:	Three days of free days
- Haulage (from yard to CFS and vice versa):	US$ 13.80/cont
- Stuffing or unstuffing:	US$ 3.60/ MT

11.2.3 Revenues

Revenues will be gained from providing port services to consignees/shippers and shipping lines. The amount of revenues was estimated by multiplying the port tariff and the volume of cargo in terms of cargo handling charge or by calculating vessel service charge considering the size and staying days of each vessel call according to the tariff. The estimated yearly revenues are summarized in Table 11.2.1.

Table 11.2 .1 Summary of Revenues from the La Union Port Project

Year	Containers					Conventional Cargoes					Grand Total ('000 US$)
	Volume (TEUs)	Number of Vessels	Container Handling Charge ('000 US$)	Vessel Service Charge ('000 US$)	Total ('000 US$)	Volume (MT)	Number of Vessels	Cargo Handling Charge ('000 US$)	Vessel Charge ('000 US$)	Total ('000 US$)	
2006	66,700	52	5,813,886	1,077,930	6,891,816	322,590	29	2,322,820	147,015	2,469,835	9,361,651
2007	146,200	104	12,528,296	2,155,860	14,684,156	665,660	61	4,812,925	305,790	5,118,715	19,802,871
2008	159,000	104	13,406,762	2,155,860	15,562,622	686,140	64	4,980,210	317,550	5,297,760	20,860,382
2009	171,800	104	14,264,704	2,155,860	16,420,564	706,620	66	5,147,495	329,310	5,476,805	21,897,368
2010	184,600	104	15,103,516	2,155,860	17,259,376	727,100	69	5,314,780	341,069	5,655,849	22,915,225
2011	202,800	104	16,552,895	3,233,790	19,786,685	749,920	72	5,506,755	356,056	5,862,811	25,649,496
2012	221,000	104	18,002,274	3,233,790	21,236,064	772,740	75	5,698,730	371,042	6,069,772	27,305,836
2013	239,200	104	19,451,653	3,233,790	22,685,442	795,560	79	5,890,705	386,029	6,276,734	28,962,176
2014	257,400	104	20,901,032	3,233,790	24,134,821	818,380	82	6,082,680	401,015	6,483,695	30,618,517
2015	275,600	156	22,350,411	3,233,790	25,584,200	841,200	86	6,274,655	416,002	6,690,657	32,274,857
2016	303,805	156	24,637,757	4,311,719	28,949,476	871,289	90	6,532,390	436,657	6,969,047	35,918,523
2017	332,010	156	26,925,103	4,311,719	31,236,823	901,378	95	6,790,124	457,312	7,247,437	38,484,259
2018	360,215	208	29,212,450	4,311,719	33,524,169	931,467	100	7,047,859	477,967	7,525,826	41,049,995
2019	360,215	208	29,212,450	4,311,719	33,524,169	961,556	104	7,305,593	498,623	7,804,216	41,328,385
2020	360,215	208	29,212,450	4,311,719	33,524,169	991,645	109	7,563,328	519,278	8,082,606	41,606,775
2021	360,215	208	29,212,450	4,311,719	33,524,169	1,029,673	116	7,897,586	547,505	8,445,091	41,969,260
2022	360,215	208	29,212,450	4,311,719	33,524,169	1,067,701	122	8,231,845	575,731	8,807,576	42,331,745
2023	360,215	208	29,212,450	4,311,719	33,524,169	1,105,729	129	8,566,103	603,958	9,170,061	42,694,230
2024	360,215	208	29,212,450	4,311,719	33,524,169	1,143,757	135	8,900,362	632,185	9,532,547	43,056,716
2025	360,215	208	29,212,450	4,311,719	33,524,169	1,181,785	142	9,234,620	660,412	9,895,032	43,419,201
2026	360,215	208	29,212,450	4,311,719	33,524,169	1,230,280	151	9,673,084	699,405	10,372,490	43,896,659
2027	360,215	208	29,212,450	4,311,719	33,524,169	1,230,280	151	9,673,084	699,405	10,372,490	43,896,659
2028	360,215	208	29,212,450	4,311,719	33,524,169	1,230,280	151	9,673,084	699,405	10,372,490	43,896,659
2029	360,215	208	29,212,450	4,311,719	33,524,169	1,230,280	151	9,673,084	699,405	10,372,490	43,896,659
2030	360,215	208	29,212,450	4,311,719	33,524,169	1,230,280	151	9,673,084	699,405	10,372,490	43,896,659
2031	360,215	208	29,212,450	4,311,719	33,524,169	1,230,280	151	9,673,084	699,405	10,372,490	43,896,659
2032	360,215	208	29,212,450	4,311,719	33,524,169	1,230,280	151	9,673,084	699,405	10,372,490	43,896,659

11.2.4 Expenses

(1) Expenses for Initial Investment

Expenses for the initial investment for the Project are summarized in Table 11.2.2 by cost component. In the table, the entire project expenses are allocated to two project components, viz Container Terminal (CNT) and Multi-purpose Terminal (MPT). The common cost items covering the two components such as dredging and access roads were allocated to the two components with a certain percentage so as to obtain the same FIRR (Financial Internal Rate of Return). The resulting percentages are 77% for CNT and the remaining 23% for MPT, in terms of common costs (see Tables 11.2.7 and 11.2.8). The resulting percentages in the entire expenses are 76% for CNT and the remaining 24% for MPT as shown in Table 11.2.2.

In addition to the equipment comprising two units of container gantry cranes and two tugboats to be procured by the Government of El Salvador (CEPA), the equipment to be possibly procured by private terminal operators as potential concessionaires was considered (see Table 11.1.3). In addition to container yard machines including tractor-trailer units, toplifters (40.6 t), empty handlers (18 t) and forklift trucks (1.6 t) to be used within a CFS at CNT, two units of mobile unloaders to be used mainly for cereals and fertilizer, three units of ship loaders mainly for raw sugar and forklift trucks (16 t and 5 t) for break-bulk cargoes such as iron and steel products were considered.

(2) Management/Operations and Maintenance Expenses

Expense items for management/operation and maintenance are listed below:

1) Maintenance Dredging
   The annual dredging volume was estimated to be 1.3 millions m^3 at a unit dredging cost of 2.8 US$/ m^3.

2) Maintenance Expense for Infrastructures
   This expense was assumed to be one percent (1%) of initial investment expenses for depreciable infrastructures. Thus, reclamation expenses, etc were excluded

3) Maintenance Expense for Equipment
   This expense was assumed to be four percent (4%) of initial investment expenses for equipment.

4) Expenses for Fuel and Utilities
   This expense was assumed to be five percent (5%) of initial investment expenses for equipment

5) Labor Expenses
   Labor expenses will be expended for CNT and MPT which will eventually be operated by private terminal operators as concessionaires.

6) Administrative Expenses

Administrative expenses will be expended for the three local offices, viz CNT, MPT and CEPA. The main expense item is personnel expense.

7) Renewal Investment

From the start of operation and through out the project life, the equipment that is procured in the initial stage will be renewed when its useful life expires. Individual useful lives were assumed to be in the range of 5 to 25 years referring to actual operational experience in leading ports. The shortest life (5 years) was assumed for top loaders, empty handlers and forklift trucks, followed by tractors (10 years) and trailers (15 years). A longer life (25 years) was assumed for quayside cranes.

8) Total Expenses

Total project expenses comprising those of initial investment, yearly management/ operation and maintenance, and renewal of equipment from time to time during the project life are summarized in Table 11.2.3 together with benefits to be generated from the Project. The result of subsequent FIRR calculation is presented in Section 11.2.5.

Table11.2.2 Summary of Initial Project Costs

Project Cost Component			Foreign Portion (US$)	Local Portion (US$)	Total in Market Price	Container Terminal	Multi-purpose Terminal (US$)	Cost Allocation
Civil and Building Works	100 General Requirement		3,065,529	2,435,333	5,500,862	4,263,151	1,237,712	0.77
	200 Civil Works		32,297,271	36,442,990	68,740,261	48,991,070	19,749,192	0.71
		2A Dredging Work	21,683,098	7,760,203	29,443,301	22,818,464	6,624,837	0.77
		2B Container Berth (340m)	3,747,614	8,481,501	12,229,115	12,229,115	0	1.00
		2C Bulk Berth (220m)	2,700,462	6,738,612	9,439,074	0	9,439,074	0.00
		2D Passenger Berth	828,596	240,229	1,068,825	1,068,825	0	1.00
		2E Revetment	595,043	3,006,285	3,601,328	2,492,380	1,108,949	0.69
		2F Reclamation Work	1,214,400	3,491,400	4,705,800	3,522,985	1,182,815	0.75
		2G Pavement	195,238	4,899,585	5,094,823	4,460,855	633,968	0.88
		2H Drainage	114,089	1,745,136	1,859,225	1,391,904	467,321	0.75
		2I Navigation Aids	1,218,208	26,880	1,245,088	964,939	280,149	0.77
		2J Security Fence	522	53,159	53,681	41,603	12,078	0.77
	300 Building Works		31,736	4,130,667	4,162,403	3,800,166	362,236	0.91
	400 Utilities		306,347	5,298,058	5,604,405	4,343,396	1,261,009	0.77
	Total Civil and Building Works		35,700,883	48,307,048	84,007,931	61,397,783	22,610,149	0.73
	500 Consultancy Services		3,990,000	1,710,000	5,700,000	4,165,885	1,534,115	0.73
	Physical Contingency		2,499,062	3,381,493	5,880,555	4,297,845	1,582,710	0.73
	Civil and Building Works Total		42,189,945	53,398,541	95,588,487	69,861,512	25,726,974	0.73
Equipment	600 Equipment (Category (1))		19,800,000	0	19,800,000	18,224,978	1,575,022	0.92
		6A Container Gantry Cranes	12,800,000	0	12,800,000	12,800,000	0	1.00
		6B Tugboat	7,000,000	0	7,000,000	5,424,978	1,575,022	0.77
	700 Equipment (Category (2))		7,065,800	0	7,065,800	4,713,800	2,352,000	0.67
		7A Container Handling Machines (LS	4,713,800	0	4,713,800	4,713,800	0	1.00
		7B Bulk Handling Machines (LS	2,352,000	0	2,352,000	0	2,352,000	0.00
	Equipment Total		26,865,800	0	26,865,800	22,938,778	3,927,022	0.85
Initial Investment Grand Tota			69,055,745	53,398,541	122,454,287	92,800,290	29,653,997	0.76

Source: Estimated by JICA Study Tean

Note (1): Categories (1) and (2) in Equipment Item indicate the procurement by the Salvadorian government (CEPA) and private concessionaires for the new terminals at La Union Port, respectively.

Note (2): IVA and import duties for equipment are not included in the above table. They were considered in FIRR calculatic

11.2.5 Evaluation of the Project

(1) Viability of the Project

1) Calculation of FIRR (Base Case)

The financial internal rate of return (FIRR) was used to appraise the financial viability of the Project. The FIRR is the discount rate that makes the net present value of cash inflow and outflow equal during the project life. The following formula was used to calculate FIRR:

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

Where;

n:	Project life
i:	Year
Ii:	Cash inflow in the i-th year
Oi:	Cash outflow in the i-th year
r:	Discount rate

The resulting FIRR of the Project is 13.4% (see Table 11.2.3).

2) Sensitivity Analysis

In order to see if the Project is still financially viable when some factors vary, the following cases were examined in a sensitivity analysis:

Case A: The total expenses (cash outflow) increase by 5% and the incomes (cash inflow) decrease by 10%

Case B: The total expenses increase by 10% and the incomes decrease by 10%

Case C: The total expenses increase by 10% and the incomes decrease by 15%

The resulting FIRRs in Cases A, B and C in the above sensitivity analysis are 11.2%, 10.6% and 9.8%, respectively (see Tables 11.2.4 – 11.2.6).

3) Evaluation

The resulting FIRR of the Project is 13.4%, exceeding the weighed average interest rate of the funds (4.11%) mentioned in Section 11.2.2 (3). In addition, even the cases of defavorable fluctuations as considered in the sensitivity analysis, the FIRR in all of the cases exceeds that interest rate. Thus, the La Unión Port Project is judged financially viable.

Table 11.2.3 Summary of FIRR Caluculation (Base Case)

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Expenses						Renewal Investment	Salvage Values	Expense Total (E)	Revenue Total (R)	R-E	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Expenses	Administra-tive Costs						
1	2003	23,315,091									23,315,091		-23,315,091	-23,315,091
2	2004	41,108,841									41,108,841		-41,108,841	-36,264,214
3	2005	48,765,594									48,765,594		-48,765,594	-37,948,936
4	2006	18,807,449			612,540	765,675	436,500	756,000			21,378,164	9,361,651	-12,016,513	-8,249,120
5	2007			501,245	1,225,080	1,531,351	873,000	756,000			4,886,676	19,802,871	14,916,195	9,032,963
6	2008			501,245	1,225,080	1,531,351	873,000	756,000			4,886,676	20,860,382	15,973,706	8,533,376
7	2009		8,475,000	501,245	1,225,080	1,531,351	873,000	756,000			13,361,676	21,897,368	8,535,692	4,022,509
8	2010			501,245	1,225,080	1,531,351	873,000	756,000			4,886,676	22,915,225	18,028,549	7,494,835
9	2011			501,245	1,225,080	1,531,351	873,000	756,000	1,516,200		6,402,876	25,649,496	19,246,619	7,058,279
10	2012		8,475,000	501,245	1,225,080	1,531,351	873,000	756,000			13,361,676	27,305,836	13,944,160	4,511,072
11	2013			501,245	1,225,080	1,531,351	873,000	756,000			4,886,676	28,962,176	24,075,500	6,870,775
12	2014			501,245	1,225,080	1,531,351	873,000	756,000			4,886,676	30,618,517	25,731,841	6,478,050
13	2015		8,475,000	501,245	1,287,133	1,608,916	1,093,000	762,000	1,551,312		15,278,606	32,274,857	16,996,251	3,774,589
14	2016			501,245	1,287,133	1,608,916	1,093,000	762,000	2,026,920		7,279,214	35,918,523	28,639,309	5,610,765
15	2017			501,245	1,287,133	1,608,916	1,093,000	762,000			5,252,294	38,484,259	33,231,965	5,743,262
16	2018		8,475,000	501,245	1,287,133	1,608,916	1,093,000	762,000			13,727,294	41,049,995	27,322,701	4,165,520
17	2019			501,245	1,287,133	1,608,916	1,093,000	762,000			5,252,294	41,328,385	36,076,091	4,851,859
18	2020			501,245	1,287,133	1,608,916	1,093,000	762,000			5,252,294	41,606,775	36,354,481	4,313,101
19	2021		8,475,000	501,245	1,287,133	1,608,916	1,093,000	762,000	5,190,192		18,917,486	41,969,260	23,051,774	2,412,565
20	2022			501,245	1,287,133	1,608,916	1,093,000	762,000			5,252,294	42,331,745	37,079,451	3,423,348
21	2023			501,245	1,287,133	1,608,916	1,093,000	762,000			5,252,294	42,694,230	37,441,936	3,049,433
22	2024		8,475,000	501,245	1,287,133	1,608,916	1,093,000	762,000			13,727,294	43,056,716	29,329,421	2,107,208
23	2025			501,245	1,287,133	1,608,916	1,093,000	762,000	510,720		5,763,014	43,419,201	37,656,187	2,386,620
24	2026			501,245	1,287,133	1,608,916	1,093,000	762,000	2,026,920		7,279,214	43,896,659	36,617,445	2,047,284
25	2027		8,475,000	501,245	1,287,133	1,608,916	1,093,000	762,000			13,727,294	43,896,659	30,169,365	1,487,987
26	2028			501,245	1,287,133	1,608,916	1,093,000	762,000			5,252,294	43,896,659	38,644,365	1,681,366
27	2029			501,245	1,287,133	1,608,916	1,093,000	762,000			5,252,294	43,896,659	38,644,365	1,483,219
28	2030		8,475,000	501,245	1,287,133	1,608,916	1,093,000	762,000	1,040,592		14,767,886	43,896,659	29,128,773	986,244
29	2031			501,245	1,287,133	1,608,916	1,093,000	762,000	1,516,200		6,768,494	43,896,659	37,128,165	1,108,942
30	2032			501,245	1,287,133	1,608,916	1,093,000	762,000		-4,705,800	546,494	43,896,659	43,350,165	1,142,192
Total		131,996,974	67,800,000	13,032,371	33,581,577	41,976,972	27,094,500	20,520,000	15,379,056	-4,705,800	346,675,651	958,784,081	612,108,430	0
													FIRR =	13.4%

Table 11.2.4 Result of Sensitivity Analysis in FIRR Calculation (5% Increase in Expenses and 10% Decrease in Incme

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Expenses						Renewal Investment	Salvage Values	Expense Total (E)	Revenue Total (R)	R-E	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Expenses	Administra-tive Costs						
1	2003	24,480,846									24,480,846		-24,480,846	-24,480,846
2	2004	43,164,283									43,164,283		-43,164,283	-38,818,118
3	2005	51,203,873									51,203,873		-51,203,873	-41,411,668
4	2006	19,747,821			643,167	803,959	458,325	793,800			22,447,073	8,425,486	-14,021,587	-10,198,282
5	2007			526,307	1,286,335	1,607,918	916,650	793,800			5,131,010	17,822,584	12,691,574	8,301,476
6	2008			526,307	1,286,335	1,607,918	916,650	793,800			5,131,010	18,774,344	13,643,334	8,025,466
7	2009		8,898,750	526,307	1,286,335	1,607,918	916,650	793,800			14,029,760	19,707,632	5,677,872	3,003,622
8	2010			526,307	1,286,335	1,607,918	916,650	793,800			5,131,010	20,623,703	15,492,693	7,370,494
9	2011			526,307	1,286,335	1,607,918	916,650	793,800	1,592,010		6,723,020	23,084,546	16,361,526	7,000,087
10	2012		8,898,750	526,307	1,286,335	1,607,918	916,650	793,800			14,029,760	24,575,252	10,545,492	4,057,481
11	2013			526,307	1,286,335	1,607,918	916,650	793,800			5,131,010	26,065,959	20,934,949	7,243,883
12	2014			526,307	1,286,335	1,607,918	916,650	793,800			5,131,010	27,556,665	22,425,655	6,978,380
13	2015		8,898,750	526,307	1,351,490	1,689,362	1,147,650	800,100	1,628,878		16,042,537	29,047,372	13,004,835	3,639,354
14	2016			526,307	1,351,490	1,689,362	1,147,650	800,100	2,128,266		7,643,175	32,326,671	24,683,496	6,212,066
15	2017			526,307	1,351,490	1,689,362	1,147,650	800,100			5,514,909	34,635,833	29,120,924	6,590,897
16	2018		8,898,750	526,307	1,351,490	1,689,362	1,147,650	800,100			14,413,659	36,944,996	22,531,337	4,586,023
17	2019			526,307	1,351,490	1,689,362	1,147,650	800,100			5,514,909	37,195,547	31,680,638	5,799,001
18	2020			526,307	1,351,490	1,689,362	1,147,650	800,100			5,514,909	37,446,097	31,931,188	5,256,350
19	2021		8,898,750	526,307	1,351,490	1,689,362	1,147,650	800,100	5,449,702		19,863,361	37,772,334	17,908,974	2,651,245
20	2022			526,307	1,351,490	1,689,362	1,147,650	800,100			5,514,909	38,098,571	32,583,662	4,337,995
21	2023			526,307	1,351,490	1,689,362	1,147,650	800,100			5,514,909	38,424,807	32,909,898	3,940,267
22	2024		8,898,750	526,307	1,351,490	1,689,362	1,147,650	800,100			14,413,659	38,751,044	24,337,385	2,620,493
23	2025			526,307	1,351,490	1,689,362	1,147,650	800,100	536,256		6,051,165	39,077,281	33,026,116	3,197,985
24	2026			526,307	1,351,490	1,689,362	1,147,650	800,100	2,128,266		7,643,175	39,506,993	31,863,818	2,774,768
25	2027		8,898,750	526,307	1,351,490	1,689,362	1,147,650	800,100			14,413,659	39,506,993	25,093,334	1,965,157
26	2028			526,307	1,351,490	1,689,362	1,147,650	800,100			5,514,909	39,506,993	33,992,084	2,394,014
27	2029			526,307	1,351,490	1,689,362	1,147,650	800,100			5,514,909	39,506,993	33,992,084	2,152,963
28	2030		8,898,750	526,307	1,351,490	1,689,362	1,147,650	800,100	1,092,622		15,506,281	39,506,993	24,000,712	1,367,077
29	2031			526,307	1,351,490	1,689,362	1,147,650	800,100	1,592,010		7,106,919	39,506,993	32,400,074	1,659,681
30	2032			526,307	1,351,490	1,689,362	1,147,650	800,100		-4,705,800	809,109	39,506,993	38,697,884	1,782,690
Total		138,596,823	71,190,000	13,683,990	35,260,656	44,075,820	28,449,225	21,546,000	16,148,009	-4,705,800	364,244,723	862,905,673	498,660,950	0
													FIRR =	11.2%

Table 11.2.5 Result of Sensitivity Analysis in FIRR Calculation (10% Increase in Expenses and 15% Decrease in Incme

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Expenses						Renewal Investment	Salvage Values	Expense Total (E)	Revenue Total (R)	R-E	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Expenses	Administra-tive Costs						
1	2003	25,646,601									25,646,601		-25,646,601	-25,646,601
2	2004	45,219,725									45,219,725		-45,219,725	-40,899,310
3	2005	53,642,153									53,642,153		-53,642,153	-43,881,588
4	2006	20,688,194			673,794	842,243	480,150	831,600			23,515,981	8,425,486	-15,090,495	-11,165,230
5	2007			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	17,822,584	12,447,240	8,329,623
6	2008			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	18,774,344	13,399,000	8,109,848
7	2009		9,322,500	551,370	1,347,589	1,684,486	960,300	831,600			14,697,844	19,707,632	5,009,788	2,742,507
8	2010			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	20,623,703	15,248,359	7,549,872
9	2011			551,370	1,347,589	1,684,486	960,300	831,600	1,667,820		7,043,164	23,084,546	16,041,382	7,183,670
10	2012		9,322,500	551,370	1,347,589	1,684,486	960,300	831,600			14,697,844	24,575,252	9,877,409	4,000,697
11	2013			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	26,065,959	20,690,615	7,579,736
12	2014			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	27,556,665	22,181,321	7,349,473
13	2015		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200	1,706,443		16,806,467	29,047,372	12,240,905	3,668,347
14	2016			551,370	1,415,846	1,769,808	1,202,300	838,200	2,229,612		8,007,136	32,326,671	24,319,535	6,591,742
15	2017			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	34,635,833	28,858,310	7,074,632
16	2018		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200			15,100,024	36,944,996	21,844,972	4,843,648
17	2019			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	37,195,547	31,418,023	6,300,688
18	2020			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	37,446,097	31,668,574	5,744,149
19	2021		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200	5,709,211		20,809,235	37,772,334	16,963,099	2,782,854
20	2022			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	38,098,571	32,321,047	4,795,774
21	2023			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	38,424,807	32,647,284	4,381,355
22	2024		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200			15,100,024	38,751,044	23,651,020	2,870,776
23	2025			551,370	1,415,846	1,769,808	1,202,300	838,200	561,792		6,339,316	39,077,281	32,737,965	3,594,092
24	2026			551,370	1,415,846	1,769,808	1,202,300	838,200	2,229,612		8,007,136	39,506,993	31,499,857	3,127,766
25	2027		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200			15,100,024	39,506,993	24,406,969	2,191,934
26	2028			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	39,506,993	33,729,469	2,739,752
27	2029			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	39,506,993	33,729,469	2,477,989
28	2030		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200	1,144,651		16,244,675	39,506,993	23,262,318	1,545,720
29	2031			551,370	1,415,846	1,769,808	1,202,300	838,200	1,667,820		7,445,344	39,506,993	32,061,649	1,926,867
30	2032			551,370	1,415,846	1,769,808	1,202,300	838,200		-4,705,800	1,071,724	39,506,993	38,435,269	2,089,219
Total		145,196,672	74,580,000	14,335,608	36,939,735	46,174,669	29,803,950	22,572,000	16,916,962	-4,705,800	381,813,796	862,905,673	481,091,877	0
													FIRR =	10.6%

Table 11.2.6 Result of Sensitivity Analysis in FIRR Calculation (10% Increase in Expenses and 15% Decrease in Incme

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Expenses						Renewal Investment	Salvage Values	Expense Total (E)	Revenue Total (R)	R-E	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Expenses	Administra-tive Costs						
1	2003	25,646,601									25,646,601		-25,646,601	-25,646,601
2	2004	45,219,725									45,219,725		-45,219,725	-41,184,354
3	2005	53,642,153									53,642,153		-53,642,153	-44,495,377
4	2006	20,688,194			673,794	842,243	480,150	831,600			23,515,981	7,957,403	-15,558,577	-11,753,925
5	2007			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	16,832,440	11,457,097	7,883,008
6	2008			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	17,731,325	12,355,981	7,742,816
7	2009		9,322,500	551,370	1,347,589	1,684,486	960,300	831,600			14,697,844	18,612,763	3,914,919	2,234,338
8	2010			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	19,477,941	14,102,598	7,330,431
9	2011			551,370	1,347,589	1,684,486	960,300	831,600	1,667,820		7,043,164	21,802,071	14,758,907	6,986,971
10	2012		9,322,500	551,370	1,347,589	1,684,486	960,300	831,600			14,697,844	23,209,961	8,512,117	3,670,090
11	2013			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	24,617,850	19,242,506	7,556,228
12	2014			551,370	1,347,589	1,684,486	960,300	831,600			5,375,344	26,025,739	20,650,396	7,385,436
13	2015		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200	1,706,443		16,806,467	27,433,629	10,627,162	3,461,541
14	2016			551,370	1,415,846	1,769,808	1,202,300	838,200	2,229,612		8,007,136	30,530,745	22,523,609	6,681,815
15	2017			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	32,711,620	26,934,097	7,277,182
16	2018		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200			15,100,024	34,892,496	19,792,472	4,870,406
17	2019			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	35,129,127	29,351,604	6,578,113
18	2020			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	35,365,759	29,588,235	6,039,388
19	2021		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200	5,709,211		20,809,235	35,673,871	14,864,636	2,763,328
20	2022			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	35,981,983	30,204,460	5,113,916
21	2023			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	36,290,096	30,512,572	4,705,066
22	2024		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200			15,100,024	36,598,208	21,498,185	3,019,208
23	2025			551,370	1,415,846	1,769,808	1,202,300	838,200	561,792		6,339,316	36,906,321	30,567,005	3,909,745
24	2026			551,370	1,415,846	1,769,808	1,202,300	838,200	2,229,612		8,007,136	37,312,160	29,305,024	3,413,831
25	2027		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200			15,100,024	37,312,160	22,212,136	2,356,647
26	2028			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	37,312,160	31,534,636	3,047,168
27	2029			551,370	1,415,846	1,769,808	1,202,300	838,200			5,777,524	37,312,160	31,534,636	2,775,241
28	2030		9,322,500	551,370	1,415,846	1,769,808	1,202,300	838,200	1,144,651		16,244,675	37,312,160	21,067,485	1,688,612
29	2031			551,370	1,415,846	1,769,808	1,202,300	838,200	1,667,820		7,445,344	37,312,160	29,866,816	2,180,271
30	2032			551,370	1,415,846	1,769,808	1,202,300	838,200		-4,705,800	1,071,724	37,312,160	36,240,436	2,409,458
Total		145,196,672	74,580,000	14,335,608	36,939,735	46,174,669	29,803,950	22,572,000	16,916,962	-4,705,800	381,813,796	814,966,469	433,152,673	0
													FIRR =	9.8%

Table 11.2.7 Summary of Incomes and Expenses of Container Terminal Project during Project Life and FIRR Caluculation (77% of Common Expenses are Allocated to CNT)

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Expenses						Renewal Investment	Salvage Values	Expense Total (E)	Revenue Total (R)	R-E	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Expenses	Administra-tive Costs						
1	2003	17,039,997									17,039,997		-17,039,997	-17,039,997
2	2004	30,947,490									30,947,490		-30,947,490	-27,300,366
3	2005	37,446,288									37,446,288		-37,446,288	-29,140,356
4	2006	14,648,362			523,004	653,755	403,000	595,723			16,823,845	6,891,816	-9,932,029	-6,818,159
5	2007			347,963	1,046,008	1,307,510	806,000	595,723			4,103,205	14,684,156	10,580,951	6,407,622
6	2008			347,963	1,046,008	1,307,510	806,000	595,723			4,103,205	15,562,622	11,459,417	6,121,780
7	2009		6,568,098	347,963	1,046,008	1,307,510	806,000	595,723			10,671,303	16,420,564	5,749,261	2,709,382
8	2010			347,963	1,046,008	1,307,510	806,000	595,723			4,103,205	17,259,376	13,156,171	5,469,288
9	2011			347,963	1,046,008	1,307,510	806,000	595,723	1,189,020		5,292,225	19,786,685	14,494,460	5,315,527
10	2012		6,568,098	347,963	1,046,008	1,307,510	806,000	595,723			10,671,303	21,236,064	10,564,761	3,417,803
11	2013			347,963	1,046,008	1,307,510	806,000	595,723			4,103,205	22,685,442	18,582,237	5,303,083
12	2014			347,963	1,046,008	1,307,510	806,000	595,723			4,103,205	24,134,821	20,031,616	5,043,006
13	2015		6,568,098	347,963	1,108,061	1,385,076	1,026,000	601,723	1,551,312		12,588,233	25,584,200	12,995,967	2,886,191
14	2016			347,963	1,108,061	1,385,076	1,026,000	601,723	1,699,740		6,168,563	28,949,476	22,780,913	4,463,039
15	2017			347,963	1,108,061	1,385,076	1,026,000	601,723			4,468,823	31,236,823	26,768,000	4,626,137
16	2018		6,568,098	347,963	1,108,061	1,385,076	1,026,000	601,723			11,036,921	33,524,169	22,487,248	3,428,325
17	2019			347,963	1,108,061	1,385,076	1,026,000	601,723			4,468,823	33,524,169	29,055,346	3,907,642
18	2020			347,963	1,108,061	1,385,076	1,026,000	601,723			4,468,823	33,524,169	29,055,346	3,447,131
19	2021		6,568,098	347,963	1,108,061	1,385,076	1,026,000	601,723	4,863,012		15,899,933	33,524,169	17,624,236	1,844,527
20	2022			347,963	1,108,061	1,385,076	1,026,000	601,723			4,468,823	33,524,169	29,055,346	2,682,525
21	2023			347,963	1,108,061	1,385,076	1,026,000	601,723			4,468,823	33,524,169	29,055,346	2,366,393
22	2024		6,568,098	347,963	1,108,061	1,385,076	1,026,000	601,723			11,036,921	33,524,169	22,487,248	1,615,624
23	2025			347,963	1,108,061	1,385,076	1,026,000	601,723	510,720		4,979,543	33,524,169	28,544,626	1,809,136
24	2026			347,963	1,108,061	1,385,076	1,026,000	601,723	1,699,740		6,168,563	33,524,169	27,355,606	1,529,454
25	2027		6,568,098	347,963	1,108,061	1,385,076	1,026,000	601,723			11,036,921	33,524,169	22,487,248	1,109,096
26	2028			347,963	1,108,061	1,385,076	1,026,000	601,723			4,468,823	33,524,169	29,055,346	1,264,160
27	2029			347,963	1,108,061	1,385,076	1,026,000	601,723			4,468,823	33,524,169	29,055,346	1,115,180
28	2030		6,568,098	347,963	1,108,061	1,385,076	1,026,000	601,723	1,040,592		12,077,513	33,524,169	21,446,656	726,142
29	2031			347,963	1,108,061	1,385,076	1,026,000	601,723	1,189,020		5,657,843	33,524,169	27,866,326	832,310
30	2032			347,963	1,108,061	1,385,076	1,026,000	601,723		-3,522,985	945,838	33,524,169	32,578,331	858,375
Total		100,082,136	52,544,783	9,047,037	28,836,163	36,045,204	25,319,000	16,192,532	15,667,198	-3,522,985	278,287,028	747,294,580	469,007,552	0
													FIRR =	13.4%

Table 11.2.8 Summary of Incomes and Expenses of Container Terminal Project during Project Life and FIRR Caluculation (23% of Common Expenses are Allocated to MPT

Unit: US$

No.	Year	Initial Investment	Management/Operations and Maintenance Expenses						Renewal Investment	Salvage Values	Expense Total (E)	Revenue Total (R)	R-E	Net Present Value (NPV)
			Maintenance Dredging	Infra-structures	Equipment	Fuel and Utilities	Labor Expenses	Administra-tive Costs						
1	2003	6,241,831									6,241,831		-6,241,831	-6,241,831
2	2004	10,170,626									10,170,626		-10,170,626	-8,972,030
3	2005	11,385,581									11,385,581		-11,385,581	-8,860,154
4	2006	4,200,179			89,079	111,349	33,500	158,847			4,592,954	2,469,835	-2,123,118	-1,457,483
5	2007			153,059	178,158	222,698	67,000	158,847			779,762	5,118,715	4,338,954	2,627,588
6	2008			153,059	178,158	222,698	67,000	158,847			779,762	5,297,760	4,517,998	2,413,578
7	2009		1,882,630	153,059	178,158	222,698	67,000	158,847			2,662,391	5,476,805	2,814,414	1,326,313
8	2010			153,059	178,158	222,698	67,000	158,847			779,762	5,655,849	4,876,088	2,027,089
9	2011			153,059	178,158	222,698	67,000	158,847	327,180		1,106,942	5,862,811	4,755,869	1,744,111
10	2012		1,882,630	153,059	178,158	222,698	67,000	158,847			2,662,391	6,069,772	3,407,381	1,102,321
11	2013			153,059	178,158	222,698	67,000	158,847			779,762	6,276,734	5,496,972	1,568,751
12	2014			153,059	178,158	222,698	67,000	158,847			779,762	6,483,695	5,703,934	1,435,978
13	2015		1,882,630	153,059	178,158	222,698	67,000	158,847			2,662,391	6,690,657	4,028,266	894,612
14	2016			153,059	178,158	222,698	67,000	158,847	327,180		1,106,942	6,969,047	5,862,105	1,148,453
15	2017			153,059	178,158	222,698	67,000	158,847			779,762	7,247,437	6,467,675	1,117,766
16	2018		1,882,630	153,059	178,158	222,698	67,000	158,847			2,662,391	7,525,826	4,863,435	741,462
17	2019			153,059	178,158	222,698	67,000	158,847			779,762	7,804,216	7,024,454	944,716
18	2020			153,059	178,158	222,698	67,000	158,847			779,762	8,082,606	7,302,844	866,411
19	2021		1,882,630	153,059	178,158	222,698	67,000	158,847	327,180		2,989,571	8,445,091	5,455,520	570,967
20	2022			153,059	178,158	222,698	67,000	158,847			779,762	8,807,576	8,027,815	741,165
21	2023			153,059	178,158	222,698	67,000	158,847			779,762	9,170,061	8,390,300	683,342
22	2024		1,882,630	153,059	178,158	222,698	67,000	158,847			2,662,391	9,532,547	6,870,155	493,595
23	2025			153,059	178,158	222,698	67,000	158,847			779,762	9,895,032	9,115,270	577,719
24	2026			153,059	178,158	222,698	67,000	158,847	327,180		1,106,942	10,372,490	9,265,548	518,037
25	2027		1,882,630	153,059	178,158	222,698	67,000	158,847			2,662,391	10,372,490	7,710,098	380,271
26	2028			153,059	178,158	222,698	67,000	158,847			779,762	10,372,490	9,592,728	417,367
27	2029			153,059	178,158	222,698	67,000	158,847			779,762	10,372,490	9,592,728	368,181
28	2030		1,882,630	153,059	178,158	222,698	67,000	158,847			2,662,391	10,372,490	7,710,098	261,049
29	2031			153,059	178,158	222,698	67,000	158,847	327,180		1,106,942	10,372,490	9,265,548	276,743
30	2032			153,059	178,158	222,698	67,000	158,847		-1,182,815	-403,054	10,372,490	10,775,543	283,914
Total		31,998,217	15,061,036	3,979,525	4,721,188	5,901,485	1,775,500	4,288,881	1,864,926	-1,182,815	68,178,917	211,489,501	143,310,584	0
													FIRR =	13.4%

(2) Financial Soundness of the Terminal Management Entities

The results of assessment of the financial soundness of the entire Project to be implemented by an imaginary entity, based on the financial statements that were made on the assumptions mentioned in Sections 11.2.2 – 11.2.4, are described in this section. The imaginary entity was assumed to have the responsibility for management and operation of the La Unión Port, and practically will be composed of the port authority as a grantor (CEPA) and private terminal operators as concessionaires.

1) Profitability

The profitability of the Project was assessed by the Rate of Return on Net Fixed Assets as follows:

$$\text{Rate of Return on Net Fixed Assets} = \frac{\text{Net Operating Income}}{\text{Net Fixed Assets}}$$

The profitability criterion is that the above Rate of Return shall exceed the weighed average of the interest rates that was estimated to be 4.11%.

Except for the starting year of 2006, this criterion is satisfied in all years throughout the project life (see Table 11.2.9: Financial Indicators).

2) Operational Efficiency

The operational efficiency of the Project was assessed by two financial indicators; One is the Operating Ratio defined as follows:

$$\text{Operating Ratio} = \frac{\text{Operating Expenses}}{\text{Operating Revenues}}$$

The criterion for operational efficiently is that the above Operating Ratio shall be less than 0.70 – 0.75. Except for the starting year of 2006, this criterion is satisfied in all years throughout the project life (see Table 11.2.9: Financial Indicators).

The other is the Working Ratio defined as follows:

$$\text{Working Ratio} = \frac{\text{Operating Expenses} - \text{Depreciation Expenses}}{\text{Operating Revenues}}$$

The criterion for operational efficiency is that the above Working Ratio shall be less than 0.50 – 0.60. Except for the starting year of 2006, this criterion is satisfied in all years throughout the project life (see Table 11.2.9: Financial Indicators).

3) Long-Term Debt Repayment Capacity

The long-term debt repayment capacity of the port management and operation entity was assessed by the Debt Service Coverage Ratio defined as follows:

Debt Service Coverage Ratio

$$= \frac{\text{Net Operating Income and Depreciation Expense}}{\text{Repayment Amount of Principal and Interest for Long-Term Debt}}$$

The criterion for sound long-term debt repayment capacity is that the above Ratio shall exceed 1.0. Except for the starting year of 2006, this criterion is satisfied in all years throughout the project life (see Table 11.2.9: Financial Indicators).

4) Evaluation

The resulting financial indicators mentioned above are considered to satisfy the respective criteria. Thus, the La Unión Port Project is judged to be sound in terms of financial management.

Tabel 11.2.9 Financial Statements in the Project Implementation

Income Statement of the Entire Project ($'000s)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
REVENUE																														
Cargo Handling Charge	0	0	0	8,137	17,341	18,387	19,412	20,418	22,060	23,701	25,342	26,984	28,625	31,170	33,715	36,260	36,518	36,776	37,110	37,444	37,779	38,113	38,447	38,886	38,886	38,886	38,886	38,886	38,886	38,886
Vessel Service Charge	0	0	0	1,225	2,462	2,473	2,485	2,497	3,590	3,605	3,620	3,635	3,650	4,748	4,769	4,790	4,810	4,831	4,859	4,887	4,916	4,944	4,972	5,011	5,011	5,011	5,011	5,011	5,011	5,011
Concession Fee (from Concessionaire)																														
TOTAL REVENUE	0	0	0	9,362	19,803	20,860	21,897	22,915	25,649	27,306	28,962	30,619	32,275	35,919	38,484	41,050	41,328	41,607	41,969	42,332	42,694	43,057	43,419	43,897	43,897	43,897	43,897	43,897	43,897	43,897
EXPENSE																														
DIRECT EXPENSE																														
Labor	0	0	0	-896	-918	-939	-961	-983	-1,005	-1,027	-1,049	-1,071	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093	-1,093
Maintenance of equipment (for Government asset: tugs)	0	0	0	-361	-361	-361	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360	-360
Maintenance of equipment (Concessionaire including shore cranes)				-871	-877	-883	-889	-895	-902	-908	-914	-920	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926	-926
Fuel & Utilities (for Government asset: tugs)	0	0	0	-451	-451	-451	-451	-451	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450	-450
Fuel & Utilities (Concessionaire including shore cranes)				-1,088	-1,096	-1,104	-1,112	-1,119	-1,127	-1,135	-1,143	-1,150	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158	-1,158
Maintenance of infrastructures (Government: major repites)	0	0	0	-391	-397	-383	-380	-376	-372	-368	-364	-360	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356	-356
Maintenance of infrastructures (Concessionaire: minor repaires)				-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117	-117
Maintenance dredging	0	0	0	0	0	0	-8,475	0	0	-8,475	0	0	-8,475	0	0	-8,475	0	0	-8,475	0	0	-8,475	0	0	-8,475	0	0	-8,475	0	0
Total Direct Expense	0	0	0	-4,174	-4,205	-4,238	-12,745	-4,302	-4,334	-12,841	-4,398	-4,429	-12,936	-4,461	-4,461	-12,936	-4,461	-4,461	-12,936	-4,461	-4,461	-12,936	-4,461	-4,461	-12,936	-4,461	-4,461	-12,936	-4,461	-4,461
INDIRECT EXPENSE																														
Depreciation (equipment) (for Government Asset)	0	0	0	-903	-903	-903	-903	-903	-903	-903	-903	-903	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902	-902
Depreciation (equipment) (Concessionaire)	0	0	0	-693	-693	-693	-693	-693	-693	-693	-693	-693	-693	-814	-814	-814	-814	-814	-814	-814	-814	-814	-814	-814	-814	-814	-814	-814	-814	-720
Depreciation (infrastructures)	0	0	0	-1,520	-1,520	-1,520	-1,520	-1,520	-1,520	-1,520	-1,520	-1,520	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476	-1,476
Insurance & Claims	0	0	0	-140	-297	-313	-328	-344	-385	-410	-434	-459	-484	-539	-577	-616	-620	-624	-630	-638	-640	-646	-651	-658	-658	-658	-658	-658	-658	-658
Bad Debt (0.5% od Revenue)	0	0	0	-47	-99	-104	-109	-115	-128	-137	-145	-153	-161	-180	-192	-205	-207	-208	-210	-212	-213	-215	-217	-219	-219	-219	-219	-219	-219	-219
Concession Fee (to Government)																														
Total Indirect Expense	0	0	0	-3,303	-3,512	-3,533	-3,554	-3,574	-3,629	-3,662	-3,695	-3,728	-3,717	-3,910	-3,962	-4,013	-4,018	-4,024	-4,031	-4,038	-4,046	-4,053	-4,060	-4,070	-4,070	-4,070	-4,070	-4,070	-4,070	-3,976
GENERAL & ADMINISTRATIVE																														
Administrative Personnel (Concessionaire)	0	0	0	-257	-258	-259	-259	-260	-260	-261	-262	-262	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263	-263
others	0	0	0	-103	-103	-103	-104	-104	-104	-104	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105
CFPA I a Union Port Office Administration				-499	-499	-499	-499	-499	-499	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498	-498
Total General & Administrative	0	0	0	-859	-860	-861	-862	-863	-864	-865	-865	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866	-866
TOTAL EXPENSE	0	0	0	-8,336	-8,578	-8,632	-17,160	-8,738	-8,826	-17,367	-8,957	-9,023	-17,519	-9,238	-9,289	-17,815	-9,346	-9,352	-17,834	-9,366	-9,373	-17,856	-9,388	-9,397	-17,872	-9,397	-9,397	-17,872	-9,397	-9,303
OPERATING INCOME	0	0	0	1,025	11,225	12,229	4,737	14,177	16,824	9,939	20,005	21,595	14,755	26,681	29,195	23,235	31,982	32,255	24,135	32,966	33,321	25,201	34,031	34,499	26,024	34,499	34,499	26,024	34,499	34,593
OTHER INCOME/(EXPENSE)																														
Interest Expense (Government)	-694	-1,799	-3,013	-3,291	-3,434	-3,385	-3,308	-3,153	-3,067	-2,893	-2,704	-2,515	-2,325	-2,135	-1,781	-1,613	-1,446	-1,278	-1,110	-942	-774	-621	-490	-379	-276	-173	-88	-34	-18	-17
Interest Expense (Concessionaire)	0	0	0	-733	-733	-653	-572	-492	-411	-469	-388	-308	-227	-288	-379	-286	-224	-179	-134	-561	-489	-416	-344	-317	-429	-357	-292	-227	-257	-322
Interest Expense for Long-term Borrowings (Equivlent to IVA)	-188	-502	-861	-906	-906	-725	-544	-363	-181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest Expense for Short-term Borrowings (Government)	0	-57	-211	-476	-578	-409	-182	-352	-157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OTHER	-882	-2,358	-4,085	-5,407	-5,652	-5,172	-4,606	-4,360	-3,816	-3,362	-3,093	-2,822	-2,552	-2,423	-2,160	-1,900	-1,669	-1,456	-1,244	-1,504	-1,263	-1,038	-833	-697	-705	-529	-379	-261	-275	-339
EARNINGS before TAXES	-882	-2,358	-4,085	-4,382	5,573	7,056	131	9,817	13,008	6,578	16,912	18,773	12,203	24,258	27,035	21,335	30,313	30,799	22,892	31,462	32,058	24,164	33,198	33,803	25,319	33,970	34,120	25,763	34,224	34,254
INCOME TAX	0	0	0	0	-1,391	-1,762	-31	-2,452	-3,250	-1,642	-4,226	-4,691	-3,049	-6,062	-6,757	-5,332	-7,576	-7,698	-5,721	-7,863	-8,012	-6,039	-8,297	-8,449	-6,328	-8,490	-8,528	-6,439	-8,554	-8,561
NET INCOME after tax	-882	-2,358	-4,085	-4,382	4,182	5,294	101	7,365	9,758	4,935	12,686	14,082	9,155	18,196	20,278	16,003	22,737	23,101	17,171	23,599	24,045	18,125	24,901	25,354	18,991	25,480	25,592	19,324	25,670	25,693
Retained Earnings	-882	-3,240	-7,325	-11,707	-7,525	-2,230	-2,130	5,235	14,993	19,929	32,615	46,697	55,852	74,047	94,326	110,329	133,066	156,167	173,338	196,937	220,982	239,107	264,008	289,362	308,354	333,833	359,426	378,750	404,420	430,113

Statement of Cash Flows ($'000s)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Cash Beginning	0	0	0	0	0	277	325	325	547	2,058	3,234	12,080	22,261	27,450	42,173	58,469	70,823	90,108	109,756	123,474	143,314	163,908	179,022	201,863	225,305	241,874	265,842	291,368	312,333	340,213
CASH FLOWS FROM OPERATING ACTIVITIES																														
Net Income	-882	-2,358	-4,085	-4,382	4,182	5,294	101	7,365	9,758	4,935	12,686	14,082	9,155	18,196	20,278	16,003	22,737	23,101	17,171	23,599	24,045	18,125	24,901	25,354	18,991	25,480	25,592	19,324	25,670	25,693
Noncash Items included in Net Income																														
Depreciation (equipment) (for Government Asset)	0	0	0	903	903	903	903	903	903	903	903	903	902	902	902	902	902	902	902	902	902	902	902	902	902	902	902	902	902	902
Depreciation (equipment) (Concessionaire)	0	0	0	693	693	693	693	693	693	693	693	693	693	814	814	814	814	814	814	814	814	814	814	814	814	814	814	814	814	720
Depreciation Expense (Infrastructures)	0	0	0	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476
Total Noncash Items included in Net Income	0	0	0	3,116	3,116	3,116	3,116	3,116	3,116	3,116	3,116	3,116	3,071	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,192	3,098
Net Cash Flow From Operating Activities	-882	-2,358	-4,085	-1,266	7,298	8,410	3,217	10,481	12,874	8,051	15,802	17,198	12,226	21,388	23,470	19,195	25,929	26,293	20,363	26,791	27,237	21,317	28,093	28,546	22,183	28,672	28,784	22,516	28,862	28,790
CASH FLOWS FROM INVESTING ACTIVITIES																														
Construction in Progress (Government)	-25,095	-41,648	-47,291	-16,264	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Assets Acquired (Concessionaire)	0	0	-8,055	0	0	0	0	0	-1,516	0	0	0	-1,551	-1,516	0	0	0	0	-5,190	0	0	0	0	-1,516	0	0	0	-1,041	-1,516	0
Net Cash Used by Investing Activities	-25,095	-41,648	-55,346	-16,264	0	0	0	0	-1,516	0	0	0	-1,551	-1,516	0	0	0	0	-5,190	0	0	0	0	-1,516	0	0	0	-1,041	-1,516	0
CASH FLOWS FROM FINANCING ACTIVITIES																														
Proceeds from Long-Term Borrowings (Government)	22,208	36,813	41,763	15,571	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment to Long-Term Debt (Government)	0	0	0	-307	-748	-1,189	-2,161	-3,586	-5,274	-5,991	-6,072	-6,132	-6,153	-6,153	-6,153	-6,153	-6,153	-6,153	-6,153	-6,153	-5,845	-5,401	-4,963	-4,816	-4,816	-3,992	-2,547	-840	-181	-184
Proceeds from Long-Term Borrowings (IVA Equivalent)	2,887	4,835	5,528	693	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment to Long-Term Debt (IVA Equivalent)	0	0	0	0	-2,789	-2,789	-2,789	-2,789	-2,789	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proceeds from Long-Term Borrowings (Concessionaire)	0	0	8,055	0	0	0	0	0	1,516	0	0	0	1,551	1,516	0	0	0	0	5,190	0	0	0	0	1,516	0	0	0	1,041	1,516	0
Repayment to Long-Term Debt (Concessionaire)	0	0	0	0	-884	-884	-884	-884	-884	-884	-884	-884	-884	-512	-1,022	-688	-492	-492	-492	-798	-798	-798	-288	-288	-798	-712	-712	-712	-798	-798
Proceeds from Short-Term Borrowings (Government)	882	2,358	4,085	1,573	0	0	2,618	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment Short-Term Borrowings (Government)	0	0	0	0	-2,600	-3,500	0	-3,000	-2,416	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Cash Provided by Financing Activities	25,976	44,007	59,431	17,530	-7,021	-8,362	-3,217	-10,260	-9,847	-6,876	-6,956	-7,017	-5,486	-5,148	-7,175	-6,841	-6,645	-6,645	-1,454	-6,951	-6,644	-6,203	-5,251	-3,588	-5,615	-4,703	-3,258	-511	534	-982
NET INCREASE IN CASH	0	0	0	0	277	48	0	222	1,511	1,175	8,846	10,181	5,189	14,724	16,295	12,354	19,284	19,648	13,718	19,840	20,594	15,114	22,842	23,442	16,569	23,968	25,526	20,965	27,880	27,808
Cash Ending	0	0	0	0	277	325	325	547	2,058	3,234	12,080	22,261	27,450	42,173	58,469	70,823	90,108	109,756	123,474	143,314	163,908	179,022	201,863	225,305	241,874	265,842	291,368	312,333	340,213	368,021

Balance Sheet ($'000s)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CURRENT ASSETS	0	0	0	0	277	325	325	547	2,058	3,234	12,080	22,261	27,450	42,173	58,469	70,823	90,108	109,756	123,474	143,314	163,908	179,022	201,863	225,305	241,874	265,842	291,368	312,333	340,213	368,021
Cash and Cash Equivalent Investments	0	0	0	0	277	325	325	547	2,058	3,234	12,080	22,261	27,450	42,173	58,469	70,823	90,108	109,756	123,474	143,314	163,908	179,022	201,863	225,305	241,874	265,842	291,368	312,333	340,213	368,021
PROPERTY, PLANT AND EQUIPMENT	25,095	66,743	122,089	135,237	132,121	129,005	125,889	122,773	121,173	118,057	114,941	111,825	110,305	108,629	105,438	102,246	99,054	95,862	97,860	94,668	91,477	88,285	85,093	83,417	80,225	77,033	73,842	71,690	70,015	66,917
Construction in Progress (Government)	25,095	66,743	114,034																											
Fixed Assets (Government)				130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298	130,298
Fixed Assets (Concessionaire)			8,055	8,055	8,055	8,055	8,055	8,055	8,055	8,055	8,055	8,055	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	9,606	7,252	7,252
Accumulated Depreciation (Government)				-2,423	-4,845	-7,268	-9,690	-12,113	-14,536	-16,958	-19,381	-21,803	-24,181	-26,559	-28,937	-31,315	-33,693	-36,071	-38,449	-40,827	-43,205	-45,583	-47,961	-50,339	-52,717	-55,095	-57,473	-59,851	-62,229	-64,607
Accumulated Depreciation (Concessionaire)				-693	-1,387	-2,080	-2,774	-3,467	-4,644	-3,338	-4,031	-4,724	-5,418	-4,716	-5,529	-6,343	-7,157	-7,971	-3,595	-4,408	-5,222	-6,036	-6,850	-6,148	-6,962	-7,775	-8,589	-8,363	-5,306	-6,026
TOTAL ASSETS	25,095	66,743	122,089	135,237	132,398	129,330	126,214	123,320	123,231	121,291	127,021	134,086	137,755	150,803	163,906	173,069	189,161	205,618	221,334	237,982	255,384	267,306	286,956	308,722	322,099	342,876	365,210	384,023	410,228	434,938
CURRENT LIABILITIES	882	3,240	7,325	8,898	6,298	2,798	5,416	2,416	-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Short-Term Borrowings (Government)	882	3,240	7,325	8,898	6,298	2,798	5,416	2,416	-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LONG-TERM LIABILITIES	25,095	66,743	122,089	138,046	133,624	128,762	122,928	115,668	108,238	101,362	94,406	87,389	81,903	76,755	69,580	62,740	56,095	49,450	47,996	41,045	34,401	28,199	22,948	19,260	13,745	9,042	5,784	5,273	5,807	4,825
Long-Term Borrowings (Government)	22,208	59,021	100,784	116,047	115,299	114,110	111,949	108,363	103,089	97,098	91,026	84,894	78,741	72,588	66,436	60,283	54,131	47,978	41,826	35,673	29,828	24,424	19,460	14,644	9,827	5,836	3,289	2,449	2,265	2,081
Long-Term Borrowings (IVA Equivalent)	2,887	7,722	13,250	13,943	11,155	8,366	5,577	2,789	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-Term Borrowings (Concessionaire)	0	0	8,055	8,055	7,171	6,286	5,402	4,517	5,149	4,264	3,380	2,495	3,162	4,167	3,145	2,456	1,964	1,472	6,170	5,372	4,574	3,775	3,488	4,716	3,918	3,207	2,495	2,824	3,542	2,744
CAPITAL	-882	-3,240	-7,325	-11,707	-7,525	-2,230	-2,130	5,235	14,993	19,929	32,615	46,697	55,852	74,047	94,326	110,329	133,066	156,167	173,338	196,937	220,982	239,107	264,008	289,362	308,354	333,833	359,426	378,750	404,420	430,113
Retained Earnings	-882	-3,240	-7,325	-11,707	-7,525	-2,230	-2,130	5,235	14,993	19,929	32,615	46,697	55,852	74,047	94,326	110,329	133,066	156,167	173,338	196,937	220,982	239,107	264,008	289,362	308,354	333,833	359,426	378,750	404,420	430,113
TOTAL LIABILITIES AND CAPITAL	25,095	66,743	122,089	135,237	132,398	129,330	126,214	123,320	123,231	121,291	127,021	134,086	137,755	150,803	163,906	173,069	189,161	205,618	221,334	237,982	255,384	267,306	286,956	308,722	322,099	342,876	365,210	384,023	410,227	434,938

Financial Indicator

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
PROFITABILITY																														
Rate of Return on Net Fixed Assets (Criterion: over 3.98%)				0.76%	8.50%	9.48%	3.76%	11.55%	13.88%	8.42%	17.40%	19.31%	13.38%	24.56%	27.69%	22.72%	32.29%	33.65%	24.66%	34.82%	36.43%	28.55%	39.99%	41.36%	32.44%	41.78%	46.72%	36.30%	49.27%	51.70%
OPERATIONAL EFFICIENCY																														
Operating Ratio (Criterion: under 0.7- 0.75)				0.89	0.43	0.41	0.78	0.35	0.31	0.64	0.31	0.29	0.54	0.26	0.24	0.43	0.23	0.22	0.42	0.22	0.22	0.41	0.22	0.21	0.41	0.21	0.21	0.41	0.21	0.21
Working Ratio (Criterion: under 0.5- 0.6)				0.63	0.31	0.30	0.67	0.28	0.25	0.55	0.23	0.22	0.47	0.19	0.18	0.38	0.17	0.17	0.37	0.17	0.16	0.36	0.16	0.16	0.35	0.16	0.16	0.35	0.16	0.16
LOAN REPAYMENT CAPACITY																														
Debt Service Coverage Ratio (Criterion: over 1.0)				1.71	2.16	2.31	1.10	2.04	2.06	1.78	3.15	3.37	2.45	4.30	4.29	3.71	5.12	5.19	4.03	4.81	5.12	4.29	6.65	6.95	4.83	7.45	10.62	16.43	30.42	28.89