

Figure 14-G-10 Cash Ending of each Body

14-G-5 Financial Analysis of Tanjung Priok Urgent Project (Whole Project excluding Ancol)

1) Assumption

a) Capital Cost and Operating Revenue

i) Capital Cost

316. The roles of IPC and private sector are as follows based on the concept of cost allocation.

Table 14-G-37 Implementation Scheme

Project	Central	IPC2	Private Sector
	Government		
Channel and Basin improvement			
Breakwater			
Access Channel Improvement			
Inner Channel Improvement			
Improvement of Central Basin			
Automobile terminal			
Infrastructure			
Superstructure			
Port Related Road Improvement			

317. Capital cost is summarized as follows.

Table 14-G-38 Capital Cost ('000 Rp)

	Project Cost	Central Government	IPC2	Private
Channel and Basin Improvement	408,637	243,116	165,521	0
Breakwater (Dam Tengah)	151,167	151,167		
Breakwater (Dam Barat)	22,899	22,899		
Access Channel Improvement (Outside)	69,050	69,050		
Inner Channel Improvement (Inside)	110,111		110,111	
Improvement of Central Basin	55,410		55,410	
Car Terminal	106,544		80,164	26,380
Improvement of Car Carrier Basin	14,292		14,292	
Car Carrier Wharf				
Demolition of Existing Structure	9,138		9,138	
Quay Wall Construction	45,691		45,691	
Reclamation	9,363		9,363	
Pavement	15,758			15,758
Utility Facilities	10,622			10,622
Port-related Road (Car Carrier Wharf)	1,680		1,680	
Port Related Road Improvement	68,919		68,919	0
Port Inner Road Improvement	68,919		68,919	
Sub-Total	584,101	243,116	314,604	26,380
Indirect Cost	172,112	75,366	88,568	8,178
Contengency	75,621	31,848	40,317	3,456
Consulting Services	60,497	57,766		2,731
Administration Cost	7,562	7,216		346
VAT	89,233	40,810	44,349	4,074
Total	989,126	456,122	487,838	45,166
Total	989,126	943,	960	45,166
Land Acquisition/Compensation	45,000		45,000	

ii) Operating Cost

318. Study team estimated operating cost based on Tanjung Priok branch.

Table 14-G-39 Operating Cost

	IPC		Private Sector	
	Channel and Basin	Automobile	Automobile Terminal	
		Terminal		
Number of Person	250 Persons	-	50 Persons	
Personnel Cost	36,000,000	-	36,000,000 Rp/person/year	
	Rp/person/year			
Administration and Other	115% of Personnel cost	-	100% of Personnel cost	
Cost				
Maintenance Cost	Infrastructure: 1% of the or	iginal construction cos	t	
	Equipment : 5% of the original construction cost			
Depreciation	Civil structure : 40 year			
	Equipment : 20 year			

b) Revenues

319. Car is shown in 14-G-3. Cargo volume forecast is summarized in Table 14-G-40. Improved access channel, inner channel and central basin will start to be operated in 2008. Container demand will reach to capacity in 2012. General and Bag demand will reach to capacity in 2010.

Table 14-G-40 Car	go Volume and	Vessel Size
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		With Case(1	Navigation Imp	provement)		Without Case	
	Year	Cargo('000)	Ship Call	Ship Size	Cargo('000)	Ship Call	Ship Size
Camtainan	2001	2,056	2,696	14,000	2,056	2,696	14,000
Container (Foreign)	2012(Demand)	3,631	3,645	15,000	3,631	3,645	14,000
(Foleigh)	Capacity	3,644	3,658		2,927	3,048	
Container	2001	199	634	4,000	199	634	4,000
(Domestic)	2012	715	2,292	4,000	715	2,292	4,000
(Domestic)	Capacity	730	2,589		659	2,336	
Comoral Pr	2001	13,190	6,663	5,000	13,190	6,663	5,000
General & Bag	2012	15,479	7,841	5,000	14,082	7,114	5,000
Бад	Capacity	15,479	7,841		14,082	7,114	

Table 14-G-41 Port Tariff

		Rat	e	Charge Unit	Paid to
		Domestic	Foreign		
Berthage F	ee	48Rp	0.111\$	Per GRT per Etmal	IPC2
Pilot Fee		28,000Rp+8 × GRT	34\$+0.01 × GRT	Per GRT per ship movement	IPC2
Ship Towas	ge Fee	625,000Rp	770\$	Per ship-hour	IPC2
Handling	Car	-	13\$(Included storage)	Per Unit	Private
Charge	20'	240,000Rp × 117% 280,800Rp	93\$ × 117% 108.81\$	Per Box (FCL)	Sector
	40'	360,000Rp × 117% =421,200Rp	139\$ × 117% 162.63\$	Per Box (FCL)	
	Empty	90% of FCL	Container	Per Box	
	General	13,694	łRp	Per ton	

- **320.** As for revenue and expenditure, the study team gave due consideration on the following matters:
 - Automobile terminal operator pays a royalty to IPC2. Royalty is assumed to be 20% of terminal operator's gross revenue.
 - Automobile terminal operator also pays land rental fee every year. (Land rental fee is set as 4,300 million Rp which is calculated assuming a rate of 50,000 Rp/ m2 for area of 8.6ha.)
 - ➤ IPC2 pays some compensation (equivalent to the above land rental fee in maximum) to DKB until 2022, since DKB has a right of use of land until 2022 where the automobile terminal is located.
 - ➤ Container cargo increases by around 600,000TEU, of which 430,000TEU is handled in JICT and 170,000 TEU in Koja.
 - > IPC2 receives 15% of gross revenue and 49% of net profit from JICT.
 - ➤ IPC2 receives 52% of gross revenue from Koja.
 - ➤ General and bag cargo is increased by 1,400,000 ton.

2) Evaluation of FIRR

a) Revenue

321. Additional revenue from the project is calculated by calling ship, cargo volume and tariff. IPC2 receives revenue from JICT, Koja and automobile terminal. Revenue of IPC2 is classified as follows.

				A4 1- i1 -	
				Automobile	
	General & Bag	JICT Container	Koja Container	terminal	Total
2006	0	0	0	6,512	6,512
2007	0	0	0	8,996	8,996
2008	284	60,953	1,944	11,754	74,934
2009	367	95,840	24,370	12,208	132,784
2010	416	95,840	47,250	12,708	156,214
2011	416	95,840	68,690	13,208	178,154
2012	416	99,267	70,543	13,708	183,934

Table 14-G-42 Revenue of IPC2 (000,000Rp)

b) Capital cost and Operating Cost

322. Capital and operating cost is shown in Table 14-G-43 and Figure 14-G-11. Operating costs are comprised of salaries and wages, maintenance, insurance, administration.

	Construction	Personnel & Administration	Maintenance	Maintenance Dredging	Compensation	Financing charges including Interest	Total
2004	15,519	0	0		0	0	15,519
2005	52,504	0	0		0	0	52,504
2006	399,286	0	0		4,300	0	403,586
2007	44,447	0	1,044		4,300	9,487	59,278
2008	35,167	39,377	1,044	0	4,300	15,526	95,414
2009	0	39,939	3,671	4,420	4,300	16,125	68,455
2010	0	40,512	3,671	4,420	4,300	16,125	69,029
2011	0	41,050	3,671	4,420	4,300	16,125	69,567
2012	0	41,050	3,671	4,420	4,300	16,125	69,567

Table 14-G-43 Capital and Operating Cost (000,000Rp)

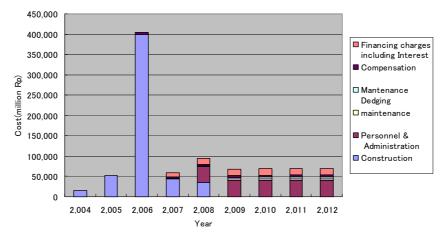


Figure 14-G-11 Capital and Operating Cost

c) Debt for Capital Cost

323. Fund raising is divided into foreign and equity. In this study, referring to funding conditions of soft loan by international financial institute, the upper limit of finance for foreign funds is assumed to be the total amount of foreign portion or 85% of initial investment costs, whichever is higher. In the proposal projects, eighty—five percent of initial investment costs is assumed to be raised by foreign fund. The remaining initial investment costs (15%) and all renewal investment are assumed to be raised by equity of self-fund. Interest rate for the central government is 1.5%. And for the IPC2 is 2.0%. Conditions of loans are assumed as follows.

Foreign fund (802,366 billion Rp)

Amount : 85% of total cost(943,960*85%)

Loan period : 30 years, including a grace period of 10 years

Interest rate (Central Government:387,704 billion Rp) : 1.5%
Interest rate (IPC2: 414,632 billion Rp) : 2.0%
Repayment : Fixed amount repayment of principal

Equity (self-fund) (141,594 billion Rp)

Amount : 15% of total cost

Weighted average interest rate

1.5% (1.5%*387,704+2.0%*414,632)/943,960

d) Evaluation of FIRR

324. Result of FIRR by the fluctuation is summarized in Figure 14-G-14. Since the FIRR exceeds the weighted averaged interest rate in all cases, this project is deemed to be financially viable.

Table 14-G-44 Sensitivity Analysis (Public Sector) (Whole Project excluding Ancol)

Ca	se	Project
Cost	Revenue	(%)
0%	0%	10.67
0%	-10%	9.03
+10%	0%	9.66
+10%	-10%	8.10

3) Financial Soundness IPC2

325. Projected financial statements and financial indicators for IPC2 are shown in Table 14-G-45 to Table 14-G-47 and Figure 14-G-12 to Figure 14-G-17.

Table 14-G-45 Without Project Financial Statement for IPC2

Table 14-G-46 Project itself Financial Statement for IPC2

Table 14-G-47 With Project Financial Statement for IPC2

Income statement	2000/Act.) 2	3001 (Act.)		2003	2004	1	Ĺ		ſ	ŀ	1			2013	2014	2015	2016	2017
Operating Revenue		1 317 950	1 354 123	396 651	441 267 1	-	١,-	*	1-	-	-	-	-	500 050	500 050	C†07	2010	107
Operating Expenses	527.712	671.309		804.807	841.007		•	٠	٠	4	7	•	ï	949 607	000,000	505,605	200,000	500,000
Of which Depreciation	94,787	96,963		105,602	105,602									105,602	105,602	105,602	105,602	105,602
Non Operating Revenue	26,430	6,520		48,606	48,606									48.606	48,606	48,606	48.606	48.606
Non Operating Expenses	358,865	224,442		129,745	115,733									61,663	61,663	61,663	61,663	61,663
Profit Before Tax	108,540	428,719		510,705	533,133									627,286	627,286	627,286	627,286	627,286
Income Tax (20%)	25,476	71,574	91,073	102,141	106,627									125,457	125,457	125,457	125,457	125,457
Net Surplus Accumulated Earnings	583,064	940,209	384,914 1,325,123 1	408,564 1,733,687 2	426,506 2,160,193 2	443,722 ,603,915 3	461,402 ,065,318 3,	501,829 .567,147 4,	501,829 ,058,975 4.	501,829 .570,804 5.	501,829 .072.633 5.	574,462 6.	501,829 .076,291 6.	501,829	501,829	501,829	501,829	501,829
Cash Flow			Ī			i	1	1	1	ĺ	1	1	1					
Year	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005.	2006		1		1	7011	1	2013	2044	3015	2016	2017
	232,297	177,001	92,094	276,892	260,562	334,876	372,786			Ι	1-	378.105 1	~	073.170	420 702	768 234	115.766	463 298
	580,351	861,088	714,767	290,699	799,115	810,677	825,305	86t'6E0	839,198	839,198	839,108	839,198	861,660	839,198	839,198	839,198	839,198	839,198
Operating Income	450,879	4,4,4/	621,514	597,445	705,852	717,424	732,132					745,945		745,945	745,945	745,945	745,945	745,945
Non Operating income	054,07	0,240	46,006	40,006	48,606	48,506	48,505					48,606		48,606	48,606	48,606	48,606	48,606
Others	103.042	80.094	44.647	44.647	44.647	44 647	44 647	44 647	44 647	44 647	94 647	0 44 647	0 44 447	U 64 647	0 547	0 44 647	0 27	0 64 643
Cash Outflow	635,647	945,995	529,969	807,029	724.801	772,767 1	100,194	541,666	551,666	491.666		491,666	491,666	491 666	491,666	491 666	491 666	401,666
Investment	162,353	172,291	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,043	215,843	215,843	215,843	215,843	215,843
Repayment of Principal	190,819	485,040	127,338	289,250	212,960	263,137	290,000	50,000	000'09	0		0	0	0	O	0	•	
Dividend Paid	432,046	179,243	46,424	118,082	104,070	94,113	86,720	20,000	50,000	50,000	50,000	20,000	20,000	50,000	50,000	50,000	20,000	20,000
Tax Tax	49,587	59,421	63.381	102.141	106,627	110.930	115,280	125,556	125,457	125,457	100,355	100,355	100,355	100,365	100,366	100,366	100,366	100,366
Others	0	0		0	0	0	0					0	0	0	0	0	0	754,671
Cash Balance	-55,296	-84,907	184,798	-16,330	74,314	37,910	-274,809				1	t	!		347.532	347.532	347.532	347.532
Cash Ending	122,001	92,094		260,562	334,876	372,786	97,977	395,509	683,041 1	,030,573 1	1,378,105 1	1,725,637 2,	073,170 2	420,702	2,768,234	3,115,766	3,463,298	3,810,830
Balance Sheet																		
Year	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	7105
Current Assets	<u></u>	4	1	631,947	728,962	809,483	557,508	1 969,096	240,683 1	572,271 1	963,859 2	355.447 2	747,035 3	138.623	3.530.211	921 799	111 387	4 704 974
Cash & Deposit	177,001	92,094		260,562	334,076	372,786	776,76	395,509	683,041 1	030,573	376,105 1	725,637 2	2 073,170 2	420,702	2,768,234	,115,765	3,463,298	3,810,830
Dividend Advance	315 385	503,082	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732
	3,156,712	3,211,474		3,372,156	3,482,397	1,592,638	702,879 3	813,120 3	923,361 4	.033,602 4	143.843 4	975,078	364 325 4	474 566	584 907	695,048	1 805,357	7.39,412
Assets	4,341,915	4,166,359	4,066,325	4,004,103	4,211,359	1,402,121 4	,260,387 4	712,216 5	164,044 5	,605,873 6	,107,702 6	609,531 7	111.360 7	,613,189	3.115.018	616.847	3,118,676	620 504
Liabilities Short-form cans	2,730,408	2,200,373	1,706,157	1,235,347	1,016,097	763,137	160,000	110,000	000'09	0	٥,	-	0	0	0	0	0	0
Long-term Loans	2,130,884	2,130,884 1,619,304 1,371,955		1.235.347	1.016.097	763.137	160.000	110.000	60 000	-	-	-	00	00	00	0:	0 0	
Others	170,687	15,143		0	0	0	0	0	200	- 0	-	-	> <	0 0	0 0	00	> <	-
	1,028,443	1,025,777		1,035,069	1,035,069	1,035,069	7	_	-	035,069	035,069 1	035,069 1	035,069	035,069	1,035,069	035.069	1.035.069	1.035.069
Net Worth	583,064	940,209	1,325,123 1,733,68	1,733,687	2,160,193	2,603,915	,065,318 3	,567,147 4	,068,975 4,	,570,804 5,	072,633 5	574,462 6	076,291	578,120	7,079,949	7,581,778	8,083,607	8,585,435
	C16'1%0'*	4,100,359		4,004,103	4,211,359	,402,121	4	-0	اما	605,873	,107,702 6	,609,531 7	,111,360 7	613,189	8,115,018	616,847	9,118,676	9,620,504
Rate of Return Fixed Assets Dobt Soudro Coverage Batto	14.0%	20.1%	18.0%	17.6%	17.2%	17.0%	16,9%	16.8%	16.3%	15.9%	15.5%	15.1%	14.7%	14,3%	14.0%	13.6%	13.3%	13.0%
Operating Ratio	54%	51%	57%	58%	58%	59%	26%	60%	60%	14.92	14.92 60%	14.92 60%	14.92 60%	14.92 60%	14.92	14.92	14.92 60%	14.92
WORKING NALIO	0%54	44%	45%	20%	21%	25%	52%	53%	53%	23%	53%	23%	23%	23%	23%	53%	53%	23%

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Without Project

2.034 2035 9,718,31,968 11,753,556 9,718,876 10,066,408 154,732 154,732 1,438,336 1,532,416 6,739,627 6,839,868 18,751,595 19,653,424 2034 819,131,344 819,198 815,945 86,606 10,000 10,000 100,366 125,457 1,035,069 17,116,526 18,151,595 2034 949,607 105,602 48,606 61,663 627,286 125,457 501,829 2033 1,589,950 949,607 105,602 48,606 61,663 627,286 125,457 501,829 15,614,698 2031 2033 2033 17 10,187,205 10,578,793 10,570,381 11,474 94 6,576,280 9,023,812 9,17,344 97,732 154,732 154,732 154,732 154,732 156,732 156,732 156,732 156,732 156,732 156,732 156,732 156,732 156,7336 156,7326 156,7326 156,7326 156,7326 156,7326 156,7326 156,7326 156,7326 156,7326 156,7326 9.6% 14.92 60% 53% 2033 023,812 039,198 745,945 48,606 0 44,647 491,666 215,843 50,000 100,366 1,035,069 16,614,698 17,649,767 347,532 1,035,069 16,112,869 17,147,938 9.7% 14.92 60% 53% 2032 ,589,950 949,607 105,602 48,606 61,663 627,286 125,457 501,829 2032 9,676,280 839,198 745,945 48,606 44,647 491,666 215,843 50,000 100,366 125,457 2031 81328,747 819,198 745,945 745,945 745,045 215,843 0 50,000 100,366 125,457 0 1,035,069 15,611,040 16,646,109 2031 (,589,950 949,607 105,602 48,606 61,663 627,286 125,457 501,829 9.9% 14.92 60% 53% 1,035,069 15,109,211 16,144,280 2030 839,198 839,198 48,606 44,647 491,666 215,843 50,000 100,366 10.1% 14.92 60% 53% 2030 589, 949, 105, 61, 627, 125, 109, 2029 1633,683 1839,198 1839,198 48,606 0 44,647 491,666 215,843 50,000 100,366 1,035,069 14,607,382 15,642,451 14.92 60% 53% 347,532 2029 ,589,5 949,6 105,6 48,6 61,6 627,3 125,4 501,8 1,035,069 14,105,553 15,140,622 2028 2028 839,198 839,198 8,606 0 44,647 491,666 215,843 0 50,000 100,366 125,457 2028 ,589,950 949,607 105,602 48,606 61,663 627,286 125,457 501,829 10.4% 14.92 60% 53% 7,633,683 1,035,069 13,603,724 14,638,793 2027 1938,619 839,198 745,945 48,606 44,647 491,656 215,843 100,366 1125,457 347,532 10,6% 14.92 60% 53% 1,035,069 13,101,895 14,136,964 2026 1,591,087 839,198 745,945 48,606 44,647 491,665 215,843 20,000 100,366 125,457 2026 589,950 105,602 48,606 61,663 627,286 527,286 1125,457 501,829 10,8% 14,92 60% 53% 2025 839,198 839,198 745,945 46,606 215,843 20,000 50,000 125,457 2025 7,837,677 6,591,087 154,732 1,091,859 5,797,458 13,635,135 1,035,069 12,600,066 13,635,135 2025 ,589,950 949,607 105,602 48,606 61,663 627,286 125,457 501,829 11.0% 14.92 60% 53% 2024 7,446,090 6,243,555 154,732 1,047,803 5,687,217 1,035,069 12,098,238 13,133,307 2024 1966,023 839,198 745,945 46,606 44,647 491,666 215,843 0 50,000 100,366 125,457 2024 ,589,950 949,607 105,602 48,606 61,663 627,286 125,457 501,829 347,532 243,555 1.3% 14.92 60% 53% 2022 2023 2023 2025 2023 540,491 839,198 745,945 40,606 44,647 491,666 215,843 50,000 100,366 125,457 1,035,069 11,596,409 12,631,478 11.5% 14.92 60% 53% 950 602 602 606 606 663 829 829 467 589, 949, 105, 105, 48, 627, 627, 5501, 596, 1,035,069 11,094,580 12,129,649 2022 12022 839,198 745,945 48,606 44,647 44,647 491,666 215,843 50,000 100,366 125,457 11.7% 14.92 60% 53% 950 602 602 605 805 829 829 829 2022 589, 949, 105, 61, 627, 501, 094, 1,035,069 10,592,751 11,627,820 2021 839,198 745,945 48,606 44,647 491,565 215,843 50,000 100,366 2021 5.589,950 949,607 105,602 40,606 61,663 627,286 125,457 501,829 12.0% 14.92 60% 53% 2020 2020 1,505,894 1,505,894 745,945 48,606 44,647 491,666 215,843 50,00 100,366 1125,457 1,035,069 10,090,922 11,125,991 2020 949,607 105,607 48,606 61,663 627,286 125,457 501,829 347,532,853,426 2.2% 14.92 60% 53% 2019 (1,589,950 949,607 105,602 48,606 61,663 627,286 125,457 501,829 2019 158,362 839,198 745,945 48,606 44,647 491,666 215,843 100,366 125,457 2019 5,468,150 4,505,894 154,732 827,524 5,135,012 0,624,162 347,532 069 093 12.5% 14.92 60% 53% 1,035,0 9,589,0 10,624, 2018 5,096,562 4,158,362 154,712 783,468 5,025,771 2018 810,830 939,198 745,945 44,647 44,647 491,666 215,843 100,366 125,457 1,035,069 9,087,264 10,122,333 12.7% 14.92 60% 53% 347,532 2018 949,6 105,6 105,6 61,6 627,7 125,7 te of Return Fixed Assets bt Service Coverage Ratio erating Ratio Balance Sheet

Year

Oash & Deposit

Ohiden

Oheren

Short-term Loans

Labilities

Cong. term Loans

Cong. Labilities Worth

Total Labilities & Net Worth Cash Beginning
Cash Inform
Cash Inform
Cash Inform
Non Operating Income
Loans
Others
Cash Outflow
Investment
Repayment of Principal
Dividend Paid
Tax
Others
Cash Salance
Cash Salance
Cash Salance Operating Revenue
Operating Stepenses
Of which Depreciation
Non Operating Expenses
Profit Before Tax
Profit Before Tax
Income Tax (20%)
Net Surplus
Accumulated Earnings Income Statement Year Cash Flow Rate Debt Oper

2035 745,876 839,198 745,945 49,606 44,647 691,666 215,843 50,000 100,366

347,532

9.3% 14.92 60% 53%

3.4% 4.92 60% 53%

million Rp 2035 1,589,950 949,607 105,602 48,606 61,663 627,286 125,457 501,829

Result of Financial Situation

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Vear	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Int'l Container	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	183,934	170,226	183,934	183,934 170,226	183,934 170,226	183,934 170,226	183,934 170,226	183,934 170,226	183,934 170,226	183,934
Operating Expenses	63,186	63,186	63,186	63,186	63,186	13,708 63,186	13,708	13,708 63,186	63,186	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,70
Of which Depreciation	9,745	9,745	9,745	9,745	9,745	9,745		9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,74
Non Operating Expenses	15,620	14,845	14,041	13,236	12,431	11,627		10,017	9,213	8,408	7,603	6,799	5,994	5,189	4,385	3,580	2,776	1.97
Profit Before Tax Income Tax (20%)	105,128	105,903	106,707	107,512	108,317	109,121		110,730	111,535	112,340	113,144	113,949	114,754	115,558	116,363	117,168	117,972	118,777
Net Surplus Accumulated Earnings	105,128	105,903		107,512	108,317	109,121	109,926 .606.614 1	_	111,535	-	113,14	113,949	114,754	115,558	116,363	117,168	117,972	118,777
Cash Flow										4			100	045	1000	00+1400	1, 20,162	,,oue,,
Year	2018	5019	2020	2021	2022		ŀ	1		2027	2028	2079	2030	2031	2032	2033	2034	3005
	928,755	1,004,889 1	1,080,304	1,156,523	1,233,547 1	-	-	-	7	,630,737 1	712,588 1	-	878.706 1	1	2.048.043		2 220 598	7 308 08
Cash Inflow	130,493	130,493	130,493	130,493	130,493	130,493			Ī	130,493	130,493	1	130,493		130,493	130,493	130,493	130,493
Non Operating Income	0	0 0	0 0	150,493	130,493		130,493			130,493	130,493		130,493	130,493	130,493	130,493	130,493	130,49
Loans	00	00	00	00	000	0		00	000	000	00	0	00	0	00	00	00	
Cash Outflow	54,359	55,078	54,274	53,469	52,664	51,860	ł		49,446	48,641	47,837	ı	46,227	45,423	44,618	43.813	43.009	41.47
Investment Department of Dringhas	0 0 0 0 0	0 0 0 0 0 0	0 133	0	0 (0	0	0	0	0	0	0	0	0	0	0	9	0
Interest on Loans	15,620	14,845	14,041	13,236	12,431	11,627	10,822	10,017	9,213	40,233 8,408	7,603	6,799	40,233 5,994	40,233 5,189	40,233	40,233	40,233	19,457
Dividend Paid	00	00	00	00	0	00	0	0	0	0	0	0	0	o.	0	0	0	-
Others	00	0					0		00	- 6	00		00		00	00	0 0	
Cash Balance	1 004 889 1 080 304	75,415	76,219	77,024	77,829	78,633	79,438	80,243	81,047	91.852	82,657	83,451	84,266	85,071	85,875	96,680	87,485	89,065
A	engliani.	Lociono,			1,011,010	600,000,	1 /44/5077	600		71	1 647,667	,8/8,/06 1	7 7/6/796	048,043		238	l	2,397,14
Balance Sheet							ĺ											
Year	2018	2019		,				l	3			1 1	2030		2032			2035
Carrent Assets Cash & Deposit	1,004,889	1,004,889 1,080,304 1,155,523 1,004,889 1,080,304 1,156,523			1,311,376 1	1,390,009 1	1,469,447 1.469,447 1	1,549,689 1,	630,737	1,712,588 1	1,795,245 1,	1 902,878,		2,048,043		2,220,598	2,308,002	2,397,147
Dividend Advance	00	00		0				,	0	0	,		0	2	0	0		H1'/6C'7
Fixed Assets	830,370	820.625	810.879	801 134	791 389	781 644			757 409				0 213	0 501	0.00	0 00	0	
Total Fixed Assets	1,835,259	835,259 1,900,928 1,967,402	1,967,402	2,034,681	2,102,765 2	,171,653 2	,241,346 2	,311,843 2	383.145 2	455.252 2	:0	601.879	676 400 2	751776	•	2 904 790	074,448	2 061 95
Liabilities Short-term Loans	736,869	696,636	656,403	616,170	575,937	535,704		l	415,005		1	1	•	213,840	-1	133,37	93,141	53,683
Long-term Loans	736,869	696,636	656,403	616,170	575,937	535,704	495,471	455,238	415,005	374,772	334,539	294,336	254,073	213,840	173,607	133,374	93,141	53.683
Faulty	130 250	130 260	130 260	0 20 053	0 26 0 67	טאר טבו				0	0			0	0	0	0	
Net Worth Total Liabities & Net Worth		959,129 1,065,032 1 835,259 1,900,928 1	1,171,739		1,387,567 2,102,765	1,496,689 1 1,171,653 2	,606,614 1 ,241,346 2	717,345 1	139,200 828,880 383,145	139,260 941,220 2 455,252 2	139,260 ,054,364 2, ,528,163 2,	1.59,250 168,313 2 601,879 2	139,260 2,283,067 2,676,400	2,398,626	139,260 2,514,989 7,877,856	139,260 2,632,156 2,904,790	139,260 2,750,129 5,987,530	139,260 2,868,906 1,061,850
Rate of Return Fixed Assets Debt Service Coverage Ratio	6.5%	6.4%	6.1%	5.9%	5.7%	5.6%				4.9%	4.8%				4.3%	4.2%	4.0%	3.9
Operating Ratio Working Ratio	34% 29%	34% 29%	34% 29%	34% 29%	34% 29%	34% 29%	34% 29%	34% 29%	34%	34% 29%	34%	34% 29%	34%	34%	34%	34%	34% 29%	34%

With Project (Pelindo II Totel Excluding Ancol))
Income Statement

Income Statement	- 1				• >00				2017/1104			Ì				į		
	2 77 27 27 27 27 27 27 27 27 27 27 27 27		ZUUZ (ACT.)	Fanz	5007			/007	-					1			2016	2017
_	968,687	1,317,950	1,354,323	1.396,651	1,441,267	029		1,598,947									,773,885	1,773,885
Operating Expenses	527,712	671,309	768,607	804,807	841,007	202		958,129	•								,012,793	1,012,793
Of which Depreciation	04,787	96,963	105,602	105,602	105,602	205		108,779									115,347	115,347
Non Operating Revenue	26,430	6,520	48,606	48,606	48,606	909		48,606									48,606	48,606
Non Operating Expenses	358,865	224,442	158,335	129,745	115,733	376		71,124									77.741	77,683
Profit Before Tax	108.540	428,719	475,987	510,705	533,133	652		618,300									721 056	732 014
Income Tax (20%)	25,476	71,574	91,073	97,034	101,295			117,477									139.072	130 083
Net Surplus	83,064	357,145	384,914	408,564		722		492,843									606.499	606.557
Accumulated Earnings	583,064	940,209	1,325,123	1,733,687	١	2,603,915	3,064,352	3,557,195	4,063,997	4,620,442	5,199,743	5,800,446	6,406,930	7,013,414 7	7,619,897	8,226,381	8,832,880	9,439,437
1	C (424 /000C	C 1 404 / 100C	1,477,000	.000	7000	2000	2000	2000	2000	9990	0,00		21.04			M. Carrent 1950 1850		
	_	يزل	2002 (102	276 257	765 260	2003	OCT OCT	70D/	0007	5007	0107	1077	7107	ľ	2014	2015	2016	2017
Cash negrinming	157,757	- 1	32,034	76B'0/7	600,002	343,313	3/0//20	24,350	289,634	591,142	988,008	1,398,616	1,822,580		2,6/1,459	3,104,848	3,531,462	3,950,560
Operation Income	100,000	000,100	/14,/0/	607,063	200,034	303,183	1,220,881	/67'687't	904,578	F69,816	942,509	963,910	169,698	969,691	169,696	969,691	169'696	969,691
Mon Onorating Topogo	36,430	טרבו ט	P10,120	262.04	703,007	505.01	200,000	166,647	0,136	001,028	949,236	700079	8/0/438		8/6/9	876,438	875,438	376,438
Toans	00407	0,20,0	16,500	940,000	45,000	40,000	944 563	46,000	48,000	48,500	48,500	46,500	48,606		48,606	48,606	48,606	48,606
Fortigue	•	· •	•	•	11111	12,433	77777	373,630	760,67		> 0	0 0	> 0	- <	۰,	o (٥,	0
Others	103.042	80.094	44.647	44.647	44.647	44.647	44.647	44.647	2,273	44.647	44 647	94 647	0 94	0 64 64	0 44 647	0 242	0 544 647	44 643
Cash Outflow	635,647	945,995	529.969	801.922	734 088	829.776	1.551.051	1.040.013	603 270	522 787	531 701	540 047	542 302	542 303	COL CD2	542 070	44,047	144 047
Investment	162,353	172,291	215,843	215,843	231,362	268,347	615.127	657,290	251,010	215,843	215.843	215,843	215 843	215 843	215 843	215 843	215 843	215,634
Repayment of Principal	190,819	485,040	127,338	289,250	212,960	263,137	590,000	50,000	000'09	0	0	0	0	0	0	776	8.300	19.977
Interest on Loans	232,046	179,243	45,424	116,082	104,070	94,113	86,720	59,461	65,495	66,093	66,093	66,093	66,093	66,093	66,093	66,093	820'99	66,020
Dividend Paid	842	50,000	76,983	81,713	85,301	98,744	92,087	98,569	101,360	111 289	115,860	120,141	121,297	121,297	121,297	121,297	121,300	121,311
Fourty	186,68	174,85	195,50	4FU,18	101,295	105,384	109,400	117,477	120,129	129,561	133,904	137,970	139,069	139,069	139,069	139,069	139,072	139,083
Cash Balance	-55,296	-84,907	184,798	-11.223	79.646	33.405	-324,170	235,284	301.308	396.866	410 808	423 R63	PRF 464	DB1 772	0 27 786	A36 614	0 000	457 457
Cash Engina	177,001	95,094	276.892	265,669	345,315	378,770	54 550	2R0 R34	501.142	988,008	1 198 R16	1 822 680	2 250 060	3 677 450	3 504 948	1 535 463	9 050 550	100 000
						0.41	2000		21414	andiano	010/0/07	1000155011	2,230,409	67177777	3,104,040	3,331,402	000,000,0	910,955,9
Balance Sheet				1														
Year	l.	Į,	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		2014	2015	2016	2017
Cash & Deposit	1,185,203	924,685	276.892	260,562	334 876	377 786	559,720	899,096 305,500	1,251,805	1,647,754	2,126,560	2,626,767	3,132,754	3,638,742	4,144,736	4,649,942	5,147,645	5,633,729
Dividend Advance	692,817	659,082	154,732	154.732	154.732	154 712	154 737	154 732	154 739	154 732	154 733	154 230	154 733		154 733	206,040,0	000/153/	080,007
Others	315,385	203,709	372,786	216,653	239,354	281,965	304,799	348,855	402.910	386,966	431.022	475.078	519,133		607,735	651,701	605 357	757,757
Fixed Assets	3,156,712	3,211,474	3,261,915	3,372,156		3,660,661	4,167,009	4,715,519	4,851,182	4,951,678	5.052,174	5,152,670	5,253,165		5.454.157	5.554.653	5.655.149	211/66/
Total Fixed Assets	4,341,915	4,166,359	4,066,325	4,004,103		4,470,144	4,726,728	5,614,615	6,102,987	6,599,432	7,178,733	7,779,436	8,385,920		9,598,887	0.204.595	0.802,794	1 389 374
Liabilities	2,730,408	2,200,373	1,706,157	1,235,347	1,031,616	821,109	559,539	888,365	864,661	199,661	804,661	804,661	804,661		804,661	803,885	795,585	775,608
Sugre-term Loans	7 120 001	976'696	334,202	0 !	0 :	.	0	3,596	0	0	0	0	0		0	0	0	0
Cong-term Loans	7,130,884	1,619,304	1,4/1,955	1,235,347	1,031,616	821,109	559,539	884,769	864,661	804,661	804,661	804,661	804,661	804,661	804,661	803,885	795,585	775,608
Fourth	1 028 443	1025,143	1 035 060	1 036 060	1 035 060	1 046 130	0 000 000	0 051	0,57	0 0 0	0 (, , ,	0	0 000	0	0	0	0	0
Kiet Worth	583 064	040 300	651,351	1,035,009		1,045,120	1,102,637	1,169,054	1,1/4,329	1,174,329	1,174,329	1,174,329	1,174,329	1,174,329	1,174,329	1,174,329	1,174,329	1,174,329
Total Liabities & Net Worth	4.341.915	4.166.359	4.066.349	4.004.103	4.226.87R	4 470 144	4,726,732	5614616	4,003,997 6,107,987	4,020,442 6,500,432	5,199,743	7,770,436	6,406,930	7,013,414	7,619,897	8,226,381	8,832,880	9,439,437
	22.12.21.		and and	2000		ALL OF THE LAND	4,140,140	21001102	0,102,201	101/ECC10	1,410,133	0CP,611,1	076760679	0,334,404	7,396,887	565,802,01	0,802,794	1,389,374
Rate of Return Fixed Assets	14.0%	20.1%	18,0%	17,6%	17.2%	16.7%	15.0%	13.6%	13,6%	14.4%	14.5%	14.7%	14.5%	14,2%	14.0%	13.7%	13.5%	13.2%
Dabt Sarvice Coverage Ratio Operating Ratio	54%	51%	3.58 57%	1.71 58%	2.23 58%	2.01 59%	1.09 60%	6.85 60%	6.18 60%	12.50 59%	12.85 58%	57%	13.26 57%	13.26	13.26	13.11	11.78	10.19
forking Retto	45%	44%	46%	20%	51%	25%	53%	53%	23%	52%	51%	21%	21%	21%	2 %		2 %	51%
															!	:	:	;

million Rp 2035 1,589,550 949,607 105,602 48,606 61,663 627,286 1194 1184 501,829	2035 2035 11,628,112 95,691 876,438 48,606 0 0 44,647 526,821 215,8431	39,457 51,971 100,366 119,184 0 442,870 12,070,982	2035 14,150,704 12,455,555 15,432 1,554,570 21,715,274 23,683 1,174,329 1,174,329 1,174,329 20,487,261	8.5% 9.59 60% 53%
2034 1,589,950 949,607 105,602 48,606 61,663 627,286 119,184 501,829	2034 11,186,823 969,691 876,438 48,606 0 0 44,647 528,402 215,843	40,233 52,776 100,366 119,184 0 441,289 11,628,112	2034 13,670,051 12,026,938 14,772 1,464,075 21,134,125 93,141 1,174,329 11,174,329 11,134,125	8,6% 9,42 60% 53%
2033 1,589,950 1949,607 1949,607 48,606 61,663 627,286 119,184 501,829 16,614,698	2033 10,746,338 969,691 876,438 48,606 0 0 44,647 529,206 529,206 529,206	40,233 53,580 100,366 119,184 0 0 440,485 11,186,823	2033 113190,978 11,591,941 1541,772 1444,305 20,554,557 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374 13,374	8.7% 9.34 60% 53%
2032 1,589,950 949,607 105,602 48,606 61,663 627,286 119,184 501,829	2032 10,306,658 969,691 86,438 48,606 0 44,647 530,011 215,843	40,233 54,385 100,366 119,184 0 439,680 10,746,338	2032 12,712,710 11,157,730 154,732 1,400,249 19,975,793 1173,607 1,174,329 18,627,837 18,627,837	8.8% 9.26 60% 53%
2031 1,589,950 949,607 105,602 48,606 61,663 627,286 119,184 501,829	2031 9,867,782 9,691,691 876,438 48,606 0 0 44,647 530,816 215,843	40,233 55,189 100,366 119,184 0 438,876 10,306,658	2031 12,235,247 10,724,332 1,356,193 1,356,193 10,397,834 113,840 11,74,329 11,74,329 18,009,665 19,397,834	8,9% 9,18 60% 53%
2030 1,589,950 949,607 105,602 48,606 61,653 627,286 119,184 119,184	6	40,233 55,994 100,366 119,184 0 438,071 9,867,782	2030 11,758,589 10,291,720 1,131,137 1,131,137 2,062,091 18,020,601 254,073 254,073 1,174,329 11,392,120 11,392,120	9,1% 9,11 60% 53%
2029 1,589,950 949,607 105,602 48,606 61,663 627,286 119,184 119,182 14,607,382	2029 8 992 445 969,691 876,438 48,606 0 0 44,647 532,425 215,843	40,233 56,799 100,366 119,184 437,266 9,429,711	2029 11,282,735 9,859,922 1,268,082 1,268,082 1,264,395 1,395 294,306 294,306 294,306 1,774,339 16,775,692	9.2% 9.03 60% 53%
2028 1,589,950 949,607 105,602 48,606 61,663 627,286 1127,286 1127,286 119,184 117,185	2028 8,555,984 969,691 876,438 48,606 0 44,547 533,230 215,843	40,233 57,603 100,366 119,184 0 436,462 8,992,445	2028 9,428,928 1,224,036 1,224,036 17,668,78 334,539 334,539 11,74,339 11,74,339 16,159,917	9.3% 8.96 60% 53%
2027 1,589,950 949,607 105,607 105,605 61,663 627,860 119,184 501,829	8 2	58,408 100,346 119,184 0 435,657 8,555,984	2027 10,333,442 8,998,740 1,179,970 6,760,604 17,094,042 374,772 374,772 374,772 11,74,339 11,74,339 11,74,339	9,5% 8,89 60% 53%
2026 1,589,950 949,607 105,602 48,606 61,63 62,286 119,184 501,829		90,213 59,213 100,366 119,184 0 434,852 8,120,327	2026 9,860,002 8,569,356 1,135,914 6,520,110 415,005 415,005 11,174,329 11,74,329 14,930,775 16,520,110	9.6% 8.81 60% 53%
2025 1,589,950 949,607 105,602 48,606 67,2,86 627,2,86 119,184 501,829	2025 7,251,427 959,591 876,438 48,606 48,606 44,647 535,644 215,843	40,733 60,017 100,366 119,184 7,685,474	2025 9,887,367 8,440,776 1,091,859 6,15946,972 15,946,973 455,238 455,238 11,74,329 14,317,411	9.8% 8.74 60% 53%
2024 1,589,950 105,602 105,602 48,606 61,663 627,286 119,184 501,823	2024 6,818,184 969,691 876,438 48,606 0 0 0 44,647 536,448	60,822 100,366 119,184 433,243 7,251,427	2024 B 915,536 7,713,002 1,047,803 6,459,116 15,774,627 495,471 495,471 495,471 13,734,682 13,734,682	9,9% 8,67 60% 53%
2023 1,589,950 105,602 48,605 67,286 119,184 501,823	2023 6,385,746 969,691 876,438 48,606 0 0 0 44,647 537,253 215,843	6,818,184	2023 8,444,510 7,286,032 1,003,747 6,358,747 14,803,131 1,174,329 13,093,097 14,803,131 1,174,339	10.1% 8.60 60% 53%
2022 1,589,550 1,589,602 105,602 48,606 61,663 627,286 119,184 501,829	2022 5.954,112 969,691 876,438 48,606 0 0 0 44,647 538,058 215,843	62,431 100,366 119,184 431,634 6,385,746	2022 7,974,289 6,895,846 154,732 154,732 11,232,413 575,937 575,937 11,174,329 11,144,329 11,144,329 11,144,329 11,144,329 11,144,329	10.2% 8.54 60% 53%
2021 1,589,950 9,589,602 105,602 48,606 61,663 627,286 119,184 501,829	2021 5,523,283 969,691 876,438 48,606 0 0 44,647 538,862 215,843	63,236 100,366 119,184 0 430,829 5,954,112	2021 7,504,813 6,434,505 154,725 154,725 156,7638 1,662,501 616,170 616,170 1,174,329 1,174,329 1,174,329 1,174,329 1,174,329 1,174,329 1,174,329 1,174,329	10.4% 8.47 60% 53%
2020 1,773,885 1,073,885 1,073,985 115,347 48,606 75,704 733,993 139,459 608,536	2020 5.134,875 969,691 876,438 48,606 6 44,647 2581,283 215,883 40,233	64,041 121,707 139,459 0 388,408 5,523,283	2020 7,036,261 6,009,734 114,734 871,580 871,580 656,403 656,403 11,774,329 11,774,329 11,774,329 11,774,329 11,774,329 11,774,329	12.6% 8.41 57% 51%
2019 1,773,885 1,012,793 115,347 48,606 76,33,189 139,306 607,731	2019 4,746,957 969,691 876,438 48,606 0 0 44,647 581,774 215,8843 40,233	64,845 121,546 139,306 0 387,918 5,134,875	2019 6,568,454 7,586,198 1,547,152 827,524 827,524 827,524 827,524 826,635 696,636 1,174,339 10,654,125	12,8% 8.34 57% 51%
2018 1,773,885 1,012,793 115,347 48,606 77,283 73,414 119,159 10,046,394	2018 4,356,018 969,691 86,606 48,606 0 0 44,647 258,752 215,843 38,738	65,620 121,391 139,159 0 388,940 4,746,957	2018 6,101,141 15,101,241 15,772 733,481 11,957,522 736,885 736,885 736,885 11,74,339 11,74,339 11,74,339	13,0% 8.40 57% 51%

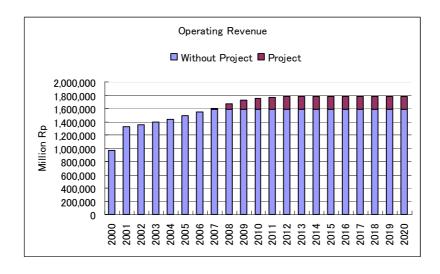


Figure 14-G-12 Operating Revenue

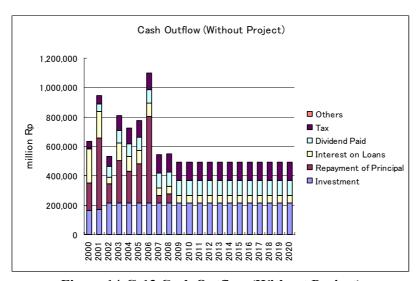


Figure 14-G-13 Cash Outflow (Without Project)

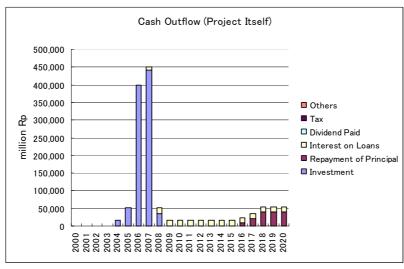


Figure 14-G-14 Cash Outflow (Project Itself)

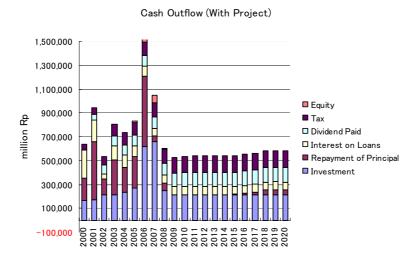


Figure 14-G-15 Cash Outflow (With Project)

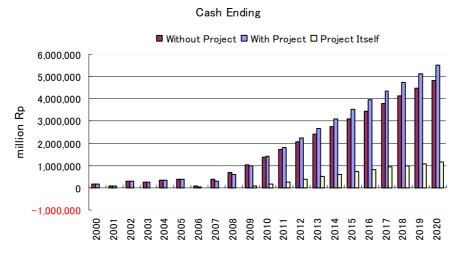


Figure 14-G-16 Cash Ending

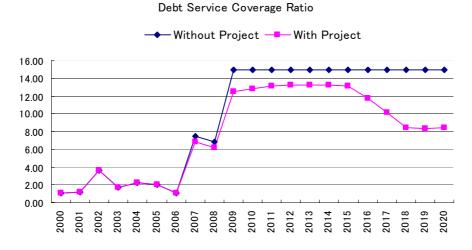


Figure 14-G-17 Debt Service Coverage Ratio

- **326.** In case of projected IPC2's financial statement, the indicators of cashflow are satisfied. In case of with project, debt service coverage ratio exceeds 1.0 during project period.
- **327.** Judging from above analysis, this project can be regard as financially feasible. However, IPC2 and terminal operator should make efforts to heighten the quality of the service, to improve cargo handling efficiency, to secure the forecast cargo volume, and to reduce operating expenses.

14-G-6 Financial Analysis of Tanjung Priok Urgent Project (Whole Project including Ancol)

1) Assumption

a) Capital Cost and Operating Revenue

- i) Capital Cost
- **328.** The roles of IPC and private sector are as follows based on the concept of cost allocation.

Central IPC2 Private Sector Project Government Channel and Basin improvement Breakwater Access Channel Improvement Inner Channel Improvement Improvement of Central Basin Automobile terminal Infrastructure Superstructure Port Related Road Improvement Ancol Breakwater Access Channel Improvement Inner Channel Improvement Improvement of Central Basin Multi Terminal Passenger Terminal Access Road Port Re-development

Table 14-G-48 Implementation Scheme

329. Capital cost is summarized as follows.

Table 14-G-49 Capital Cost ('000 Rp)

	Project Cost	Central Government	IPC2	Private
Channel and Basin Improvement	514,548	340,502	174,046	0
Breakwater (Dam Tengah)	248,553	248,553		
Breakwater (Dam Barat)	22,899	22,899		
Access Channel Improvement (Outside)	69,050	69,050		
Inner Channel Improvement (Inside)	110,111		110,111	
Improvement of Central Basin	63,935		63,935	
Car Terminal	106,544		80,164	26,380
Improvement of Car Carrier Basin	14,292		14,292	·
Car Carrier Wharf	·			
Demolition of Existing Structure	9,138		9,138	
Quay Wall Construction	45,691		45,691	
Reclamation	9,363		9,363	
Pavement	15,758		,	15,758
Utility Facilities	10,622			10,622
Port-related Road (Car Carrier Wharf)	1,680		1,680	,
Port Related Road Improvement	68,919		68,919	0
Port Inner Road Improvement	68,919		68,919	
Anchol Project	1,440,117	91,332	763,176	521,641
Breakwater	91,332	91,332	,	- ,-
Improvement of Access Channel	84,408	- ,	84,408	
Multi-purpose Terminal	346,052		- ,	
Quay Wall Construction	144,383		80,416	
Revetment for Reclamation	31,045		, .	31,045
Reclamation	85,353			85,353
Pavement	40,133		40,133	
Utility Facilities	45,137		45,137	
Passenger Terminal	116.520		-,	
Quay Wall Construction	58,861		58,861	
Revetment for Reclamation	7,414		,	7,414
Reclamation	23,838			23,838
Pavement	11,209		11,209	- ,
Utility Facilities	15,198		15,198	
Port-related Zone	136,266		,	136,266
Access Road	475,449		237,725	237,725
Port Re-Development	190,090		190,090	
Sub-Total	2,130,128	431,834	1,086,304	548,022
Indirect Cost	651,380	133,869	327,795	189,717
Contengency	278,151	56,570	141,410	80,171
Consulting Services	222,521	158,430		64,091
Administration Cost	27,815	19.797		8,018
Cargo Handling Equipment for Multi Termin	55,374	,121		55,374
VAT	328,218	78,070	155,551	94,597
Total	3,693,587	878,571	1,711,060	1,039,989
Total	3,693,587	2,589,6		1,039,989
Land Acquisition/Compensation	45,000	2,305,0	45,000	1,027,707

ii) Operating Cost

330. Study team estimated operating cost based on Tanjung Priok branch.

Table 14-G-50 Operating Cost

	IPC		Private Sector
	Channel and Basin	Automobile Terminal	Automobile Terminal
Number of Person	250 Persons	-	50 Persons
Personnel Cost	36,000,000	-	36,000,000 Rp/person/year
	Rp/person/year		
Administration and Other Cost	115% of Personnel cost	-	100% of Personnel cost
Maintenance Cost	Infrastructure: 1% of the or	iginal construction cos	t
	Equipment : 5% of the or	riginal construction cos	st
Depreciation	Civil structure : 40 year	·	
	Equipment : 20 year		

b) Revenues

331. Car is shown in 14-G-3. Cargo volume forecast is summarized in Table 14-G-51 Improved access channel, inner channel and central basin will start to be operated in 2008. Container demand will reach to capacity in 2012.

With Case(Navigation Improvement) Without Case Year Ship Call Ship Call Cargo('000) Ship Size Cargo('000) Ship Size 2001 2,056 2,696 14,000 2,056 2,696 14,000 Container 2012(Demand) 3,631 3,645 15,000 3,631 3,645 14,000 (Foreign) Capacity 3,644 3,658 ,927 3,048 2001 199 634 4,000 199 634 4,000 Container 715 715 2,292 2012 ,292 4,000 4,000 (Domestic) 730 2,589 659 2,336 Capacity 6,663 2001 13,190 5,000 13,190 6,663 5,000 General & 2012 16,246 8,011 5,000 14,082 7,114 5,000 Bag Capacity 19,145 9,454 14,082 7,114

Table 14-G-51 Cargo Volume and Vessel Size

Table 14-G-52 Port Tariff

		Rat	e	Charge Unit	Paid to
		Domestic	Foreign		
Berthage F	ee	48Rp	0.111\$	Per GRT per Etmal	IPC2
Pilot Fee		28,000Rp+8 x GRT	34\$+0.01 × GRT	Per GRT per ship movement	IPC2
Ship Towas	ge Fee	625,000Rp	770\$	Per ship-hour	IPC2
Handling	Car	-	13\$(Included storage)	Per Unit	Private
Charge	20'	240,000Rp	93\$	Per Box (FCL)	Sector
	40'	360,000Rp	139\$	Per Box (FCL)	
	Empty	90% of FCL	Container	Per Box	
	General	13,694	4Rp	Per ton	

- **332.** As for revenue and expenditure, the study team gave due consideration on the following matters;
 - Automobile terminal operator pays a royalty to IPC2. Royalty is assumed to be 20% of terminal operator's gross revenue.
 - Automobile terminal operator also pays land rental fee every year. (Land rental fee is set as 4,300 million Rp which is calculated assuming a rate of 50,000 Rp/ m2 for area of 8.6ha.)
 - ➤ IPC2 pays some compensation (equivalent to the above land rental fee in maximum) to DKB until 2022, since DKB has a right of use of land until 2022 where the automobile terminal is located.
 - ➤ Container cargo increases by around 600,000TEU, of which 430,000TEU is handled in JICT and 170,000 TEU in Koja.
 - ➤ IPC2 receives 15% of gross revenue and 49% of net profit from JICT.
 - > IPC2 receives 52% of gross revenue from Koja.
 - ➤ General and bag cargo is increased by 5,000,000 ton.

2) Evaluation of FIRR (Public)

a) Revenue

333. Additional revenue from the project is calculated by calling ship, cargo volume and tariff. IPC2 receives revenue from JICT, Koja and automobile terminal. Revenue of IPC2 is classified as follows.

	1				
				Automobile	
	General & Bag	JICT Container	Koja Container	terminal	Total
2006	0	0	0	6,512	6,512
2007	0	0	0	8,996	8,996
2008	284	60,953	1,944	11,754	74,934
2009	367	95,840	24,370	12,208	132,784
2010	478	95,840	47,250	12,708	156,276
2011	559	95,840	68,690	13,208	178,296
2012	639	99,267	70,543	13,708	184,157

Table 14-G-53 Revenue of IPC2 (000,000Rp)

b) Capital cost and Operating Cost

334. Capital and operating cost is shown in Table 14-G-54 and Figure 14-G-18. Operating costs are comprised of salaries and wages, maintenance, insurance, administration.

		Personnel &		Maintenance		Financing charges	
	Construction	Administration	maintenance	Dredging	Compensation	including Interest	Total
2004	0	0	0		0	0	0
2005	36,683	0	0		0	0	36,683
2006	188,368	0	0		4,300	0	192,668
2007	229,328	0	1,044		4,300	4,406	239,078
2008	91,708	39,377	1,044	0	4,300	7,724	144,154
2009	206,063	39,939	3,671	4,420	4,300	9,283	267,676
2010	440,593	40,512	3,671	4,420	4,300	12,787	506,283
2011	498,356	41,050	3,671	4,420	4,300	20,277	572,074
2012	19,961	41,050	3,671	4,420	4,300	28,749	102,151
2013	0	41.050	3,671	4,420	4.300	28,749	82,190

Table 14-G-54 Capital and Operating Cost (000,000Rp)

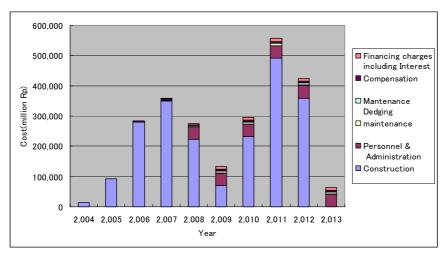


Figure 14-G-18 Capital and Operating Cost

c) Debt for Capital Cost

335. Fund raising is divided into foreign and equity. In this study, referring to funding conditions of soft loan by international financial institute, the upper limit of finance for foreign funds is assumed to be the total amount of foreign portion or 85% of initial investment costs, whichever is higher. In the proposal projects, eighty—five percent of initial investment costs is assumed to be raised by foreign fund. The remaining initial investment costs (15%) and all renewal investment are assumed to be raised by equity of self-fund. Interest rate for the central government is 1.5%. And for the IPC2 is 2.0%. Conditions of loans are assumed as follows.

Foreign fund (2,201,186 billion Rp)

Amount : 85% of total cost(2,589,631*85%)

Loan period : 30 years, including a grace period of 10 years

Interest rate (Central Government : 746,785 billion Rp): 1.5%
Interest rate (IPC2 : 1,454,401 billion Rp) : 2.0%
Repayment : Fixed amount repayment of principal

Equity (self-fund) (212,400 billion Rp)

Amount : 15% of total cost

Weighted average interest rate

1.8% (1.5%*746,785+2.0%*1,454,401)/2,201,186

d) Evaluation of FIRR

336. Result of FIRR by the fluctuation is summarized in Table 14-G-55. Since the FIRR exceeds the weighted averaged interest rate in all cases, this project is deemed to be financially viable.

Table 14-G-55 Sensitivity Analysis (Public Sector) (Whole Project including Ancol)

Ca	se	Project
Cost	Revenue	(%)
0%	0%	4.34
0%	-10%	2.85
+10%	0%	3.41
+10%	-10%	2.00

3) Financial Soundness IPC2

337. Projected financial statements and financial indicators for IPC2 are shown in Table 14-G-56 to Table 14-G-58 and Figure 14-G-19 to Figure 14-G-24.

Table 14-G-56 Without Project Financial Statement for IPC2

Table 14-G-57 Project itself Financial Statement for IPC2

Table 14-G-58 With Project Financial Statement for IPC2

Result of Financial Situation

Without Project (Pelinda IX Total)

1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Operation Development	٠٠.		2002(Act.)	2003	2004	2005	2006	2007	l	2009	Ì		1	1 1	2014	2015	2016	
17,702 17,702 17,703 17,704 17,704 17,705 1	Operating Revenue		066'/16'1	1,354,523	1,395,651	1,441,257	1,489,029	1,539,937	1 056'685'	-	,589,950	-	-	٠ī	-	,589,950 1	,589,950	.,589,950	-
18 20 20 20 20 20 20 20 2	Operating expenses	71/1/25	6/1/309	708,607	804,807	841,007	877,207	913,407	949,607		949,607					949,607	949,607	949,607	
1876-62 227-75 221-22	Man Organisa Barretta	797,787	505,05	105,602	105,602	205,602	105,602	105,602	105,602		105,602					105,602	105,602	105,602	
1300 1300	Mor Operating Revenue	004,02	0,0,0	46,000	48,606	46,606	48,605	48,606	48,606		48,606					48,606	48,606	48,606	
1905-201 428,171 475,971 475,971 475,971 475,771 475	Post Operating Expenses	356,855	766,977	156,335	129,745	115,733	105,776	98,383	61,663		61,663					61,663	61,663	61,663	
\$1,000 \$	Profit before Lax	108,540	428,719	475,987	510,705	533,133	554,652	576,753	627,206		627,286					627,286	627,286	627,286	
\$1,004 37,110 47,002 4	Income lax (20%)	25,476	71,574	91,073	102,141	106,627	110,930	115,351	125,457		125,457					125,457	125,457	125.457	
State Constitute Consti	Net Surplus Accumulated Earnings	583,064	357,145	384,914 1,325,123	408,564	426,506	443,722	461,402	501,829	4	501,829	u	4	٠	1	501,829	501,829	501,829	501,829
\$100,000,000,000,000,000,000,000,000,000	Cart Brown					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		20000000		-1	7 13677.72	1	기	기	7 021076	1 646'6'0'	9///100/	/00/can/s	히
Control Cont	1			1.47.00	ļ	1005	1000												
Column C	Cach Booleana		, 100 to	OUZ (ACC.)		2004	2002		2002	2008	5002	2010	2011			2014	2015	2016	
Control Cont	Cash Lagaring	636,627	1007/75	35,030	2,0,0	796,002	334,87b	1	97,977	395,509	583,041 1	,030,573 1	,378,105 1	7	N	,420,702 2	769,234	3,115,766	m
15,549	Cash Innow Operation Income	450,151	274 474	714,767	790,6	799,115	810,677		839,198	839,198	839,198	839,198	839,198	ŀ		839,198	839,198	839,198	839,198
131972 1	Non Operating Income	06.630	1001	40 606	4,750	40,004	424,111		45,945	745,943	745,945	745,945	745,945			745,945	745,945	745,945	
101 101	Loans	20	0100	000,000	9	000,000	000'01		46,000	dp.o.dp	48,606	46,606	46,506			48,606	48,606	48,606	48,606
635.647 945.998 257.998 274.804 215.844 215.	Others	103,042	80,094	44,647	44,647	44.647	44.647	44.647	44.647	44.647	44 647	44 647	44 647	44 647	0 44 647	÷ 77	0 27 64	27 27 27 27	Ť
102.353 122.291 215,843 215,	Cash Outflow	635,647	945,995	529,969	807,029	724,801	772,767	1,100,194	541,666	551.666	491,666	491 666	491 666	491 666	401 666	401 666	401 666	40,41	
120,204 127,334 127,347 127,	Investment	162,353	172,291	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215.843
Charlest	repayment of Principal	518,061	485,040	127,338	289,250	212,960	263,137	290,000	20,000	000'09	0	0	0	0			0	0	
49,6874 59,701 70,702 70,703	Olvidend Data	232,046	1/9,243	45,424	118,082	104,070	94,113	86,720	50,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	50,000	20,000	50,000
155.296 244.907 164.798 -165.296 244.907 164.798 -165.296 244.907 164.798 -165.296 244.907 164.798 -165.296 -166.2997 164.798 -165.296 -165.29	Tax	40 587	50,000	62,383	102 141	105,00	110,030	92,280	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	
155.296 184.798 156.319 274.816 375.110 227.4809 297.517 2887.525 347.532 34	Others	0001	00,74	02,501	102,141	/20/001	056,011	105,611	125,457	125,457	125,45/	125,457	125,457	125,457	125,457	125,457	125,457	125,457	
17,001 92,094 276,892 266,562 334,876 372,786 97,977 395,599 683,041 1,030,573 1,376,105 1,725,637 2,073,170 2,420,702 2,766,224 3,115,766 1,200,044c1	Cash Balance	-55,296	-84,907	184,798	-16,330	74,314	37,910	-274.809	297.532	287.532	347,512	347.532	347 532	247 522	347 532	247 513	247 633	344 630	Ţ
2000(Act.) 2001(Act.) 2002(Act.) 2003 2004 2005 2007 2006 2007 2006 2007 2006 2007 2006 2007 2006 2007 2006 2007 2006 2007 2006 2007 2006 2007 2006 2007 200	Cash Ending	177,001	92,094	276,892	260,562	334,876	372,786	776,79	395,509	683,041 1	,030,573 1	378,105	725,637 2	073.170 2	420,702 2	768 234 3		1463 298	810 830
2000/Act. 2001/Act. 2003/Act. 2003 2004 2005 2006 2009 2006 2009 2010 2011 2012 2013 2014 2015 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2013 2014 2015 2014 20	Balance Sheet																		1
1,185,013 954,885 804,416 631,947 728,962 609,483 557,508 899,096 1,240,683 1,552,271 1,185,633 2,347 2,347,035 3,138,623 3,530,211 3,921,793 1,185,603 2,004 276,892 266,552 267,372 247,722	Year	2000(Act.) 2	001(Act.)	002(Act.)	2003	2004	2005	3005	1000	- 1	- 1	טוער		2000	2000				
177,001 92,094 276,992 260,562 334,876 377,786 97,977 395,590 41,020,591,592 473,747 474,972 474,772	Current Assets	1.185.203	054 885	804 410	631 047	778 062	1000	25.7 500	1000	- 1	- 1	0107		2012	2013	2014	2015	2016	2
692,817 659,682 154,732 154,	Cash & Deposit	177,001	92,094	276.892	260.562	334.876	172,786	770 70	105,090			370 105		,747,035 3	,138,623 3	,530,211	,921,799	4,313,387	4,704,974
315,312 321,309 372,786 216,633 239,354 318,352 330,799 317,309 322,356 231,309 315,319 315,312 317,319 317,	Dividend Advance	692,817	659,082	154,732	154,732	154,732	154,732	154.732	154.732		•	156,103		154 737	440,702 4	. 70B, 239	7,113,766	3,463,298	3,810
1,15,12, 3,211,477 3,265,135 4,055,235 4,001,010 4,211,135 7,651,137 1,016,097 1,016	Others		203,709	372,786	216,653	239,354	281,965	304,799	348,855			431,022		519,133	563.189	507,724	651 301	695,732	736
2,731,403 2,500,337 1,700,452 1,400,452 1,400,450 1,400,	Fixed Assets		3,211,474	3,261,915	3,372,156	3,402,397	3,592,638	3,702,879	1,813,120	- :	4	143,843 4		,364,325 4	474,566 4	584,807 4	,695,048	4,805,289	4,915
- 47.84	CIPEC DAY INC.		600'000'	4,000,323	4,004,103	4,211,359	4,402,121	4,260,387	1,712,216	- 1	9	,107,702 6		,111,360 7	8 6813,189 8	,115,018 8	616,847	3,118,676	9.620
2,130,884 1,619,304 1,271,955 1,235,347 1,016,007 763,147 160,000 110,000 60,000 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Short-ferm Loans		5,400,373	334 202	1,235,347	1,016,097	763,137	160,000	110,000		0 (0	o ·	Ō	0	0	0	0	
170,687 15,143 171,000 170,687 15,144 170,000 170,687 170,687 15,144 170,000 170,687	Long-term Loans	2.130.884		1 371 055	2 -	500 500 1	55, 635	000 051	000	0 00	-	0 (0 4	0	0	0	Ó	0	
1,025,473 1,035,069 1,03	Others	170,687	15.143	00000	٠.	7,010,011	151,007	000,001	00001	000'00	-	-	0 (0	0	0	0	0	
583.064 940.200 1.325.123 1.733.687 2.160.791 3.260.2015 1.006.2016 1.0000.2016 1.0000.2016 1.0000.2016 1.0000.2016 1.0000.2016 1.00	Equity	1.028,443	1.025,777		1 035 069	1 035 069	1 035 050	1 020 250 3	035 060 1	•	•		•				0	٥	
*** **********************************	Net Worth	583,064	940,209	1,325,123	1 733 687	2 160 193	5603,000	2 065 210 2	567177	-, -,	٦ ٢		٠,				(,035,069	1,035,069	1,035
Febre 14.0% 20.1% 18.0% 17.0% 16.9% 16.3% 15.9% 15.5% 15.1% 14.7% 14.3% 14.0% 15.1% 14.0% 13.5% 13.5% 14.0% 13.5% 13.5% 14.0% 14.0% 13.5% 14.0% 14.0% 13.5% 13.5% 14.0%	Total Liabities & Net Worth	4,341,915	4,166,359	4,066,349	4,004,103	4.211.359	4.402.121	1 260 387 4	712/16	4 in	n,u	11,14	ייִם				,581,778	083,607	8,585,435
ined Arsets 14.0% 20.1% 10.0% 17.6% 17.2% 17.0% 16.9% 16.8% 16.3% 15.9% 15.5% 15.1% 14.7% 14.3% 14.0% 1 // // 44.02 14.92 14.										ነ	יוי	1	١-		١,		/40'010'	9/9/9/17/6	9,620,
/4740g Ratio 1.07 1.17 3.58 1.71 2.23 2.01 1.08 7.46 6.78 14.92 14	Rate of Return Fixed Assets	14.0%	20.1%	18.0%	17.6%	17.2%	17.0%	16.9%	16.8%	16,3%	15.9%	15.5%	15.1%	14.7%	14.3%	14.0%	13.6%	13 3%	Ī
20% 51% 51% 51% 58% 58% 60% 60% 60% 60% 60% 60% 60% 60% 60%	Debt Service Coverage Ratio	1,07	1.17	3.58	1.7	2.23	2.01	1.08	7.46	6.78	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92
040 040 040 040 040 040 040 040 040 040	Monthly Date	0	0/ 10	0/./0	20.00	26%	9%.60	25.%	% 60%	%09	%09	%09	%09	60%	%U9	60%	7003	2002	

Result of Financial Situation

Without Project (Pelindo II T. Income Statement

Income Statement																		and Hina
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	20.10	2031	6100	2033	20.00	TOTAL KD
Operating Revenue	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1.589.950	1.589.950	1.589.950	1.589.950	589 950	5RQ 950	589 950	1 589 050	1 580 050	580 050	583 950	1 E80 GEA
Operating Expenses	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949.607	949,607	949,607	949.607	949,607	4,369,930
Of which Depreciation	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105.602	105,602	105.602	105,602	105,602	105,602	105,607	105,602	105,602	105,600	105,603
Non Operating Revenue	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48.606	48,606	48,605	48.606	48 606	48 606	48 505	48,605	48 606
Non Operating Expenses	61,663	61,663	61,663	61,663	61,663	61.663	61.663	61.663	61,663	61,663	61,663	61.663	61 663	61.662	61,663	61.663	200,00	51,000
Profit Before Tax	627,286	627,286	627,286	627.286	627,286	627,286	627.286	627,286	627.286	627.286	627,286	627,286	627.286	627 286	40,40	200,400	200,40	200,40
Income Tax (20%)	125,457	125,457	125,457	125,457	125,457	125,457	125.457	125,457	175,457	125,457	125,457	125,457	125,200	125 457	125,450	125,200	207,720	25,720
Net Surplus	501,829	501,829	501,829	501,829	501,829	501,829	501.829	501,829	501.829	501,829	501.829	501.829	501.929	501 879	501 879	501 820	501 820	501 920
Accumulated Earnings	9,087,264	9,589,093	- 1	- 1		11,596,409	12,098,238	2,600,066	3,101,895 1	3,603,724 1-	4,105,553 14	4,607,382	5,109,211 1	5,611,040 1	6,112,869 1	6,514,698 1	7,116,526 1	7,618,355
Cash Flow			million Do															
Year	2018	2019	2020	2021	2022	2023	2024	2025	2626	2027		20.20	0100	1031	2037	2000	7000	71.01
Cash Beginning	3,810,830	4,159,362	4	4,853,426	5,200,959		5,896,023	6,243,555	6,591,087	6,938,619	7,286,151	7,633,683	7.981.215	8.328.747	8 676 280	9.023.812	9.371.344	9 718 876
Cash Inflow	839,198	839,198		839,198	939,198	839,198	839,198	839,198	839,198	839,198	l	839,198	839,198	639,198	839,198	839,198	839,198	839,198
Operating Income	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945		745,945	745,945	745,945	745,945	745,945	745,945	745,945
None logare and theoline	46,606	909'8#		98,696	48,606	48,606	4B,606	48,606	48,606	48,606		48,606	48,606	48,606	48,606	48,606	48,606	48,606
Others	44.647	44.647	44.647	44.647	44.647	44.647	44 647	44 647	0 44 647	0 44 647	0 44 647	0 77	0 44 847	27	0 77 77	0 77	0,7	0;
Cash Outflow	491.666	491,666	491.666	491,666	491.666	491 666	491 666	491 666	401 666	401,666	401 666	401 400	404 606	44,047	44,047	44,047	404 666	44,04/
Investment	215,843	215,843	215,843	215,843	215,843	215.843	215.843	215.843	215,843	215.843	215.843	315,000	715,843	315 843	491,666	215 843	315 943	491,666
Repayment of Principal	o	0	•	0	0	٥	0	0	0	0	0	0	0		0	Stores	0	0+0/017
Interest on Loans	20,000	20,000	20,000	20,000	50,000	20,000	50,000	50,000	50,000	20,000	20,000	20,000	20,000	50,000	50,000	50,000	50.000	20.000
Dividend Paid	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366
Others	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457
Cash Balance	147.532	347.532	347 532	CF7 FAF	147 513	247 512	247 517	247 632	0 47 630	0 27.75	0 171	0	0	0	0	0	0	0
Cash Ending	4,158,362	4,505,894	4,853,426	5,200,959	5,540,491	5,896,023	6,243,555	6,591,087	6,938,619	7,286,151	7.633,683	7.981.215	8.328.747	8.676.280	947,532	947,532	947,532	347 532
Balanca Sheet													-				2000	20170070
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	7606	8606	3030	9696	1000	2017		7000	2000
Current Assets	5,096,562	5,488,150	5,879,738	6.271.326	6,662,914	7.054.502	7.446.090	7,837,677	8 229 265		1			102 TO 0	2032	- F		2035
Cash & Deposit	4,158,362	4,505,894	4,853,426	5,200,959	5,548,491	5,896,023	6,243,555	6,591,087	6,938,619					_				0,753,530
Dividend Advance	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732									154,732
		827,524		915,635	959,691	9	1,047,803	1,091,859	1,135,914									1,532,416.
Total Fixed Assets	10,122,333	10.624.162	11 125 991	11 627 820	12 129 649	12 531 478	5,687,217	3,797,458	5,907,699	6,017,940	6,128,181	6,238,422	6,348,663	6,458,904	6,569,145	6,679,386	6,759,627	6,899,868
	ŀ	0	1	0	0	21	0	0	0	- -	7	1		וי	á	1		18,653,424
Short-term Loans	0	0	0	0	0	٥	0	0	0	0	0	0	0	0		0 0	•	0
Long-term Loans	٥,	0	0	0	0	0	0	0	0	0	0	0	O	0	0	•		50
Others	0 0 0 0	0,000		0	0	0	0	0	0	0	0	_	0	0	0	0	0	ō
Net Worth	0 787 786 0	1,035,069	20,050,1	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069	1,035,069
Total Liabiliac & Mot Worth	10 137 333	10,600,000		10/32/101		11,090,409	12,098,238	2,000,000	13,101,895	3,603,724	4,105,553 1		5,109,211	5,611,040	_	6,614,698	7,116,526	17,618,355
The state of the s	+0,166,333	40,044,104		020) 2011		12,031,976	13,133,307	13,035,135	14,135,954	4,638,793 1	5,140,622 1		6,144,280	6,646,109	_	7,649,767	8,151,595	8,653,424
Rate of Return Fixed Access	13 7%	12 50%	13 36%	13.00%	11 762	11 507	ě	200	0				;	;				
Debt Service Coverage Ratio	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	10.5%	10.1%	9.9% 14.92	9.7%	9.6%	9,4%	9.3%
Operating Ratio	60% 53%	60% 53%	%09 23%	60% 5.1%	%09 23%	60% 53%	%09 23%	60%	%09 E30%	%09	60%	%09	60%	%09	%09	60%	%09	%09
•	1	!	;	:	;	,	2	2,77	47.00	92.50	0%.CC	33.70	0,50	25%	5.5%	53%	53%	23%

Result of Financial Situation

Project Xtself (Including Ancol) Income Statement

	4 1- 47 100C V 1- 47000C	2000	2002		1000	2004						The second secon	-				1
	ZUUU(Act.) ZUU1(Act.)	7007	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	20	00	0	0	0	6,512	8,996	74,934	132,784	156,276	178,296	184,157	184,246	172,337	173,692	174,707	61,671
Car	90	00	00	90	00	6 517	9008	11 754	120,376	143,558	165,088	13,449	170,538	158,629	159,984	555,091	155,011
Operating Expenses		0	•	9 0	0 5	7.477	8.527	54.466	62.075	62 649	63.186	64 186	63,700	63,700	63 1 86	63,706	13,708
Of which Depreciation	0	o	٥	a	o	3,177	3,177	9,745	9,745	9,745	9.745	9,745	9,745	9.745	9.745	9.745	9.745
Non Operating Revenue		G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Non Operating Expenses		0	0	0	0	0	4,406	7,724	9,283	12,787	20,277	28,749	29,088	29,088	29,088	29,088	59,059
Profit Before Tax		0	0	0	0	-966	-3,931	12,744	61,426	80,841	94,833	92,222	91,971	80,062	81,418	82,433	87,473
Income Tax (20%)	00	0	0	0 (0	0	0	0	0 (0	0 0	0	0	0		0	0
Accumulated Farnings		00	00	-0	-0	996-	-4.897	7.847	60,773	150,114	244,633	92,222 337 16R	91,971	80,U62	590,418	82,433	87,473
Cach Bloss														100	1	3000	2272
Year	2000(Act.) 2001(Act.)	2002	F005	2004	2005	2006	2005	2008	2000	2010	3014	6106]	2014	1	2010	1000
Cash Beginning	0	0	-	0	0	-	2 213	1 458	71 047	05118	204	300 303	1	100 000	1	2010	107
Cash Inflow	0	•	,	> c	16.683	190 580	232 980	121 (12)	286 518	543 966		150 676	130 804	193,303	130,773	171 766	196,201
Operating Income	0	0	0	0	0	2.212	3.652	30.213	80.455	103.373	124.855	130,715		118 806		121 266	776.27
Non Operating Income	0	0	0	0	0	0	0	0	0	0	_	0		0		0	0
Loans	0	0	0	0	29,005	162,288	194,929	77,952	175,154	374,504	423,603	16,967	. 0	0	Q	0	0
Equity	0	0	٥	0	7,678	26,080	34,399	13,756	30,909	680'99	74,753	2,994	0	0	0	0	0
Cash Outflow	0	0	0	0	36,683	188,368	233,734	99,432	215,346	453,380	518,633	48,710	29,088	29,088	29,088	35,940	38,624
Investment Programment of British	~ ·	0	0	0	36,683	188,368	229,328	91,708	206,063	440,593	498,356	19,961	0	0	0	0	0
Tetovet or Principal	-		0	0	0	0	0 ;	0	0	0	0	0	٥	0	0	6,852	9,565
Dividend Baid	-		0	90	0	90	4,405	7,724	9,283	12,787	20,277	28,749	29,08B	29,088	29,088	29,088	29,059
Tax	•	> <	> <	> <	> <	-	-	> 0	00	00	0 0	> 0	0	20	0	0	0 (
Others	, 0	00	•	00	0	00	-	-	-	-	> <	-	-	> <		00	00
Cash Balance	0 0	0	0	0	0	2.212	-754	22.489	71.171	90.586	104.578	101 967	101.716		91 163	9CF 2B	87.554
Cash Ending	0 0	0	0	0	0	2,212	1,458	23,947	95,118	185,704	290,282	392,249	493,965	583,773	674,936	760,261	847,915
Balance Sheet																	
Year	12000(Act.) 2001(Act.)	2002	2003	2004	2005	2006	2007	2008	2009	2010	3611	2013	1	2014	į	3016	2013
Current Assets	0	0	0	1-	0	2.212	1.458	23.947	95.118	185.704		302 240		583 773	1	760 261	847 015
Cash & Deposit	0	0	0	0		2,212	1,458	23,947	95,118	185,704	290,282	392,249	493,965	503,773	674,936	760,261	847,915
Dividend Advance	o é	0	0	0	0	0	٥	0	0	0		٥				0	0
Sived Acrets		00	-	0	00000	0,00	0	0.00	0	0				0	0		0
Total Fixed Assets	0	0	0	90	36 683	224 085	440 482	559,967	120,303 1		035,704	100000	~ :r	776,489	025,744 1		,607,254
Liabilities	0 0	0	0	C	29,005	191,293	386,222	464,174	639,328	013,832	ul-	454.401	454.401	1.454.401 1	1.454.401.1	1 447 549 1	1 437 984
Short-term Loans	0 *	0	0	0	0	0	0	0	0		٥				0		0
Long-term Loans		0	0	0	29,005	191,293	386,222	464,174	639,328 1	,013,832	1,437,434 1,	454,401		1,454,401 1	1,454,401 1,	1,447,549 1	1,437,984
Others	0		0	0 (0	0	0	0	0	0	0						0
equity Net Worth			00	00	7,678	33,758	68,157	81,913	112,823	178,911	253,665	256,659	255,659	256,659	256,659	256,659	256,659
Total Liabities & Net Worth	0	oc	oc		36.603	724 085	440 487	740,135	H 21 423	147,067	036,046			- :-	- ;-	6/3/052	760,526
***************************************			,		20102	, CO. J. 74	200,000	1001000	1 (71,140	+ /50/71.51	7 040/056		vا	¥ŀ	٧l	3/1/200 6	455,169
Rate of Return Fixed Assets Debt Service Coverage Ratio						-0.4% #DIV/01	0.1%	3.7%	0.6% 8.67	7.0%	5.9%	5.9%	5.7%	4.9%	4.8%	3.37%	4.7%
Operating Ratio						115%	82%	73%	47%	40%	35%	34%	34%	37%	36%	36%	35%
ALC: UNION PROPERTY						07,00	97,70	07.00	34%	34%	30%	29.46	%62 2	31%	31%	31%	30%

Result of Financial Situation

THEOME STREET								The state of the s									
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Operating Revenue	183,101	183,190	183,279	183,368	183,407	183,407	183,407	183,407	183,407	183,407	183,407	183,407	183,407	183,407	183,407	183,407	183,407
Jar.	13,700	207,601	19,07	103,000	20,000	107,033	660,601	660,601	860'601	669,691	169,699	169,699	169,699	669'691	169,699	169,699	169,699
Onerating Expenses	63 186	63.186	63.186	63.186	43,700	62 186	23,700	20.00	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708
Of which Denreciation	9,745	9.745	9 745	0 745	9,100	0,745	02,100	03,100	001,50	03,100	007,00	03,100	007,00	03,180	63,186	03,186	03,180
Non Operating Revenue	0	0		0	ĵ.	,	5,0	C	2,72), (Ç+/-	,, ,	n c	6,745	0 C	4,7	247,4
Non Operating Expenses	28,868	28,481	28,017	27,378	26.364	24,927	23,472	22.018	20.564	19.109	17.655	16.200	14.746	13 292	11 837	10.01	000
Profit Before Tax	9:,047	91,522	92,075	92,803	93,856	95,294	96,748	98,203	99,657	101,112	102,566	104.020	105.475	106.929	108.384	100,838	111,292
Income Tax (20%)	o	0	0	0	0	0	0		0	0	0	0		C			
Net Surplus	91,047		92,075	92,803	93,856	95,294	96,748	98,203	99,657	101,112	102,566	104,020	105,475	106,929	108,384	109,838	111.292
Accumulated Farnings	851,572	943,094 1,	ΨI	127,972	1,221,828	(317,122	1,413,871	-	,611,730	1,712,842	1,815,408	1,919,428	2,024,903	2,131,832	2,240,215	2,350,053	2,461,346
Cash Flow																	
Year	2018	2019	2020	2021	2022		2024		2026	2027	30.24	4	2030	2034	1023	2022	7000
Cash Beginning	847,915	929,396 1	1,007,454	,077,308	1,129,164		1.193,213		262.214	1.298.897	1 337 033		1 417 669	1 460 169	1 504 123	1 K40 K37	105 301
Cash Inflow	129,629	129,748	129,837	129,926	129,966		129,966		129,966	129,966	129,966	н	129,966	129,966	129,966	129,966	129,966
Operating Income	179,659	129,748	129,837	129,926	129,966		129,966		129,966	129,966	129,966		129,966	129,965	129,966	129,966	129,960
None Charactery Income	2 6	> 0	90	20	0		0		0	0	0		0	0	0	0	_
Equity	00		0	90	90	-	90	-	00	00	00	00	۵.	00	φ·	0 0	
Cash Dutflow	48,179	51,690	59,984	76,070	98,236	97,647	96,192		93,284	91,829	90,375		87,466	86,012	04,557	83,103	81.648
Investment	0	0 000	3	0	0	0		0	0	0	0		0	0		0	
Interest on Loans	115,21	28,209	31,956	50,092	71,872	72,720		72,720	72,720	72,720	72,720		72,720	72,720	72,720	72,720	72,72(
Dividend Paid	000/07	104,03	į –	0/6//	0,364	/76,47		910,22	696/07	9,109	17,655		14,746	13,292		10,383	8,926
xel	0	0	0	. 0	. 0		0	00	0	0	•	0	0	0	00	9 0	9 6
Others	0	0	1		0			0	0	0	0	0		0	٥	G	_
Cash Balance	81,481	78,058	69,854	51,857	31,730	32,319	33,773	35,228	36,682	38,137	39,591	045	42,500	43,954	45,409	46,863	48,31,
A	262,530	1,00,1	, , ,		1,160,654	1		1,465,414	/68/8677	3	1,376,624	1,417,669		1,504,123	232	1,596,395	1,644,71,
Salance Sheet			- 1														
Year	2018	5019	- 1			2023		2025	2026		2028	2029	2030	2031	2032		2034
Current Assets	929,396	929,396 1,007,454 1,077,308			1,160,894	1,193,243	1,226,987	1,262,214	1,298,897		1,376,624	1,417,669	1,460,169	1,504,123	1,549,532		1,644,71
Dividend Advance	066/676	45+,100,1				1,193,213		1,262,214	1,298,897		1,375,624	1,417,669	1,460,169	1,504,123	1,549,532		1,644,71
Others	0	0	0	0	00		96	00		00	0	00	00	00	0 0	0	
Fixed Assets	1,597,509	1,587,764	578,018		1,558,528	1,548,783			519.548	1.509.803		490.312	1.480.567	1 470 822	1 461 077		1 444 50
Total Fixed Assets 2,526,904 2,595,217 2,	2,526,904	2,595,217	655,326	2,697,438	2,719,422	2,741,996	2,766,024	2,791,507 2	2,818,444	2,846,836		2,907,982	2,940,736	2,974,945	3.010,609		3 086 290
Clabilities Short-term loans	1,418,673	1,395,465	363,498		335	1,168,215		1,022,775	950,055	677,335		731,895	659,17	586,455	513,734	441,014	368,294
Long-term Loans	1.418.673 1.395.465 1.3	.395.465	363.498			1 168 215	1 095 495	1 023 775	סבט טבס	077 335	004 646	0	0 :	0 1	0	0	0
Others	0	0	0			0	0.00	0	0	0000	0,500	0,167	023,175	286,433	513,734	441,014	358,294
	256,659	256,659	56,659	256,659	256,659	256,659	256,659	256,659	256,659	256,659	256,659	256,659	256.659	256,659	256.659	256.659	256.65
Net Worth	851,572	943,094 1,0	35,169	1,127,972	1,221,828	1,317,122	1,413,871	1,512,073 1	1,611,730	1,712,842	1,815,408	1,919,428	2,024,903	2,131,832	2,240,215	2,350,053	2,461,346
	4,349,304	71776667	075,550	b97,438	719,422	2,741,996	- 1	791,507	818,444	8	2,876,681	2,907,982	2,940,736	2,974,945	010	3,047,727	3,086,29
Rate of Return Fixed Assets Debt Service Coverage Ratio	2.69	4.6%	4.5% 2.16	1.65	4.4%	4.4%	4,3%	4.3%	4,3%	1.42	4,2%	4.1%	4.1%	4.0%	4.0%	3.9%	3.9%
Working Ratio	29%	25% 25%	29% 29%	29%		34% 29%	34% 20%	34%	34%	34%	34%	34%	34%	34%	34%	34%	349
						:	:	:	ì	:	:	1	2	5 11 15	20 10	01,67	ď.

Result of Financial Situation

With Project (Pelindo II Total Including Ancol)

Sept. 687 1.13 550 1.354,125 1.356,615 1.441,267 1.354,125 1.356,615 1.441,267 1.356,617 1.441,267 1.356,617 1.441,267 1.441,247 1.4	Year	2000(Act.) 2	2001/Act.)	2002(Act.)	2003	2004	2005	2006	2003	2008	0000	2010	101					2700	
17.77 17.7	Ongrafing Peyonge	2	وأ	1 254 323	1 306 65	1 441 767	010 007	017 272	10000	1 25.1 55.	2002	PUTO PERSONAL	11/2	2102	2013	6107	2015	4017	7107
1,0,000 1,0,	Operating Expenses	527,712	671.309	768.607	804 807	1,441,707	706 228	1,040,449	058 120	1,004,003	1,722,734	1,740,270	1,768,246	1,774,107	1,774,196	1,762,287	1,763,642	1,764,657	1,769,669
15,000 1,0	Of which Depredation	24 787	06.06	105,603	105 501	105,473	102/110	100,000	021,004	70,000	200'110'1	1,012,230	1,012,793	1,012,793	1,012,793	1,012,793	1,012,793	1,012,793	1,012,793
195.500 245.47 195.325 197.52	Non Operating Dependen	26.430	065.9	40,000	2007004	200,004	40,000	40 505	500 OF	71.07.01	113,347	19,347	/15,511	115,347	747	115,347	115,347	115,347	115,347
100.000 100.	Non Operating Seventies	20,430	0,000	מלים ל	40,000	48,000	48,000	48,606	48,606	18,505	18,006	48,606	18,606	48,606	48,606	48,606	48,606	48,606	48,606
13.544 71.574 7	Not operating tapenses	220,000	244,422	000,001	129,743	115,/33	0///01	SBL SE	69,09	69,387	70,946	74,450	81,940	90,412	90,751	152'06	90,751	90,751	90,722
\$1,000	From Being 14X	35, 426	61/'974	136,674	510,705	555,135	254,652	575,787	623,355	640,030	688,712	708,127	722,119	719,508	719,257	707,349	708,704	709,719	714,759
STOCK STOC	Met Cumbur	0.450	9/6/1/	570,12	650/76	101,295	105,384	109,400	118,43/	121,606	130,855	134,544	137,203	136,706	136,659	134,396	134,654	134,847	135,804
1,000,000,000,000,000,000,000,000,000,0	Accumulated Earnings	583,064	940,209	1,325,123	1,733,687	2,160,193	2.603,915	3.064.352	3,562,250	514,573	563,235	582,670	596,662	594,050	593,600	581,891	583,247	584,261	589,302
March Marc	46													and the	10011001	1616667	0,114,0,037	600,007,0	7,343,361
Colored Colo		- 1	ľ		200														
Control Cont	iar	- 1		2002 Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Colored Colo		167,252	- 1	92,094	276,892	265,669	345,315	301,093	88,560	358,745	656,313	1,026,423	1,373,198	1,719,842	2,139,648	2.559.300	2,971,688	3.384.903	3.791.885
Validation Val	Cash throw	580,351	801,088	714,767	790,699	799,115	847,360	1,015,955	1,072,178	961,119	1,125,716	1,383,164	1,462,409	989,874	970,002	958,094	959,449	960,464	965 476
Colored Colo	Mon Coorning Income	96,439	#/#/#/	P1C,120	047,740	799'50/	117,424	7.14,144	749,597	776,158	826,400	849,318	870,800	876,660	876,749	864,B41	961,196	867,211	872,223
100,019 90 90 90 90 90 90 90	Coanc	000,00	07570	99,000	44,000	48,000	48,805	48,636	48,606	48,605	18,606	48,506	48,606	48,606	48,606	48,606	48,606	48,606	48,606
100,040 100,040 46,647	South		-	- <	- 9	2 6	500/67	162,238	194,929	77,952	175,154	374,504	423,603	16,967	a	o	٥	0	0
102,151 12,252 215,964 101,052 11,064	Others	103 042	700 08	5 24 54	24 643	2 77	2/0//	26,0110	34,399	13,756	30,909	66,089	74,753	2,994	0	0	0	0	0
102 132	Cach Outflow	635 647	0.00	40,067	7 00 100	44,047	144,097	44,047	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647
1000 1000	Investment	162,353	172,291	215,909	215,922	719,469	357 576	1,308,498	801,993	563,557	755,605	1,036,390	1,115,764	570,069	550,350	545,705	546,234	553,482	550,131
122,046 193,041 66,424 116,002 116,0	Repayment of Principal	190,819	485,040	127,338	289,250	212.960	263.137	590,000	50.000	60.00	005/125	000,000	714,199	235,8U4 A	215,843	215,843	215,843	215,843	215,843
40,587 50,000 76,983 91,713 101,295 105,389 101,465 116,574 119,205 116,576 116,796	Interest on Loans	232,046	179,243	46,424	116,082	104,070	94,113	86,720	54.406	57.724	59.283	62.787	20.227	28 749	70.088	0 0 0 0 0 0	0 07	6,652	296,96
45,347 59,441 63,381 97,034 101,295 105,344 109,400 118,471 12,166 130,695 134,723 136,766 136,635 136,767 136,747 136,647	Dividend Paid	842	50,000	76,983	81,713	85,301	88,744	92,087	085'66	102,915	112,651	116,534	119,332	118,810	118,760	116,378	116.649	116.852	117.860
152.26	Fourth	49,587	59,421	63,381	97,034	101,295	105,384	109,400	118,437	121,606	130,855	134,544	137,203	136,706	136,659	134,396	134,654	134,847	135,804
17/1001 97,094 776/092 265/669 346/315 366/315 366/315 366/315 370/314 370/315 370/314 370/315 370/314 370/315 370/3	ash Balanco	367.55-	-84.907	184 798	-11 223	70 646	35,778	20,050	170 105	13,756	30,909	546 773	74,753	0	0	0	0	0	0
2000(Act.) 2001(Act.) 2002(Act.) 2003 2014 2015 2015 2014 2014 201	Jack Engloo	177 001	0.2 ABA	376 003	355 650	315,215	200 100	000 000	210,103	000,122	370,110	940,74	340,043	19,8U5	419,653	412,388	413,215	406,982	407,344
1,185,201 954,885 664,410 611,947 726,962 176,732 156,732 3,195,284 3,552,588 4,113,984 4,569,734 3,000,489 3,195,884 3,195,884 3,155,891 3,195,884 3,155,891 3,195,884 3,195,894 3,19	August 1600	1007777	26,027	260,012	5007-07	342/313	560,105	98,300	358,745	036,313	1,025,423	1,3/3,198	1,719,842	2,139,648	2,559,300	2,971,688	3,384,903	3,791,885	4,199,229
20002(Act.) 2001 2003 2004 2005	Belance Sheet																		
1,185,203 944,885 804,410 319,947 318,520 940,548 1,254,549 1,563,810 2,054,722 34,687 3,525,588 4,525,094 3,525,588 4,525,094 3,525,589 3,525,599 3,525	Year			2002(Act.)	2003	2004	2002	2006	2007	2008	2009	2010	2611	2012	2013	2014	2015	3016	7019
Value Valu	Current Assets	1,185,203	954,885	804,410	631,947	728,962	809,483	559,720	900,554	1,264,631	1,667,389	2,149,563	2,645,729	3,139,284	3,632,588	4.113.984	4.596.734	5 073 64R	5 552 Agn
0.2,20.1 0.99,108 154,732 15	Cash & Deposit	177,001	92,894	276,892	260,562	334,876	372,786	100,189	396,967	706,988	1,125,691	1,563,810	2,015,920	2,465,418	2,914,667	3,352,007	3.790.702	4 223 559	4.648.745
3.155.12 3.214.74 3.751.135 3.225.34 3.251.34 3.251.135 3.251.13	Others Advance	710,250	780,650	154,/32	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154 732	154,732	154,732
100 100	Flyad Accote	3 156 213	227,022	27,4,000	550,012	7 407 404	C95'187	304,799	346,855	402,910	386,966	431,022	475,078	519,133	563,189	607,245	651,301	695,357	739,412
2,730,468 2,260,313 1,706,157 1,235,47 1,016,097 792,142 351,733 496,222 (24,774 0,175,39 1,393 1,495,390 1,457,491 1,456,491	Total Fixed Assets	4.341.915	4.166.359	4.066.375	4,004,130	4 211 150	3,029,321 4 438 B04	3,974,733	4,201,149	6 453 348	6 737 362	5,300,996	5,899,848	6,020,304	6,120,800	6,221,296	6,321,792	6,422,288	6,522,784
4788.837 555.926 3344,202 0.000 0.00	Liabilities	2,730,408	2,200,373	1,706,157	1,235,347	1.016.097	792,142	351.793	496 222	524 174	630 128	1,430,339	1/6/545/5	1 454 461	1 454 401	10,335,280	10,918,526	11,495,936	12 075 673
170,684 1,371,955 1,235,347 1,016,097 792,142 351,293 496,722 524,174 639,328 1,013,832 1,437,401 1,454,401 1,454,401 1,454,401 1,454,401 1,447,549 1,706,687 1,005,687 1,005,687 1,005,687 1,005,687 1,005,687 1,005,687 1,005,687 1,005,687 1,005,687 1,005,687 1,005,777 1,005,687 1,00	Short-term Loans	428,837	565,926	334,202		0	0	0			030/000	10000	tot/ (0t/s	104/6/6/1	104,404,1	104/404/1	1,454,401	1,447,549	1,437,984
1,00,844 13,31,43 0 0 0 0 0 0 0 0 0	Long-term Loans	2,130,884	1,619,304	1,371,955	1,235,347	1,016,097	792,142	351,293	496,222	524,174	639,328	1,013,832	1,437,434	1,454,401	1,454,401	1,454,401	1,454,401	1,447,549	0 1 437 984
1,055,474 1,025,409 1,025,470 1,025,609 1,025,709 1,02	Others	1/0,087	15,143	0	0	0	0	C	0	0	0	0	0	0	0		0	0	0
4,341,915	Equily	1,028,443	1,025,777	1,035,069	1,035,069	1,035,069	1,042,747	1,068,827	1,103,226	1,116,982	1,147,892	1,213,980	1,288,734	1,291,728	1,291,728	1,291,728	1.291.728	1.291.728	1 291 728
realt 14.0% 20.1% 18.0% 17.2% 16.9% 15.0% 14.0% 16.0% 17.8% 17.2% 16.9% 15.0% 14.0% 16.0% 18.0% 17.4% 12.0% 11.0% <th< td=""><td>Total Liabities & Net Worth</td><td>4.341.915</td><td>4.166.359</td><td>4.066,349</td><td>4.004.107</td><td>2,160,193</td><td>2,603,915</td><td>3,064,352</td><td>3,562,250</td><td>4,076,823</td><td>4,640,077</td><td>5,222,747</td><td>5,819,409</td><td>6,413,459</td><td>7,007,259</td><td>7,589,151</td><td>8,172,397</td><td>8,756,659</td><td>9,345,961</td></th<>	Total Liabities & Net Worth	4.341.915	4.166.359	4.066,349	4.004.107	2,160,193	2,603,915	3,064,352	3,562,250	4,076,823	4,640,077	5,222,747	5,819,409	6,413,459	7,007,259	7,589,151	8,172,397	8,756,659	9,345,961
Need Assists 14.0% 20.1% 18.0% 17.6% 17.2% 16.9% 15.0% 14.0% 14.9% 13.8% 12.8% 12.6% 12.4% 12.0% 11.7% 11.7% 1 Versge Reito 1.07 1.17 3.58 1.21 2.23 2.01 1.09 7.18 6.59 13.94 13.53 12.39 11.13 11.09 10.94 10.95 10.09 5.4% 51% 57% 57% 58% 51% 59% 610% 610% 610% 610% 610% 610% 510% 51% 51% 51% 51% 51% 51% 51% 51% 51% 51					200	222	100/001	y ALTERNATION OF THE SECOND	2,404,050	21,11,1213	06717710	450,00P,1	1/6'646'9	9,159,288	9,733,388	10,335,280	10,918,526	11,495,936	12,075,673
VOLUME NOTE 1.17 1.58 1.71 2.23 2.01 1.09 7.18 6.59 13.94 13.53 12.39 11.13 11.09 10.94 10.95 10.09 5140 5150 5150 5150 5150 5150 5150 5150	Rate of Return Fixed Assets	14.0%	20.1%	18.0%	17.6%	17.2%	16.9%	15.9%	15.0%	14.8%	14.9%	13,8%	12.8%	12.6%	12.4%	12.0%	11.9%	11 7%	1 6%
45% 44% 49% 50% 51% 52% 53% 53% 53% 51% 51% 51% 51% 51% 51% 51%	Dant Service Loverage Natio Operating Ratio	54%	51%	3.58	58%	2.23	59%	1.09	7.18 60%	6.59	13.94	13.53	12,39	11.13	11.09	10.94	10.95	10.09	9.84
	Working Ratio	45%	44%	49%	20%	21%	52%	53%	53%	53%	32%	51%	27.5	3/2	2/40	2/%	57%	27%	57%

million Rp	2035	1,589,950	949,607	105,502	45,600	627,286	119,184	501,829	million Ro	שנייונייייייייייייייייייייייייייייייייי	10 003 600	969, 164	875,911	48,606	0 0	44,647	565,587	215,843	07/77	100,366	119,184	0 000	11 307 177	10000000	2035	13,448,041	11,760,892	154,732	8 131 700	21,779,750	295,574	0 205		1,291,728	20,192,448	061121177	1,7%	6.73 60% 53%
	2034	1,589,950	949,607	105,602	46,606	627.286	119,184	501,829	a spilar i i i	70.00	10 501 439	969.164	875,911	48,606	00	44,647	567,042	215,843	07/7/	100 366	119,184	402 123	10.903.600	200000000000000000000000000000000000000	2034	13,006,681	11,363,588	154,732	8 231 214	21,237,894	368,294	0 368 204	O Trans	1,291,728	71 277,872	44,631,031	7.8%	6,65 60% 53%
	2033	1,589,950	949,607	209,601	48,000	627.286	119.184	501,829	00001440104	5000	10 100 010	969,164	875,911	48,606	00	44,647	568,496	215,843	60,720	100,363	119,184	400 668	10 501 478		2013	12,566,776	10,967,739	154,732	8.130.218	20,697,493	441,014	0 441 D14	0	1,291,728	20,607,403	restronto-	7.9%	6.58 60% 53%
	703	1,589,950	949,607	209,601	40,000	627,286	119,184	501,029	2001744)24	2022	3 701 596	969,164	875,911	48,606	00	44,647	569,950	215,843	61 837	100.366	119,184	309.214	10.100.810		2032	12,128,325	10,573,344	154,732	8.030.222	20,158,547	513,734	513 744	0	1,291,728	76,158,547	a characteristic	8.0%	6.51 60% 53%
	7031	1,589,950	949,607	105,502	61 663	627,286	119,184	501,829		30.54	0 102 617	969,164	875,911	48,606	00	44,647	571,405	215,843	62,750	100.366	119,184	397.759	9.701.596		2031	11,691,328	10,180,403	1 356 103	7,929,726	19,621,054	586,455	586.455	0	1,291,728	19,742,872		8.1%	6,44 60% 53%
0000	2030	1,589,950	949,607	103,607	61,663	627,286	119,184	501,829		02.00	8 907 532	969,164	875,911	48,606	-	44,647	572,859	215,843	64.7460	100,366	119,184	396.305	9.303.837		2030	11,255,786	16'88'7'6	767,751	7.829,230	910,280,61	659,175	659.175		1,291,728	17,134,114		6.2%	6.37 60% 53%
2000	6702	1,589,950	949,607	709'601	61.663	627,286	119,184	501,829		2020	8 512 6R2	969,164	875,911	48,606	00	44,647	574,314	215,843	66.200	100,366	119,184	394.850	8.907,532		2029	10,821,698	9,39B,8B5	1 268 082	7.728,734	18,550,433	731,895	731.895	0	1,291,728	16,526,810		8.3%	6,31 60% 53%
0000	20215	1,589,950	949,607	105,602	64.663	627,286	119,184	501,829		2028	R 119 206	969, 164	875,931	48,606	0	44,647	575,768	215,843	67,655	100,366	119,184	393.396	8.512,682		2028	10,389,065	9,010,307	1.224 026	7,628,238	18,017,304	804,615	804,615	0	1,291,728	15,920,961		B.4%	6.24 60% 53%
2000	7707	1,589,950	949,607	700,001	61.663	627,286	119,184	501,829		2007	7 777 345	969,164	875,911	48,606	- 0	44,647	577,222	215,843	69.109	100,366	119,184	391.942	8,119,206		2027	9,957,886	164 731	1.170.970	7,527,743	17,485,629	877,335	877,335		1,291,728	15,316,566		8.5%	6,18 60% 53%
2000	2020	1,589,950	949,607	105,002	61,663	627,286	119,184	501,829		2026	7.336.857	969,164	875,911	48,605	- 0	44,647	578,677	215,843	70.564	100,366	119,184	390,487	7,727,345		2026	9,528,162	0157/57/0	1.135.914	7,427,247	16,955,409	950,055	950,055		1,291,728	16,955,409		8.6%	6.11 60% 53%
1000	6707	1,589,950	949,607	48 606	61.663	627,286	119,184	501,829		2025	6.947.825	969,164	875,911	48,606	0	44,647	580,131	215,843	72,018	100,366	119,184	389,033	7,336,857		2025	9,099,892	156 733	1.091.859	7,326,751	16,426,643	1,022,775	1,022,775	0	1,291,728	16,426,643		8.7%	6.05 53%
7887	40707	1,589,950	949,607	48 606	61,663	627,286	119,184	501,829		2024	6.560.246	969,164	875,911	48,606	00	44,647	581,586	215,843	73.472	100,366	119,184	387,578	6,947,825		2024	0,673,076	115,074,	1.047,803	7,226,255	15,899,331	1,095,495	1,095,495	0	1,291,728	15,899,331		8.6%	5.99 60% 53%
5494	2023	1,589,950	949,607	48 606	61,663	627 286	119,184	501,829		2023	6.174.122	969, 164	875,911	48,606	5 Q	44,647	583,040	215,843	74.927	100,366	119,184	386,124	6,560,246		2023	8,247,715	154 732	1,003,747	7,125,759	15,373,474	1,168,215	1,168,215	0	1,291,728	15,373,474		%0'6	5.93 60% 53%
5500	7707	1,589,950	949,607	48,606	61,663	627,286	119,184	501,829 11,094,580		2022	5.788.588	969,164	875,911	48,606	0	44,647	583,629	71.872	76,364	100,366	119,184	365,535	6,174,122		2022	7,823,808	0,707,00	959.691	7,025,263	14,849,071	1,240,935	1,240,935	0	1,291,728	14,849,071		9.1%	5.91 60% 53%
3031	1707	1,589,950	949,607	4R.606	61,663	627,286	119,184	501,829		2021	5,382,926	969,124	875,871	48,506	0	44,647	563,463	50,692	77,378	100,366	119,184	405,662	5,788,588		2021	7,400,490	154,732	915,635	6,924,767	14,325,258	1,312,807	1,312,807	0	1,291,728	14,325,258		9.2%	60% 83%
OLU.	2020	1,773,229	1,012,793	48.606	69,680	719,361	136,679	593,904 11,126,091		2020	4,995,176	969,035	875,782	46,606	•	44,617	581,286	31.966	78,017	118,781	136,679	387,749	5,382,926		2020	6,957,046	154,737	871,580	6,824,271	13,781,317	1,303,498	1,363,498	0	1,291,728	13,781,317		11.1%	57% 51% 51%
2010	ш							593,351 10,532,187		2019	4,599,007	968,946	875,693	48,500	0	44,647	572,777	23,209	78,481	118,670	136,573	396,170	4,995,176		2019	6,495,604	154.732	827,524	6,723,776	13,219,380	1,395,465	1,395,465	0	1,291,728	13,219,380		11.3%	57% 57% 51%
30.18	20707	1,7/3,051	1,012,793	48.606	90,531	718,333	136,483	592,875 9,938,836			4,199,229	968,858	875,605	418,600	0	44,647	569,080	19,311	78,868	118,575	136,483	399,777)		2018	6,025,958	154.732	783,468	6,623,280	12,649,238	1,416,0/3	1,418,673	0	1,291,728	12,649,238		11.5%	5.92 57% 51%

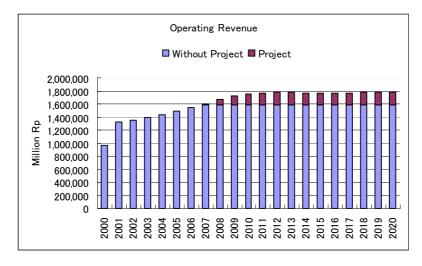


Figure 14-G-19 Operating Revenue

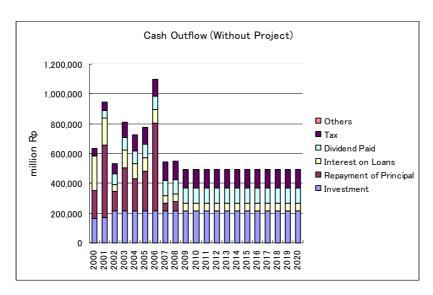


Figure 14-G-20 Cash Outflow (Without Project)

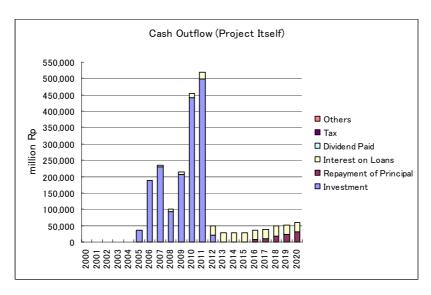


Figure 14-G-21 Cash Outflow (Project Itself)

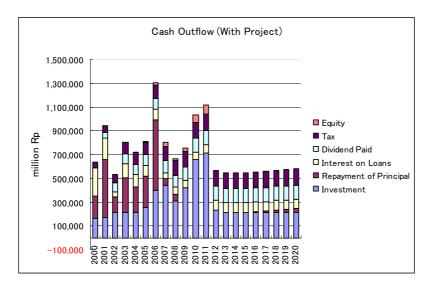


Figure 14-G-22 Cash Outflow (With Project)

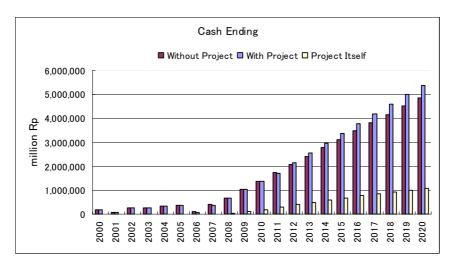


Figure 14-G-23 Cash Ending

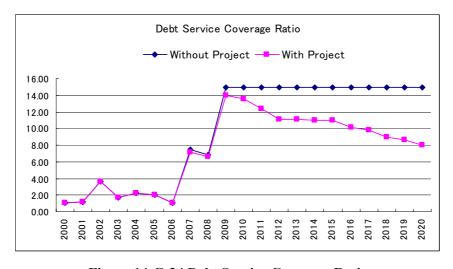


Figure 14-G-24 Debt Service Coverage Ratio

- **338.** In case of projected IPC2's financial statement, the indicators of cashflow are satisfied. In case of with project, debt service coverage ratio exceeds 1.0 during project period.
- **339.** Judging from above analysis, this project can be regard as financially feasible. However, IPC2 and terminal operator should make efforts to heighten the quality of the service, to improve cargo handling efficiency, to secure the forecast cargo volume, and to reduce operating expenses.

14-H. ENVIRONMENTAL IMPACT ASSESSMENT

14-H-1 Introduction

1) Purpose of the EIA

- **340.** The Environmental Impact Assessment for Short-term Development plan for Tanjung Priok Port consists of three portions, 1) existing condition of natural and social environment, 2) evaluation of environmental impact, and 3) environmental management and mitigation measures. This section focuses on impact description and environmental mitigation and management plan for the proposed projects.
- **341.** It contains specific measures that will enhance potential positive impacts for the purpose of maximizing the beneficial impacts of the proposed project. Likewise, it contains mitigation measures to minimize and lessen adverse effects at different stages of project implementation.
- **342.** From the result of IEE, important environmental parameters affected by the project items are listed up as follows:
 - > Seawater quality during construction (Dredging, Reclamation, Breakwater Construction) and operation stage
 - ➤ Change of coastal zone and current condition as affect from land reclamation and construction of Breakwater.
 - Air quality during construction and operation stage as affect from increasing of traffic volume.
 - Noise and vibration as affect from heavy traffic volume.
 - Disturbance to the sea biological condition including fisheries as affect from increase of turbidity during construction stage and marine pollution during operation stage.
 - Risk/ safety as affect from raise traffic and ship volume.
 - Waste and garbage during construction and operation stage.
 - Public health condition as affect from aggravation of air quality.
 - People income during construction and operation stage.
 - Resettlement activity.

2) Study Area and Covered Projects in the Analysis

343. The scope of the environmental analysis covers the Urgent Rehabilitation Project described in 14-A. Study area for Tanjung Priok EIA and the project components to be studied is shown in Figure 14-A-2. Implementation schedule is described in 14-D

14-H-2 Methodology

- **344.** Data and information's that will be used in the EIA Study Report is Primary and Secondary Data. Primary Data will be obtained by conducting Field Survey, Direct Observation and Measurements in the site, taking samples to be analyzed in laboratories, collecting the information by Interview with related person such as residents, also with obtaining Public Hearing. Secondary Data will be obtained from relevant Study Result, Library Study, Regular Report of Port, and Information from related Institution such as District Government, PT. IPC II, Regional Planning and Development Agency (Province and District Level), etc.
- **345.** The following environmental aspects were studied by the phases of Pre-Construction: Construction and Operation,
 - Physicochemical Environment
 - Geology and Geomorphology
 - Hydrology and Hydrogeology
 - Sea Water Quality
 - Oceanography (Current and Tidal)
 - Seabed Material
 - Meteorology (Air Temperature, Humidity, Rainfall, Rain Day, Wind Direction and Velocity)
 - Air Quality (CO, SO₂, NO₂ and Suspended Particle Material (SPM))
 - Noise and Vibration
 - ➤ Biological Environment
 - Terrestrial Biotic (Flora and Fauna)
 - Aquatic Biotic (Plankton, Benthos and Nekton (Fish))
 - Socio-economic and Cultural Environment
 - Demography (Populations, Resident, Household Distribution, Population Structure and People Mobilization)
 - Socio Economy (Source of Livelihood and Infrastructure of Economy)
 - Social Culture (Education, Religion, Public Health, Securities and Criminal Condition, Government Administration, Structure of Ethnic, Social Institution, Custom and Tradition, Environment Sanitation Condition)
 - Community Perception and Aspiration
 - Land Use
 - Fishery Condition

346. The prediction of impact on environmental is presented from the impact that has been occurred, which is constitutes from the previous study and incorporated with this study. The evaluation of impact prediction on environment in this EIA study. Both for magnitude and impact period are carried out by applying and /or combination of the following method/approach:

1) Analog

347. The impact prediction based on analog is carried out with understand impact and problem to be caused from similar activity. This approach is used in impact prediction on hydro-oceanography, water quality, water biotic, social economy and culture.

2) Mathematical Model

348. The available mathematical model will give figure of the influence activity to the plan to the certain environmental component changes. With this model the impact magnitude and intensity can be understood. This approach is used for impact prediction to the air quality and noise, hydro-oceanography, water quality (sediment transport) and social economy and culture.

3) Environmental Standard

349. Impact prediction is analyzed by using environmental standard and other standard from the government that valid for each aspect. The standard include those published by Environmental State Minister Office, Health Department and Local Regulation. This approach is used in impact prediction on air quality and noise, and water quality.

4) Professional Judgment

350. Professional judgment that experience in related aspect is required, when the detailed data and information are very limited or not yet have specific environmental standard or regulation value for environmental component affected by impact. This approach is used for impact prediction on water biotic, and fishery, social economy and culture.

5) Evaluation of Significant Impact

- **351.** Every impact that has been predicted would be analyzed based on the environmental significant impact criteria according to Head of Environmental Impact Management Agency (BAPEDAL) No. Kep-056 of 1994, as follow:
 - a. Number of people affected by the impact;
 - b. Area extent of the impact;
 - c. Duration of the impact;
 - d. Intensity of the impact;
 - e. Other environmental components affected by the impact;
 - f. Cumulative nature of the impact; and
 - g. Reversibility/irreversibility of the impact.
- **352.** In this EIA Study, environmental impact prediction was conducted based on quantitative approach for hydro-oceanography, water quality, biology and social-economy components. Whereas, analogy and professional judgment approach have been used for the environmental component, which could not predicted by quantitative approach.

- **353.** Based on the above criteria, the potential impact will be classified significant or non-significant. Then characteristic of impact will be classified negative or positive impact. Impact analysis process was conducted according to phased activity.
- **354.** At present, the authorized critical value of dredged materials only for judging environmental contamination is not established yet in Indonesia. The Ministry of Environment and concerned agencies intend to adopt the critical values of judging environmental contamination published by the World Bank in Technical Note "Environmental Considerations for Port and Harbor developments, World Bank Technical Paper No.126, Transport and the Environment Series, 1991". In this EIA study, the contaminating dredged materials were judged by using significant value from the above Technical Note.

14-H-3 Current Condition

1) Natural Environment

- 355. Sea water quality condition has still been bad at Tanjung Priok Port, especially inside breakwater. Salinity distribution were 22.3 to 32.8% in the last sampling test by the JICA Study Team. Especially salinity of surface water at point T-2 (basin between Pertamina and Bogasari) was strongly affected by discharge water through Kali Sunterbaru. Organic pollutant parameters such as COD and nutrients had strong relation with salinity. This result leads to the conclusion that water pollution, such as COD and nutrients, is affected by waste water from DKI Jakarta.
- **356.** Existing layout of the breakwater in the Port is not efficient for water change by current flow through in/out breakwater; it is easy to contaminate pollutant. Hence layout of breakwater will accelerate aggravation of water quality.
- **357.** Bottom sediment condition also indicates similar aspect as the water quality; that to say, contamination of heavy metals inside breakwater was higher than outside. Generally sediment condition of seabed bottom is affected by water condition; because the contaminate polluted floating material in the water is sedimented on the seabed.
- **358.** Comparing water content and density between inside/outside breakwater, sediment condition inside breakwater showed muddy condition.
- **359.** According to the field survey carried by the JICA Study Team, concentration of Hg in sediment showed around 0.7mg/kg which exceeded reference value (<0.3mg/kg based on Netherland's standard for dredged materials, "Environmental Considerations for Port and Harbor developments, World Bank Technical Paper No.126, Transport and the Environment Series, 1991"), also monitoring survey by IPC2 shows high concentration of Hg, some of data exceeded 15mg/kg.
- **360.** It is concluded that inside breakwater is easy to concentrate pollutant. It will be caused by layout of breakwaters; which make a closed water area inside them. Drainage from DKI Jakarta carries pollutant and silt to the Port Area; under the present layout of breakwater, it is difficult them to flow out of breakwater by current flow through the port.
- **361.** Hence drastic re-allocation of the breakwater in the Port Area is necessary for improvement of environmental condition inside breakwater.
- **362.** The results of air quality survey indicate high concentration of SPM; especially road side around the Port Area showed higher value. Concentration in daytime at weekday showed

higher values. It means that dominant impact to air pollution is caused by traffic activity and port related activity.

- **363.** Noise survey was carried out at two points around the Port Area (Cross Jl.Enggano/Sulawesi and Koja Hospital) and one point in the Port Area (top of Multi Purpose Terminal). Noise level at two points around the Port Area exceeded the standard, however, inside port area showed lower noise level (below the standard). It means that noise level is mainly affected by traffic activity.
- **364.** Concerning biological conditions, there is not specific aspect to need to evaluate. Terrestrial flora and fauna are just domestic and planted by human; there are no protected and endangered fauna/flora. And aquatic biological condition showed general; there are no specific lives.

2) Social Environment

- **365.** Average population density of Kelurahan Tanjung Priok and Koja is approximately 6,700 persons/km². However, port management area occupies 79% of Kelurahan Tanjung Priok and 35% of Koja. Number of productive age (15 to 64 years) in the Project Site are more than half of total population. Especially young generation (20th years pld) is occupied 31% of total population.
- **366.** Dominant livelihood structure are belong to Civil Government, Private Worker and Military, it occupies around 60 to 88%.
- **367.** According to the interview with officer of Desa Tanjung Priok, fishermen have already moved out, however several fishermen have still stayed west of the Port Area, Ancol.
- **368.** According to the observation in the first survey, there were several fishing boats around Koja. They worked for carrying passengers to the breakwater for pleasure fishing. Around the breakwater area under the management of by IPC2; pleasure fishing activities are not accepted. Moored fishing boats were decreased in the last observation survey in the end of 2002; IPC2 may clear away illegal moored boats. Also These area is defined under the rehabilitation of damaged breakwater.
- **369.** Other business are food service, transportation services e.g. These are dependent on the port and related activities.
- **370.** At the moment, traffic condition around the port has already been seriously bad, constantly heavy traffic jam are observed daily. Also serious traffic jam are observed along the JI Pelabuhan Raya, and JI Cilincing, and inner port road by large container trucks waiting for queue of entering to the container terminal
- **371.** Traffic condition will affect damage to air pollution and noise disturbance.
- **372.** According to the interview survey by the JICA Study Team, community perception and aspiration is summarized as follows:
- **373.** Principal positive opinions is to expect the increasing business chance and income, on the other hand, negative opinions are traffic jam and air pollution.
- **374.** Environmental sanitation condition, such as waste garbage management, wastewater treatment and others, are managed by DKI Jakarta Government.

- **375.** The city drainage system is served by open gutter however its system is in a poor maintenance condition. Waste materials and thick sediments clog the flow; such condition cause flood problem in the rainy season.
- **376.** Poor drainage system carries waste materials into the Port Area; it damages water and soil condition.

14-H-4 Results of Environmental Impact and Evaluation

1) Pre-Construction Phase

a) Socio Culture and Economy

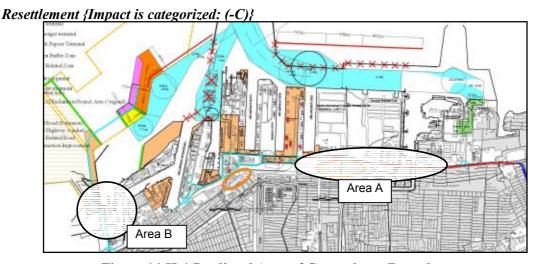


Figure 14-H-1 Predicted Area of Compulsory Resettlement

- 377. People who stay along the road especially Jl. Jampea will be affected by this impact (see the above Figure; Area A). A few fishermen (around 50 persons by observation) stay near Ancol area (Area B). They seem not to live there, open fish store temporary. And they use the coast as fishing port. Duration of the impact is temporary until land acquisition finishes.
- **378.** Intensity of the impact is small. Road rehabilitation especially construction of Fly Over at Jl. Jampea will need land reform, some residents may have to resettle. And Fishermen also will have to be taken away.
- **379.** The impact will affect to dwelling and job structure. The impact characteristic is cumulative and irreversible.

2) Construction Phase

a) Off Shore Work

i) Physical Chemical Condition

Air Pollution {Impact is categorized: (-C)}

380. People affected by the impact are construction workers in off shore work. Area extent of the impact is around the Project Area. Duration of the impact will be during construction phase.

- **381.** Intensity of the impact is small. Existing air quality has already serious problem. According to the result of monitoring survey, air quality inside port area was better than those on the south boundary streets. Also DKI Jakarta is obsessed about air pollution. It leads to the conclusion that dominant impact to air quality is emission gas from vehicles. Increasing construction equipment and working ships are predicted not so much, so that off shore work may not damage to the air quality.
- **382.** The impact will affect to public health. Air pollution will cause health problems such as difficulty in breathing and asthma, especially to the workers. The impact characteristic is not cumulative and irreversible.

Sea Water Quality {Impact is categorized: (-B)}

- 383. Fishermen and people who use as a recreation area may be affected by the impact. Duration of the impact will be during construction phase. Area extent of the impact is around the Project Area. According to the water current simulation, existing water current condition and spreading turbid water caused by dredging/reclamation activities can be described Figure 14-H-2, Figure 14-H-3 and Figure 14-H-4. Figure 14-H-4 shows the distribution of spreading turbid water by dredging work. Simulated concentration of TSS in seawater was calculated under the condition that dredging work continently carried out for 30 days at the whole planned dredging area so that the figure does not explain the actual concentration itself.
- **384.** Intensity of the impact is Medium. Based on local current, the activity of dredging and reclamation during construction stage will generate turbid water. According to the simulation, widening navigation area and opening mouth (Zone A) will improve current condition, sea water will be easier to exchange through three mouth. Meanwhile, at open mouth in western Ancol Area (Zone B), water exchange cannot pass through the open mouth easer than what expected. The impact will affect to biological condition especially because of decreasing transparency. The impact characteristic is not cumulative and irreversible.

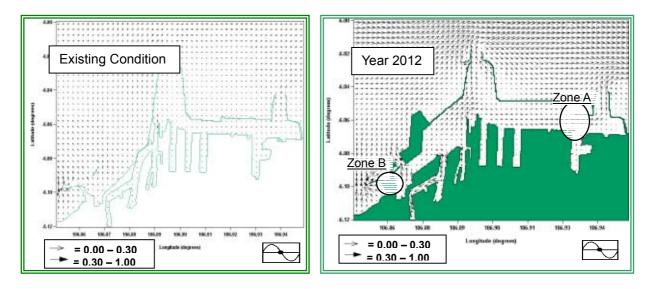


Figure 14-H-2 Simulated Water Current Condition (Spring Tide, Ebb Tide)

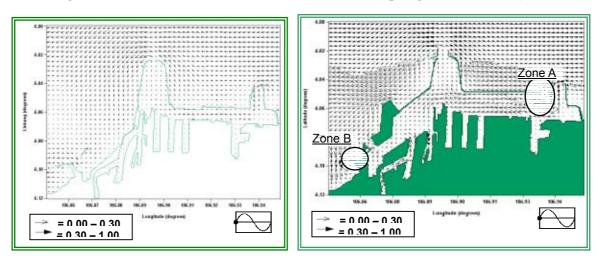


Figure 14-H-3 Simulated Water Current Condition (Spring Tide, Flood Tide)

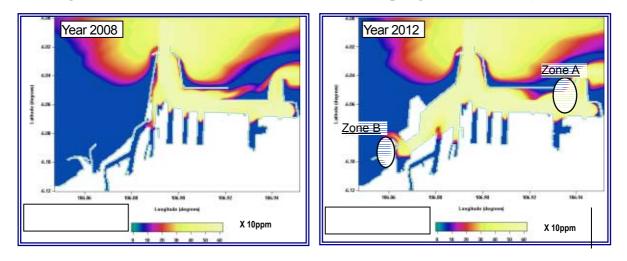


Figure 14-H-4 Simulation Result of Diffusion of Turbid water(3 Days after Starting Dredging)

Noise and Vibration {Impact is categorized: (-C}}

- 385. Construction workers may be affected by the impact. Duration of the impact will be during construction phase. Area extent of the impact is around the Project Area.
- **386.** Intensity of the impact will be small. Noise level caused by operation of construction equipment is estimated around 111dBA. Noise level simulated to be attenuated below 70dBA (Port area standard) 112m far from the construction area, and to be attenuated below 65dBA (Residential area standard) 355m far from the construction area. Noise disturbance may affect only the workers, will not approach to the residents.
- **387.** The other environmental component affected by this impact is public health. The impact characteristic is cumulative and reversible Impact.

Waste and Garbage {Impact is categorized: (-B)}

- **388.** Construction waste should be disposed properly.
 - ii) Biological Condition

Aquatic Flora and Fauna {Impact is categorized: (-C)}

- **389.** The Fishermen will be affected by the impact that causes to marine ecosystem. Duration of the impact will be during construction phase. Area extent of the impact is around the Project Area.
- **390.** Intensity of the impact is small. Dredging activities and relocation of breakwater may generate sedimentation surrounding port area. It may deprive the habitants of benthos and may affect plankton and fish. However, there is little fishery activities especially for commercial use.
- **391.** Environmental components affected by this impact is disturbing fishing activity. The impact characteristic is cumulative and reversible Impact.
 - iii) Socio-Culture and Economy

Traffic Activity {Impact is categorized: (-C)}

- 392. The fishermen boat will be affect by the impact. Area extent of the impact is around project area. The duration of impact will continue during dredging and reclamation activity.
- **393.** Intensity of the impact is small. Construction activity will increase sea traffic and generate traffic congestion. The impact would be predicted in increasing of sea accidents.
- **394.** Other environmental components will be affected by the impact. The impact characteristic is cumulative and reversible Impact.

b) On Land Work

i) Physical Chemical Condition

Air Pollution {Impact is categorized: (-B)}

395. The construction workers and residents will be affected by the impact. Area extent of the impact is in/around the project area. The duration of impact is during construction phase especially On Land excavation.

- 396. Intensity of the impact is medium. On Land work as excavation of much volume of material will spread particulate material at a maximum of 23 ug/m3 (ground level, 100m from source of impact), $21 \,\mu\,\text{g/m}^3$ in 2m from ground level. Initial concentration of SPM (field survey = $15-1,500\,\mu\,\text{g/m}^3$) already exceeds the environmental standard. Additional material spread will be increased SPM concentration, magnitude of this impact is around 1-10%. The operation of construction machines also generates air pollution. The impact may spread to the nearby project area during sea wind blowing toward land. The other environmental components affected by this impact are public health.
- **397.** Air pollution will cause public health disturbance to construction worker and residents nearest project activity. The impact characteristic is cumulative and reversible Impact.

Noise and Vibration {Impact is categorized: (-C)}

- **398.** Construction workers may be affected by the impact. Duration of the impact will be during construction phase. Area extent of the impact is around the Project Area.
- **399.** Intensity of the impact will be small. Noise level caused by operation of Excavation equipment is estimated around 111dBA. Noise level simulated to be attenuated below 70dBA (Port area standard) 112m far from the construction area. Dump trucks generate 72-95dBA of noise level. This condition will spread up until 56m far from the access road project site. Working area of road rehabilitation of Eastern Access, Jl. Jampea is located closely in residential zone. It may damage to the residents especially to their health.
- **400.** The other environmental component affected by this impact is public health. The impact characteristic is cumulative and reversible Impact.

Hydrological Situation (Run Off) {Impact is categorized: (-C)}

- **401.** The construction workers and residents will be affected by the impact. Area extent of the impact is in the project area. The duration of impact will continue from construction of terminal Facilities and access road construction activity.
- **402.** Intensity of the impact is small. Land reform (existence of terminal facility and all port facilities) will generate increasing 0.2m3/sec of run off until 2008, 1.2 m3/sec of run off until 2012. It is necessary to have a suitable drainage design to avoid overflow or flood.
- **403.** This impact does not affect other environmental components. The impact characteristic is cumulative and reversible impact.
 - ii) Biological Condition

Terrestrial Flora and Fauna {Significant impact is categorized: (D)}

- **404.** No intensity of the impact. There is no Mangrove area, existing fauna are only domestic animals. Also there are no endangered/protected species.
- c) Mobilization/Demobilization of Materials and Equipment
 - i) Physical Chemical Condition

Air Quality {Impact is categorized: (-C)}

- **405.** The residents who live along the local road such as Jl.Jampea, Jl.Sulawesi and construction workers will be affect by the impact. The duration of impact is during the mobilization and demobilization material and equipment, especially in the dry season.
- **406.** Intensity of the impact is small. The increasing traffic may also increase air pollution especially particulate (dust) during dry season. Machine and vehicle combustion will also generate pollutants such as SOx, CO, NOx. Loading concentration of air pollution was estimated around 3.2ppm of CO, $40 \,\mu$ g/m³ of NO and $0.15 \,\mu$ g/m³ of Pb in case that total number of vehicles per 3 hours around 500 vehicles.
- **407.** The other environmental component affected by this impact is public health. The increase air pollution from traffic will continue to health problem. The impact characteristic is cumulative and reversible Impact.
 - ii) Socio-Culture and Economy

Traffic Activity {Impact is categorized: (-B)}

- **408.** The residents who live along the local road such as Jl.Jampea, Jl.Sulawesi and construction workers will be affected by the impact. Area extent of the impact is around local road either from/to near industrial zones. The duration of impact is during the mobilization and demobilization material and equipment.
- **409.** Intensity of the impact is medium. Mobilization and demobilization of heavy vehicles and construction material will increase traffic density, especially to local road that cross community either from/to Tanjung Priok Port. Meanwhile road improvement plan itself can mitigate traffic conditions. As a result, intensity of negative impact will reduce.
- **410.** The other environmental components affected by this impact are air pollution, noise disturbance and damage to the public health. The impact characteristic is cumulative and reversible Impact.
- **411.** The people surrounding local road that cross community area either from/to Tanjung Priok Port will be affected by the impact. Area extent of the impact is along the roads. The duration of impact is during the mobilization and demobilization material and equipment.

d) Manpower Mobilization

i) Physical Chemical Condition

Water Supply {Impact is categorized: (-C)}

- **412.** The number of people affected by impact is around 500 persons of construction workers and the residents. Area extent of the impact is around project area and the nearest residential area. The duration of impact is during the construction phase.
- **413.** Intensity of the impact is small. The port development will need around 500 workers. They will demand approximately 66.3 m3/day of water supply. If the contractor uses deep well to supply their demand, it will affect residents' ground water resources because of limitation of ground water capacity, especially in dry season.
- **414.** The other environmental component affected by this impact is public health. Lack of water supply will damage environmental sanitation and cause health disturbance to the workers and residents. The impact characteristic is cumulative and reversible Impact.

Domestic Water Pollution {Impact is categorized: (-C)}

- **415.** The number of people affected by impact is around 500 persons of construction workers and the residents. Area extent of the impact is around project area and the nearest residential. The duration of impact is during the construction phase.
- 416. Intensity of the impact is small. The worker will also produce domestic wastewater, which is estimated at approximately 50m3/day, also huge wastewater discharges from DKI Jakarta. If this wastewater is uncontrolled or untreated, this condition will degrade the working environment, make it unhealthy, or affect the surrounding project area, i.e., canal, river or seawater, by decreasing water quality. The next impact is health problems to residents and workers.
- **417.** The other environmental components affected by this impact are water quality and public health. The impact characteristic is cumulative and reversible Impact.

Waste and garbage {Impact is categorized: (-C)}

- **418.** The number of people affected by the impact is around 500 persons of construction workers. Area extent of the impact is around project area. The duration of impact is during construction phase.
- 419. Intensity of the impact is small. The worker will also produce solid waste/garbage, approximately 45m³/day. Huge waste/garbage run from DKI Jakarta without controlling. IPC2, however construct screen in order to block off the waste/garbage, boat people demolishes the screen because they want to access between the Port and Jakarta through the canals. If waste is not treated well by the contractor, it will damage environmental sanitation. Solid/Liquid garbage will generate disease vectors such as flies, rats, and cockroaches to live there.
- **420.** The other environmental component affected by this impact is public health. If the contractor wouldn't treat solid waste/garbage well, this condition will decrease environmental sanitation and continue to health disturbance to workers and residents. The impact characteristic is cumulative and reversible Impact.
 - *ii) Socio-Culture and Economy*

Economic Activity {Impact is categorized: (+B)}

- **421.** Increasing around 340 persons of construction workers are expected by the Project. In addition, Port project will be expected to accelerate increasing Job chance caused by related business. Area extent of the impact is around project area. The duration of impact will be during construction phase, and will continue after starting operation phase.
- **422.** Intensity of the impact is medium. Job opportunity and business chance will be expected to increase, and it can improve the economic activity.
- **423.** Other environmental components affected by the impact will be social conflict in case their demand cannot be satisfied. The impact characteristic is cumulative and reversible Impact.

Socio Interaction and Culture {Impact is categorized: (-C)}

- **424.** The people surrounding area such as K. Tanjung Priok will be affect by the impact. Area extent of the impact is in surrounding area. The duration of impact is during construction.
- **425.** Intensity of the impact is small. The outside workers may affect the living custom and life style of the residents. The local residents such as Tanjung Priok or Koja communities are very heterogeneous. They are open community and very high mobilization. They are multi ethnic and religion, they usually welcome with the new comer, however if local resident's demand against job opportunity cannot be satisfied or if they have to scramble to get job with the newcomers, residents may feel social jealously or frictions.
- **426.** This impact will not affect other environmental components. The impact characteristic is cumulative and reversible impact.

3) Operation Phase

a) Operation of Port Facilities

i) Physical-Chemical Condition

Air Pollution {Impact is categorized: (-C)}

- **427.** The operation workers and residents will be affected by the impact. Area extent of the impact is in/around port area. The duration of impact is during operation phase.
- **428.** Intensity of the impact is medium especially against the construction workers. Port operation work will increase traffic volume as container truck, truck, private car, motorcycle etc. The number was estimated around 3,500 vehicles per day. Traffic increasing will cause air pollution and will cumulative with fuel combustion from ship and another port machine facilities
- **429.** The other environmental component affected by this impact is public health. The increase of air pollution will affect environmental sanitation and health problem. The impact characteristic is cumulative and reversible Impact.

Sea Water Quality {Impact is categorized: (-C)}

- **430.** The fisherman will be affected by the impact. Area extent of the impact is in/around port area. Duration of the impact is during operation phase.
- **431.** Intensity of the impact is small. Oil or fuel leaking from ship activity and leachate will also degrade seawater quality or canal.
- **432.** Other environmental component affected by this impact is biological condition (aquatic flora and fauna). The impact characteristic is cumulative and irreversible Impact.

Noise and Vibration {Impact is categorized: (-C)}

- **433.** The operation workers and residents will be affected by the impact. Area extent of the impact is in/around port area. The duration of impact is during operation phase.
- **434.** Intensity of the impact is small. Port operation as ship machine, port tools and the road traffic will increase noise level, approximately 70-80 dBA. This high noise level is more than port activity standard (70 dBA), so it will disturb worker. This condition at community (standard is 65 dBA) will also disturb the nearest housing to port activity.

435. The other environmental component affected by this impact is public health. High level of noise will damage the worker's health, and also to the residents especially night time. The impact characteristic is cumulative and reversible Impact.

Water Supply {Impact is categorized: (-B)}

- **436.** The number of people affected by the impact is estimated around 1,300 port workers, 12,000 passengers per day and residents. Area extent of the impact is at port area and the nearest residential zone. The duration of impact is during operation phase, especially during dry season.
- 437. Intensity of the impact is medium. The operation and maintenance program of port and related activities including manpower mobilization will demand around 850m3/day of water supply. If the port management use ground water or PDAM to supply their demand, this condition will affect to other port activities and residents who cannot fulfill their demand because of limitation ground water or PDAM capacity. However the cause of impact is very complexity and confusing, it includes various type of problems, Government management, capacity of underground water or condition of exploitation by residents/enterprises.
- **438.** The other environmental component affected by this impact is public health. The lack of water supply will decrease environmental sanitation and damage public health problem to the workers and residents. The impact characteristic is cumulative and reversible Impact.

Domestic Water Pollution {Impact is categorized: (-B)}

- **439.** The number of people affected by the impact is estimated around 1,300 port workers, 12,000 passengers per day and residents. Area extent of the impact is at port area and the nearest residential zone. The duration of impact is during operation phase.
- **440.** Intensity of the impact is medium. Port activity will also produce domestic wastewater, it will be estimated around 600 m³/day (with quality BOD: 350 ppm and COD: 400 ppm).
- **441.** The other environmental component affected by this impact is public health. The lack of water supply will decrease environmental sanitation and damage public health problem to the workers, passengers and residents. The impact characteristic is cumulative and reversible Impact.

Waste and Garbage {Impact is categorized: (-B)}

- **442.** The number of people affected by the impact is estimated around 1,300 port workers, 12,000 passengers per day and residents. Area extent of the impact is at port area and the nearest residential zone. The duration of impact is during operation phase.
- 443. Intensity of the impact is medium. Port activity will also produce solid waste/garbage, around 2,500kg/day. If port management does not adequately control the treatment system for waste, the negative impact will occur. Sanitation condition will deteriorate. Garbage dumping will invite disease vectors such as rats, cockroaches, etc. and also produce leachate (BOD 30ppm; COD: 60ppm, :Source: Daur Magazine).
- **444.** The other environmental component affected by this impact is public health. The lack of water supply will decrease environmental sanitation and damage public health problem to the workers, passengers and residents. The impact characteristic is cumulative and reversible Impact.

ii) Biological Condition

Aquatic Flora and Fauna {Impact is categorized: (-C)}

- **445.** The Fishermen and recreation users will be affected by the impact. Area extent of the impact is around port area. The duration of impact is during operation phase.
- **446.** Intensity of the impact is small. Marine pollution, likely domestic/sewage pollutant, leachate and oil spills and discharge from ship ballast etc, will be promoted during operation phase. This impact may reduce biological production such as plankton or benthos.
- **447.** Other environmental component affected by this impact is decreasing fish production. The impact characteristic is cumulative and reversible Impact.
 - *iii)* Socio-Culture and Economy

Economic Activities {Impact is categorized: (+B)}

- **448.** Port operation work is expected to increase around 1,200 persons of skilled workers. Area extent of the impact is near the residential zone such as K. Tanjung Priok. The duration of impact is during operation phase.
- **449.** Intensity of the impact is medium. This job opportunity will give chance to residents who expect to work for the port, however most residents can not be hired as a skilled workers. Even they cannot get job, they have various business chance such as food services, transportation services or other individual business. These business chances are expected to increase their income.
- **450.** Other environmental components are not affected by this impact. The impact characteristic is cumulative and reversible Impact.

Traffic Activity {Impact is categorized: (+B)}

- **451.** The street user and people surrounding road will be affected by the impact. And ship activity will be affected. Area extent of the impact is at Flyover (Jl. Yos Sudarso), Port related road and other existing road in urban area and port interested area. The duration of impact is during operation phase.
- **452.** Intensity of the impact is medium. Road improvement such as development of flyover road, widening of road etc., reduces traffic congestion. And widening navigation area also improves sea traffic condition.
- **453.** Other environmental component is not affected by this impact. The impact characteristic are cumulative and reversible Impact.

Socio Interaction, Culture and Security {Impact is categorized: (-C)}

- **454.** The people surrounding area such as K. Tanjung Priok will be affect by the impact. Area extent of the impact is in surrounding area. The duration of impact is during construction.
- **455.** Intensity of the impact is medium. The outside workers may affect the living custom and life style of the residents. The local residents such as Tanjung Priok or Koja communities are very heterogeneous. They are open community and very high mobilization. They are multi ethnic and religion, they usually welcome with the new comer, however if the demand of local

residents against job opportunity cannot be satisfied or if they have to scramble to get job with the newcomers, residents may feel social jealously or frictions.

456. This impact will not affect other environmental components. The impact characteristic is cumulative and reversible impact.

Split of Community {Impact is categorized: (+C)}

- **457.** The resident surrounding the Port will be affected by the impact. Area extent of the impact is near the communities located surrounding the Port. The duration of impact is during operation phase.
- **458.** Intensity of the impact is small. Increasing traffic density will split the community. However, road construction/rehabilitation may improve traffic condition because this impact lead to improve traffic control. As a result, mobilization for port activity does not need to use the local road (community road), port related vehicles can move out directory.
- **459.** Other environmental component affected by this impact is social Interaction. The impact characteristic is cumulative and reversible Impact.

b) Maintenance Dredging

i) Physical-Chemical Condition

Sea Water Quality {Impact is categorized: (-C)}

- **460.** The Port workers will be affected by the impact. Area extent of the impact is inside of breakwater and navigation channel/basin. Duration of the impact is during operation phase.
- **461.** Intensity of the impact is small. If sedimentation happened and disturbed port activity, maintenance dredging should be done. Dredging activity will cause sea traffic disturbance, and also degrade seawater quality at port area, dumping area and its surroundings.
- **462.** The other environmental component affected by this impact is biological (aquatic flora and fauna). The impact characteristic is cumulative and irreversible Impact.
 - ii) Biological Condition

Aquatic Flora and Fauna {Impact is categorized: (-C)}

- **463.** The Fishermen, who work in the port interested area, will be affected by the impact if turbid water spreads to out of the Project Area. Area extent of the impact is around port area especially near the existing coral reef. The duration of impact is just temporary, during dredging activity.
- **464.** Intensity of the impact is small. Turbid water may affect aquatic flora and fauna, however this impact will be temporary.
- **465.** Other environmental component will not be affected by this impact. The impact characteristic is cumulative and reversible Impact.

4) Summary

466. Overall evaluation is summarized in Table 14-H-1

		Pre-		Construction			Operation and								
			Constru				On I					Mainte	enance		
	\		ction	Off	Shore V	Vork	W	ork	Μ						
			Land Acquisition/Resettlement	Dredging	Breakwater	Reclamination	Multi Purpose Terminal Development	Port Access Road Development	Mobilozation/Demobilization of Material and Equipment	Man Power Mobilization	Terminal Operation	Existing Breakwater	Maintenance Dredging	Port Access Road	Overall Evaluation
P	(1)	Air Pollution		-C	-C	-C	-B	-В	-C		-C			-C	-C
Physical-Chemical Environment	(2)	Sea Water Quality		-B	-C	-B					-C	+C	-C		-C -C -C
ysical-Chemi Environment	(3)	Noise and Vibration		-C	-C	-C	-C	-C	<u> </u>	L	<u> </u>			-C	-C
on I-C		Water Supply								-C	-В			ļ	-C
her	(5)	Domestic Water Pollution								-C	-В			ļ	-C -C D
nt nic	(6)	Waste and Garbage		-B	-C		<u> </u>		<u> </u>	-C	-B			l	-C
al	(7)	Hydrological Situation (Run Off)					-C								D
Biological Environmen t	(1)	Aquatic Flora and Fauna				-C							-C		-C
gical onmen	(2)	Terrestrial Flora and Fauna													D
Social Environment	(1)	Land Use	+C	-C											+C D +B
	(2)	Resettlement	-C				<u> </u>		<u> </u>		<u> </u>			<u> </u>	D
	(3)	Economic Activity					<u> </u>		<u> </u>	+B	+B			+B	+B
	(4)	Traffic activity	<u> </u>	-C	-C	-C	<u> </u>		-В			+B		+B	+B
ronme	(5)	Social Interaction, Culture and Security								-C	-C			-C	-C
ent	(6)	Split of Community												+C	+C

Table 14-H-1 Summary of Overall Evaluation

14-H-5 Environmental Management/Monitoring Plan

1) Introduction

- **467.** The Environmental Management Plan is prepared:
 - To prevent, to mitigate and to control significant negative impact.
 - To increase positive impact.
- **468.** For fulfill the above purpose, IPC2 and each contractor shall establish Environmental Management Plan, the environmental monitoring plan should be prepared for evaluating whether the Environmental Management Plan is properly and effectively carried out and enforced its plan.
- **469.** DGSC has responsibility of supervising the project, they shall inspect the activities of Environmental Management/Monitoring Plan especially during construction phase.
- **470.** The responsibility of each organization will be explained below:
 - IPC2: IPC2 will have responsibility to control Environmental Management/Monitoring Plan, mainly to coordinate with Stakeholders, Local Government and others. IPC2 can instruct the contractors to follow with Environmental management Plan.
 - DGSC: DGSC also have responsibility to control and supervises Environmental Management/Monitoring Plan. IPC2 will act as an executing organization of the project, DGSC supervises IPC2's activity.
 - Contractor: Contractor shall pay full attention to the environmental consideration by following with Environmental Management Plan. They are obligated to report

their activities concerning environmental impacts as specified in Environmental Management/Monitoring Plan to IPC2 and other management organizations. And they shall carry out some of Monitoring Survey by themselves.

Local Government: Local Government (West Java Province and DKI Jakarta) shall cooperate with IPC2 and DGSC, to fulfill the Management Plan so that Implementation process of the Port Project shall be harmonized with Local Government Policies/Strategies especially for land utilization plan, environmental sanitation, waste/garbage control or water supply.

Residents and NGOs: the Port Project affects the residents directly. They are interested in the Project. So IPC2 and related organization shall inform to them concerning the Project such as working schedule, result of monitoring survey, information of job opportunity e.g.

2) Proposed Environmental management Plan

a) Pre-construction Phase

- i) Social Environment
- **471.** The following plans are necessary to manage for solving land acquisition, social confliction:
 - To establish the committee like Nine Committee (*Panitia Sembilan*) who coordinates and supervises the Land Acquisition process such as resettlement program, evaluating reasonable land price or compensation between Developer and Residents.
 - To conduct public hearing with stakeholders especially local residents.

b) Construction Phase

- i) Physical-Chemical Environment
- **472.** The following plans are necessary to manage solving water pollution:
 - > To arrange schedule of off shore work especially dredging work in order to minimizing to spread turbid water.

 According to the simulation, turbid water spreads toward off shore, and breakwater will block off the turbid water. It is required to monitor whether turbid water reach surrounding coast.
 - ➤ If concentration of suspended solid (TSS) exceeds environmental standard (< 80mg/L) outside the project area., dredging method and schedule shall be reviewed or arranged to reduce turbid water. Especially PLTG/U (Electric Power Plant; even it locates in the Project Area) and Ancol coastal area are sensitive to negative impact caused by generating turbid water.
 - To control the possibility of oil leakage from construction equipment/ships. If oil leakage accident happens, contractor shall minimize to spread oil, and recover it.
 - Contractor shall prepare the emergency program to prevent accident.
 - According to the environmental survey by the JICA Study Team, it was observed that bottom sediment has been contaminated by mercury. At present, the authorized critical value of dredged materials for judging contamination is not established yet in Indonesia. However, contamination of bottom sediment by heavy

metal has serious problem, contaminated soil will damage seawater quality not only in the port area but also in the dumping area of dredged materials.

The State Ministry of Environment and concerned agencies intend to adopt the critical values of judging environmental contamination published by the World Bank. The quality standards is shown in Table 14-H-2.

The contaminated seabed materials will be located on the seabed surface only. because mercury will be concentrated in silt layer. The averaged value of contamination of dredged materials is predicted lower value of concentration than that in surface layer.

If the dredged materials is contaminated in the large extend of length and depth, for example, concentration of harmful substances exceeds the above criteria, The following treatment measures will be considered.

To cover contaminated soil by clean sand after dumping.

To contain contaminated soil in the separated/isolated dumping area surrounded with sealing wall such as concrete block.

To recycle as construction materials by mixing with concrete or cemented materials with slack lime. This construction materials can be used for reclamation or pavement materials.

	- •	C		
Content	Critical Values Base	Existing		
	Reference Value	Testing Value	Signaling Value	Concentration (2)
Hg (mg/kg)	0.3	1	15	0.01 - 0.73
As (mg/kg)	29	85	150	< 0.5
Cd (mg/kg)	0.8	7.5	30	< 0.5
Pb (mg/kg)	85	530	1000	16 - 69

Table 14-H-2 Quality Standards for Dredged Materials in the Netherlands

Note:

- (1) "Environmental Considerations for Port and Harbor developments, World Bank Technical Paper No.126, Transport and the Environment Series, 1991"
- (2) Carried out by the JICA Study Team in July 2002.

473. The following plans are necessary to manage solving air pollution:

- Contractor should select environmental friendly equipment for example gasoline powered vehicle which more friendly than diesel powered vehicle.
- To maintain the construction equipment properly to minimize exhaust gas such as heavy vehicle, following with the regulation.
- ➤ Contractor should use covering sheet on bulk construction material during transportation.
- > To place construction materials and reclamation material properly in construction land area, far from residential area.
- To spray water to prevent dust to spread.

474. The following plans are necessary to manage solving noise disturbance:

- Contractor should arrange and select the construction equipment to be used to minimize this impact.
- ➤ Contractor, IPC2 and DGSC should give ear protector to the workers for noise prevention.
- Noisy Equipments should be stationed further (around 120m) from residents area.

- Contractor should make shelter or sound barrier.
- **475.** The Contractor should design the drainage facilities to avoid flood. Design of port access road and utilization of port related area should be designed not to disturb discharge.
- **476.** The following plans are necessary to manage providing water supply:
 - Contractor should consider the worker and port for their water supply.
 - Contractor should consider the capacity and quality of water supply.
 - ➤ Contractor should cooperate with Local Public Water Supply (PDAM) to supply by pipeline or movable tank truck.
- **477.** The following plans are necessary to manage controlling domestic water pollution:
 - ➤ Contractor should give attention to the worker to keep cleaning condition by announce or training.
 - Contractor should prepare sufficient number of toilet and the treatment (septic tank), for temporary use. If necessary, contractor should prepare movable toilet.
- **478.** The following plans are necessary to manage controlling waste and garbage:
 - ➤ Contractor should give attention to the worker to keep cleaning condition of construction site by announce or training.
 - Contractor should prepare waste bag.
 - All domestic refuse bins should be deposited with appropriate cover.
 - ➤ The Contractor should cooperate with Local Government for solid waste management.
 - The domestic waste should be transported out from bins and temporary dumping area (TPS) inside the Port area, routinely within 24 hours to hinder bad smell and leachate.
 - Construction wastes such as formwork woods, material wastes, rubbles, as far as possible should be recycled by the contractor or salvagers (pemulung).
 - ii) Biological Environment
- **479.** The following plans are necessary to manage conserving ecosystem:
 - To minimize the turbid water to spread outside the project area.
 - iii) Social Environment
- **480.** The following plans are necessary to manage controlling traffic condition:
 - Contractor must cooperate with POLSEK (policeman); prepares 1) access road by fixing a sign, 2) road mark at in/out the gates and 3) local road that cross community.
 - ➤ Contractor should prepare a parking area and loading/unloading facility for construction materials and equipment vehicles within the project area to minimize or avoid traffic congestion.
 - > Contractor arranges mobilization and demobilization of equipments at night.
 - > Contractor should instruct the drivers/workers to follow the traffic regulation and to drive safely.

481. Also for controlling sea traffic:

- > To strengthen the rule for navigation, and to inform the working schedule to the fishermen surrounding project activity.
- Contractor should instruct the ship captains to follow with the traffic regulation and to drive safely.
- Contractor cooperates with Port Administration give a sea traffic sign and decide navigation roots, and announce to the users.
- Contractor cooperates with Port Administration announce their regulation to other activity (fisherman activity).
- To establish Safety Manual and Prevention Guideline for accident.
- **482.** The following plans are necessary to manage improving economic condition:
 - Contractor should inform job opportunity and business chance to the residents and local Government. If necessary, contractor should ensure that qualified workers come from local residents.
 - Contractor and project port provide open space for residential companies and people who work for various business such as food stand or transportation services.
- **483.** Contactor, port management and local government should control domestic wastewater, waste/garbage and water supply in order to minimize to damage public health condition.

c) Operation Phase

- **484.** Briefly speaking, almost same management plans necessary during operation phase as follows:
- **485.** For preventing water pollution:
 - ➤ When the dredging work, if concentration of suspended solid (TSS) exceeds environmental standard (< 80mg/L) outside the project area., dredging way and schedule shall be changed to reduce turbid water.
 - To control the possibility of oil leakage from vessels.

 If oil leakage accident happens, contractor shall minimize to spread oil, and recover it.
- **486.** For Preventing air pollution:
 - > To select environmental friendly equipment.
 - To maintain the equipment properly to minimize exhaust gas such as heavy vehicle, following with the regulation.
- **487.** For solving noise disturbance:
 - To construct sound barrier boundary of residential zone such as bamboo bush.
- **488.** The following plans are necessary to manage for providing water supply:
 - > Improvement of water supply system in cooperation with PDAM.
- **489.** The following plans are necessary to manage for controlling domestic water pollution:

- ➤ Improvement of waste/garbage and domestic water treatment system.
- **490.** The following plans are necessary to manage for conserving ecosystem:
 - To minimize turbid water to spread outside the port area during maintenance dredging.
 - Protection of existing mangrove and coral reef around Pulau Kali is necessary to conserve marine ecosystem.
- **491.** The following plans are necessary to manage for controlling traffic condition:
 - ➤ Port Management must cooperate with POLSEK (policeman); prepares 1) access road by fixing a sign, 2) road mark at in/out the gates and 3) local road that cross community.
- **492.** The following plans are necessary to manage for improving economic condition:
 - Port management body and related organizations should inform job opportunity and business chance to the residents and the local government.
 - To provide open space for residential companies and people who work for various business such as food stand or transportation services.

3) Proposed Environmental Monitoring Plan

493. Proposed Environmental Monitoring Plan can be explained in Table 14-H-3. Proposed monitoring Points are shown in Figure 14-H-5.

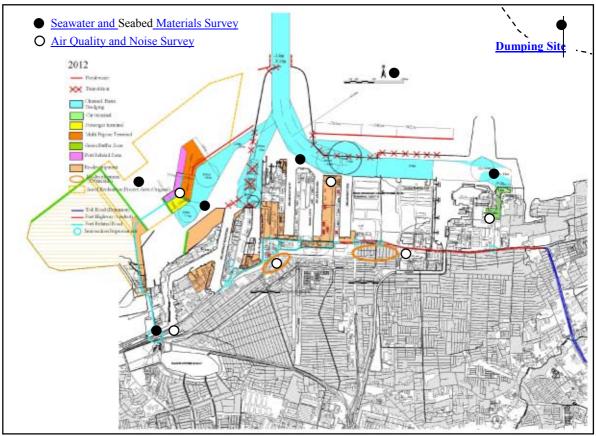


Figure 14-H-5 Proposed Environmental Monitoring Plan

Table 14-H-3 Proposed Environmental Monitoring Plan

Torget Enrigonmental Import	Mothod of Monitoring Common	Monitoring Daviod
	incured of infolling out vey	Montouning Lettod
Social Environmental Impact (Land	Public Hearing With Stakeholders. Interview Survey with Recidents and Local Government	Pre-Construction to Operation Phase One time a Vear
Traffic Condition	Traffic Survey, Counting Traffic volume and Vehicle Type	Construction to Operation Phase One time a Year
Water Quality	Water/Sediment Sampling and Observation Survey. Locations are around Port Development Area and Dumping Area for Dredging Materials. Sea Water Domestic Pollutant: COD, Nutrient, TSS Oil and Grease Heavy Metals: Hg, Cd, Pb, As, Harmful Substance: PCBs, Other Items following Regulation. Sediment including dredged materials: Soil Condition, COD, Heavy Metals: Hg, Cd, Pb, As, Harmful Substance: PCBs, Other Items following Regulation. Sediment including Regulation.	Construction to Operation Phase One time a Year
	Turbid Water by Observation Survey	Every time during Off Shore Work especially Dredging
	Monitoring Survey for Discharge Water from Port Facilities By Water sampling or Observation Survey	
Air Quality	SO2, NO2, CO, SPM and Others following with regulation.	Continues measuring Survey during Construction Phase. One time a Year during Operation Phase
Noise and Vibration	Noise Level and Traffic Condition	One time a Year during Construction to Operation Phase
Hydrological Situation (Run Off)	Monitoring drainage condition by Observation Survey. Interview Survey with residents or Local Government	One time a Year in Rainy Season during Construction to Operation Phase
Water Supply, Waste and Garbage	Observation Survey or Interview Survey with Residents and Local Government.	One time a Year during Construction to Operation Phase
Biological Condition	Observation Survey for Mangrove area and Coral Reef.	One time a Year during Construction Phase One time every 3 or 4 Years during Operation Phase.
Social Conflict, Security, Public Health	Interview Survey with residents and Local Government including Police and medical personnel. Public Hearing	One time a Year during Construction to Operation Phase

14-H-6 Proposed facilities for the sustainable Environment

1) Introduction

- 494. Tanjung Priok Port is located close to DKI Jakarta, water supply system, solid waste management and waste water treatment system are mainly dependent on the control by DKI Jakarta Government and other related agencies such as Ministry of Health and Ministry of Mining and Energy. However, these management systems cannot cover the demand caused by growing urban activity and port activity. As a result, the following serious problems occur: water pollution; illegal dumping; draught well water flow; flood e.g..
- **495.** Main region of these problems may be caused by human activity in the hinterland, however, the impact is concentrated to the port and residential area such as aggravation of port inner water, subsidence.
- **496.** DKI Jakarta and other related agencies should strengthen the management in order to mitigate these negative impacts. Meanwhile port management system has a potential to implement environmental improvement aggressively.

2) Recommendation of "Eco Port"

- **497.** Recently concept of "Eco Port" has gotten attention for harmonization among the port activity, human activity and nature/life. The basic concept of "Eco Port" will be defined as follows:
 - To aim at development of port environment where human and natural life can coexist;
 - To aim at development of environmental friendly port; and
 - To aim at development of waterfront for amenity space in order people to enter and relax.
- **498.** It is important that sustainable development and low impact to the environment for promoting "Eco Port". Thus the following facilities can be recommended;
 - *i)* Proper treatment of wastewater and reusing treated wastewater
- **499.** Actual Status: Wastewater is individually treated using septic tank e.g., however the management system cannot control to treat wastewater well. As a result, untreated wastewater causes aggravation of sea water inside breakwater.

Recommended System: wastewater should be treated properly, treated water can be used as cleaning water for toilet, water spray, miscellaneous water e.g.

Advantages: Reduction of water supply and wastewater can be expected to improve water quality inside port area.

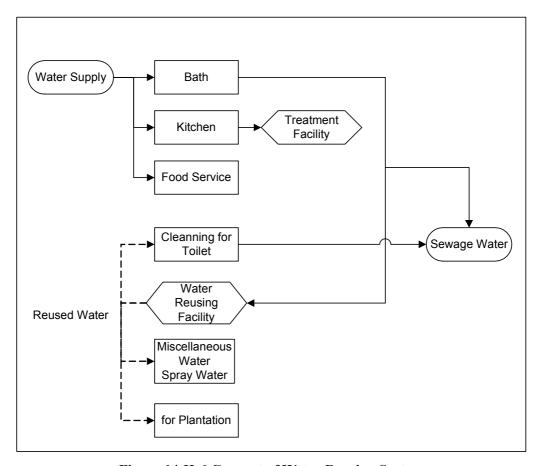


Figure 14-H-6 Concept of Water Reusing System

ii) Exploitation of Rain Water

500. Actual Status: Rain water is discharged into sea directly.

Recommended System: Rain water is stored in the water tank and is utilized as cleaning water for toilet, spray water, miscellaneous water e.g.

Advantages: Reduction of water supply and wastewater can be expected to improve water quality inside port area. This system can be established with water reusing system, and it will be more effective in the rainy season.

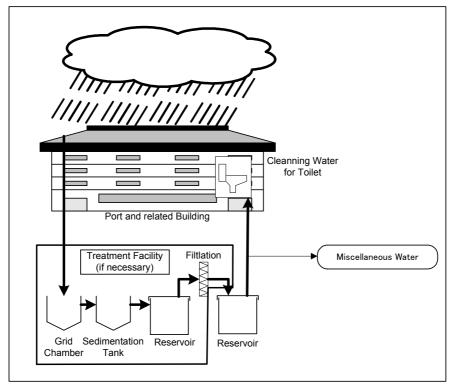


Figure 14-H-7 Concept of Rain Water using System

- iii) Refuse Incinerating Power Plant
- **501.** Actual Status: Solid waste is managed under the local government, basically it is disposed at the landfill. However this system cannot cover the increasing amount of solid waste.

Recommended System: Generating electric power through the use of combustion of solid waste. Advantages: Reduction of solid waste and provision of electric power can be expected. It is necessary to get rid of plastic materials in order to prevent generating Dioxin.

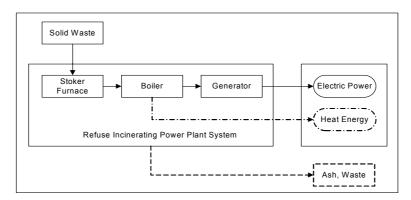


Figure 14-H-8 Concept of Refuse Incinerating Power Plant System

- iv) Recycling Construction Wastes
- **502.** Actual Status: Construction waste is disposed as solid waste. Recommended System: Construction waste shall be fractionated metal from non-metal. Metal materials can be recyclable, and non-metal materials also can be used such as roadbed materials, recycled asphalt e.g.

Advantages: Improvement of seawater by the self-purifying function of mangrove plantation is expected.

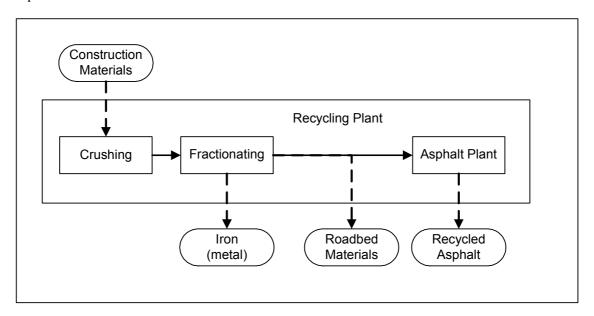


Figure 14-H-9 Concept of Refuse Incinerating Power Plant System

v) Mangrove Plantation

503. Actual Status: There is no mangrove in the port area. Recommended System: Mangrove plantation along the green buffer zone. Advantages: Improvement of seawater by the self-purifying function of mangrove plantation is expected.

CHAPTER-15. FEASIBILITY STUDY ON URGENT DEVELOPMENT PLAN OF BOJONEGARA

15-A. CONCEPT AND COMPONENTS OF URGENT DEVELOPMENT PLAN OF BOJONEGARA NEW PORT

15-A-1 Concept of Urgent Development Plan of Bojonegara New Port

- **504.** In this chapter, the feasibility of Bojonegara new port will be examined centering on the economic and financial analysis. Based on these analyses, an appropriate development plan including management scheme will be proposed.
- **505.** Based on the demand analysis and the port capacity analysis, the required berthing facilities have been set in the Master Plan (2025) and Short-term Plan (2012). According to the plans, two (2) container berths (CT1 and CT2) should be operated in 2010, while one (1) multi purpose berth should be operated in 2008.
- **506.** Considering the main purpose of the development of Bojonegara is to improve the container terminal capacity for the Greater Jakarta Metropolitan area, it is nonsense to exclude the container terminal project from the feasibility study. Moreover, the container terminal is sure to make the project of Bojonegara profitable. Thus, the target year of the feasibility study should be 2010.

15-A-2 Components of Urgent Development Plan of Bojonegara New Port

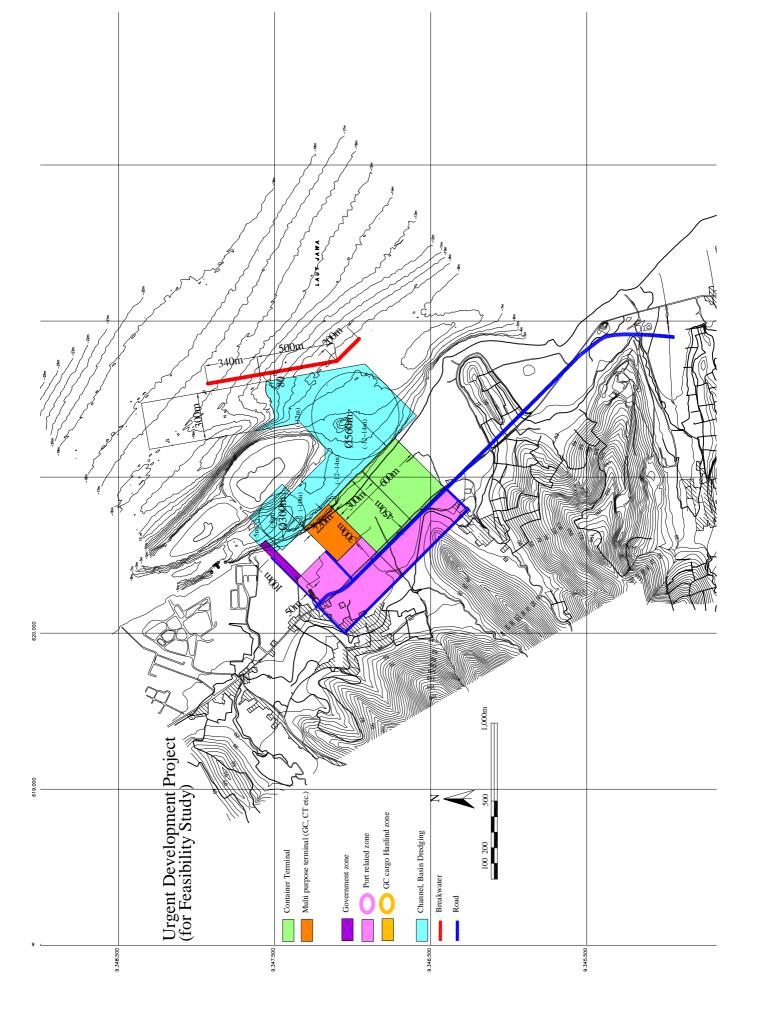
- **507.** The following projects have been selected as urgent development projects of Bojonegara new port on the basis of the Master Plan and Short-term Development Plan putting priority on "Coping with increasing cargo demands", "Impact to the national/regional economy", and "Viability of the project".
 - Development of a container terminal for the purpose of accommodating increase of container cargo as well as release of the burden of Tanjung Priok port
 - Development of a multi purpose terminal for the purpose of accommodating the cargo demand generated from regional development
- **508.** A port access road to/from the existing toll road network is a dispensable component to commence operation of the new port, i.e. by 2008. However, the road development should be implemented by Kimpraswil as a national road since the road itself is outside of the port and benefits regional development of Banten peninsula area.
- **509.** Project components are described in Table 15-A-1.

Table 15-A-1 Description of Project Components

Project Component	Proposed Year of Operation	Remarks			
Container Terminal	2010~	Should be operated by 2010. Some			
Development		additional equipment will be deployed in			
_		2011.			
Multi Purpose Terminal	2008	Should be operated by 2008			
Development					
Breakwater, Channel and Basin	2008~	Implemented by phased construction			
Development					
A port access road to/from the existing toll road should be completed by 2008. The road will					
be developed by Kimpraswil as a national road.					

510. Layouts of the project components is shown in Figure 15-A-1 based on the requirements as described in the next section.

Figure 15-A-1 Layout Plan of Urgent Development Project of Bojonegara New Port



15-B. REQUIREMENTS

15-B-1 Container Terminal

1) Berth Facility

511. The container berth facilities in 2010 are as shown in Table 15-B-1according to the Master Plan and the Short-term plan.

Table 15-B-1 Container Berth Facility in 2010

Berth Dimension		Number of	Domaniza	
Draft	Length	Berths	Remarks	
-12m	300m	300m x 2B	Dredging up to -14m will be	
			conducted in future.	

512. Considering the operational situation of CT1 and CT2 as shown in below, CT1 and CT2 operation seems not necessary to be started at the same year 2010. In reality, CT2 can start its operation one or two years behind the operation of CT1. However, since 2 berths (CT1 and CT2) should be operated at least 2012 for the effective and efficient operation and thus the construction work should be carried out together, the requirement of berth facilities in 2010 is set as the above.

	Number of	Length of	Ship Calls	Throughput
	Berths	Berth (m)	Ship Cans	(TEU)
2010	2	600	162	162,000
2011	2	600	348	349,000
2012	2	600	560	563,000
2013	2	600	784	790,000
Capacity	2	600	-	685,000

2) Handling System

- **513.** An important factor for the operation of the container port is introduction of a fully efficient container (cargo) handling system for unloading, loading and transporting in/around the container terminal.
- **514.** The container handling system is divided into the following three categories.
 - Movement of containers between ship and quay-side apron
 - Movement of containers between quay-side apron and CY
 - Stuffing cargo into or un-stuffing from containers in the CFS
- **515.** In terms of container handling equipment between quay-side apron and CY, the following systems are considered: Transfer Crane (RTG) System, Straddle Carrier System, Forklift / Reach Stacker System, and On trailer (Chassis) System. Taking into account the following factors, **Transfer Crane (RTG) System** should be selected for CT1 and CT2.
 - Volume of container throughput in the yard The capacity of a berth is expected more than 300,000TEU (200,000box).
 - Condition of the site, such as the available area and natural conditions The shape of the terminal is rectangular.
 - The terminal requires high stowing capacity to maximize the operational income.

3) Handling Facilities

516. For the feasibility study, handling facilities for CT1 and CT2 has been planned as shown in bellow, basically based on the capacity set in the Master Plan. The details are to be examined and determined with an investor of terminal development in the implementation stage.

a) Handling Equipment

- i) Quay side Gantry Crane
- **517.** Based on the expected maximum annual throughput, the required number of quay side gantry cranes for CT1 and CT2 is calculated as shown bellow:

```
Formula

Nqc = A / (Tw * Pqc)

Where:

A: Expected Maximum Annual Throughput (box)

Tw: Working Hours (365*24*Operation Ratio (95%)*BOR (60%))

Pqc: Crane Productivity (Box/Crane/Hour (Net))
```

Calculation	1
Α	445,617 Capacit
Tw	4,993
Pqc	25
Nqc	3.6

- 518. However, considering some troubles of cranes, it is preferable that additional cranes will be set at CT1 and CT2. Furthermore, the available number of cranes for a vessel is a governing factor in determining the turn-around time (TRT) of container vessels at the port. In case of handling more than 1,000 box/ship for unloading/loading, it is desirable 3 cranes are deployed at least in order to keep the turn-around time within one day. Admitting that such case is not so often happened (15~35% of total ship calls is estimated), it is possible that CT1 and CT2 are used simultaneously with 2 cranes for one berth and 3 cranes for the other. Thus, the number of quay side gantry cranes is set as 5 (five) for CT1 and CT2.
 - ii) Transfer Crane (RTG: Rubber-tire Mounted Gantry Crane)
- 519. The RTG installed at the marshalling yard must be operated in good combination with quayside gantry cranes. The required number of RTGs used at the marshalling yard is calculated as shown bellow on the assumption that containers loading / discharging will be stacked once in the marshalling yard. The productivity of RTG in receiving/delivery containers is assumed 25 boxes per hour, and the number of handling times per box is assumed 3 times considering re-handling of containers stacked in tiers.

```
Formula

Ntc = Ntc1 + Ntc2 + Ntc3

Ntc1 = Number of Quay Side Gantry Cranes

Basically one unit RTG for one unit Quay Crane

Ntc2 = A * 3 times / (Tw * Ptc)

Mainely used fro container receiving/delivery operation

Where:

A: Expected Maximum Annual Throughput (box)

Tw: Working Hours (365*24*Operation Ratio (70%))

Ptc: Crane Productivity (Box/Crane/Hour (Net))

Ntc3 = (Ntc1 + Ntc2) * 10%

Stand-by RTG due to repairment, periodical inspection etc.
```

```
      Calculation

      Ntc1
      5

      Ntc2
      8.7

      A
      445,617 Capacity

      Tw
      6,132

      Ptc
      25

      Ntc3
      1.4

      Ntc
      15.1
```

- **520.** Based on the terminal layout described later, **18 (eighteen) RTGs** will be deployed for CT1 and CT2 considering one RTG for one block, which satisfies the above required number of RTGs.
 - iii) Prime Mover (Tractor Head/Chassis)
- **521.** A terminal yard prime mover (a tractor head with a chassis) transports containers for loading or discharging to/from container vessels between the quay side apron and marshalling yard. They are used in order to speed up container movements in terminal yard. A cycle time of a prime mover depends on the distance between quay side gantry crane and marshalling yard. Required number of tractor heads and chassis for CT1 and CT2 is calculated as shown bellow:

```
Formula
    Nth = Nth1*Nqc + Nth2
         Number of Tractor Heads
    Nth1=Pqc / (60/(D/S/1000*60+Tqc+Ttc))
         Number of Tractor Heads per Quay Crane for Container Loading/Unloading
         Where:
         Pqc: Quay Crane Productivity (Box/Crane/Hour (Gross))
         D: Average One Round Distance by a Prime Mover (m)
         S: Average Speed of Prime Mover (km/hour)
         Tgc: Handling cycle time under the Quay Crane = 60/Pgc (minute)
         Ttc: Handling cycle time under the RTGs (minute)
    Nqc = Number of Quay Cranes
    Nth2 = Number of Bays in CFS
         Number of Tractor Heads for other works including CFS operation
    Ncs = Nth + Nth2
         Number of Chassis
```

Calculation		
Nth1	5.3	
Pqc	35	
D	1,200	
S	15.0	
Tqc	1.7	
Ttc	2.5	
Nth2	7.0 Based on the setting of CFS	
Nth	33.3	
Nsc	40.3	

- **522.** Based on the above calculation, the number of tractor heads and chassis are set as **32** and **38** respectively.
 - iv) Other Handling Equipment
- **523.** Considering other cases of container terminals, the following handling equipment will be necessary.

Item	Remarks
Reach Stacker	Handling empty container. At
	least 1 ~ 2 unit
Forklift	For CFS. 15 to 20 units.

v) Summary of Handling Equipment

Item	Number	Remarks
Quay Side Gantry Crane	5 units	Post Panamax
RTG	18 units	6 lanes, 1 o/ 4
Prime Mover	32 Tractor Heads 38 Chassis	
Reach Stacker	At least 1 ~ 2 unit	Handling empty container
Forklift	15 to 20 units	For CFS.

b) Marshalling Yard

i) Ground Slots

Expected Maximum Throughput (Capacity)	Total	685,137
	Total (Excluding Reefer)	650,880
	Export/Out-bound	325,440
	Import/In-bound	325,440
Average Transit Time (days)	Export/Out-bound	3.0
	Import/In-bound	7.0
Working Days Ratio		100%
Peak Ratio (1/Yard Operation Ratio)		1.3
Stacking Height	Export/Out-bound	3.5
	Import/In-bound	3.0
Ground Slots (TEUs)	Export/Out-bound	994
	Import/In-bound	2,705
	Total	3,698

ii)	Reefer Yard	
	Demand	

Ground Slots (TEUs)		183
Stacking Height		2
Peak Ratio (1/Yard Operation Ratio)		1.3
Working Days Ratio		100%
Average Transit Time (days)		5.0
	Reefer (3%)	20,554
Demand	1 ota1	685,137

iii) Hazardous Container

524. Stacking area for dangerous container will be planned in the terminal being separated from the ordinary marshalling yard. As the ratio of dangerous container is unknown, the study team assumed as 1% of total container throughput in this study.

Demand	Total	685,137
	Dangerous CT (1%)	6,851
Average Transit Time (days)		5.0
Working Days Ratio		100%
Peak Ratio		1.3
Stacking Height		2
Ground Slots (TEUs)		61

c) Container Freight station

525. The required area for the CFS is calculated as follows:

```
Formula
    A = (Hc*Wc*R*Dw*P) / (w*r*Dy)
         Where:
         A: Required Floor Area of CFS (m2)
         Hc: Annual Handling Volume of International Laden Container (TEU)
              = Total Container Throughput * (1-Empty Ratio) * International Ratio
             Empty Ratio = 10%
             International Ratio = 95%
             Import/Export Ratio = 50%: 50%
         Wc: Cargo Volume per Laden Container
             Export: 8.7 ton/TEU
             Import: 13.0 ton/TEU
         R: Ratio of LCL Cargo of Total Laden Container - 1%
             In the case of Koja Container terminal, R is calculated 0.27%.
             LCL: 310TEU, Total Container (Laden): 115,637TEU (Mar.01, Sep.01, Mar.02)
         Dw: Average Dwelling Time (days) - 7days
         P: Peak Ratio - 1.3
         w: Average Stacking Weight in CFS (ton/m2) - 1.0
         r: Cargo Storage Area Ratio in CFS - 60%
         Dy: Operating Days of CFS (days) - 365
```

Calcular	tion		
A		2,648	
	Нс	585,792 Calculated by the Capcity	685,137 TEU (Capacity)
	Wc	10.9 Average of Export and Import	
	R	1.0%	
	Dw	7.0	
	P	1.3	
	W	1.0	
	r	60%	
	Dy	365.0	

526. Based on the above calculation, the number of bays of container side and the floor area of CFS are set as **7 bays** (8m for each bay with 2 lanes) and **2,800m2** (50m * 8m * 7 bays) respectively.

d) Gate

527. The required number of truck lanes is calculated as follows:

```
Formula

N = Vt / Cg
Where:

N: Required number of Truck Lanes (In + Out)

Vt = Hcb*(Pm/12)*(Pd/30)*(Ph/24) / 2

Vt: Traffic Volume (vehicles/hours/each way)

Hcb: Annual Handling Volume of Containers (box)

Pm: Monthly Variation - 1.2

Pd: Daily Variation - 1.5

Ph: Hourly Variation - 1.5

Cg = 60/S

Cg: Gate Capacity

S: Necessary Procedure Time per Truck (minutes)

S (In) = 3.0 minutes

S (Out) = 2.0 minutes
```

```
Calculation
    N (In)
                        3.5
    N (Out)
                        1.7
         Vt
                       69.6 For each lane
                    445,617 Capcity (box)
         Hcb
                        1.2
         Pm
         Pd
                        1.5
         Ph
                         1.5
         S (in)
                        3.0
         S (Out)
                        1.5
```

528. Based on the above calculation, the required number of in-gate lanes and out-gate lanes are 4 and 2 respectively. Considering the allowance of lanes and the uncertainty of the above conditions other terminal situation, **6 in-gate lanes and 4 out-gate lanes** are planned for 2 berth container terminal (CT1 and CT2).

e) Trailer Waiting Area

529. For trailers including prime movers waiting for quay crane and RTG operation etc., waiting area/parking lots should be secured properly within the terminal.

f) Empty Container Storage Yard

530. As for the storage of empty container, the special yard with the following ground slots is planned outside of the terminal area. The yard will be necessary to avoid unexpected long dwelling time of empty containers within the marshalling yard as well as to deliver empty containers to neighboring customers promptly.

Demand	Total	790,000
	Empty (10%)	79,000
Average Transit Time (days)		10.0
Working Days Ratio		100%
Peak Ratio (1/Yard Operation Ratio)		1.3
Stacking Height		4
Ground Slots (TEUs)	•	703

g) Other Facilities

531. Other major facilities are planned as follows:

Items	Quantity (Ground Space)	Description	Remarks
Terminal Office	1,500m2	50m*30m	3 floors (1,500m2*3) and Control
			Tower
Maintenance Shop	1,500m2	50m*30m	
Equipment Yard	2,400m2	120m*20m	
Power Station	300m2	15m*20m	
Fuel Station	300m2	15m*20m	
Container Washing Station	300m2	15m*20m	
Water Supplying Facility	400m2	20m*20m	
Lighting Tower	1 set		
Inspection Facilities	1 set		
Marine House (Seamen's Club)	700m2	20m*35m	

4) Terminal Layout

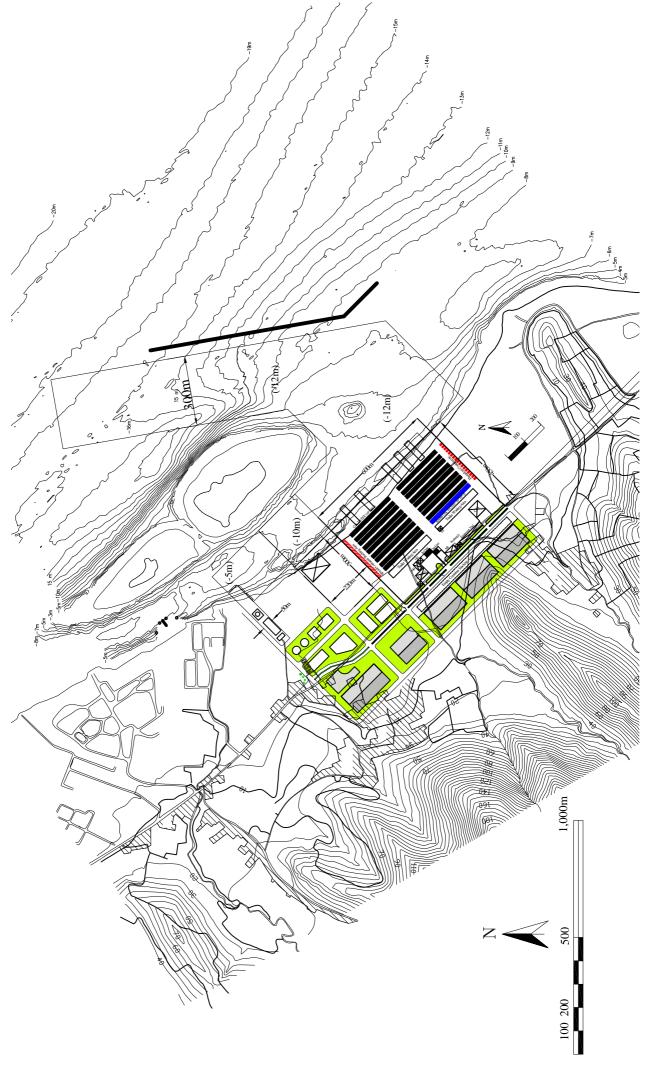
Based on the above examination, an idea of terminal layout are drafted as shown in

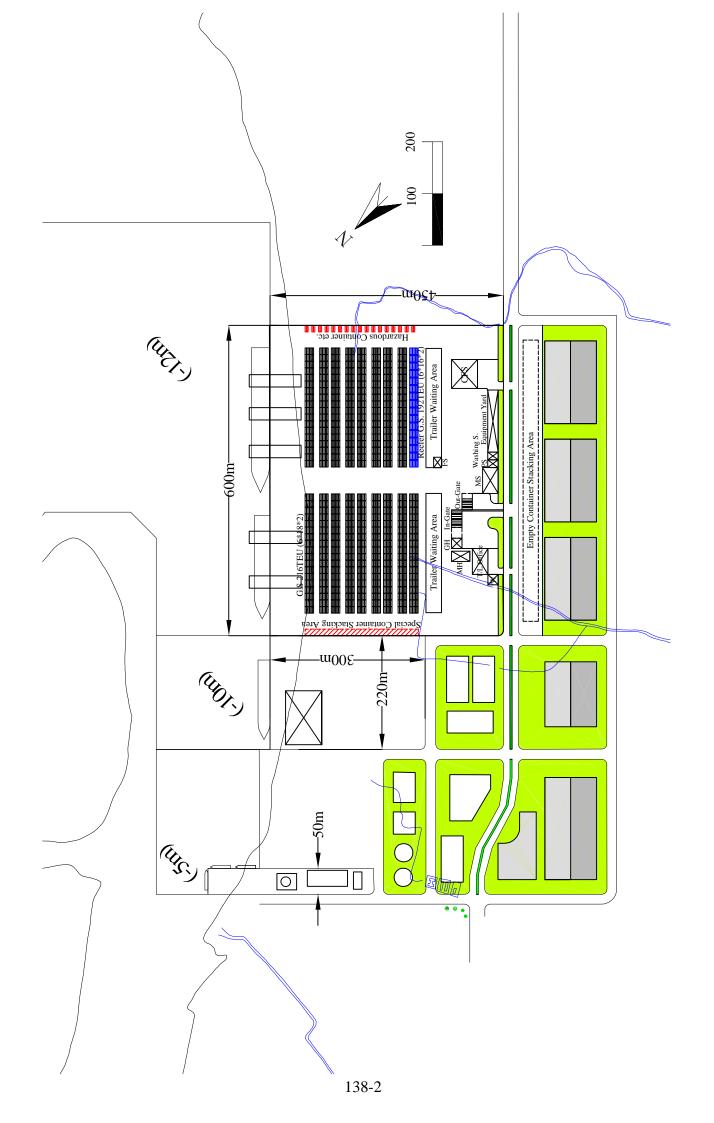
532. Figure 15-B-1. Table below is the summary of the depth of the terminal.

Table 15-B-2 Depth of Container Terminal

Item	Depth of Terminal	Remarks
Apron	65 meters	Quay side Gantry Crane Span 30 m and
		Back Reach Maneuvering Space 35 m
Marshalling Area	227 meters	1 Lane width 25.26 meters for RTGs
		Operation. 25.24m x 9 Lane=227m
Container Yard Main Passage	58 meters	Including Trailer Waiting Area
Terminal Facilities and Building Area	100 meters	Office Building, C.F.S, Gate Booth,
		Maintenance Shop, and Power
		Station etc
Total	450 meters	
Empty Container Stacking Area	50 meters	Railway or container stacking area
(Outside of the terminal)		

Figure 15-B-1 Container Terminal Layout (2010)





533. In future, in case of introducing railway system, there will be two way for the inter-modal area (railway yard, ex. empty container stacking area), one is linked with the terminal area by roads, i.e., inside of the terminal gate, which is shown in Figure 15-B-2. The other way is locating it outside of the terminal gate. In any case, the feasibility of introducing railway into Bojonegara should be carefully examined watching trends of container movement in Bojonegara.

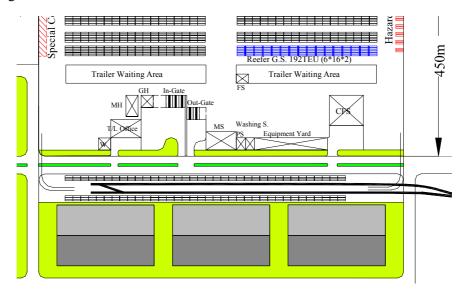


Figure 15-B-2 Container Terminal Layout (Future: In Case of Introducing Railway)

15-B-2 Multi Purpose Terminal

1) Berth Facility

534. The multi purpose berth facilities in 2010 are as shown in Table 15-B-3 according to the Master Plan.

Table 15-B-3 Multi Purpose Berth Facility in 2010

	Berth Dimension		Number of
Ī	Draft	Length	Berths
Ī	-10m	220m	1

2) Handling Facilities

a) Handling Equipment]

535. Major handling equipment are as follows:

Item	Remarks
Mobile Crane	At least $2 \sim 3$ unit
Reach Stacker	At least 1 ~ 2 unit
Forklift	7~10 units

b) Yard/Transit Shed

536. Necessary area for open yard and transit shed for general cargoes is calculated as follows:

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Formula

Ay = Hg*P*Ty / (R*r*w) As = Hg*P*Ts / (R*r*w)

Where:

Ay: Necessary area of open yard (m2)

As: Necessary area of transit shed (m2)

Hg: Annual Handling Volume (ton)

P: Peak Ratio - 1.3

Ty: Passege Ratio through Open yard - 50%

Ts: Passege Ratio through Transit shed - 20%

R: Turn of Cargo (50 times/year)

r: Cargo Stacking Area Ratio in the yard - 60%

w: Average Stacking Weight (ton/m2) - 1.0
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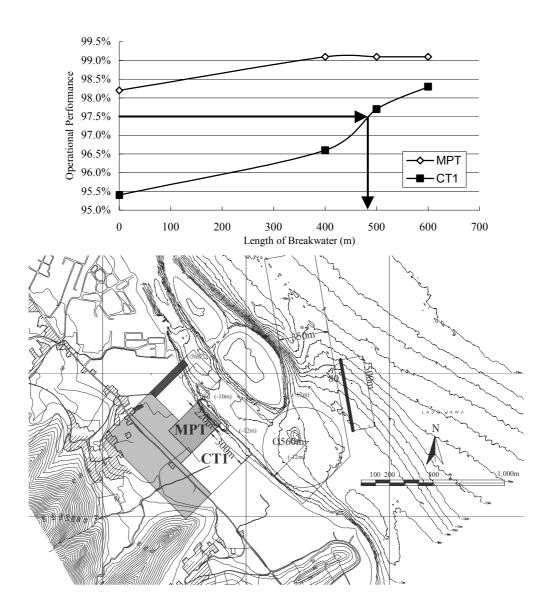
Open yard		Transit sl	hed
A	32,630	A	4,351
Hg	753,000 Year 2012	Hg	753,000 Year 2012
P	1.3	P	1.3
R	25	R	25
r	60%	r	60%
W	1.0	W	1.5
Ty	50%	Ts	10%

In addition to the above, parking area for Ro-Ro vessels and container stacking area for inter-island semi container vessels will be taken into consideration for the terminal area. The layout of multi purpose terminal is shown in

537. Figure 15-B-1 together with the layout of the international container terminal.

15-B-3 Breakwater, Channel and Basin

- **538.** According to the tranquility analysis, the breakwater with the length of 1,040m should be developed in order to operate CT2 with 98.0% satisfying operational performance standard (over 97.5%).
- **539.** On the other hand, in order to operate only Multi Purpose Terminal, which will be realized in 2008, no breakwater is needed with the sufficient operational performance of 98.2%. However, without the breakwater, the operational performance of CT1 alone will be 95.5%, less than the required performance 97.5% as shown below. In order to operate CT1 effectively, a breakwater with the length of at least 500m is necessary.



540. The same channel and basin as defined in the short-term plan are necessary excluding in front of Ro-Ro terminal.

15-B-4 Other Facilities

1) Berthing Facility for Service Crafts

541. The principal service craft are tugboats, barges and pilot boats. Standard dimension of tugboats for towing in the ports is around 200~300GT with 2,000~3,000 HP, which size is around 30m of LOA, 8~10m of beam and -2.8~3.2m of draft in average. In the long term, annual ship calls are estimated to be reached around 3,000 in total, which shows maximum 4 fleets of tugboats are likely to be adequate. As for pilot boats, it is assumed 1 fleet will be located in the new port. Berthing facility for the service crafts is planned as below:

Dimension	Remarks
D=-5m, L=50m	Double berthing for tugboats (30m+10m+)
D=-5m, L=100m	Single berthing for 2 tugboats and 1 pilot boat ((30m+10m)*2+(15m+5m))