

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 Government	IPC2	Private Sector
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
<b>Channel and Basin Improvement</b>	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	
<b>Car Terminal</b>	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	
<b>Port Related Road Improvement</b>	68,919		68,919	0
Port Inner Road Improvement	68,919		68,919	
<b>Sub-Total</b>	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
<b>Total</b>	989,126	456,122	487,838	45,166
<b>Total</b>	989,126	<b>943,960</b>		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 Terminal	Automobile Terminal
Number of Person	250 Persons	-	50 Persons
Personnel Cost	36,000,000 Rp/person/year	-	36,000,000 Rp/person/year
Administration and Other Cost	115% of Personnel cost	-	100% of Personnel cost
Maintenance Cost	Infrastructure : 1% of the original construction cost 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 Cargo Volume and Vessel Size**

	Year	With Case(Navigation Improvement)			Without Case		
		Cargo('000)	Ship Call	Ship Size	Cargo('000)	Ship Call	Ship Size
Container (Foreign)	2001	2,056	2,696	14,000	2,056	2,696	14,000
	2012(Demand)	3,631	3,645	15,000	3,631	3,645	14,000
	Capacity	<b>3,644</b>	<b>3,658</b>		<b>2,927</b>	<b>3,048</b>	
Container (Domestic)	2001	199	634	4,000	199	634	4,000
	2012	715	2,292	4,000	715	2,292	4,000
	Capacity	<b>730</b>	<b>2,589</b>		<b>659</b>	<b>2,336</b>	
General & Bag	2001	13,190	6,663	5,000	13,190	6,663	5,000
	2012	15,479	7,841	5,000	14,082	7,114	5,000
	Capacity	<b>15,479</b>	<b>7,841</b>		<b>14,082</b>	<b>7,114</b>	

**Table 14-G-41 Port Tariff**

	Rate		Charge Unit	Paid to	
	Domestic	Foreign			
Berthage Fee	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 Towage Fee	625,000Rp	770\$	Per ship-hour	IPC2	
Handling Charge	Car	-	13\$(Included storage)	Per Unit	Private Sector
	20'	240,000Rp × 117% 280,800Rp	93\$ × 117% 108.81\$	Per Box (FCL)	
	40'	360,000Rp × 117% =421,200Rp	139\$ × 117% 162.63\$	Per Box (FCL)	
	Empty	90% of FCL Container		Per Box	
	General	13,694Rp		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.

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

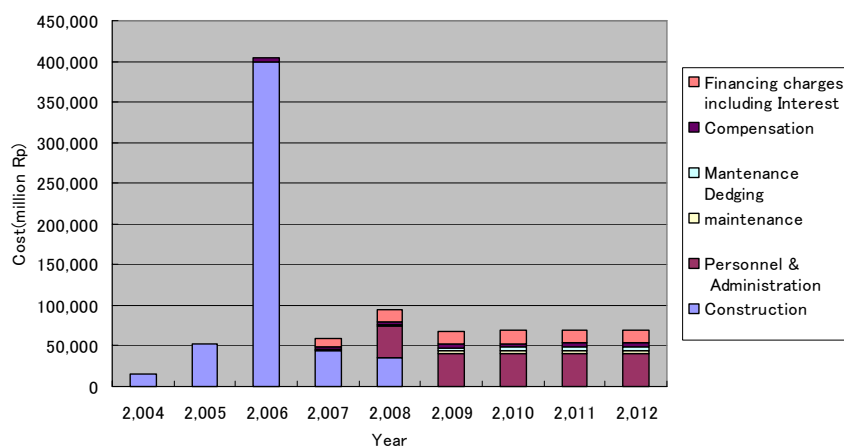
	General & Bag	JICT Container	Koja Container	Automobile terminal	Total
2006	0	0	0	6,512	6,512
2007	0	0	0	8,996	8,996
2008	284	60,953	1,944	11,754	74,934
2009	367	95,840	24,370	12,208	132,784
2010	416	95,840	47,250	12,708	156,214
2011	416	95,840	68,690	13,208	178,154
2012	416	99,267	70,543	13,708	183,934

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.

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

	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



**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
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## ➤ Weighted average interest rate

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

**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)**

Case		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**

Result of Financial Situation

Without Project (Pelindo II Total)

Income Statement	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Operating Revenue	968,687	1,117,950	1,354,331	306,651	441,267	1,489,929	1,539,950	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	1,589,950	1,589,950	1,589,950
Operating Expenses	577,712	671,309	768,607	604,807	877,077	877,077	913,477	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607
Of which Depreciation	24,747	96,963	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	105,602	105,602	105,602	105,602
Non Operating Revenue	96,885	6,520	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Non Operating Expenses	358,865	224,442	158,338	129,745	115,733	105,276	98,383	68,606	68,606	68,606	68,606	68,606	68,606	68,606	68,606	68,606	68,606	68,606	68,606
Profit Before Tax	108,540	428,719	425,987	510,740	513,133	555,652	575,253	627,386	627,386	627,386	627,386	627,386	627,386	627,386	627,386	627,386	627,386	627,386	627,386
Income Tax (20%)	21,708	71,574	91,073	102,144	102,627	111,130	115,351	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457
Net Surplus	86,832	357,145	334,914	408,596	410,506	444,522	460,002	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829
Accumulated Earnings	583,064	940,209	1,325,123	1,733,687	2,166,193	2,603,915	3,065,318	3,587,147	4,088,975	4,570,804	5,072,633	5,574,462	6,076,291	6,578,120	7,079,949	7,581,778	8,083,607	8,585,436	9,087,265
Cash Flow																			
Cash Beginning	271,257	177,001	276,892	260,562	334,876	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786
Cash Inflow	580,351	861,068	714,767	790,689	799,115	810,677	825,385	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198
Operating Income	480,879	774,474	621,514	697,446	705,862	717,424	732,132	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945
Non Operating Income	26,430	6,520	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	44,647	44,647	44,647	44,647	44,647	44,647
Cash Outflow	635,647	945,995	525,969	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	491,666	491,666	491,666
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	215,843	215,843	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	590,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Interest on Loans	232,046	179,243	46,424	118,082	104,070	94,113	86,720	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Dividend Paid	842	50,000	76,983	81,713	85,301	88,744	92,280	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366	100,366
Tax	49,587	59,421	63,381	102,141	102,141	110,830	115,351	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Balance	-55,296	-84,907	184,798	-16,330	74,314	37,810	-274,809	297,532	287,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532
Cash Ending	177,001	92,094	276,892	260,562	334,876	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786
Balance Sheet																			
Current Assets	1,185,203	954,885	804,410	631,847	728,862	809,483	557,508	699,096	1,240,683	1,572,271	1,963,859	2,355,447	2,747,035	3,138,623	3,530,211	3,921,799	4,313,387	4,704,974	5,096,561
Cash & Deposit	177,001	92,094	276,892	260,562	334,876	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786	372,786
Dividend Advance	692,817	659,082	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	154,732
Others	315,385	203,709	372,786	216,553	239,354	281,965	304,799	348,565	402,910	386,966	431,022	475,078	519,133	563,189	607,245	651,301	695,357	739,412	783,467
Fixed Assets	3,156,712	3,211,474	3,266,236	3,321,000	3,375,764	3,430,528	3,485,292	3,540,056	3,594,820	3,649,584	3,704,348	3,759,112	3,813,876	3,868,640	3,923,404	3,978,168	4,032,932	4,087,696	4,142,460
Total Fixed Assets	4,341,915	4,166,359	4,066,325	4,004,103	4,211,359	4,402,121	4,260,387	4,712,216	5,164,044	5,605,873	6,047,702	6,489,531	6,931,360	7,373,189	7,815,018	8,256,847	8,698,676	9,140,505	9,582,334
Liabilities	2,730,408	2,200,373	1,706,157	1,235,347	1,016,097	763,137	160,000	110,000	60,000	0	0	0	0	0	0	0	0	0	0
Short-term Loans	428,837	565,926	334,202	1,235,347	1,016,097	763,137	160,000	110,000	60,000	0	0	0	0	0	0	0	0	0	0
Long-term Loans	2,130,884	1,619,304	1,371,955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	170,687	15,143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	1,028,443	1,025,777	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	1,035,069	1,035,069
Net Worth	583,064	940,209	1,325,123	1,733,687	2,166,193	2,603,915	3,065,318	3,587,147	4,088,975	4,570,804	5,072,633	5,574,462	6,076,291	6,578,120	7,079,949	7,581,778	8,083,607	8,585,436	9,087,265
Total Liabilities & Net Worth	4,341,915	4,166,359	4,066,325	4,004,103	4,211,359	4,402,121	4,260,387	4,712,216	5,164,044	5,605,873	6,047,702	6,489,531	6,931,360	7,373,189	7,815,018	8,256,847	8,698,676	9,140,505	9,582,334
Rate of Return Fixed Assets	14.0%	20.1%	18.0%	17.2%	17.0%	16.9%	16.8%	16.8%	16.3%	15.9%	15.5%	15.1%	14.7%	14.3%	14.0%	13.6%	13.3%	13.0%	12.7%
Debt Service Coverage Ratio	1.07	1.17	3.58	2.23	2.01	1.08	7.46	6.78	6.00	5.5%	5.3%	5.1%	4.9%	4.7%	4.5%	4.3%	4.1%	3.9%	3.7%
Operating Ratio	54%	51%	57%	58%	59%	59%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
Working Ratio	45%	44%	49%	51%	52%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%

Result of Financial Situation

Without Project (Prolindo II T.

Income Statement		million Rp																	
Year		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
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	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950
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	949,607
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	105,602	105,602	105,602	105,602	105,602
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	48,606	48,606	48,606	48,606	48,606	48,606	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	61,663	61,663	61,663	61,663	61,663
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	627,286	627,286	627,286	627,286
Income Tax (20%)		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
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	501,829	501,829	501,829	501,829	501,829	501,829
Accumulated Earnings		9,087,264	9,589,093	10,090,922	10,592,751	11,094,580	11,596,409	12,098,238	12,600,066	13,101,895	13,603,724	14,105,553	14,607,382	15,109,211	15,611,040	16,112,869	16,614,698	17,116,526	17,618,355
Cash Flow		million Rp																	
Year		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Cash Beginning		3,810,830	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	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	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	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	745,945
Non-Operating Income		48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Loans		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others		44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647
Cash Outflow		491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666
Investment		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	215,843	215,843
Repayment of Principal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest on Loans		50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
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
Tax		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
Others		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash balance		347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532
Cash Ending		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	7,286,151	7,633,683	7,981,215	8,328,747	8,676,280	9,023,812	9,371,344	9,718,876	10,066,408
Balance Sheet		million Rp																	
Year		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
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	8,620,853	9,012,441	9,404,029	9,795,617	10,187,205	10,578,793	10,970,381	11,361,969	11,753,556
Cash and 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	7,286,151	7,633,683	7,981,215	8,328,747	8,676,280	9,023,812	9,371,344	9,718,876	10,066,408
Dividend Advance		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	154,732	154,732
Others		783,468	827,524	871,580	915,635	959,691	1,003,747	1,047,803	1,091,859	1,135,914	1,179,970	1,224,026	1,268,082	1,312,137	1,356,193	1,400,249	1,444,305	1,488,361	1,532,416
Fixed Assets		5,025,771	5,436,012	5,846,253	6,256,494	6,666,735	7,076,976	7,487,217	7,897,458	8,307,699	8,717,940	9,128,181	9,538,422	9,948,663	10,358,904	10,769,145	11,179,386	11,589,627	12,000,000
Total Fixed Assets		10,122,333	10,624,162	11,125,981	11,627,820	12,129,649	12,631,478	13,133,307	13,635,135	14,136,964	14,638,793	15,140,622	15,642,451	16,144,280	16,646,109	17,147,938	17,649,767	18,151,596	18,653,424
Liabilities		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Short-term Loans		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-term Loans		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity		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	1,035,069	1,035,069	1,035,069
Net Worth		9,087,264	9,589,093	10,090,922	10,592,751	11,094,580	11,596,409	12,098,238	12,600,066	13,101,895	13,603,724	14,105,553	14,607,382	15,109,211	15,611,040	16,112,869	16,614,698	17,116,526	17,618,355
Total Liabilities & Net Worth		10,122,333	10,624,162	11,125,981	11,627,820	12,129,649	12,631,478	13,133,307	13,635,135	14,136,964	14,638,793	15,140,622	15,642,451	16,144,280	16,646,109	17,147,938	17,649,767	18,151,596	18,653,424
Rate of Return Fixed Assets		12.7%	12.5%	12.2%	12.0%	11.7%	11.5%	11.3%	11.0%	10.8%	10.6%	10.4%	10.3%	10.1%	9.9%	9.7%	9.6%	9.4%	9.3%
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	14.92	14.92	14.92	14.92	14.92	14.92	14.92
Operating Ratio		60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
Working Ratio		53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%

Result of Financial Situation

Project Itself

Income Statement	2000(Acct.)	2001(Acct.)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	0	0	0	0	0	0	0	8,996	24,934	32,784	155,214	178,154	183,934	183,934	183,934	183,934	183,934	183,934
Int'l Container	0	0	0	0	0	0	0	63,181	63,181	120,576	143,506	164,946	170,226	170,226	170,226	170,226	170,226	170,226
Car	0	0	0	0	0	0	0	8,996	13,708	12,208	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708
Operating Expenses	0	0	0	0	0	0	0	7,477	54,466	62,075	62,649	63,185	63,186	63,186	63,186	63,186	63,186	63,186
Of which Depreciation	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non Operating Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit Before Tax	0	0	0	0	0	0	0	9,461	15,495	16,093	16,093	16,093	16,093	16,093	16,093	16,093	16,093	16,093
Income Tax (20%)	0	0	0	0	0	0	0	-966	-4,978	-4,978	-9,951	-9,951	-9,951	-9,951	-9,951	-9,951	-9,951	-9,951
Net Surplus	0	0	0	0	0	0	0	8,495	10,517	11,115	6,142	6,142	6,142	6,142	6,142	6,142	6,142	6,142
Accumulated Earnings	0	0	0	0	0	0	0	-966	-4,978	49,638	127,110	225,984	330,639	438,294	539,948	644,603	749,273	854,002

Cash Flow	2000(Acct.)	2001(Acct.)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cash Beginning	0	0	0	0	0	0	0	2,212	-3,596	11,122	75,483	162,701	271,320	385,720	500,119	614,519	728,143	834,258
Cash Inflow	0	0	0	0	15,519	52,504	401,496	445,099	65,300	80,455	103,311	124,712	130,493	130,493	130,493	130,493	130,493	130,493
Operating Income	0	0	0	0	0	0	2,212	3,652	30,213	80,455	103,311	124,712	130,493	130,493	130,493	130,493	130,493	130,493
Non Operating Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loans	0	0	0	0	15,519	42,453	341,567	375,230	29,892	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	10,051	57,717	66,217	5,275	0	0	0	0	0	0	0	0	0
Cash Outflow	0	0	0	0	15,519	52,504	399,284	450,908	50,662	16,093	16,093	16,093	16,093	16,093	16,093	16,093	16,093	16,093
Investment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment of Principal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest on Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dividend Paid	0	0	0	0	0	0	0	9,461	15,495	16,093	16,093	16,093	16,093	16,093	16,093	16,093	16,093	16,093
Tax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Balance	0	0	0	0	0	0	0	-5,808	14,718	64,361	87,218	108,619	114,400	114,400	114,400	113,624	106,115	94,496
Cash Ending	0	0	0	0	0	0	0	2,212	-3,596	11,122	75,483	162,701	271,320	385,720	500,119	614,519	728,143	834,258

Balance Sheet	2000(Acct.)	2001(Acct.)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	0	0	0	0	0	0	0	2,212	11,122	75,483	162,701	271,320	385,720	500,119	614,519	728,143	834,258	928,755
Cash & Deposit	0	0	0	0	0	0	0	2,212	11,122	75,483	162,701	271,320	385,720	500,119	614,519	728,143	834,258	928,755
Dividend Advance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets	0	0	0	0	15,519	68,023	464,130	902,399	927,821	918,076	908,331	898,586	888,840	879,095	869,350	859,605	849,860	840,115
Total Fixed Assets	0	0	0	0	15,519	68,023	464,130	902,399	927,821	918,076	908,331	898,586	888,840	879,095	869,350	859,605	849,860	840,115
Liabilities	0	0	0	0	15,519	57,972	399,539	770,365	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661
Short-term Loans	0	0	0	0	0	0	0	3,596	0	0	0	0	0	0	0	0	0	0
Long-term Loans	0	0	0	0	15,519	57,972	399,539	774,769	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661
Equity	0	0	0	0	0	10,051	67,768	133,985	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260
Net Worth	0	0	0	0	0	10,051	67,768	133,985	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260
Total Liabilities & Net Worth	0	0	0	0	15,519	68,023	466,341	902,399	938,943	933,539	927,031	919,905	917,450	915,213	913,669	912,478	911,718	911,009

Rate of Return	2000(Acct.)	2001(Acct.)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fixed Assets	0.0%	0.0%	0.0%	0.0%	22.6%	68.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Liabilities	0.0%	0.0%	0.0%	0.0%	22.6%	68.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Equity	0.0%	0.0%	0.0%	0.0%	22.6%	68.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Net Worth	0.0%	0.0%	0.0%	0.0%	22.6%	68.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Liabilities & Net Worth	0.0%	0.0%	0.0%	0.0%	22.6%	68.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rate of Return Fixed Assets	0.0%	0.0%	0.0%	0.0%	22.6%	68.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Debt Service Coverage Ratio	0.0%	0.0%	0.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Operating Ratio	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Working Ratio	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



Result of Financial Situation

Project Itself

Income Statement	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Operating Revenue	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934
Int'l Container	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226	170,226
Car	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708
Operating Expenses	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186	53,186
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	9,745	9,745
Non Operating Revenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non Operating Expenses	15,620	14,845	14,041	13,236	12,431	11,627	10,822	10,017	9,213	8,408	7,603	6,799	5,994	5,189	4,385	3,580	2,776	1,971
Profit Before Tax	105,128	105,903	106,707	107,512	108,317	109,121	109,926	110,730	111,535	112,340	113,144	113,949	114,754	115,558	116,363	117,168	117,972	118,777
Income Tax (20%)	21,026	21,181	21,341	21,502	21,663	21,824	21,985	22,146	22,307	22,468	22,629	22,790	22,951	23,112	23,273	23,434	23,595	23,756
Net Surplus	84,102	84,722	85,366	86,010	86,654	87,295	87,939	88,583	89,228	89,872	90,517	91,161	91,805	92,449	93,093	93,737	94,381	95,025
Accumulated Earnings	959,129	1,065,032	1,171,739	1,279,251	1,387,567	1,495,689	1,603,614	1,711,345	1,818,880	1,926,220	2,033,364	2,140,313	2,247,067	2,353,626	2,460,090	2,566,359	2,672,433	2,778,312

Cash Flow	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Cash Beginning	928,755	1,004,889	1,080,304	1,156,523	1,233,547	1,311,376	1,390,009	1,469,447	1,549,689	1,630,737	1,712,588	1,795,245	1,878,706	1,962,972	2,048,043	2,133,918	2,220,598	2,308,082
Cash Inflow	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493
Operating Income	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493	130,493
Non-Operating Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Outflow	54,359	55,078	54,274	53,469	52,664	51,860	51,055	50,250	49,446	48,641	47,837	47,032	46,227	45,423	44,618	43,813	43,009	41,428
Investment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment of Principal	38,738	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	40,233	39,457
Interest on Loans	15,620	14,845	14,041	13,236	12,431	11,627	10,822	10,017	9,213	8,408	7,603	6,799	5,994	5,189	4,385	3,580	2,776	1,971
Dividend Paid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Balance	76,134	75,415	76,219	77,024	77,829	78,633	79,438	80,243	81,047	81,852	82,657	83,461	84,266	85,071	85,875	86,680	87,485	89,065
Cash Ending	1,004,889	1,080,304	1,156,523	1,233,547	1,311,376	1,390,009	1,469,447	1,549,689	1,630,737	1,712,588	1,795,245	1,878,706	1,962,972	2,048,043	2,133,918	2,220,598	2,308,082	2,397,147

Balance Sheet

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Current Assets	1,004,889	1,080,304	1,156,523	1,233,547	1,311,376	1,390,009	1,469,447	1,549,689	1,630,737	1,712,588	1,795,245	1,878,706	1,962,972	2,048,043	2,133,918	2,220,598	2,308,082	2,397,147
Cash & Deposit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dividends Advance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets	830,210	820,655	810,872	801,134	791,392	781,644	771,899	762,154	752,409	742,664	732,918	723,173	713,428	703,683	693,938	684,193	674,448	664,702
Net Fixed Assets	1,835,259	1,900,928	1,967,402	2,034,681	2,102,765	2,171,653	2,241,346	2,311,843	2,383,145	2,455,252	2,528,163	2,601,879	2,676,400	2,751,726	2,827,856	2,904,790	2,982,530	3,061,850
Liabilities	736,869	696,636	656,403	616,170	575,937	535,704	495,471	455,238	415,005	374,772	334,539	294,306	254,073	213,840	173,607	133,374	93,141	53,683
Short-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	294,306	254,073	213,840	173,607	133,374	93,141	53,683
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260	139,260
Net Worth	359,129	405,032	451,739	499,251	547,567	596,689	646,614	697,351	748,900	801,220	854,332	908,245	962,966	1,018,487	1,074,813	1,131,944	1,190,881	1,250,623
Total Liabilities & Net Worth	1,835,259	1,900,928	1,967,402	2,034,681	2,102,765	2,171,653	2,241,346	2,311,843	2,383,145	2,455,252	2,528,163	2,601,879	2,676,400	2,751,726	2,827,856	2,904,790	2,982,530	3,061,850

Rate of Return Fixed Assets

Debt Service Coverage Ratio	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Operating Ratio	6.5%	6.4%	6.1%	5.9%	5.7%	5.6%	5.4%	5.2%	5.1%	4.9%	4.8%	4.6%	4.5%	4.4%	4.3%	4.2%	4.0%	3.9%
Working Ratio	2.40	2.37	2.40	2.44	2.48	2.52	2.56	2.60	2.64	2.68	2.73	2.77	2.82	2.87	2.92	2.98	3.03	3.15
	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%
	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%

Result of Financial Situation

With Project (Pelindo IX Total Excluding Ancol)

Income Statement	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	528,687	1,317,950	1,354,323	1,396,651	1,441,267	1,489,029	1,536,449	1,598,947	1,664,895	1,722,734	1,786,164	1,773,885	1,773,885	1,773,885	1,773,885	1,773,885	1,773,885	1,773,885
Operating Expenses	977,712	671,309	768,697	804,807	841,007	877,207	920,884	958,129	1,004,578	1,011,682	1,012,256	1,012,256	1,012,256	1,012,256	1,012,256	1,012,256	1,012,256	1,012,256
Of which Depreciation	24,430	96,963	105,602	105,602	105,602	105,602	108,779	115,347	115,347	115,347	115,347	115,347	115,347	115,347	115,347	115,347	115,347	115,347
Non Operating Revenue	358,865	224,442	159,335	129,745	115,733	105,776	98,383	77,158	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Profit Before Tax	108,540	428,719	475,987	529,745	533,333	554,652	575,787	618,300	632,250	681,902	704,259	726,160	731,941	731,941	731,941	731,941	731,941	731,941
Income Tax (20%)	25,476	71,574	91,073	107,034	107,034	107,034	109,400	117,477	120,129	129,561	139,069	139,069	139,069	139,069	139,069	139,069	139,069	139,069
Net Surplus	83,064	357,145	384,914	408,564	426,566	443,722	466,387	492,823	506,882	556,445	573,301	606,700	606,700	606,700	606,700	606,700	606,700	606,700
Accumulated Earnings	583,084	940,209	1,325,123	1,733,687	2,160,193	2,603,915	3,064,352	3,557,195	4,083,997	4,620,442	5,199,743	5,800,446	6,406,930	7,013,414	7,619,897	8,226,381	8,832,866	9,439,437

Cash Flow	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cash Beginning	232,297	377,001	276,892	276,892	285,669	305,315	329,720	345,550	369,834	391,142	419,653	448,647	448,647	448,647	448,647	448,647	448,647	448,647
Cash Inflow	960,351	661,088	714,767	790,699	814,634	863,181	1,226,881	1,284,297	1,284,297	1,284,297	1,284,297	1,399,816	1,822,680	2,250,069	2,677,459	3,104,848	3,531,462	3,950,560
Operating Income	450,879	774,474	621,514	697,446	705,862	717,421	734,304	749,597	776,138	826,400	849,236	870,657	876,438	876,438	876,438	876,438	876,438	876,438
Non Operating Income	26,430	6,520	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Dividends	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	103,042	80,004	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664	44,664
Cash Outflow	635,617	945,995	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969	529,969
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
Investment of Principal	190,819	485,040	177,338	209,250	212,360	268,347	590,000	50,000	60,000	66,093	66,093	66,093	66,093	66,093	66,093	66,093	66,093	66,093
Interest on Loans	232,046	179,243	46,424	118,892	104,070	94,113	66,720	59,461	65,495	66,093	66,093	66,093	66,093	66,093	66,093	66,093	66,093	66,093
Dividend Paid	49,587	59,421	63,381	97,034	101,295	105,304	109,400	117,477	120,129	129,561	133,904	137,970	139,069	139,069	139,069	139,069	139,069	139,069
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	-55,296	-84,907	-1,223	-1,223	-79,646	-33,405	-324,170	-235,264	-301,308	-396,866	-410,808	-423,863	-427,389	-427,389	-427,389	-427,389	-427,389	-427,389
Cash Ending	177,001	92,094	276,892	265,669	345,315	378,720	51,550	289,834	591,142	988,008	1,398,816	1,822,680	2,250,069	2,677,459	3,104,848	3,531,462	3,950,560	4,379,118

Balance Sheet	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	1,185,203	954,685	864,410	631,947	728,962	809,483	559,720	809,096	1,251,805	1,647,754	2,126,500	2,626,767	3,112,754	3,638,742	4,144,716	4,649,942	5,147,645	5,643,779
Cash and Deposit	177,001	92,094	276,892	265,669	334,876	372,786	100,189	395,509	694,163	1,106,056	1,540,506	1,996,957	2,458,889	2,920,821	3,382,753	3,843,909	4,297,556	4,739,585
Dividend Advance	692,617	659,082	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
Others	315,385	203,709	372,786	203,709	239,354	281,965	304,799	348,855	402,910	386,966	431,022	475,078	519,133	563,189	607,245	651,301	695,357	739,412
Fixed Assets	3,416,712	3,211,474	3,272,156	3,272,156	3,497,916	3,660,661	4,167,009	4,715,519	4,851,182	4,951,678	5,052,174	5,152,670	5,253,165	5,353,661	5,454,157	5,554,653	5,655,149	5,755,645
Total Fixed Assets	4,341,915	4,166,359	4,066,325	4,066,325	4,226,878	4,470,144	4,726,728	5,114,615	6,102,987	6,599,432	7,178,733	7,779,436	8,385,920	8,992,404	9,588,957	10,204,595	10,802,794	11,389,374
Liabilities	2,730,408	2,200,373	1,706,157	1,235,347	1,031,616	821,109	559,539	888,365	864,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661
Short-term Loans	428,837	565,926	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202
Long-term Loans	2,130,884	1,619,304	1,371,955	1,235,347	1,031,616	821,109	559,539	888,365	864,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661	804,661
Others	176,687	15,143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	1,029,443	1,025,777	1,035,069	1,035,069	1,035,069	1,035,069	1,102,637	1,169,054	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	1,174,329
Net Worth	83,064	357,145	384,914	408,564	426,566	443,722	466,387	492,823	506,882	556,445	573,301	606,700	606,700	606,700	606,700	606,700	606,700	606,700
Total Liabilities & Net Worth	4,341,915	4,166,359	4,066,349	4,066,325	4,226,878	4,470,144	4,726,728	5,114,615	6,102,987	6,599,432	7,178,733	7,779,436	8,385,920	8,992,404	9,588,957	10,204,595	10,802,794	11,389,374

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%
Debt Service Coverage Ratio	1.07	1.17	3.98	1.71	2.23	2.01	6.05	6.18	6.18	6.18	6.18	6.18	6.18	6.18	6.18	6.18	6.18	6.18
Operating Ratio	54%	51%	57%	56%	50%	52%	60%	60%	60%	59%	59%	59%	59%	59%	57%	57%	57%	57%
Working Ratio	45%	44%	49%	50%	51%	52%	53%	53%	53%	53%	53%	53%	53%	51%	51%	51%	51%	51%



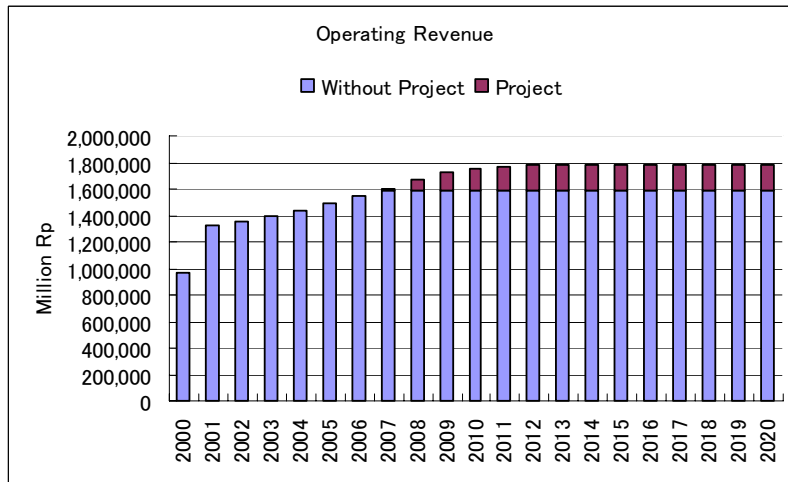


Figure 14-G-12 Operating Revenue

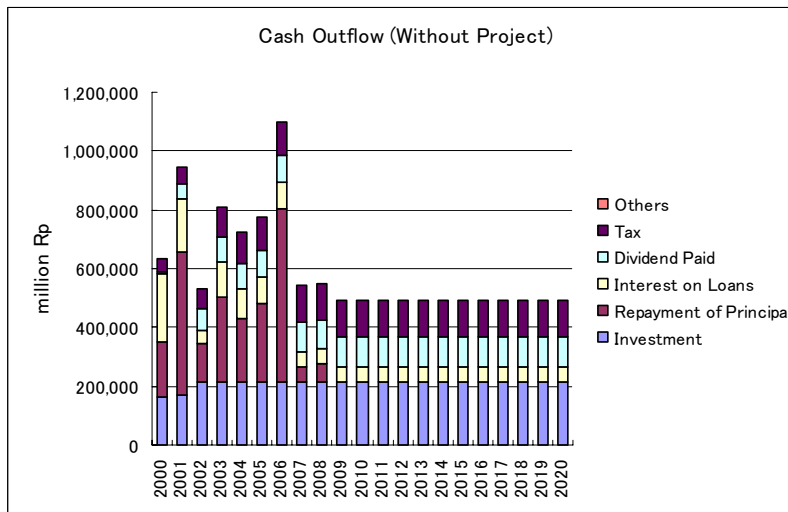


Figure 14-G-13 Cash Outflow (Without Project)

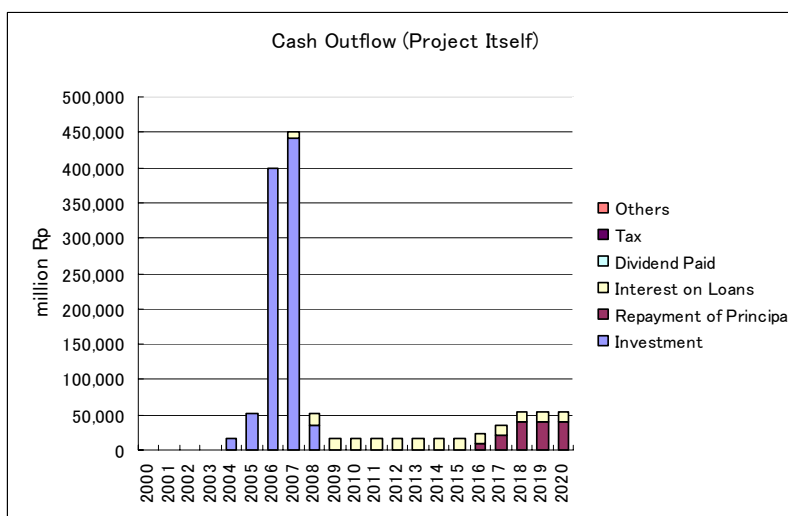


Figure 14-G-14 Cash Outflow (Project Itself)

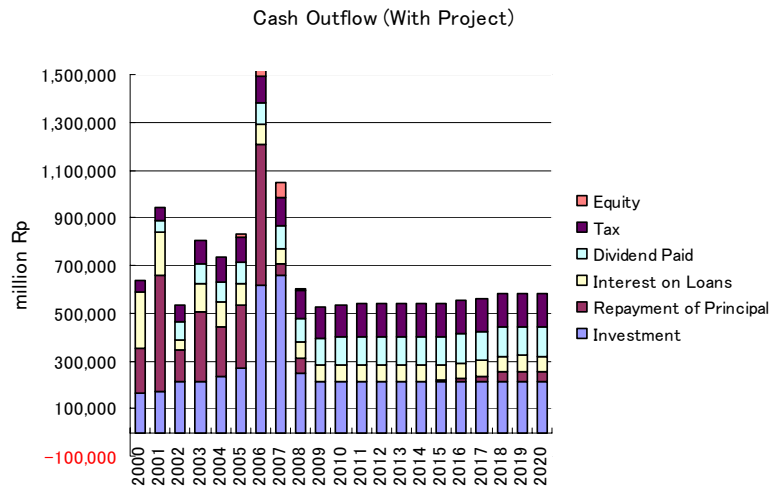


Figure 14-G-15 Cash Outflow (With Project)

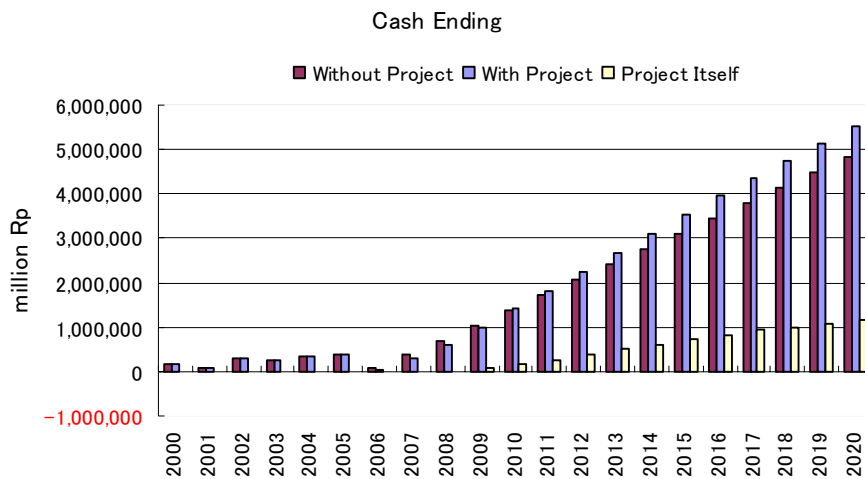


Figure 14-G-16 Cash Ending

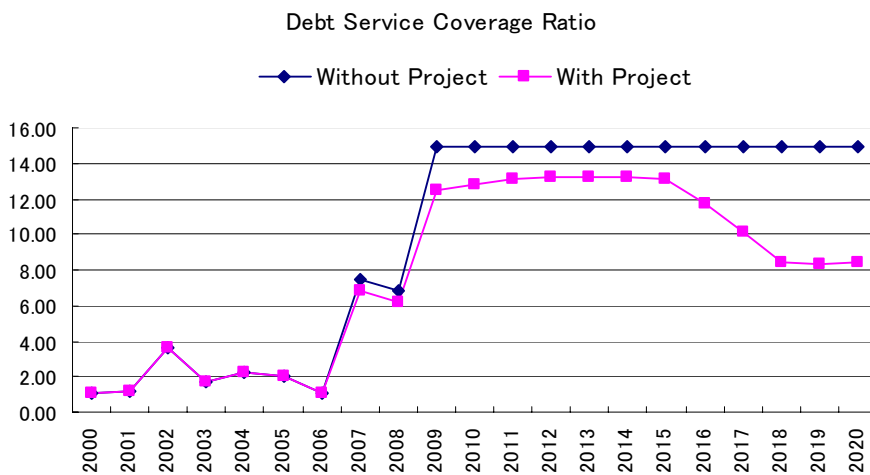


Figure 14-G-17 Debt Service Coverage Ratio

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.

**Table 14-G-48 Implementation Scheme**

Project	Central Government	IPC2	Private Sector
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		●	

329. Capital cost is summarized as follows.

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

	Project Cost	Central Government	IPC2	Private
<b>Channel and Basin Improvement</b>	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	
<b>Car Terminal</b>	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	
<b>Port Related Road Improvement</b>	68,919		68,919	0
Port Inner Road Improvement	68,919		68,919	
<b>Anchorage Project</b>	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	
<b>Sub-Total</b>	2,130,128	431,834	1,086,304	548,022
Indirect Cost	651,380	133,869	327,795	189,717
Contingency	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 Terminal	55,374			55,374
VAT	328,218	78,070	155,551	94,597
<b>Total</b>	3,693,587	878,571	1,711,060	1,039,989
<b>Total</b>	3,693,587	<b>2,589,631</b>		1,039,989
Land Acquisition/Compensation	45,000		45,000	

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 Rp/person/year	-	36,000,000 Rp/person/year
Administration and Other Cost	115% of Personnel cost	-	100% of Personnel cost
Maintenance Cost	Infrastructure : 1% of the original construction cost Equipment : 5% of the original construction cost		
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.

Table 14-G-51 Cargo Volume and Vessel Size

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

Table 14-G-52 Port Tariff

	Rate		Charge Unit	Paid to	
	Domestic	Foreign			
Berthage Fee	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 Towage Fee	625,000Rp	770\$	Per ship-hour	IPC2	
Handling Charge	Car	-	Per Unit	Private Sector	
	20'	240,000Rp	93\$		
	40'	360,000Rp	139\$		
	Empty	90% of FCL Container			Per Box
	General	13,694Rp			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 Kojja.
- IPC2 receives 15% of gross revenue and 49% of net profit from JICT.
- IPC2 receives 52% of gross revenue from Kojja.
- 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.

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

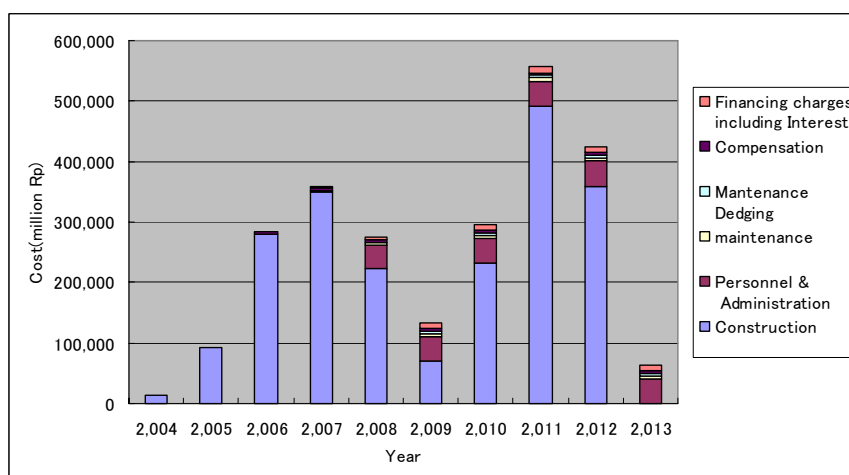
	General & Bag	JICT Container	Koja Container	Automobile terminal	Total
2006	0	0	0	6,512	6,512
2007	0	0	0	8,996	8,996
2008	284	60,953	1,944	11,754	74,934
2009	367	95,840	24,370	12,208	132,784
2010	478	95,840	47,250	12,708	156,276
2011	559	95,840	68,690	13,208	178,296
2012	639	99,267	70,543	13,708	184,157

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.

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

	Construction	Personnel & Administration	maintenance	Maintenance Dredging	Compensation	Financing charges including Interest	Total
2004	0	0	0	0	0	0	0
2005	36,683	0	0	0	0	0	36,683
2006	188,368	0	0	0	4,300	0	192,668
2007	229,328	0	1,044	0	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



**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

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

**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)**

Case		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 (Pelindo II Total)

Income Statement	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	968,687	1,317,950	1,354,323	1,396,651	1,441,267	1,489,029	1,530,937	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	1,589,950
Operating Expenses	527,712	671,309	768,607	804,607	841,207	877,207	913,407	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607
Of which Depreciation	94,780	96,963	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	105,602	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	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Non Operating Expenses	358,865	224,442	158,335	129,745	135,733	105,775	98,383	67,383	67,383	67,383	67,383	67,383	67,383	67,383	67,383	67,383	67,383	67,383
Profit Before Tax	108,540	428,719	475,987	510,705	533,333	554,652	578,753	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286
Income Tax (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	125,457	125,457	125,457	125,457	125,457	125,457
Net Surplus	83,064	357,145	384,914	408,564	426,706	443,722	463,402	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829
Accumulated Earnings	583,064	940,209	1,325,123	1,733,687	2,160,193	2,603,915	3,065,310	3,567,147	4,068,975	4,570,804	5,072,632	5,574,462	6,076,291	6,578,120	7,079,949	7,581,778	8,083,607	8,585,435
<b>Cash Flow</b>																		
Year	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cash Beginning	232,287	177,001	92,094	276,892	260,562	334,876	372,786	97,977	95,509	693,041	1,030,573	1,378,105	1,725,637	2,073,170	2,420,702	2,768,234	3,115,766	3,463,298
Cash Inflow	580,115	861,088	714,767	780,589	799,115	810,674	823,385	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198
Operating Income	480,879	774,474	621,514	692,446	705,062	711,424	722,132	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945	745,945
Non Operating Income	26,430	6,520	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Loans																		
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	44,647	44,647	44,647	44,647	44,647
Cash Outflow	635,647	945,995	579,969	807,036	734,801	772,767	1,100,194	541,666	551,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666
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	215,843	215,843	215,843	215,843	215,843	215,843
Repayment of Principal	190,819	485,040	137,328	208,260	214,960	263,137	590,000	50,000	60,000	0	0	0	0	0	0	0	0	0
Interest on Loans	232,046	179,243	46,224	18,982	104,070	94,113	86,720	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Dividend Paid																		
Tax	49,587	59,421	63,361	102,141	106,627	110,930	115,351	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457	125,457
Others																		
Cash Balance	55,296	84,907	184,799	16,330	74,314	37,910	-274,809	297,312	287,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532	347,532
Cash Ending	177,001	92,094	276,892	260,562	334,876	372,786	97,977	95,509	693,041	1,030,573	1,378,105	1,725,637	2,073,170	2,420,702	2,768,234	3,115,766	3,463,298	3,810,830
<b>Balance Sheet</b>																		
Year	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	1,195,203	994,885	804,410	631,947	728,962	809,483	557,508	899,096	1,240,683	1,572,271	1,963,859	2,355,447	2,747,035	3,138,623	3,530,211	3,921,799	4,313,387	4,704,974
Cash & Deposit	972,001	659,062	547,732	454,732	354,732	354,732	354,732	354,732	354,732	354,732	354,732	354,732	354,732	354,732	354,732	354,732	354,732	354,732
Dividend Advance	315,395	203,709	372,786	216,653	239,354	281,965	304,799	348,855	402,910	386,966	431,022	475,078	519,133	563,189	607,245	651,301	695,357	739,412
Fixed Assets	2,230,712	3,271,476	3,261,915	3,271,476	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915	3,261,915
Total Assets	2,738,418	2,200,373	1,708,157	1,233,347	1,016,097	763,137	160,000	110,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Liabilities	128,884	161,934	134,202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Short-term Loans	170,887	15,143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-term Loans	1,028,443	1,025,777	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	1,035,069
Others	53,064	940,209	3,231,687	1,661,933	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915	2,603,915
Equity	4,311,915	4,166,359	4,066,349	4,004,103	4,211,359	4,402,121	4,260,387	4,712,216	5,164,044	5,605,873	6,107,702	6,609,531	7,111,360	7,613,189	8,115,018	8,616,847	9,118,676	9,620,504
Net Month																		
Total Liabilities & Net Worth	4,311,915	4,166,359	4,066,349	4,004,103	4,211,359	4,402,121	4,260,387	4,712,216	5,164,044	5,605,873	6,107,702	6,609,531	7,111,360	7,613,189	8,115,018	8,616,847	9,118,676	9,620,504
<b>Rate of Return Fixed Assets</b>	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%
<b>Debt Service Coverage Ratio</b>	1.07	1.17	3.58	1.71	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
<b>Operating Ratio</b>	54%	44%	57%	58%	58%	59%	59%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
<b>Working Ratio</b>	45%	44%	49%	50%	51%	52%	52%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%

Result of Financial Situation

Without Project (Palindo II T)

Income Statement	million Rp																	
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
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	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950
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	949,607
CF 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	105,602	105,602	105,602	105,602	105,602
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	48,606	48,606	48,606	48,606	48,606	48,606	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	61,663	61,663	61,663	61,663	61,663
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	627,286	627,286	627,286	627,286
Income Tax (20%)	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
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	501,829	501,829	501,829	501,829	501,829	501,829
Accumulated Earnings	9,087,264	9,589,093	10,090,922	10,592,751	11,094,580	11,596,409	12,098,238	12,600,066	13,101,895	13,603,724	14,105,553	14,607,382	15,109,211	15,611,040	16,112,869	16,614,698	17,116,526	17,618,355

Cash Flow	million Rp																	
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Cash Beginning	3,810,830	4,150,362	4,505,094	4,853,426	5,200,959	5,548,491	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	9,023,812	9,371,344	9,718,876
Cash Inflow	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	839,198	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	745,945
Non Operating Income	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	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	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647
Cash Outflow	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666	491,666
Investment	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	215,843	215,843
Repayment of Principal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest on Loans	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
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
Tax	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
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Ending	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32	3,475,32
Cash Ending	4,150,362	4,505,894	4,853,426	5,200,959	5,548,491	5,896,023	6,243,555	6,591,087	6,938,619	7,286,151	7,633,683	7,981,215	8,328,747	8,676,280	9,023,812	9,371,344	9,718,876	10,066,408

Balance Sheet	million Rp																	
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
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	8,620,853	9,012,441	9,404,029	9,795,617	10,187,205	10,578,793	10,970,381	11,361,968	11,753,556
Cash & Deposit	4,150,362	4,505,894	4,853,426	5,200,959	5,548,491	5,896,023	6,243,555	6,591,087	6,938,619	7,286,151	7,633,683	7,981,215	8,328,747	8,676,280	9,023,812	9,371,344	9,718,876	10,066,408
Dividend Advance	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	154,732	154,732
Others	791,468	827,524	871,580	915,635	959,691	1,003,747	1,047,803	1,091,859	1,135,914	1,179,970	1,224,026	1,268,082	1,312,137	1,356,193	1,400,249	1,444,305	1,488,361	1,532,416
Fixed Assets	5,021,791	5,136,011	5,250,231	5,364,451	5,478,671	5,592,891	5,707,111	5,821,331	5,935,551	6,049,771	6,163,991	6,278,211	6,392,431	6,506,651	6,620,871	6,735,091	6,849,311	6,963,531
Total Fixed Assets	10,118,353	10,624,162	11,129,971	11,635,780	12,141,589	12,647,398	13,153,207	13,659,016	14,164,825	14,670,634	15,176,443	15,682,252	16,188,061	16,693,870	17,199,679	17,705,488	18,211,297	18,717,106
Liabilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Short-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	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	1,035,069	1,035,069	1,035,069
Net Worth	9,087,264	9,589,093	10,090,922	10,592,751	11,094,580	11,596,409	12,098,238	12,600,066	13,101,895	13,603,724	14,105,553	14,607,382	15,109,211	15,611,040	16,112,869	16,614,698	17,116,526	17,618,355
Total Liabilities & Net Worth	10,122,333	10,624,162	11,125,991	11,627,820	12,129,649	12,631,478	13,133,307	13,635,135	14,136,964	14,638,793	15,140,622	15,642,451	16,144,280	16,646,109	17,147,938	17,649,767	18,151,595	18,653,424

Rate of Return Fixed Assets	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Debt Service Coverage Ratio	12.7%	12.5%	12.2%	12.0%	11.7%	11.5%	11.3%	11.0%	10.8%	10.6%	10.4%	10.3%	10.1%	9.9%	9.7%	9.6%	9.4%	9.3%
Operating Ratio	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92
Working Ratio	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%

Result of Financial Situation

Project Itself (Including Ancol)

Income Statement	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	0	0	0	0	0	0	0	0	0	0	132,784	178,295	184,246	172,337	173,692	174,707	179,719
Int'l Container	0	0	0	0	0	0	0	0	0	0	63,181	120,576	143,568	156,088	159,994	160,999	166,011
Car	0	0	0	0	0	0	0	0	0	0	12,208	13,208	13,708	13,708	13,708	13,708	13,708
Operating Expenses	0	0	0	0	0	0	0	0	0	0	8,596	13,208	13,708	13,708	13,708	13,708	13,708
Of which Depreciation	0	0	0	0	0	0	0	0	0	0	54,466	62,075	63,186	63,186	63,186	63,186	63,186
Non Operating Revenue	0	0	0	0	0	0	0	0	0	0	9,745	9,745	9,745	9,745	9,745	9,745	9,745
Non Operating Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit Before Tax	0	0	0	0	0	0	0	0	0	0	9,283	20,277	29,088	29,088	29,088	29,088	29,059
Income Tax (20%)	0	0	0	0	0	0	0	0	0	0	1,857	4,055	5,818	5,818	5,818	5,818	5,818
Net Surplus	0	0	0	0	0	0	0	0	0	0	7,426	16,222	23,270	23,270	23,270	23,270	23,241
Accumulated Earnings	0	0	0	0	0	0	0	0	0	0	7,426	23,270	49,540	72,810	96,080	119,350	142,620

Cash Flow	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	2011	2012	2013	2014	2015	2016	2017
Cash Beginning	0	0	0	0	0	0	0	0	0	0	185,704	290,282	392,249	493,965	583,773	674,936	760,261
Cash Inflow	0	0	0	0	0	0	0	0	0	0	23,947	290,282	392,249	493,965	583,773	674,936	760,261
Operating Income	0	0	0	0	0	0	0	0	0	0	286,518	543,866	623,211	707,830	791,543	876,872	961,997
Non Operating Income	0	0	0	0	0	0	0	0	0	0	30,213	124,855	130,715	130,804	118,896	120,251	121,266
Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	175,154	374,504	423,603	467,967	510,363	552,726	595,091
Investment	0	0	0	0	0	0	0	0	0	0	30,909	65,089	74,753	83,417	92,079	100,742	109,405
Repayment of Principal	0	0	0	0	0	0	0	0	0	0	215,346	453,380	518,633	571,710	623,284	674,354	725,424
Interest on Loans	0	0	0	0	0	0	0	0	0	0	99,432	215,346	249,328	283,861	318,353	352,845	387,337
Dividend Paid	0	0	0	0	0	0	0	0	0	0	91,708	206,063	440,593	498,356	556,129	613,908	671,681
Tax	0	0	0	0	0	0	0	0	0	0	7,724	16,222	17,449	18,676	19,903	21,130	22,357
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Balance	0	0	0	0	0	0	0	0	0	0	212,122	580,564	784,498	1,078,430	1,372,363	1,666,299	1,960,235
Cash Ending	0	0	0	0	0	0	0	0	0	0	212,122	580,564	784,498	1,078,430	1,372,363	1,666,299	1,960,235

Balance Sheet	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	2011	2012	2013	2014	2015	2016	2017
Current Assets	0	0	0	0	0	0	0	0	0	0	1,458	23,947	392,249	493,965	583,773	674,936	760,261
Cash & Deposit	0	0	0	0	0	0	0	0	0	0	1,458	23,947	392,249	493,965	583,773	674,936	760,261
Dividend Advance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets	0	0	0	0	0	0	0	0	0	0	36,683	224,885	449,482	553,934	658,387	762,840	867,293
Total Fixed Assets	0	0	0	0	0	0	0	0	0	0	36,683	224,885	449,482	553,934	658,387	762,840	867,293
Liabilities	0	0	0	0	0	0	0	0	0	0	29,005	191,293	386,222	464,174	542,179	620,184	707,199
Short-term Loans	0	0	0	0	0	0	0	0	0	0	29,005	191,293	386,222	464,174	542,179	620,184	707,199
Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	7,678	33,750	60,157	81,913	112,823	142,756	173,062
Net Worth	0	0	0	0	0	0	0	0	0	0	7,678	33,750	60,157	81,913	112,823	142,756	173,062
Total Liabilities & Net Worth	0	0	0	0	0	0	0	0	0	0	36,683	224,885	449,482	553,934	658,387	762,840	867,293

Rate of Return	2011	2012	2013	2014	2015	2016	2017
Fixed Assets	4.7%	5.7%	4.9%	4.8%	4.7%	4.7%	4.7%
Debt Service Coverage Ratio	3.27	3.49	3.4%	3.7%	3.6%	3.6%	3.5%
Operating Ratio	31%	29%	30%	31%	31%	31%	31%
Working Ratio	31%	29%	30%	31%	31%	31%	30%

Result of Financial Situation

Project Itself (Including Anc

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
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	183,407
Int'l Container	169,393	169,462	169,571	169,699	169,699	169,699	169,699	169,699	169,699	169,699	169,699	169,699	169,699	169,699	169,699	169,699	169,699	169,699
Car	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708	13,708
Operating Expenses	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186
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	9,745	9,745
Non Operating Revenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non Operating Expenses	28,868	28,481	28,017	27,378	26,364	24,927	22,018	20,564	19,109	17,655	16,200	14,746	13,292	11,837	10,384	8,928	7,474	5,920
Profit Before Tax	91,047	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	109,838	111,292	112,747
Income Tax (20%)	18,209	18,304	18,415	18,561	18,771	19,049	19,348	19,641	19,938	20,236	20,532	20,828	21,124	21,420	21,716	22,012	22,308	22,604
Net Surplus	72,838	73,218	73,660	74,242	75,085	76,245	77,399	78,562	79,719	80,880	82,041	83,207	84,379	85,547	86,716	87,884	89,052	90,220
Accumulated Earnings	851,572	943,094	1,035,169	1,127,972	1,221,828	1,317,122	1,413,871	1,512,073	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	2,574,092

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Cash Beginning	847,915	929,396	1,007,454	1,077,308	1,129,164	1,160,894	1,193,213	1,226,087	1,262,214	1,298,897	1,337,033	1,376,624	1,417,669	1,460,169	1,504,123	1,549,532	1,596,395	1,644,712
Cash Inflow	129,659	129,748	129,837	129,926	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966
Operating Income	129,659	129,748	129,837	129,926	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966	129,966
Non Operating Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Outflow	48,179	51,690	59,984	76,070	96,236	97,647	96,192	94,738	93,284	91,829	90,375	88,920	87,466	86,012	84,557	83,103	81,648	80,194
Investment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment of Principal	19,311	23,209	31,966	50,692	71,872	72,720	72,720	72,720	72,720	72,720	72,720	72,720	72,720	72,720	72,720	72,720	72,720	72,720
Interest on Loans	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	10,383	8,928	7,474
Dividend Paid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Balance	81,481	78,058	69,654	51,857	31,730	32,319	33,773	35,228	36,682	38,137	39,591	41,045	42,500	43,954	45,409	46,863	48,317	49,772
Cash Ending	929,396	1,007,454	1,077,308	1,129,164	1,160,894	1,193,213	1,226,087	1,262,214	1,298,897	1,337,033	1,376,624	1,417,669	1,460,169	1,504,123	1,549,532	1,596,395	1,644,712	1,694,484

Balance Sheet

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Current Assets	929,396	1,007,454	1,077,308	1,129,164	1,160,894	1,193,213	1,226,087	1,262,214	1,298,897	1,337,033	1,376,624	1,417,669	1,460,169	1,504,123	1,549,532	1,596,395	1,644,712	1,694,484
Cash & Deposit	929,396	1,007,454	1,077,308	1,129,164	1,160,894	1,193,213	1,226,087	1,262,214	1,298,897	1,337,033	1,376,624	1,417,669	1,460,169	1,504,123	1,549,532	1,596,395	1,644,712	1,694,484
Dividend Advance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Land	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buildings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intangible Assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Fixed Assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liabilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Short-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Worth	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	256,659	256,659	256,659	256,659	256,659
Debt Service Coverage Ratio	851,572	943,094	1,035,169	1,127,972	1,221,828	1,317,122	1,413,871	1,512,073	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	2,574,092
Operating Ratio	2,278,904	2,595,217	2,655,326	2,697,438	2,719,422	2,741,996	2,766,024	2,791,507	2,818,444	2,846,836	2,876,681	2,907,982	2,940,736	2,974,945	3,010,609	3,047,727	3,086,294	3,126,326
Rate of Return Fixed Assets	4.7%	4.6%	4.5%	4.4%	4.3%	4.3%	4.3%	4.3%	4.3%	4.2%	4.2%	4.1%	4.1%	4.0%	4.0%	3.9%	3.9%	3.8%
Debt Service Coverage Ratio	2.69	2.51	2.16	1.66	1.32	1.33	1.35	1.37	1.39	1.42	1.44	1.46	1.49	1.51	1.54	1.56	1.59	1.62
Operating Ratio	35%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%
Working Ratio	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%

Result of Financial Situation

With Project (Palindo II Total Including Ancof)

Income Statement	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	950,687	1,317,950	1,396,651	1,441,267	1,489,029	1,546,449	1,598,947	1,664,085	1,722,256	1,774,107	1,826,423	1,873,198	1,919,832	2,139,648	2,559,300	2,871,608	3,384,903	3,791,885
Operating Expenses	577,712	671,309	768,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607	843,607
Of which Depreciation	24,730	96,963	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	105,602	105,602	105,602
Non Operating Revenue	358,865	6,570	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Profit Before Tax	108,540	428,719	475,987	510,705	510,705	510,705	510,705	510,705	510,705	510,705	510,705	510,705	510,705	510,705	510,705	510,705	510,705	510,705
Income Tax (20%)	21,708	85,744	95,197	102,141	102,141	102,141	102,141	102,141	102,141	102,141	102,141	102,141	102,141	102,141	102,141	102,141	102,141	102,141
Net Surplus	86,832	342,975	380,790	408,564	408,564	408,564	408,564	408,564	408,564	408,564	408,564	408,564	408,564	408,564	408,564	408,564	408,564	408,564
Accumulated Earnings	583,064	940,209	1,325,123	1,733,687	2,160,191	2,603,915	3,064,332	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	8,754,651	9,345,961

Cash Flow	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cash Beginning	252,297	177,001	92,094	265,669	345,315	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093
Cash Inflow	580,351	861,088	714,767	790,699	799,115	847,360	1,015,955	1,072,178	961,119	1,125,515	1,383,716	1,462,400	1,462,400	969,874	970,000	959,449	960,164	965,475
Operating Income	450,879	774,474	697,446	705,862	717,424	717,424	717,424	717,424	717,424	717,424	717,424	717,424	717,424	717,424	717,424	717,424	717,424	717,424
Non Operating Income	26,430	6,520	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Debt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Outflow	103,042	80,095	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647
Operating	635,643	945,095	529,969	801,922	719,469	811,582	1,308,498	801,993	663,552	755,605	1,036,390	1,115,764	570,069	550,550	546,705	546,705	546,705	546,705
Investment	213,943	179,243	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943	213,943
Financing	190,819	485,040	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434	146,434
Repayment of Principal	232,846	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243	179,243
Interest on Loans	49,587	59,431	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381	63,381
Dividend Paid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Balance	55,296	84,907	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798	184,798
Cash Ending	177,001	92,094	276,892	265,669	345,315	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093

Balance Sheet	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
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	2,148,563	2,612,720	3,139,384	3,632,368	4,113,384	4,596,734	5,073,648	5,552,890
Cash & Deposit	177,001	92,094	276,892	265,669	345,315	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093	381,093
Dividend Advance	692,817	659,082	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
Others	315,385	203,709	372,786	216,653	239,354	273,658	304,900	364,730	400,806	482,564	562,738	641,595	720,559	800,535	881,559	964,901	1,050,815	1,139,065
Fixed Assets	3,156,712	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474	3,211,474
Total Fixed Assets	4,311,915	4,166,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359
Liabilities	2,700,408	2,280,373	1,786,157	1,235,347	1,016,097	792,142	351,293	496,222	524,174	639,320	1,013,832	1,437,434	1,454,401	1,454,401	1,454,401	1,454,401	1,454,401	1,454,401
Short-term Loans	428,837	565,926	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202	334,202
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	639,320	1,013,832	1,437,434	1,454,401	1,454,401	1,454,401	1,454,401	1,454,401	1,454,401
Others	170,687	151,143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	1,028,443	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777	1,025,777
Net Worth	583,064	940,209	1,325,123	1,733,687	2,160,191	2,603,915	3,064,332	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	8,754,651	9,345,961
Total Liabilities & Net Worth	4,311,915	4,166,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359	4,066,359

Rate of Return Fixed Assets	14.0%	20.1%	18.0%	17.6%	16.9%	15.0%	14.8%	14.9%	13.8%	12.8%	12.4%	12.0%	11.9%	11.7%
Debt Service Coverage Ratio	1.07	1.17	3.58	1.71	2.23	2.01	1.09	7.18	6.59	13.53	11.13	11.09	10.95	10.09
Operating Ratio	54%	51%	57%	58%	59%	60%	60%	60%	59%	57%	57%	57%	57%	57%
Working Ratio	45%	44%	49%	50%	51%	52%	53%	53%	52%	51%	51%	51%	51%	51%

	million Rp																	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1,773,051	1,773,140	1,773,229	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	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950
1,012,793	1,012,793	1,012,793	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
115,347	115,347	115,347	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	105,602	105,602	105,602
48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
910,331	910,331	910,331	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680	899,680
136,483	136,483	136,483	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184
592,875	593,351	593,679	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829	501,829
9,539,836	10,552,187	11,126,091	10,592,751	11,094,580	11,596,409	12,098,238	12,600,066	13,101,895	13,603,724	14,105,553	14,607,382	15,109,211	15,611,040	16,112,869	16,614,698	17,116,526	17,618,355	
4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558	4,368,558
875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608	875,608
48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647
569,000	572,777	576,554	580,331	584,108	587,885	591,662	595,439	599,216	602,993	606,770	610,547	614,324	618,101	621,878	625,655	629,432	633,209	636,986
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	215,843	215,843	215,843
19,311	21,209	23,107	25,005	26,903	28,801	30,699	32,597	34,495	36,393	38,291	40,189	42,087	43,985	45,883	47,781	49,679	51,577	53,475
78,868	78,868	78,868	77,378	75,888	74,398	72,908	71,418	69,928	68,438	66,948	65,458	63,968	62,478	60,988	59,498	58,008	56,518	55,028
118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575	118,575
136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483	136,483
399,777	399,777	399,777	387,749	385,721	383,693	381,665	379,637	377,609	375,581	373,553	371,525	369,497	367,469	365,441	363,413	361,385	359,357	357,329
4,599,007	4,995,176	5,382,926	5,788,588	6,174,122	6,560,216	6,947,025	7,336,857	7,727,345	8,119,206	8,512,682	8,907,532	9,303,837	9,701,596	10,100,810	10,501,478	10,903,600	11,307,177	
6,025,958	6,495,604	6,957,046	7,400,490	7,823,608	8,247,715	8,673,076	9,099,892	9,528,162	9,957,886	10,389,065	10,821,698	11,255,786	11,691,328	12,128,325	12,566,776	13,006,681	13,448,041	
5,087,758	5,513,348	5,930,734	6,330,123	6,709,385	7,089,236	7,470,541	7,853,301	8,237,516	8,623,184	9,010,307	9,398,885	9,788,917	10,180,403	10,573,344	10,967,739	11,363,588	11,760,892	
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	154,732	154,732	154,732
783,468	827,524	871,580	915,635	959,691	1,003,747	1,047,803	1,091,859	1,135,914	1,179,970	1,224,026	1,268,082	1,312,137	1,356,193	1,400,249	1,444,305	1,488,361	1,532,416	
6,623,280	6,723,776	6,824,272	6,924,768	7,025,264	7,125,760	7,226,256	7,326,752	7,427,248	7,527,744	7,628,240	7,728,736	7,829,232	7,929,728	8,030,224	8,130,720	8,231,216	8,331,712	
12,669,238	13,219,380	13,781,317	14,325,258	14,849,071	15,373,474	15,899,331	16,426,643	16,955,409	17,485,629	18,017,304	18,550,433	19,085,016	19,621,054	20,158,547	20,697,493	21,237,894	21,779,750	
1,410,673	1,395,465	1,363,498	1,312,807	1,240,935	1,168,215	1,095,495	1,022,775	950,055	877,335	804,615	731,895	659,175	586,455	513,734	441,014	368,294	295,574	
1,418,673	1,395,465	1,363,498	1,312,807	1,240,935	1,168,215	1,095,495	1,022,775	950,055	877,335	804,615	731,895	659,175	586,455	513,734	441,014	368,294	295,574	
1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728	1,291,728
9,938,936	10,532,187	11,126,091	11,720,723	12,316,408	12,912,140	13,507,912	14,103,724	14,700,576	15,297,468	15,894,400	16,491,392	17,088,434	17,685,536	18,282,688	18,879,890	19,477,142	20,074,444	
12,649,238	13,219,380	13,781,317	14,325,258	14,849,071	15,373,474	15,899,331	16,426,643	16,955,409	17,485,629	18,017,304	18,550,433	19,085,016	19,621,054	20,158,547	20,697,493	21,237,894	21,779,750	
11.5%	11.3%	11.1%	10.9%	10.7%	10.5%	10.3%	10.1%	9.9%	9.7%	9.5%	9.3%	9.1%	8.9%	8.7%	8.5%	8.3%	8.1%	7.9%
8.92	8.61	7.96	6.84	5.93	5.09	4.36	3.74	3.21	2.78	2.44	2.18	1.97	1.80	1.66	1.54	1.44	1.35	1.28
57%	57%	57%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
51%	51%	51%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%



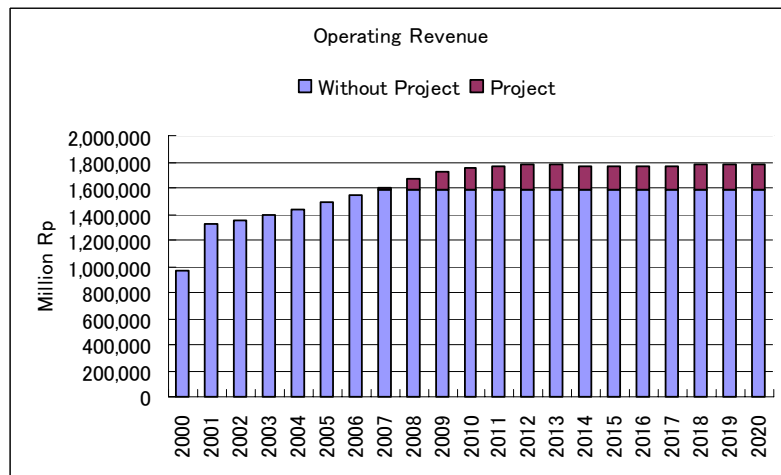


Figure 14-G-19 Operating Revenue

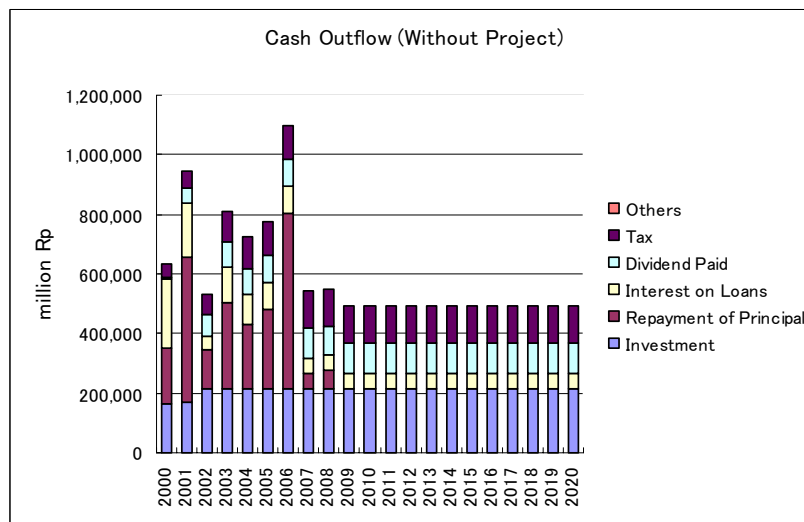


Figure 14-G-20 Cash Outflow (Without Project)

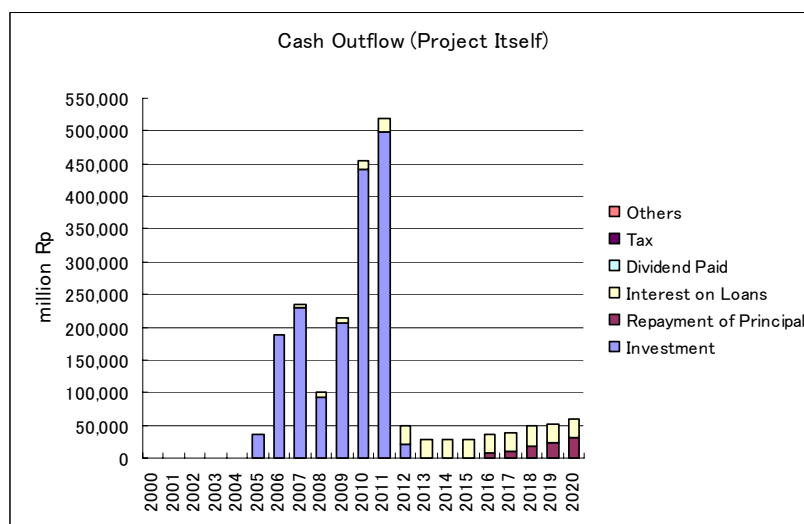


Figure 14-G-21 Cash Outflow (Project Itself)

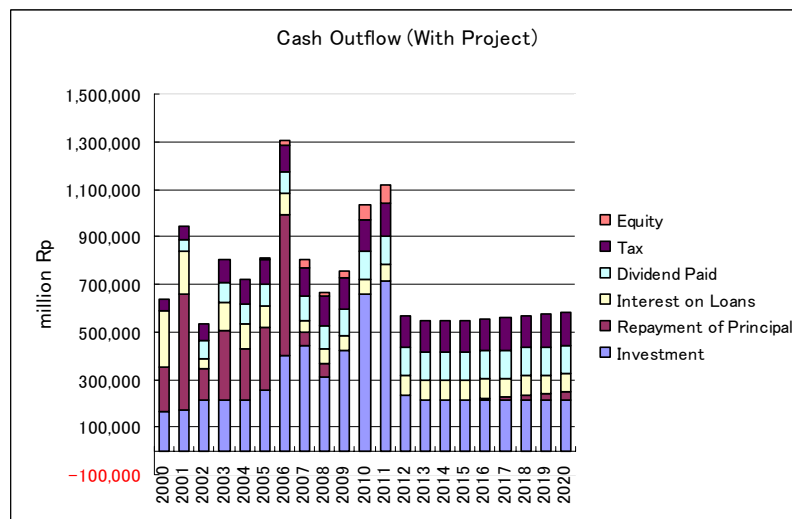


Figure 14-G-22 Cash Outflow (With Project)

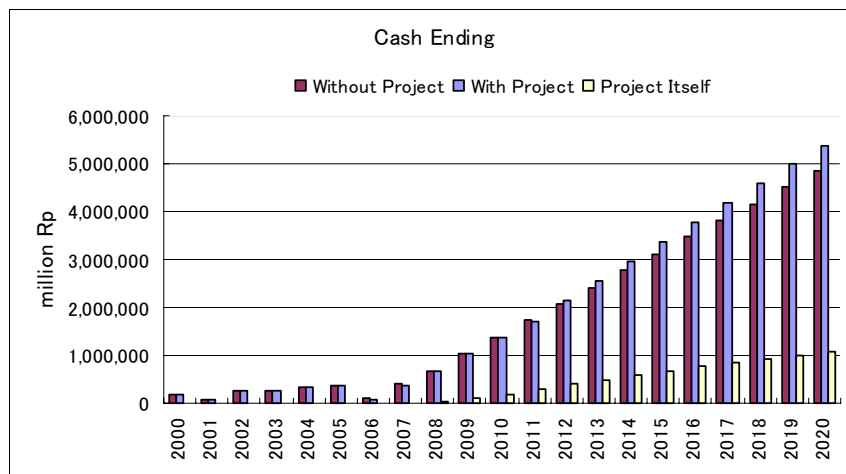


Figure 14-G-23 Cash Ending

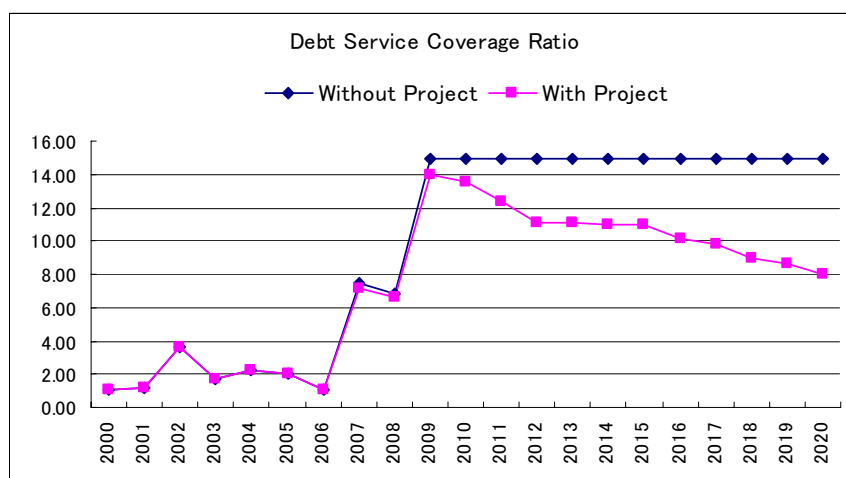


Figure 14-G-24 Debt Service Coverage Ratio

**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, SO<sub>2</sub>, NO<sub>2</sub> 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/km<sup>2</sup>. 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 (20<sup>th</sup> 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 Jl Pelabuhan Raya, and Jl 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.

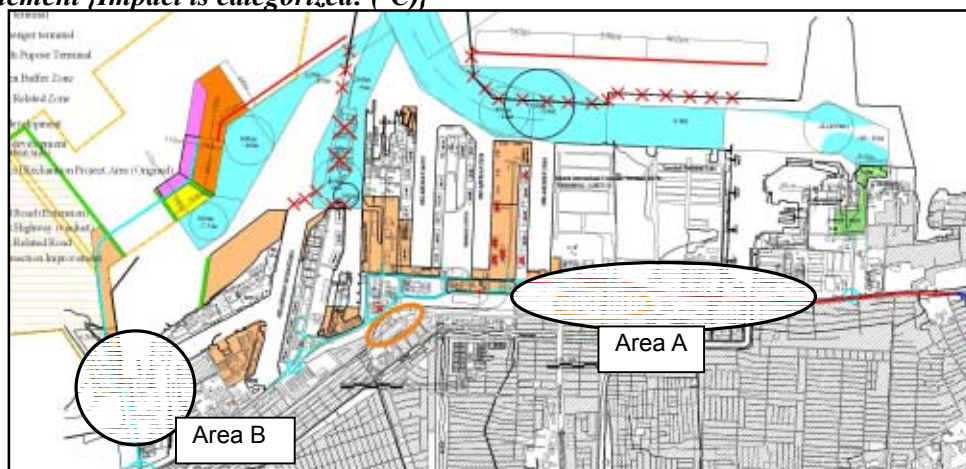
376. Poor drainage system carries waste materials into the Port Area; it damages water and soil condition.

#### 14-H-4 Results of Environmental Impact and Evaluation

##### 1) *Pre-Construction Phase*

##### a) *Socio Culture and Economy*

##### *Resettlement {Impact is categorized: (-C)}*



**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 easier than what expected. The impact will affect to biological condition especially because of decreasing transparency. The impact characteristic is not cumulative and irreversible.

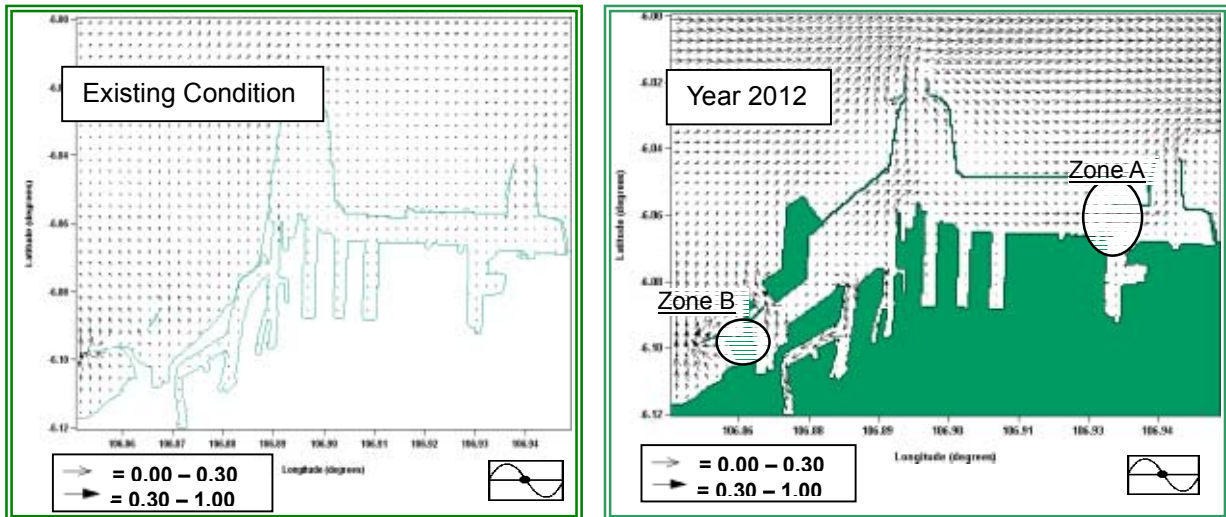


Figure 14-H-2 Simulated Water Current Condition (Spring Tide, Ebb Tide)

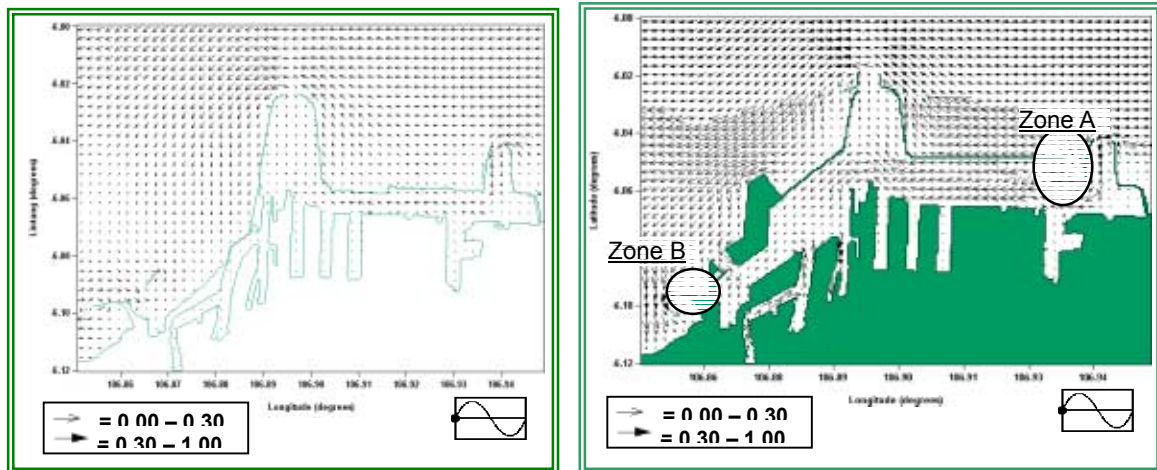


Figure 14-H-3 Simulated Water Current Condition (Spring Tide, Flood Tide)

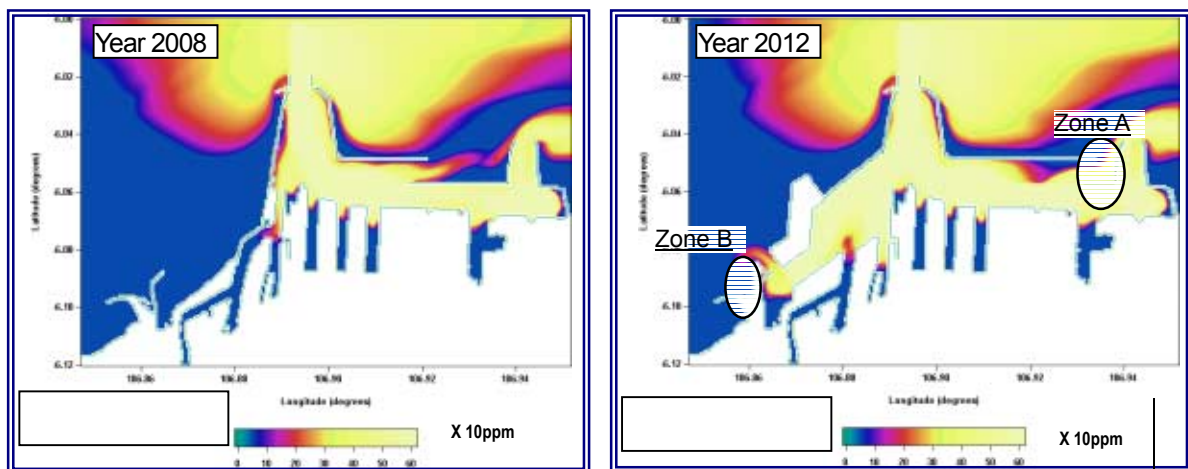


Figure 14-H-4 Simulation Result of Diffusion of Turbid water(3 Days after Starting Dredging)

**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 23ug/m<sup>3</sup> (ground level, 100m from source of impact), 21 μ g/m<sup>3</sup> in 2m from ground level. Initial concentration of SPM (field survey = 15 – 1,500 μ g/m<sup>3</sup>) 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 0.2m<sup>3</sup>/sec of run off until 2008, 1.2 m<sup>3</sup>/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 affected 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 SO<sub>x</sub>, CO, NO<sub>x</sub>. Loading concentration of air pollution was estimated around 3.2ppm of CO, 40 µg/m<sup>3</sup> of NO and 0.15 µg/m<sup>3</sup> 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 m<sup>3</sup>/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 50m<sup>3</sup>/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 45m<sup>3</sup>/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 jealousy 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 850m<sup>3</sup>/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 m<sup>3</sup>/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 jealousy 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

**Table 14-H-1 Summary of Overall Evaluation**

		Pre-Construction	Construction						Operation and Maintenance				Overall Evaluation	
			Off Shore Work			On Land Work			Terminal Operation	Existing Breakwater	Maintenance Dredging	Port Access Road		
			Land Acquisition/Resettlement	Dredging	Breakwater	Reclamation	Multi Purpose Terminal Development	Port Access Road Development						Mobilization/Demobilization of Material and Equipment
Physical-Chemical Environment	(1) Air Pollution		-C	-C	-C	-B	-B	-C		-C	+C	-C	-C	-C
	(2) Sea Water Quality		-B	-C	-B				-C	+C	-C		-C	-C
	(3) Noise and Vibration		-C	-C	-C	-C	-C						-C	-C
	(4) Water Supply							-C	-B					-C
	(5) Domestic Water Pollution							-C	-B					-C
	(6) Waste and Garbage		-B	-C				-C	-B					-C
	(7) Hydrological Situation (Run Off)					-C								D
Biological Environment	(1) Aquatic Flora and Fauna				-C						-C			-C
	(2) Terrestrial Flora and Fauna													D
Social Environment	(1) Land Use	+C	-C											+C
	(2) Resettlement	-C												D
	(3) Economic Activity							+B	+B			+B	+B	+B
	(4) Traffic activity		-C	-C	-C			-B	+B	+B		+B	+B	+B
	(5) Social Interaction, Culture and Security							-C	-C			-C	-C	-C
	(6) Split of Community											+C	+C	+C

**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.

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

Content	Critical Values Based on The Netherlands's Standards <sup>(1)</sup>			Existing Concentration <sup>(2)</sup>
	Reference Value	Testing Value	Signaling Value	
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

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.



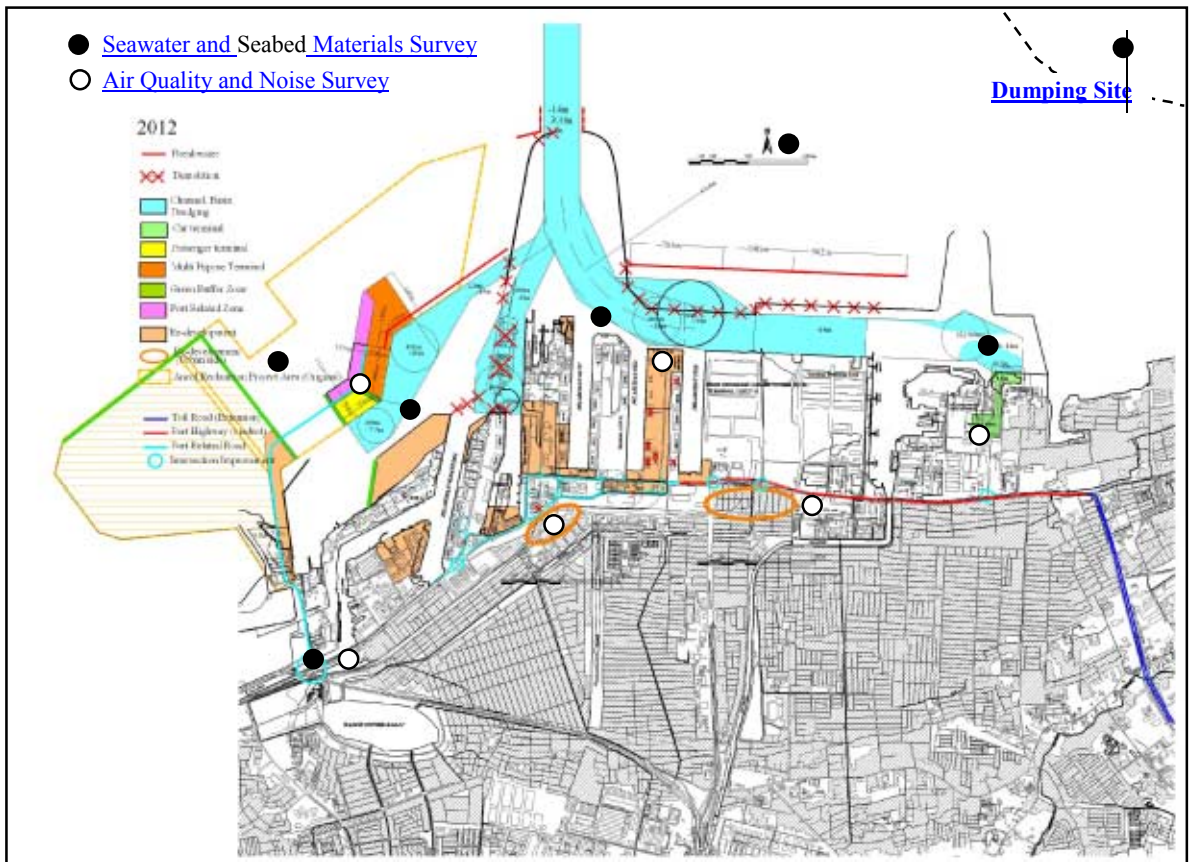


Figure 14-H-5 Proposed Environmental Monitoring Plan

**Table 14-H-3 Proposed Environmental Monitoring Plan**

Target Environmental Impact	Method of Monitoring Survey	Monitoring Period
Social Environmental Impact (Land Acquisition Process, Land Use e.g.)	Public Hearing with Stakeholders. Interview Survey with Residents and Local Government	Pre-Construction to Operation Phase One time a Year
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. Sedimentation	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	SO <sub>2</sub> , NO <sub>2</sub> , 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.

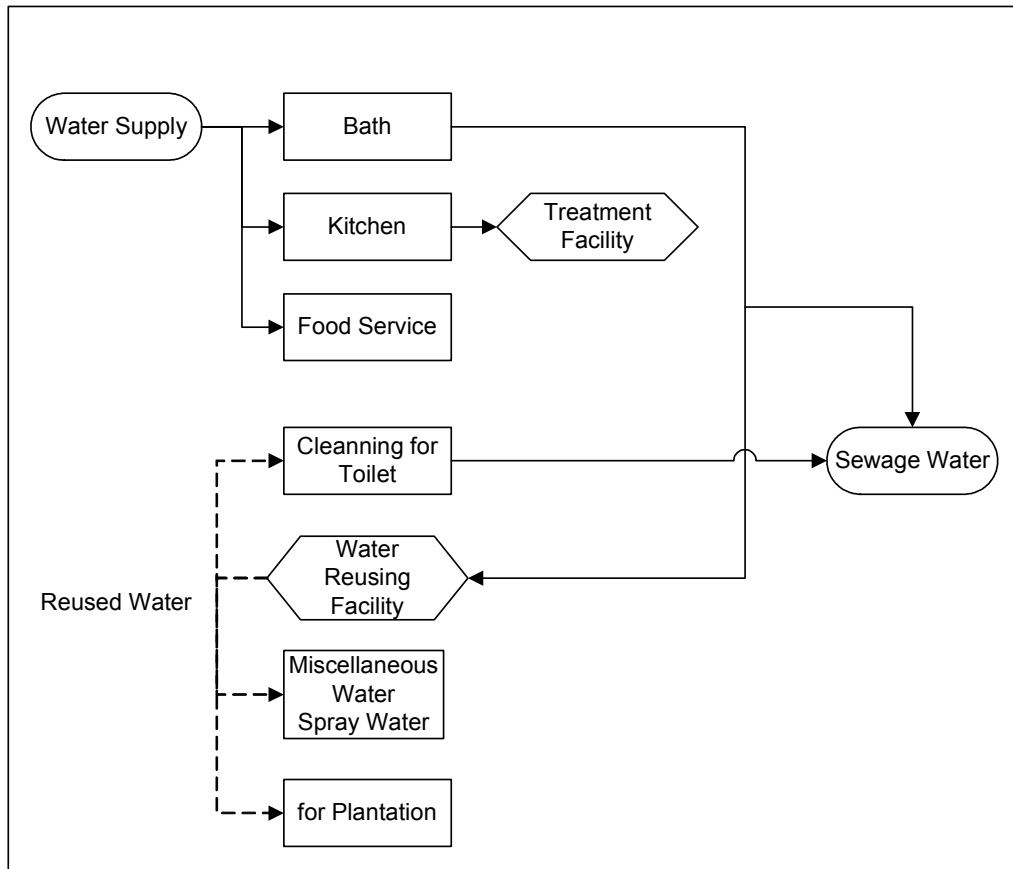
498. It is important that sustainable development and low impact to the environment for promoting “Eco Port”. Thus the following facilities can be recommended;

#### 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.



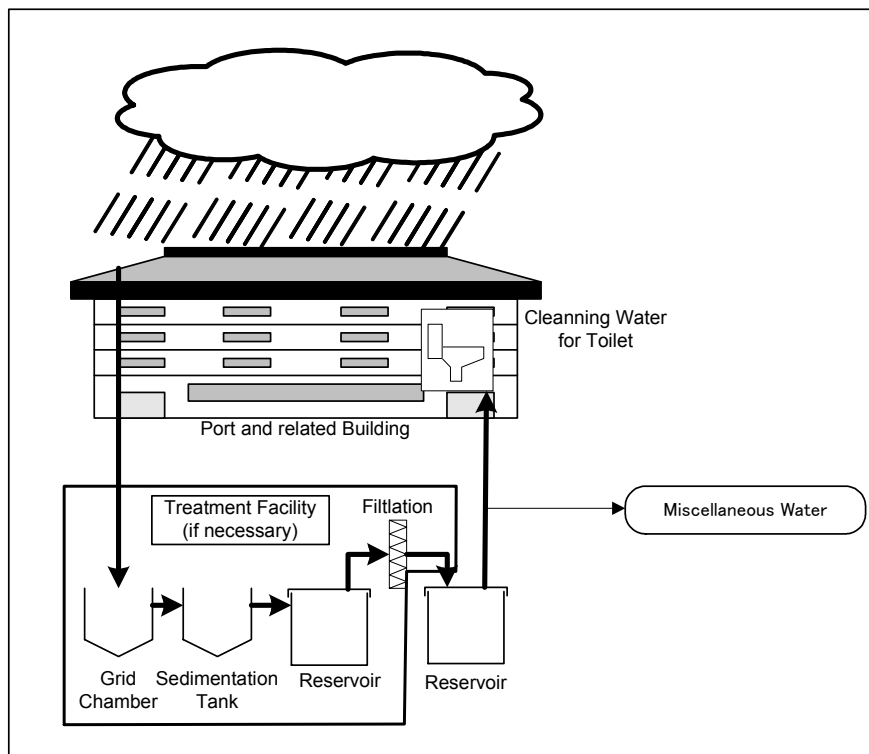
**Figure 14-H-6 Concept of Water Reusing System**

*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.



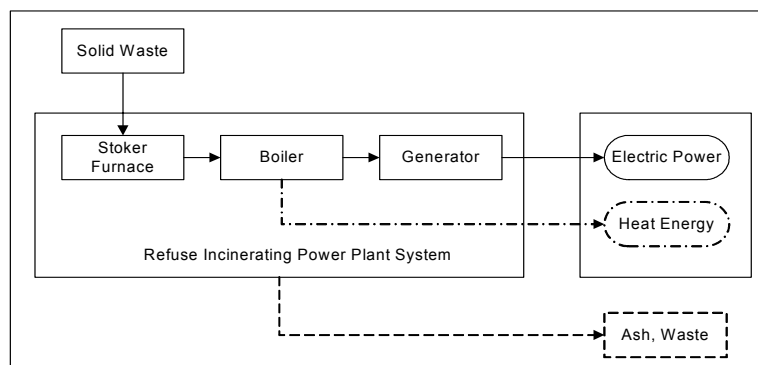
**Figure 14-H-7 Concept of Rain Water using System**

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.



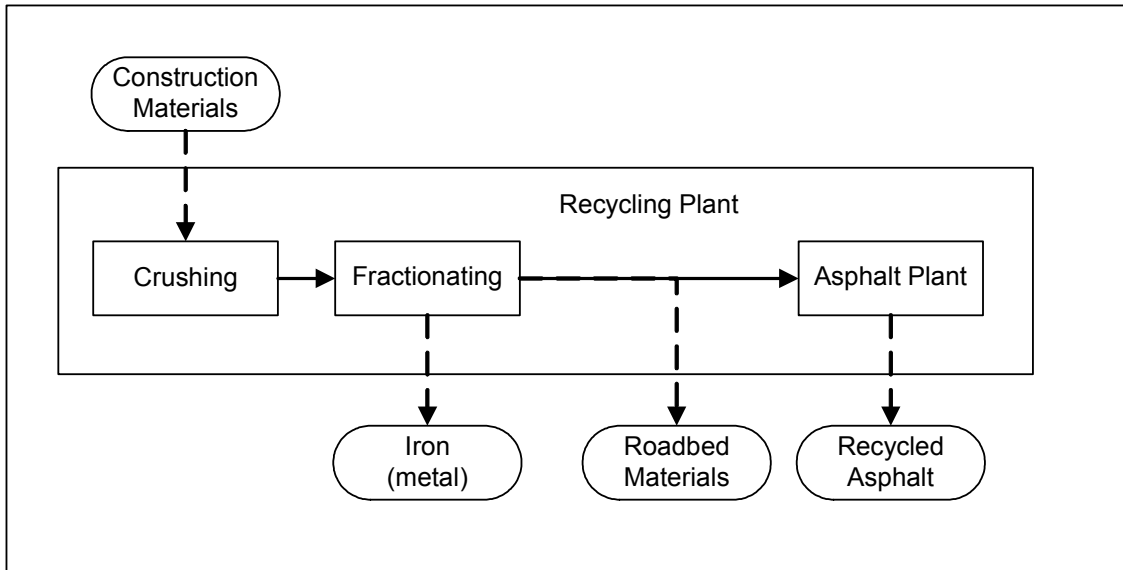
**Figure 14-H-8 Concept of Refuse Incinerating Power Plant System**

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**

<b>Project Component</b>	<b>Proposed Year of Operation</b>	<b>Remarks</b>
Container Terminal Development	2010~	Should be operated by 2010. Some additional equipment will be deployed in 2011.
Multi Purpose Terminal Development	2008	Should be operated by 2008
Breakwater, Channel and Basin Development	2008~	Implemented by phased construction
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-1 according to the Master Plan and the Short-term plan.

**Table 15-B-1 Container Berth Facility in 2010**

Berth Dimension		Number of Berths	Remarks
Draft	Length		
-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 Berths	Length of Berth (m)	Ship Calls	Throughput (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:

<b>Formula</b>	
	$N_{qc} = A / (T_w * P_{qc})$
	Where:
	A: Expected Maximum Annual Throughput (box)
	$T_w$ : Working Hours (365*24*Operation Ratio (95%)*BOR (60%))
	$P_{qc}$ : Crane Productivity (Box/Crane/Hour (Net))
<b>Calculation</b>	
A	445,617 Capacity
$T_w$	4,993
$P_{qc}$	25
$N_{qc}$	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

$$Ntc2 = A * 3 \text{ times} / (Tw * Ptc)$$

Mainly 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)

Tqc: Handling cycle time under the Quay Crane = 60/Pqc (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

<b>Calculation</b>	
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.

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

v) *Summary of Handling Equipment*

<b>Item</b>	<b>Number</b>	<b>Remarks</b>
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
<b>Ground Slots (TEUs)</b>	<b>Export/Out-bound</b>	<b>994</b>
	<b>Import/In-bound</b>	<b>2,705</b>
	<b>Total</b>	<b>3,698</b>

ii) *Reefer Yard*

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

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
<b>Ground Slots (TEUs)</b>		<b>61</b>

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 (m<sup>2</sup>)

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/m<sup>2</sup>) - 1.0

r: Cargo Storage Area Ratio in CFS - 60%

Dy: Operating Days of CFS (days) - 365

<i>Calculation</i>			
A	2,648		
Hc	585,792	Calculated by the Capacity	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 **2,800m<sup>2</sup>** (50m \* 8m \* 7 bays) respectively.

*d) Gate*

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

<i>Formula</i>	
$N = V_t / C_g$	
Where:	
N: Required number of Truck Lanes (In + Out)	
$V_t = Hcb * (Pm/12) * (Pd/30) * (Ph/24) / 2$	
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	
$C_g = 60/S$	
Cg: Gate Capacity	
S: Necessary Procedure Time per Truck (minutes)	
S (In) = 3.0 minutes	
S (Out) = 2.0 minutes	

<i>Calculation</i>	
N (In)	3.5
N (Out)	1.7
Vt	69.6 For each lane
Hcb	445,617 Capacity (box)
Pm	1.2
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
<b>Ground Slots (TEUs)</b>		<b>703</b>

**g) Other Facilities**

531. Other major facilities are planned as follows:

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

**4) Terminal Layout**

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

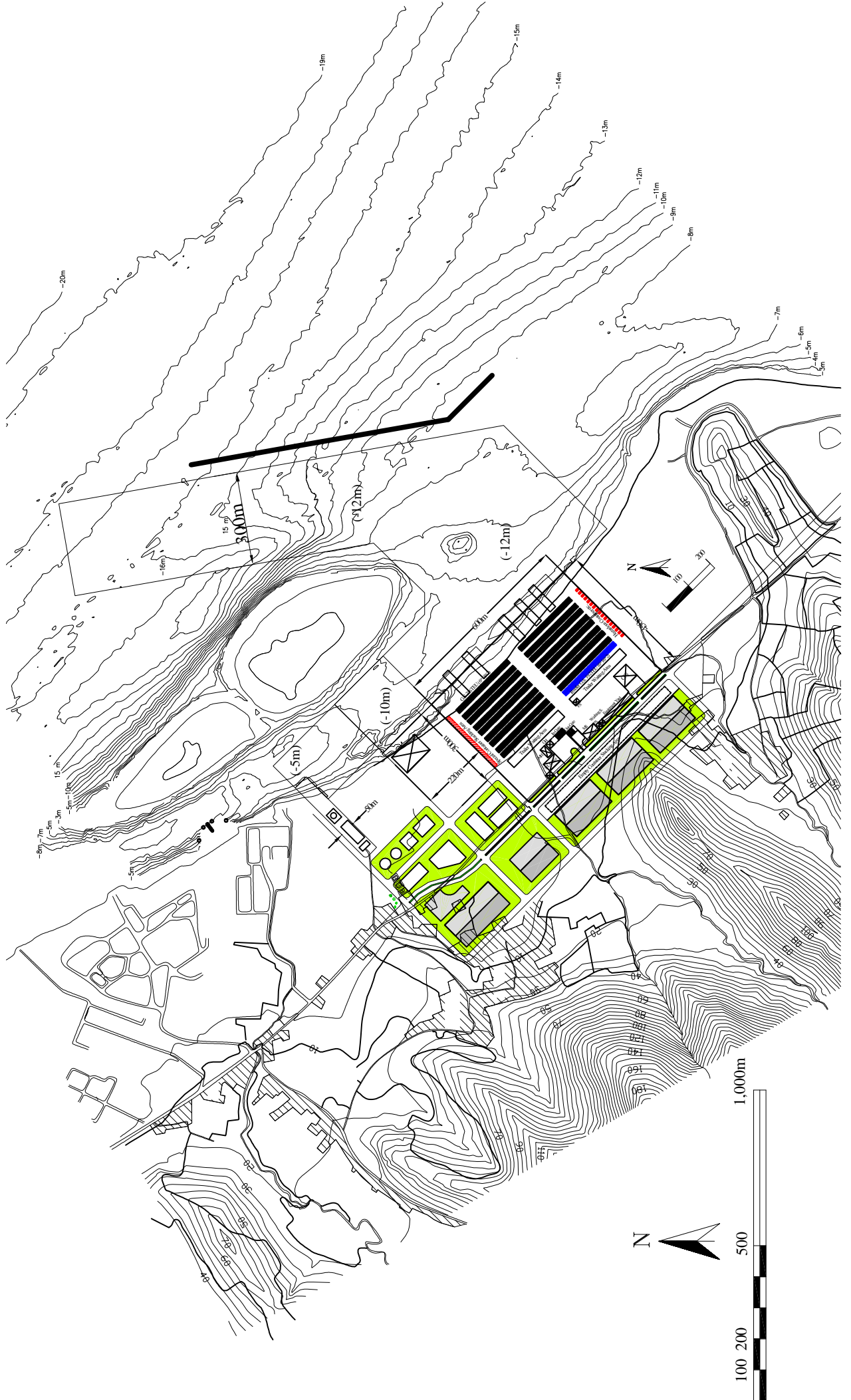
532. Figure 15-B-1. Table below is the summary of the depth of the terminal.

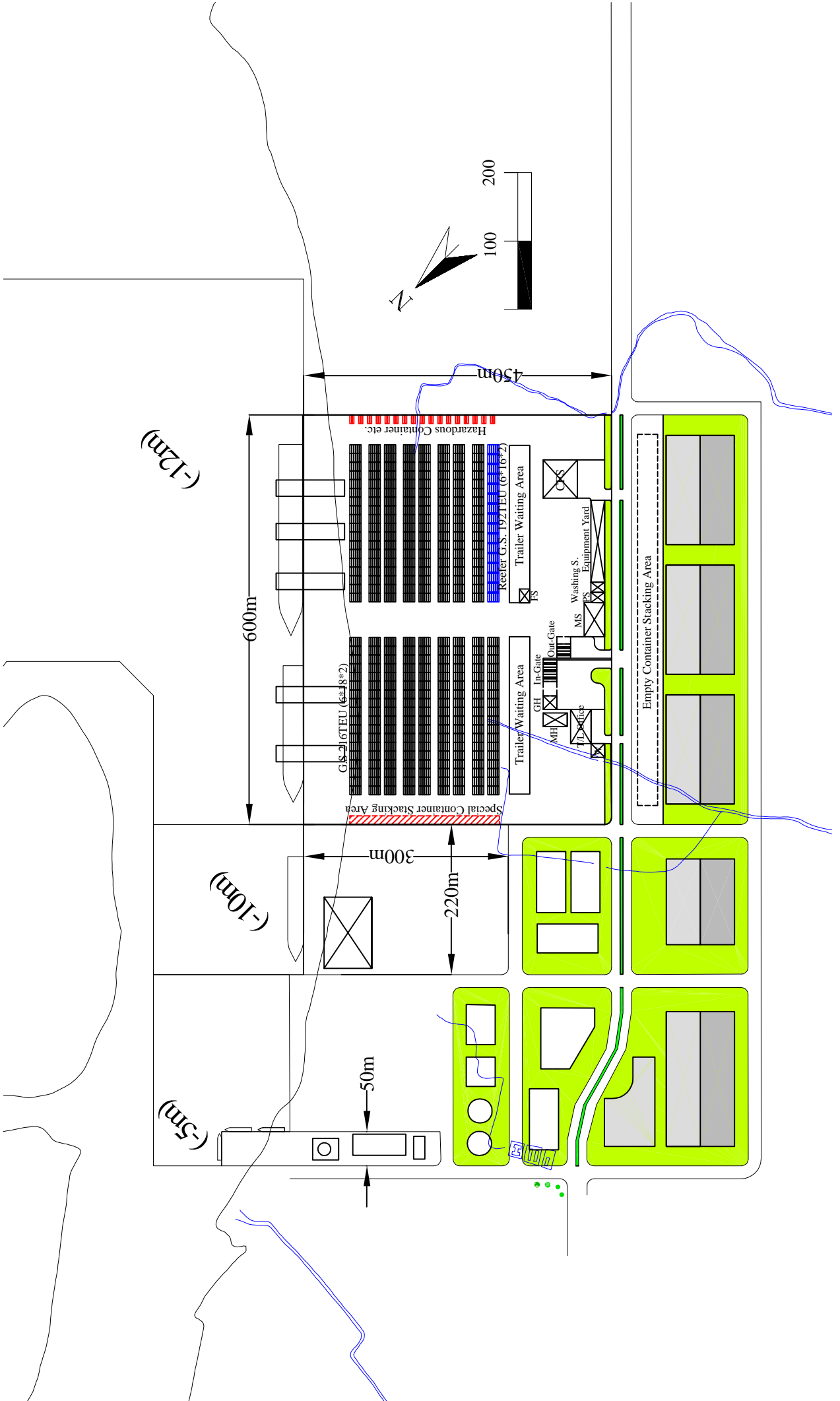
**Table 15-B-2 Depth of Container Terminal**

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 (Outside of the terminal)	50 meters	Railway or container stacking area

**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.

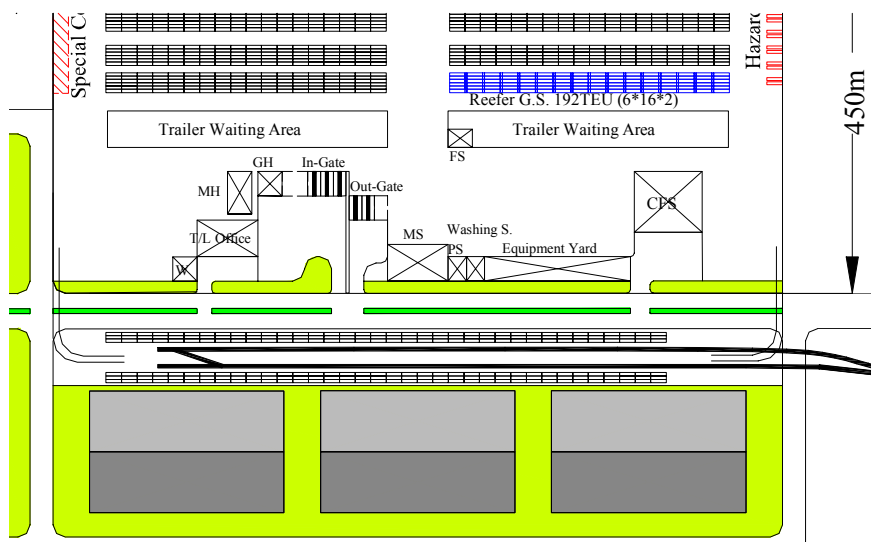


Figure 15-B-2 Container Terminal Layout (Future: In Case of Introducing Railway)

## 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 Berths
Draft	Length	
-10m	220m	1

### 2) Handling Facilities

#### a) Handling Equipment

535. Major handling equipment are as follows:

Item	Remarks
Mobile Crane	At least 2 ~ 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:

<b>Formula</b>	
$A_y = H_g * P * T_y / (R * r * w)$ $A_s = H_g * P * T_s / (R * r * w)$	
Where:	
Ay: Necessary area of open yard (m <sup>2</sup> )	
As: Necessary area of transit shed (m <sup>2</sup> )	
Hg: Annual Handling Volume (ton)	
P: Peak Ratio - 1.3	
Ty: Passage Ratio through Open yard - 50%	
Ts: Passage 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/m <sup>2</sup> ) - 1.0	

<b>Calculation</b>	
Open yard	Transit shed
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%
Total        36,981	

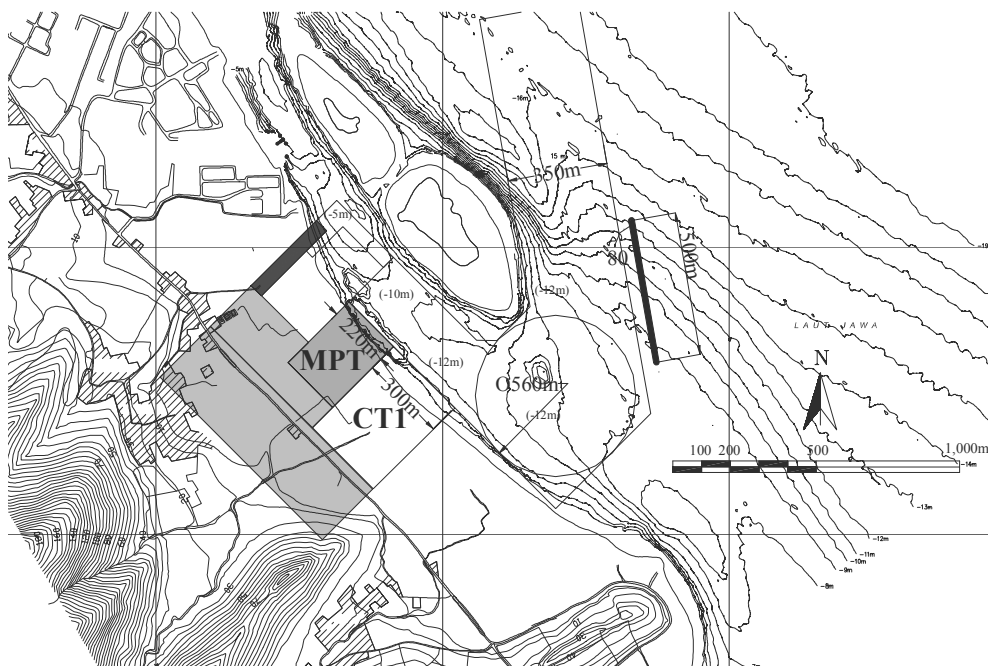
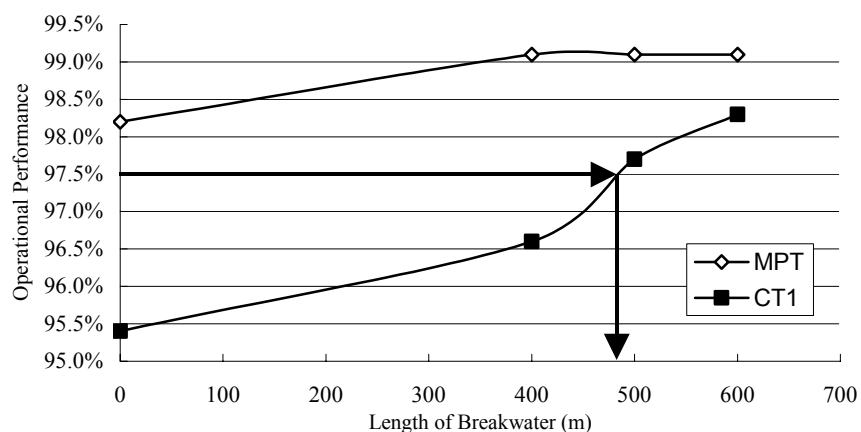
In addition to the above, parking area for Ro-Ro vessels and container stacking area for inter-island semi container vessels will be taken into consideration for the terminal area. The layout of multi purpose terminal is shown in

**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))