10-C. PROJECT COMPONENTS FOR TANJUNG PRIOK

24. In accordance with development concept for Tanjung Priok, the Study team has selected the following major projects toward 2025: Navigational condition improvement, Car dedicated terminal development, Road development/ improvement in/around the port, Re-organizing land-use of the existing port, and new port area Development in East-Ancol and Kalibaru area.

10-C-1 Navigational Condition Improvement

1) Concept:

Urgent

- ✓ *Widening the main channel (300m width and -14m depth) to secure two-way traffic as well as widening the turning basin (maximum 560m diameter) to accommodate larger vessels. (Improvement of navigational condition is crucial to increase the port capacity and enhance safety.)*

Long-term

- ✓ *Opening the east gate and channel (with a depth of -14m) to secure smooth vessel traffic*

2) Channel

25. To increase the port capacity, improvement of navigational condition is crucial, which increase the capacity of ship calls as well as enhance the safety. Here, the Study team examined the following two basic alternatives for navigational condition improvement:

- ➢ Alternative-A: Develop the two-way traffic channel with 300m width and -14m depth for the main channel
- ➢ Alternative-B: Develop the east gate channel and secure the one-way traffic channel with 175m width and -14m depth from the west gate to the east gate

26. Based on the evaluation of the alternatives, the Study team proposes **Alternative-A** for the urgent countermeasure because the construction work and improvement of the capacity can be realized step by step. Furthermore, the narrow turning basin for Basin I~III will be improved by widening the main channel. In the long term, however, the Study team proposes that development of the east gate with channel of -12m depth and 150m width should be carried out for departure vessels from the east side of the port.

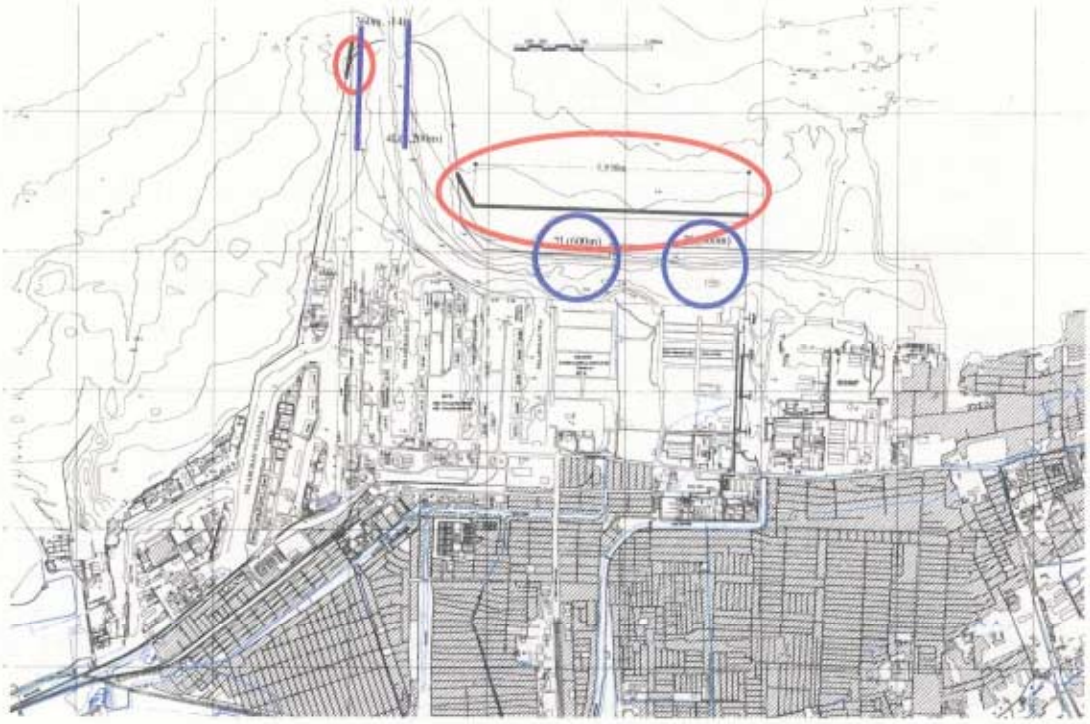


Figure 10-C-1 Alternative-A (Two-way Channel)

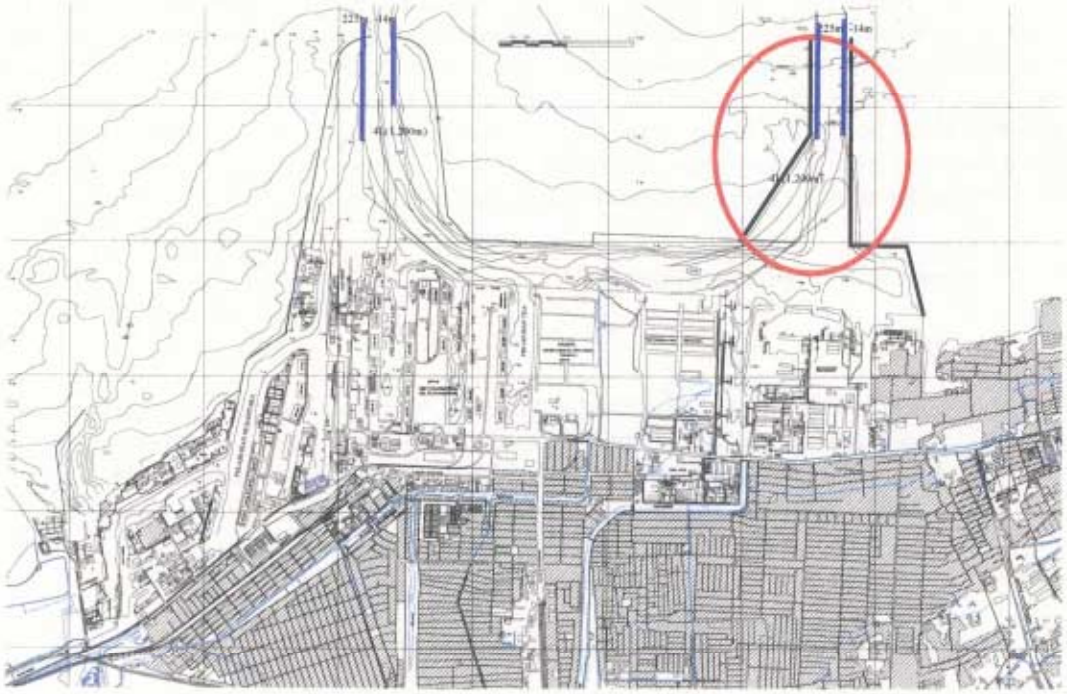


Figure 10-C-2 Alternative-B (One-way Channel)

Table 10-C-1 Evaluation on Alternatives

	Alternative-A	Alternative-B
Capacity	Improved. (Almost no limit of ship calls.)	Improved. (Almost no limit of ship calls.)
Turning Basin	Turning basin for the Basin I~III will be improved.	Turning basin for the Basin I~III will be not improved.
Phased Construction	Construction and improvement of the capacity can be realized step by step.	Construction and improvement of the capacity cannot be phased.
Development Cost	Almost same.	Almost same.
Evaluation	Should be realized urgently	Realized in the long term

3) Turning Basin

27. According to UNCTAD and Japanese standard, the diameter of turning basin should be equal to or greater than 2*L (Ship length) of the largest ship in case of towing by tugboat. Consequently, to secure enough turning basin to accommodate larger container vessels, the diameter of the turning basin in front of JICT and Koja terminal is set as **560m** (2 *280m).

4) Breakwater Re-alignment (Relocation to Offshore)

28. In accordance with widening channel and expanding turning basin, the original breakwater should be relocated to offshore with new alignment, and which should be examined viewing from the calmness of the basin inside the port because the original breakwater was cut and basin will be more open to the sea between the original breakwater and new one. According to the computer simulation, it was confirmed that the proposed alignment of breakwater satisfied the standard at all points inside the port which stimulates that excessive probability beyond 0.5m wave height in front of quay should be under 2.5% throughout the year. The detail of simulation result is shown in the Supporting Report of Engineering Study".

10-C-2 Automobile Terminal Development

1) Concept

- ✓ *Establishment of a dedicated automobile terminal with sufficient open yard as soon as possible to meet the rapid increase of export/import car products among ASEAN countries. (Establishment of a dedicated automobile terminal is necessary to meet the urgent needs of car manufacturing industries in AFTA (ASEAN Free Trade Area), which will be sure to enhance the export-oriented activities/investments in Indonesia.)*

2) Requirements of Terminal

29. According to the demand forecast, around 150,000 cars will be handled in 2006, 210,000 in 2012, and 390,000 in 2025. In the case of exporting cars from Japan to Asia, typically around 300 ~ 1,500 cars are loaded at one time. In this study, assuming that 500 cars will be loaded and the same number of cars will be unloaded per ship, annual number of ship calls is estimated at 150, 210 and 390 in 2006, 2012 and 2025 respectively.

30. Using handling productivity in Japan as an example, 75 cars are loaded per gang per hour and 500 cars per gang per day on condition of daytime handling from 08:30 ~ 16:30 including 1.5 hours for break. In case of exporting cars from Japan to Europe, a maximum of 5 gangs will be introduced in order to load cars within 2 days. Here, assuming 300 cars/gang/day for

loading/unloading and 3 gangs per ship for handling productivity, berthing days per ship is calculated as follows:

- Berthing time per ship: 500 * 2 (export/import) / 300 / 3 gangs = 1.1 days/ship

31. This means that around at least 4 weekly services are available for one berth considering berth occupancy of around 60~70%. Therefore, number of required berths is calculated as below:

- Number of required berths (2006): 150 calls / (4 * 52 weeks) = 0.72 ≈ 1 berth
- Number of required berths (2012): 210 calls / (4 * 52 weeks) = 1.01 ≈ 1 berth
- Number of required berths (2025): 390 calls / (4 * 52 weeks) = 1.88 ≈ 2 berths

32. Concerning a car handling yard, in order to secure the space for weekly handling volume, necessary area per berth is calculated as follows:

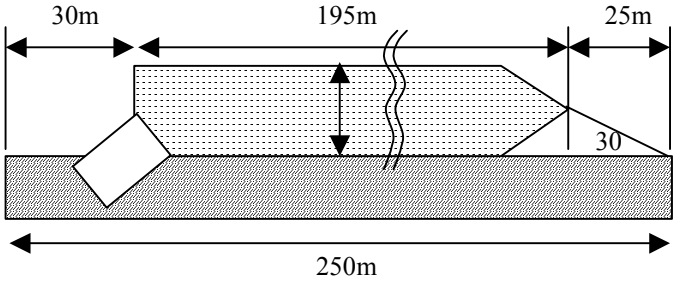
- Necessary area per one car = around 12m2 (based on experiencein Japan)
- Number of ships per week per berth: 4 weekly services
- Necessary car handling yard = 500 * 2 (export/import) * 4 * 12 = 48,000m2.
- Necessary car terminal area = 48,000m2 / 70% = around 70,000m2 (including other facilities such as road, receiving area, office, gate etc.) + Apron (250m x 60m) = 85,000m2

33. The dimensions of the automobile terminal is set as follows considering length and draft of the target ship:

Table 10-C-2 Pure Car Carrier Berth

	Urgent (2006)	2012	2025
Demand	150,000 units/year	210,000 units/year	390,000 units/year
Number of Berths	1	1	2
Length of Berth *	220m	220m	440m
Depth of Berths **	-10m	-10m	-10~11m
Terminal Area	7ha	7ha	14ha

* Length of berth is set as follow:



** Depth of berth is basically calculated as follows:
Draft of ship (D) + Allowance (D*10%) = 9.7m * 1.1 = 10.7m
However, since a ship with the maximum draft is unlikely to call, depth of berth is set as 10m in the initial stage.

34. In addition to hardware requirements, the following points are important and should be taken into consideration for the terminal site selection and for the better management of the terminal:

- Good environment (No damage to car products)
- Security (Terminal should be in an isolated area)

- Speedy customs clearance
- Flexible yard operation (small works on cars inside the yard etc.)

3) Location of Automobile Terminal

35. In general, an automobile terminal needs a wide storage yard adjacent to a quay. In case of Tanjung Priok, there are few alternatives to secure such a broad space. According to our survey, there are only two sites where space of over 7ha could be secured, DKB-IV area and newly developed east Ancol reclamation area. The study team evaluated these two alternatives from various points and has concluded that DKB-IV area is much better than east Ancol reclamation area putting priority on the time of realization as well as initial development cost. (See Table 10-C-3.)

36. In the long term, there are two options for expanding the terminal with 2 berths in line with the requirement in 2025. One is expanding the terminal next to the established one in DKB-IV area, and the other is relocating the whole terminal to the east Ancol reclamation area in the long run.

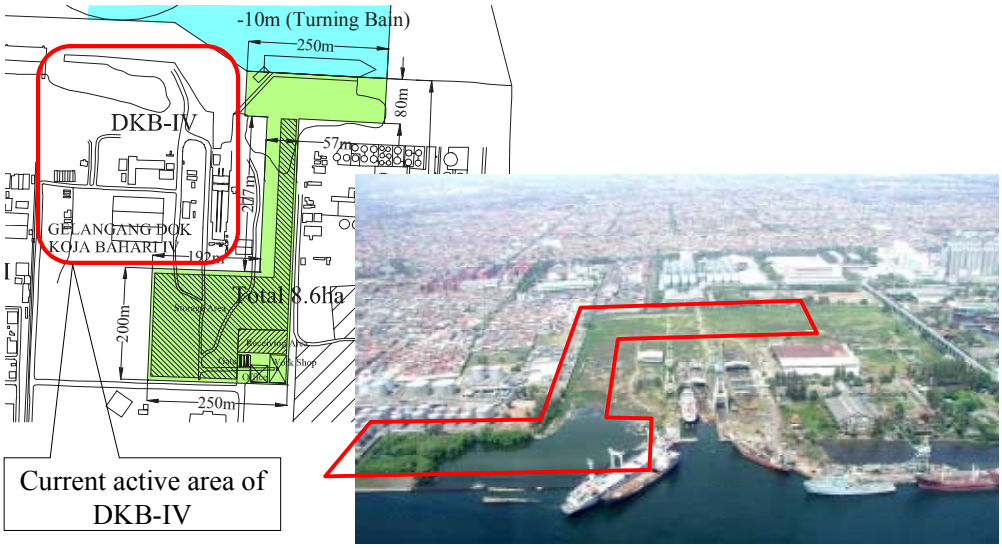


Figure 10-C-3 Proposed Project Site (Alternative-1)

Table 10-C-3 Comparison of Location of Automobile Terminal

	Alternative-1 (DKB-IV Site)	Alternative-2 (East-Ancol Reclamation Project Site)
Accessibility	Good (Closer to the location of major car automotive manufacturing factories rather than Ancol area) (See Figure 10-C-6)	Less than Alternative-1
Influence to the Road Traffic	Less influence than Alternative-2	Generate road traffic congestion around the port by car carrier trailer especially inside the port
Environment	Good (Isolated area located in the special cargo zone and less congestion. Need to examine the influence of dock activities)	Good (Isolated area)
Project Cost	Around 120 billion Rp	Around 330 billion Rp: Including channel and breakwater development in Ancol
Time of realization	Expected to be realized around 2006. (1~2 years for construction)	Expected to be realized around 2008. (3~4 years including breakwater, channel and basin, access road.) Cannot meet the urgent need of automobile export/import
Maintenance	Easy (Additional annual maintenance dredging volume is estimated at most 80,000m3)	Burden of channel maintenance cost for the channel due to considerable sedimentation volume (Annual maintenance dredging volume is estimated more than 300,000m3)
Financial Situation of IPC-II	(Cash ending for the project) ＞ (more plus by amount of around 70 billion Rp in 2015, and 150 billion Rp in 2020)	
Debt Service Coverage Ratio (Project itself)	Over 1.0	Less than 1.0 (Incapable of repayment with project itself)
Coordination with the existing use and plan	Need to coordinate with DKB, however, the required area can be located in their non-active/vacant space without any interference in their current business.	Need to coordinate with the private investor of Ancol reclamation project and need to modify the plan.
Environmental Impact	Nothing Serious	Some environmental impact will be expected due to the reclamation
Others	It can be converted to another terminal when needed	
Evaluation	Good	Not good in initial stage

Figure 10-C-4 Alternative Locations for an Automobile Terminal

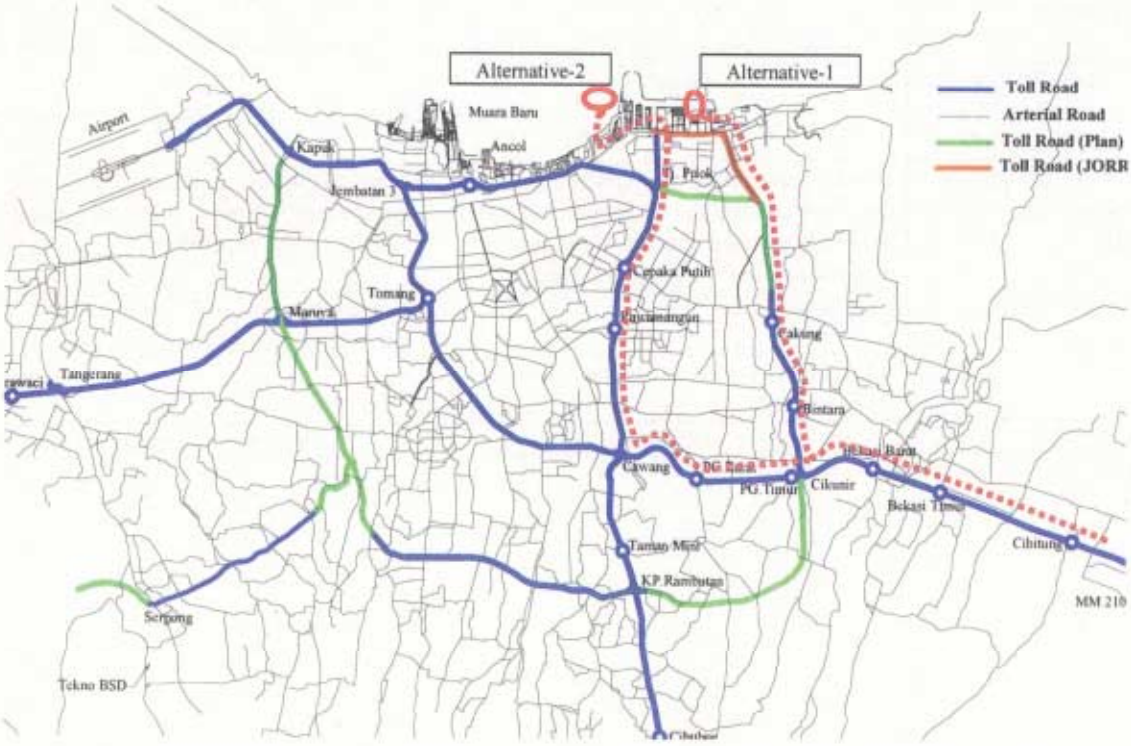


Figure 10-C-5 Expected access routes from automotive manufacturing factories to the port

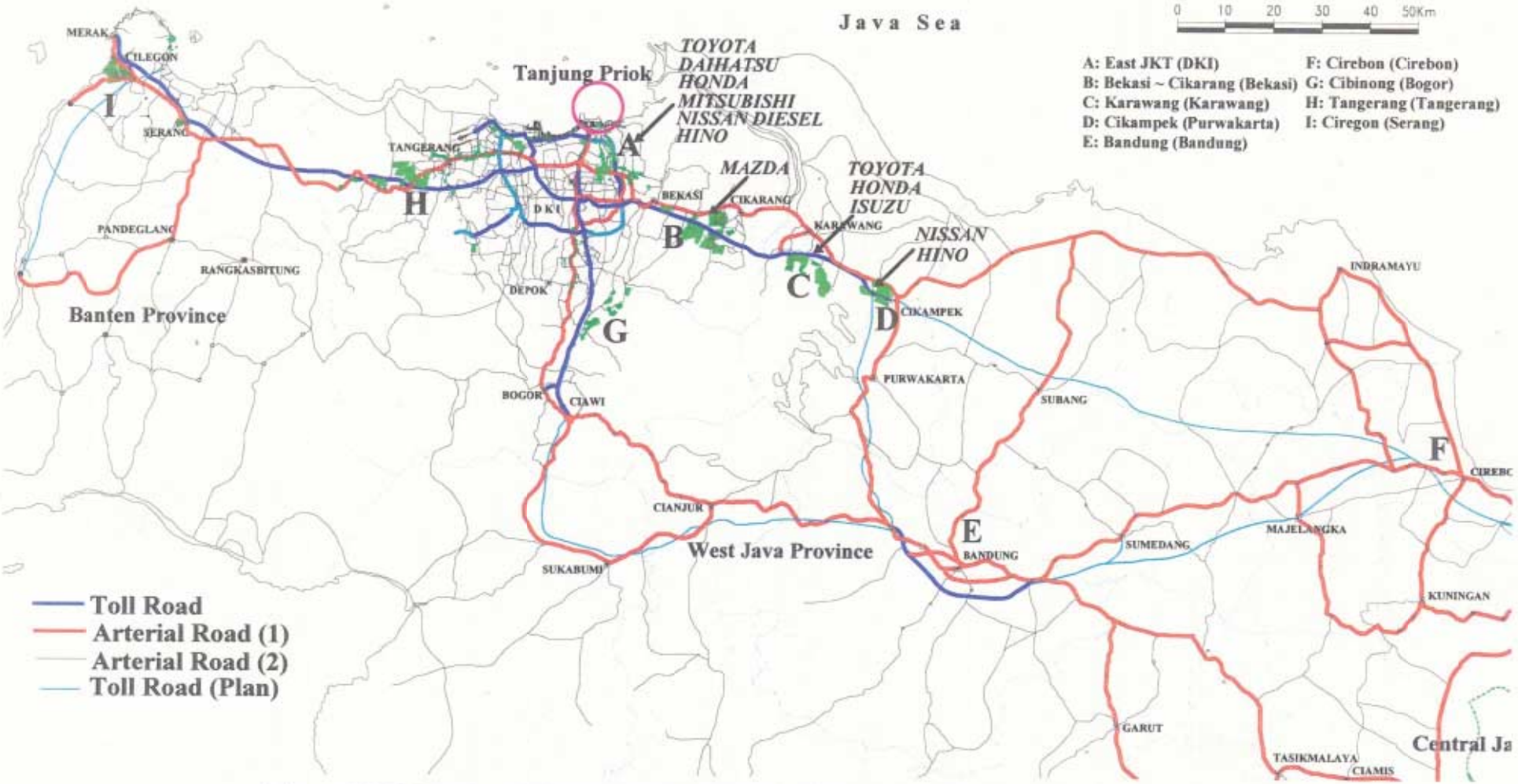


Figure 10-C-6 Location of Major Industrial Estates and Automotive Manufacturing Companies

10-C-3 Re-organizing Land-use of the Existing Port

37. To cope with the future increase of cargo accompanied by the economic development in Indonesia, as well as to alleviate the land traffic convergence/concentration at certain points, re-organizing/re-developing mixed-use of the existing land-use of the port is also essential. Here, the Study team groups conceivable projects into the following contents:

Streamlined cargo handling zone

38. Cargo handling zone should be streamlined, which includes: Consolidation of scattered inter-island container handling into a dedicated container terminal, Consolidation of bulk cargo handling, Pertamina berths relocation, Consolidation of international container terminal.

Providing suitable and enough land space for the better management of the port

39. Proper land-use system with suitable and sufficient land space is indispensable to effectively manage a port. In this regard, relocation of the existing passenger terminal to avoid congestion with cargo handling, yard development, reclamation of a part of basin, etc. are necessary.

Land-use re-development with joint-implementation between ports side and urban side

40. City activities around the port are closely related to the port activities in terms of traffic and land-use. Congestion in/around the port is the responsibility of both of the city and port, and re-development work should be carried out jointly. Re-development of urbanized areas especially around Tanjung Priok railway station and city road improvement are two areas where both sides need to work together.

1) Streamlined Cargo Handling Zone

a) Overview of Berth Activity/Productivity

41. First, the current berth activity/productivity is overviewed before the examination of re-organizing berths. Table 10-C-4 shows terminal-wise data of cargo handling volume, BOR, unloading/loading type/method, berthing time share by cargo type, and commodity-wise of unloading/loading type/method.

Table 10-C-4 Overview of Berth Activity/Productivity

42. It is easily observed that the productivity is different from berth by berth and the same kind of cargoes are handled here and there in a scattering way. Moreover, cargoes by direct transport to/from the berth have large share of total cargo, which means yards and warehouses are not fully utilized. It would be one of major reasons of traffic jams in the wharves by waiting trucks and which generates the concentration of road traffic on a certain time and place.

43. The following projects are formulated to alleviate the congestion of cargo handling as well as road traffic and to secure smoother cargo transit through the port. These projects or countermeasures would be also effective to reduce the burden of port related traffic on urban traffic around the port.

Overview of Berth Activity/Producticity - 1

	Berth Occupancy Ratio *				Cargo Throughput **		Length(m)	ton/m	Berthing Time Share by Cargo Type ***				
	Berth Length-wise		Berth-wise										
	3 months	Mar.02	3 months	Mar.02	Container	Non-cont'r			CT	GC	Bag	Dry B.	Liquid B.
001-003	30.5%	35.1%	66.6%	71.7%	708	668,272	423	1,580	1%	77%	10%	12%	
004-004U	28.9%	30.6%	50.5%	53.6%	1,460	1,052,796	455	2,314		27%	4%	33%	36%
005-007	56.9%	58.9%	67.1%	65.2%	78,636	659,060	540	1,220	22%	73%	1%	4%	
100-102	65.5%	70.7%	72.0%	75.2%	2,340	2,405,896	504	4,774	1%	23%	8%	35%	33%
103-105	36.7%	39.7%	57.0%	60.0%	115,428	52,864	454	116	92%	7%			1%
108-110	53.4%	50.4%	88.1%	56.8%	3,684	1,281,980	496	2,585		67%	30%	0%	3%
111-113	53.7%	49.3%	62.3%	58.6%	60,400	828,764	442	1,875	26%	56%	3%	2%	14%
115-200	44.8%	30.1%	59.8%	43.5%	2,536	833,568	257	3,243	2%	21%	22%	21%	34%
201-203	46.9%	48.7%	53.1%	53.7%	29,188	1,069,572	495	2,161	26%	31%	28%	14%	2%
208-209	37.9%	33.9%	50.9%	41.4%	12,192	933,048	439	2,125	5%	72%	16%	6%	
210-211	58.2%	62.0%	70.6%	73.6%	28	1,136,764	293	3,880		22%	47%	15%	16%
212-213	56.9%	64.3%	66.2%	71.0%	64,316	604,288	285	2,120	62%	10%	20%	8%	0%
301-302	70.5%	76.1%	79.5%	85.3%	31,108	1,261,288	320	3,942	17%	55%		28%	
303-305	48.1%	56.2%	56.2%	64.9%	64,484	1,327,608	483	2,749	38%	43%	10%	9%	
(001~305)	*48.8%*	*50.2%*	*64.9%*	*61.9%*									
MTI	18.6%	17.5%	43.6%	42.9%	81,068		404	-	100%				
WJ	65.7%	65.4%	76.2%	35.1%		853,856	100	8,539				100%	
107	9.2%	7.0%	17.7%	12.2%		69,164	128	540		100%			
114	36.8%	48.1%	54.0%	66.8%	3,316	928,956	376	2,471	4%	33%		61%	2%
207	19.2%	18.5%	45.6%	45.1%		152,716	141	1,083		39%			61%
214/300	59.4%	54.5%	57.5%	54.8%	22,356	773,572	300	2,579	9%	9%	15%	67%	
TBB	46.7%	87.2%	33.6%	62.4%		509,064	195	2,611				96%	4%
JICT1	42.9%	43.9%	56.0%	56.7%	955,716		1,125	-	100%				
JICT2	22.2%	23.4%	39.6%	40.3%	202,352		510	-	100%				
Koja	45.1%	45.7%	58.9%	60.3%	372,032		450	-	100%				
PMB	-	-	89.8%	79.0%		9,183,284	-	-					100%
BOG	-	-	60.2%	77.4%		531,500	-	-				100%	
SAR/B	-	-	81.7%	95.9%		3,061,860	-	-			4%	96%	
DKP	-	-	56.1%	18.9%		683,148	-	-				2%	98%
BP	48.3%	54.6%	33.2%	36.8%		13,448	-	-		100%			
Pass	41.3%	43.5%	66.8%	68.8%			201	-	-	-	-	-	-
Others	-	-	-	-		487,036	-	-				100%	
Average	51.6%	52.6%	62.4%	59.2%	2,103,348	30,876,336	9,816		22%	37%	10%	18%	13%

* Caluculated by PPKB data (3 months = Mar.01, Se.01, Mar.02)
** Annual cargo throughput estimated by 3 months PPKB data
*** Calculated by 3 months PPKB data and operation data

Overview of Berth Activity/Productivity - 2

(Throughput '000ton)

	Unloading Type/Method (Non-container cargo)					Loading Type/Method (Non-container cargo)					Loading Type/Method (Non-container cargo)				
	Direct	Pipe	W/H	Yard	Total	Direct	Pipe	W/H	Yard	Total	Direct	Pipe	W/H	Yard	Total
001-003	387		13	8	409	140		89	31	260	527		103	39	668
004-004U	1,002		0	14	1,017	32		2	2	36	1,034		2	16	1,053
005-007	74		143	43	260	65		292	43	399	139		434	86	659
100-102	1,036	26	0	9	1,071	1,302	22	3	8	1,335	2,338	48	3	16	2,406
103-105	38	13	2		53						38	13	2		53
108-110	399		147	93	639	188	6	337	110	641	587	6	485	203	1,280
111-113	165	102	163	85	516	44		170	98	312	209	102	334	184	829
115-200	261	27	4	10	302	476	55		1	532	737	81	4	11	834
201-203	58	17	149		224	677		112	57	846	735	17	261	57	1,070
208-209	273		246	263	782	81		60	10	151	355		306	272	933
210-211	618			72	690	399	26	19	3	447	1,017	26	19	74	1,137
212-213	203	6	23		233	321	40		10	371	525	46	23	10	604
301-302	565		29	38	633	590		29	9	628	1,156		58	48	1,261
303-305	242		310	44	597	655		76	0	730	897		386	44	1,328
WJ	828			25	853	1				1	829			25	854
107	4		8		12				13	13	4		8	13	26
114	263	415	70	115	863	28		34	3	66	292	415	105	118	929
207	132			2	134	11		3	5	19	143		3	7	153
214/300	654			35	689	85				85	739			35	774
TBB	288			188	476	34				34	321			188	509
PMB	156	9,028			9,183						156	9,028			9,183
BOG		275			275		256			256		532			532
SAR/B	124	2,864			2,988	36	32	5		74	160	2,896	5		3,062
DKP		682			682		1			1		683			683
BP	1			3	4	0	0		9	10	2	0		12	13
Others	478			8	486	1				1	479			8	487
Total	8,250	13,455	1,310	1,055	24,070	5,167	438	1,232	411	7,249	13,417	13,893	2,542	1,466	31,318
Sub Total (001~ 305)	6,151	191	1,232	705	8,278	4,972	148	1,189	380	6,690	11,123	339	2,421	1,085	14,968

(Share of each handling type)

	Unloading Type/Method (Non-container cargo)					Loading Type/Method (Non-container cargo)					Loading Type/Method (Non-container cargo)				
	Direct	Pipe	W/H	Yard	Total	Direct	Pipe	W/H	Yard	Total	Direct	Pipe	W/H	Yard	Total
001-003	95%		3%	2%	100%	54%		34%	12%	100%	79%		15%	6%	100%
004-004U	99%		0%	1%	100%	89%		6%	5%	100%	98%		0%	2%	100%
005-007	28%		55%	17%	100%	16%		73%	11%	100%	21%		66%	13%	100%
100-102	97%	2%	0%	1%	100%	98%	2%	0%	1%	100%	97%	2%	0%	1%	100%
103-105	72%	24%	4%		100%						72%	24%	4%		100%
108-110	62%		23%	15%	100%	29%	1%	53%	17%	100%	46%	0%	38%	16%	100%
111-113	32%	20%	32%	17%	100%	14%		55%	31%	100%	25%	12%	40%	22%	100%
115-200	86%	9%	1%	3%	100%	90%	10%		0%	100%	88%	10%	0%	1%	100%
201-203	26%	7%	67%		100%	80%		13%	7%	100%	69%	2%	24%	5%	100%
208-209	35%		31%	34%	100%	54%		40%	6%	100%	38%		33%	29%	100%
210-211	90%			10%	100%	89%	6%	4%	1%	100%	89%	2%	2%	7%	100%
212-213	87%	3%	10%		100%	87%	11%		3%	100%	87%	8%	4%	2%	100%
301-302	89%		5%	6%	100%	94%		5%	1%	100%	92%		5%	4%	100%
303-305	41%		52%	7%	100%	90%		10%	0%	100%	68%		29%	3%	100%
WJ	97%			3%	100%	100%				100%	97%			3%	100%
107	35%		65%		100%				100%	100%	17%		31%	53%	100%
114	31%	48%	8%	13%	100%	43%		52%	5%	100%	31%	45%	11%	13%	100%
207	99%			1%	100%	57%		15%	29%	100%	94%		2%	5%	100%
214/300	95%			5%	100%	100%				100%	96%			4%	100%
TBB	60%			40%	100%	100%				100%	63%			37%	100%
PMB	2%	98%			100%						2%	98%			100%
BOG		100%			100%		100%			100%		100%			100%
SAR/B	4%	96%			100%	49%	43%	7%		100%	5%	95%	0%		100%
DKP		100%			100%		100%			100%		100%			100%
BP	28%			72%	100%	5%	4%		91%	100%	11%	3%		86%	100%
Others	98%			2%	100%	100%				100%	98%			2%	100%
Total	34%	56%	5%	4%	100%	71%	6%	17%	6%	100%	43%	44%	8%	5%	100%
Sub Total (001~ 305)	74%	2%	15%	9%	100%	74%	2%	18%	6%	100%	74%	2%	16%	7%	100%

* Caluculated by PPKB data (3 months = Mar.01, Se.01, Mar.02)

Overview of Berth Activity/Productivity - 3

Unit: ton

Cement

Unl-type	Direct	Pipe	Yard	Total
003				
006				
007				
101U				
101				
102				
108				
109				
110				
114	29,153	35,476		64,629
115				
200				
203				
209				
210				
212				
213				
302				
304				
305				
Total	29,153	35,476		64,629
	45%	55%	0%	100%

Ld-type	Direct	Pipe	Yard	Total
003	3,200			3,200
006	1,500			1,500
007	1,600			1,600
101U	109,516			109,516
101	34,000			34,000
102	1,100			1,100
108	5,550		2,200	7,750
109	2,250			2,250
110	5,800			5,800
114				
115	50,018	10,000		60,018
200	12,450			12,450
203	16,598			16,598
209	2,600			2,600
210	10,050			10,050
212	3,800	10,000		13,800
213			2,500	2,500
302	8,000			8,000
304	17,500			17,500
305	3,000			3,000
Total	288,532	20,000	4,700	313,232
	92%	6%	2%	100%

Bag Cement

Unl-type	Direct	Pipe	Yard	Total
005				
006				
110				
115				
200				
201				
211	5,800			5,800
210				
Total	5,800			5,800
	100%	0%	0%	100%

Ld-type	Direct	Pipe	Yard	Total
005	2,000			2,000
006	2,000			2,000
110	1,000			1,000
115	5,904			5,904
200	2,904			2,904
201	13,655			13,655
211				
210	20,000			20,000
Total	47,463			47,463
	100%	0%	0%	100%

Bulk Cement

Unl-type	Direct	Pipe	Yard	Total
100				
101U				
101				
102				
114	68,152	18,409		86,561
210				
212				
213				
301				
302				
303	68,152	18,409		86,561
Total	68,152	18,409		86,561
	79%	21%	0%	100%

Ld-type	Direct	Pipe	Yard	Total
100	800			800
101U	28,350			28,350
101	800	5,500		6,300
102	4,220			4,220
114				
210	22,500			22,500
212	2,193			2,193
213	850			850
301	60,000			60,000
302	850			850
303	6,000			6,000
Total	126,563	5,500		132,063
	96%	4%	0%	100%

Gypsum

Unl-type	Direct	Pipe	Yard	Total
WJ	6,500			6,500
Total	6,500			6,500
	100%	0%	0%	100%

Unl-type	Direct	Pipe	Yard	Total
WJ				
Total				

Clinker

Ld-type	Direct	Pipe	Yard	Total
003	0			0
101U	0			0
101	0			0
102	0			0
114	0			0
115	0			0
201	0			0
211	0			0
212	0			0
214/300	0			0
TBB	0			0
302	0			0
303	0			0
Total	0	0	0	0

Ld-type	Direct	Pipe	Yard	Total
003	13,000			13,000
101U	61,500			61,500
101	46,500			46,500
102	3,200			3,200
114	7,000			7,000
115	39,700			39,700
201	123,500			123,500
211	20,000			20,000
212	73,500			73,500
214/300	21,000			21,000
TBB	8,384			8,384
302	49,000			49,000
303	131,500			131,500
Total	597,784			597,784
	100%	0%	0%	100%

Soda Ash

Unl-type	Direct	Pipe	Yard	Total
114		4,014	4,504	8,518
209			22,991	22,991
210	14,006			14,006
212	6,270			6,270
214/300	17,863			17,863
Total	38,139	4,014	27,495	69,648
	55%	6%	39%	100%

Ld-type	Direct	Pipe	Yard	Total
114				
209				
210				
212				
214/300				
Total				

CPO (Crude Palm Oil)

Unl-type	Direct	Pipe	Yard	Total
004	58,812			58,812
004U	22,836			22,836
100	68,945	3,472	995	73,412
101	20,872			20,872
102	8,190	3,001		11,191
103	9,488			9,488
108	2,001			2,001
109	3,000			3,000
111	4,082			4,082
112	9,940	5,551		15,491
113	5,255			5,255
114	1,000			1,000
115	13,171			13,171
200	14,963	4,011		18,974
207	31,354			31,354
210	12,940			12,940
211	2,136			2,136
212	997			997
Total	289,982	16,035	995	307,012
	94%	5%	0%	100%

Ld-type	Direct	Pipe	Yard	Total
004				
004U				
100				
101				
102				
103				
108				
109				
111				
112	7,400			7,400
113				
114				
115		3,650		3,650
200				
207				
210	1,925			1,925
211				
212				
Total	9,325	3,650		12,975
	72%	28%	0%	100%

Sand

Unl-type	Direct	Pipe	Yard	Total
001	15,865			15,865
004	1,600			1,600
004U	41,000			41,000
005S	10,000		2,000	12,000
WJ	154,737		6,200	160,937
999	109,400			109,400
Total	332,602		8,200	340,802
	98%	0%	2%	100%

Ld-type	Direct	Pipe	Yard	Total
001				
004				
004U				
005S				
WJ				
999				
Total				

General Cargo (unloaded)

B'th GP	Direct	W/H	Yard	総計
114		73	165	238
001-003	10,188	642	1,191	12,021
004-004U	7,276	30		7,306
005-007	8,609	11,789	6,656	27,054
108-110	19,356	23,371	6,216	48,943
111-113		16,839	7,784	24,623
201-203	3,723	9,119		12,842
208-209		378	3,261	3,639
301-302	7,927		0	7,927
303-305	0	13,612	4,684	18,296
総計	57,079	75,853	29,957	162,889
	35%	47%	18%	100%

General Cargo (loaded)

Ld-type	Direct	W/H	Yard	総計
BP			170	170
107			3,374	3,374
114		8,614	545	9,159
207	826	680	307	1,813
001-003	13,773	20,300	4,652	38,725
004-004U	7,870	497	450	8,817
005-007	5,740	71,700	10,675	88,115
100-102	14,507		1,100	15,607
108-110	19,783	84,356	22,291	126,430
111-113	300	42,611	24,581	67,492
115-200	3,800		250	4,050
201-203	15,580	27,970	14,151	57,701
208-209		14,955	2,046	17,001
210-211		500	704	1,204
301-302	22,173	6,391	2,000	30,564
303-305	4,200	18,182	23	22,405
999	250			250
総計	108,802	296,756	87,219	492,877
	22%	60%	18%	100%

*** Figures are total of 3 months PPKB data (Mar.01, Sep.01, Mar.02).**

b) Inter-island Container Handling

i) Concept

- ✓ *Expansion of MTI and establishment of an additional dedicated inter-island container terminal consolidating scattered inter-island container handing area*

44. To cope with the expected rapid increase of inter-island containers and to handle them effectively and efficiently, the current handling system in which containers are scattered across several wharves needs to be improved. The Study team proposes that the following countermeasure should be implemented:

- Expansion of MTI together with widening of the access channel
- Development of an additional dedicated inter-island container terminal consolidating the scattered inter-island container handing area

45. MTI expansion should accompany with improvement of the access channel to accommodate larger vessels. The new channel can be developed with the development of a new port area in East-Ancol together with the relocation of the military base located at the mouth of Nusantara Basin. Furthermore, it would be better that Wali Jaya berth (sand handling berth) and hopefully DKB-II will be relocated and merged into MTI terminal, which make the berth with more than 1,000m length in total. In MTI, handling system with gantry cranes at quay side and RTGs in the yard is suitable because of the enough terminal width (300m).

46. As for development of additional dedicated inter-island container terminal, it is necessary to select some berths to handle domestic container intensively and to improve their productivity by converting their warehouse to open yard considering the following points:

- Easy to secure sufficient yard area
- Sufficient berth depth (-7~10m)
- Good linkage to the international container terminal

47. Here, the study team suggests that Pier III should be developed into a dedicated inter-island container terminal. Considering depth of each berth and the existing warehouse location as well as the existing two gantry cranes at 214/300 berth, the Study team proposes the quay line from 208 berth to TBB berth will be dedicated use of container handling and the rest of quay line from 301 berth to 305 berth will be used for heavy general cargo handling. In addition, it is natural that some warehouses behind the proposed container berths should be demolished into use of container yard. As for handling system deployed in Pier-III, mobile crane at quay side as well as forklift and/or straddle carrier in the yard seem to be a suitable system considering relatively narrow space of the yard with the depth of only 200m at most.

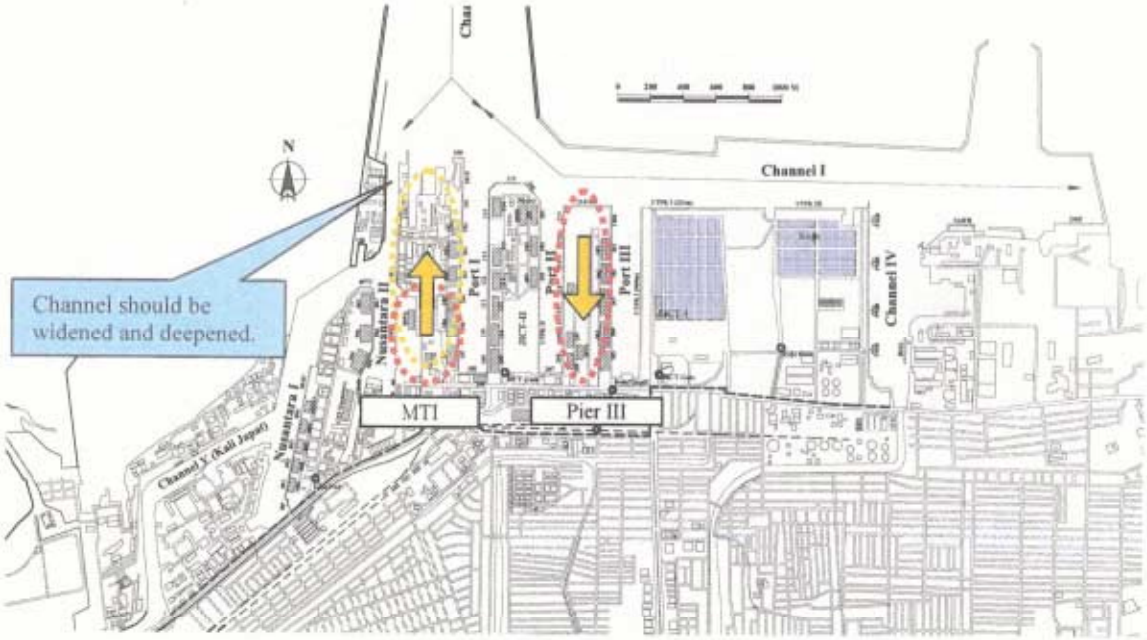


Figure 10-C-7 Inter-island Container Handling Zone

ii) Requirements of Terminal

48. The dimensions of an inter-island container berth is Basically calculated as follows considering length and draft of the target ship:

Table 10-C-5 Dimensions of an Inter-Island Container Berth

Length of Berth *	170m
Depth of Berths **	-9m

* Length of ship (L) + Allowance (B*10%) = 144m + 23m = 167m = 170m
** Draft of ship (D) + Allowance (D*10%) = 8.4m * 1.1 = 9.2m

49. As for MTI expansion, the depth of new established berth is set as -9m against the exising -8m and the diameter of turning basin in front of the berth is set as 300m (=around 150m x 2). On the other hand, the depth of Pier-III is left as it is, -9m (208 ~ 213) and -12m (214/300, TBB).

50. When the above measures are taken, the resulting increase in capacity will be sufficient in 2012, but not in 2025 as shown as below. To cope with the demand in 2025, more dedicated domestic container berths are needed. Furthermore, yard area is insufficient for the quay side capacity. In the long term, sufficient yard area including some stacking yard for empty and transshipment container should be prepared adjacent to the terminal.

'000TEU

Terminal	2012 Quay side Capacity	2012 Yard side Capacity	2012 Capacity	2025 Quay side Capacity	2025 Yard side Capacity	2025 Capacity
MTI	422	591	422	768	848	768
Pier-III	865	717	717	865	717	717
Total			1,139			1,485

		2012	2025
Capacity		1,139	1,485
Demand	Basic Case	715	1,545
	High Case	769	1,767
Shortage	Basic Case	-	-60
	High Case	-	-282

c) Bulk Cargo Handling

i) Concept

✓ *Consolidation of scattered bulk cargo handing area by commodity*

51. Major bulk cargoes handled at public wharves are CPO (Crude Palm Oil), sand, bulk cement & clinker, scrap iron. Unloaded/loaded volume of these major commodities makes up more than 90% of the total bulk cargo handled at public wharves.

ii) CPO

52. CPO handling berths are scattered. Major berths are 004&004U, 100-101, 112, 115-200 and 207. In terms of ship size for CPO, less than 5m of draft covers almost 95% because CPO is unloaded by small vessels from other island. It means that there is no need to provide deep quays for handling CPO. It also should be noted that almost CPO is transported by tank lorry directly without use of tank. The Study team proposes that CPO handling should be consolidated into 1 or 2 areas, for example, establishing new CPO terminal establishment at some vacant space in Kali Japat area or northern part of Pier-II other area where depending on vessel size.

CPO Unloading

ton

Area	B'th No	Mar.01	Sep.01	Mar.02	Total
Nusantara	004	17,885	21,574	19,353	58,812
	004U	3,495		19,341	22,836
Nusantara Total		21,380	21,574	38,694	81,648
Pier I	100	26,379	27,329	19,704	73,412
	101	3,368	4,822	12,682	20,872
	102	1,939	3,001	6,251	11,191
	103		4,988	4,500	9,488
Pier I Total		31,686	40,140	43,137	114,963
Pier II	108			2,001	2,001
	109			3,000	3,000
	111		1,682	2,400	4,082
	112	4,798	3,312	7,381	15,491
	113		2,927	2,328	5,255
	114		1,000		1,000
	115	4,487	8,684		13,171
	200	3,868	6,410	8,696	18,974
Pier II Total		13,153	24,015	25,806	62,974
Pier III	207	13,745	4,452	13,157	31,354
	210	7,358	5,582		12,940
	211			2,136	2,136
	212	997			997
Pier III Total		22,100	10,034	15,293	47,427
Total		88,319	95,763	122,930	307,012

iii) Sand

53. Current major berth for sand are located at Wali Jaya, Kali Japat area and 004U. The draft of almost vessels for sand is less than -4m. It is better that sand berths will be consolidated to one or two places with enough yard apart from other cargo. Moreover, it is desirable that Wali Jaya will be future expansion area for MTI container terminal. It should be examined the possibility of consolidation into the same area at Kali Japat, or relocation to the other neighborhood port such as Marunda considering shallow draft of vessel/berge.

Sand & Clay Handling

ton

Area	B'th No	Mar.01	Sep.01	Mar.02	Total
Kali Japat	SINDULA	50,900	32,500	26,000	109,400
Kali Japat Total		50,900	32,500	26,000	109,400
Nusantara	001	1,744	14,121		15,865
	004	18,100	16,450	18,350	52,900
	004-U	15,400	14,400	11,200	41,000
	005-S		8,000	4,000	12,000
Nusantara Total		35,244	52,971	33,550	121,765
Pier I	WJ	65,100	50,400	54,337	169,837
Pier I Total		65,100	50,400	54,337	169,837
Total		151,244	135,871	113,887	401,002

iv) Bulk Cement and Clinker

54. As for bulk cement and clinker handling, which is majored by loading cargo to other Indonesian area, handling berths are also scattered in the port. Major berths are 101U-101, 115-200, 203, 210, 212, 301 etc. There is cement silos behind the berth 114, but just for unloaded cement and are not utilized effectively. Bulk cement should be consolidated and counter measures for effective use of silos should also be considered. The Study team proposes that bulk cement handling should be consolidated into 1 or 2 areas, for example, northern part of Pier-II or Pier-I considering relatively deep draft of vessels.

Bulk Cement and Clinker Loading

ton

Area	B'th No	Mar.01	Sep.01	Mar.02	Total
Nusantara	003	7,350		8,850	16,200
	006	1,500			1,500
	007		1,600		1,600
Nusantara Total		8,850	1,600	8,850	19,300
Pier I	100			800	800
	101U	28,816	36,500	134,050	199,366
	101	9,000	72,300	5,500	86,800
	102	1,020	2,700	4,800	8,520
Pier I Total		38,836	111,500	145,150	295,486
Pier II	108	5,950	1,800		7,750
	109	750	1,500		2,250
	110	1,500	1,100	3,200	5,800
	114	7,000			7,000
	115	39,100	57,208	3,410	99,718
	200	5,300	4,100	3,050	12,450
	201	21,000	10,000	92,500	123,500
	203	16,598			16,598
Pier II Total		97,198	75,708	102,160	275,066
Pier III	209			2,600	2,600
	210	6,700	23,600	2,250	32,550
	211	20,000			20,000
	212	13,800	22,693	53,000	89,493
	213	850		2,500	3,350
	214/300		21,000		21,000
	TBB	8,384			8,384
	301	32,500		27,500	60,000
	302	24,350	28,500	5,000	57,850
	303	44,000	58,500	35,000	137,500
	304			17,500	17,500
	305		3,000		3,000
Pier III Total		150,584	157,293	145,350	453,227
Total		295,468	346,101	401,510	1,043,079

v) Scrap Iron

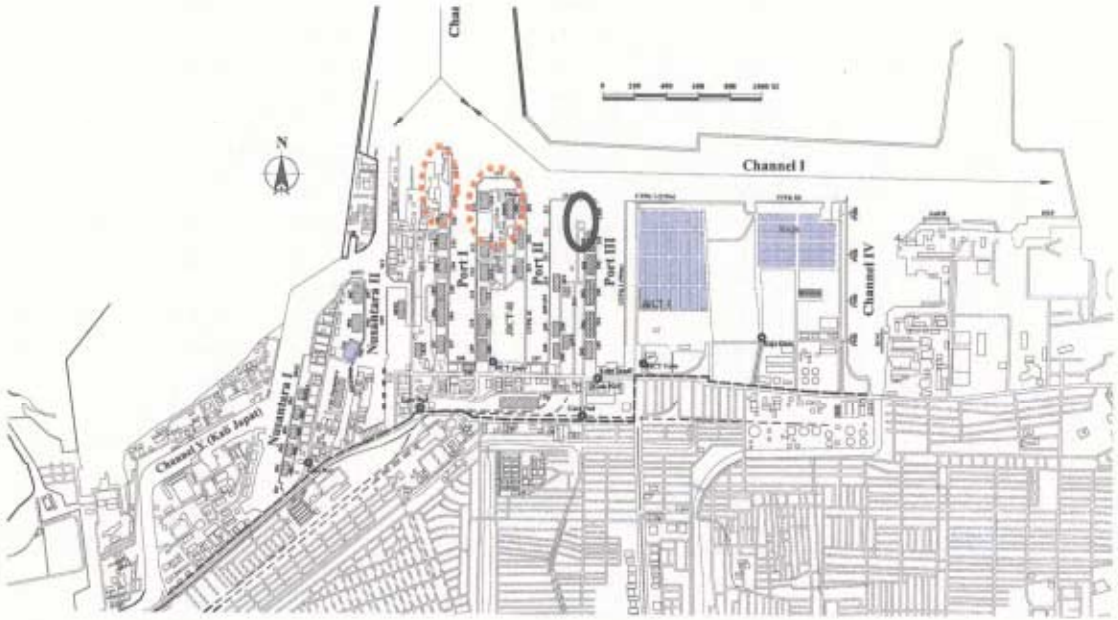
55. Scrap iron, material for producing steel products in Jakarta Metropolitan area, is mainly unloaded at TBB berth. In line with the streamlined of inter-island container handling at Pier-III,

scrap iron handling area should be relocated to other bulk cargo handling area. The Study team considers that norther part of Pier-I or Pier-II will be suitable for that cargo considering relatively deep draft of vessels. In order to function as a dry bulk berth in the northern part of Pier-I, the water area behind 101U berth should be reclaimed.

Scrap Iron Unloading

ton

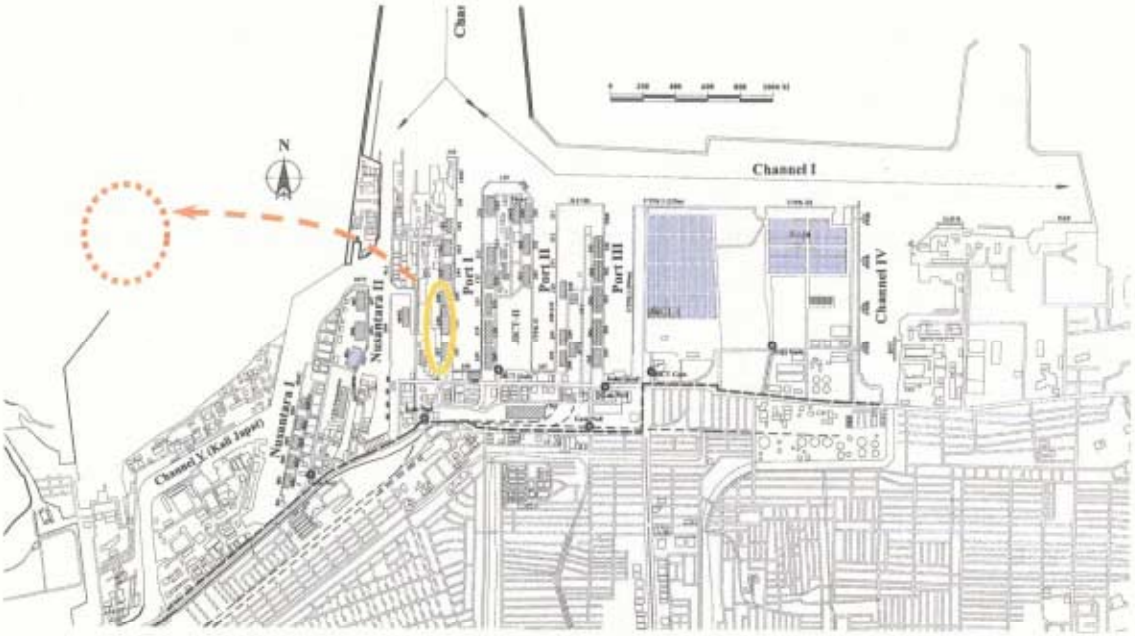
Area	B'th No	Mar.01	Sep.01	Mar.02	Total
Pier III	213	3,200			3,200
	214/300			6,187	6,187
	TBB	42,170	8,713	63,944	114,827
	301	7,127		3,500	10,627
Pier III Total		52,497	8,713	73,631	134,841
Total		52,497	8,713	73,631	134,841



d) Passenger Terminal Relocation

- ✓ *Relocation of existing passenger terminal to the new development area where the terminal can be separated from cargo handling zone*

56. For safety, security and amenity of passenger terminal, it is desirable that the passenger zone is located apart from the cargo handling area. Currently, passenger terminal is located at berth 106. Passenger vessels often use berth 107 in addition to 106 to accommodate berthing two vessels at one time. The location of passenger terminal generates frequent congestion mixed with passenger traffic and cargo traffic at the foot of Pier-I. The Study team recommends that the existing terminal should be relocated to another new place. East Ancol area, which will be developed into a new port area in future, would be a good site for the new passenger terminal. The area left vacant at 106 and 107 berth after relocating the passenger terminal can be used as general cargo handling berth.



e) Pertamina Relacation and International Container Terminal Consolidation

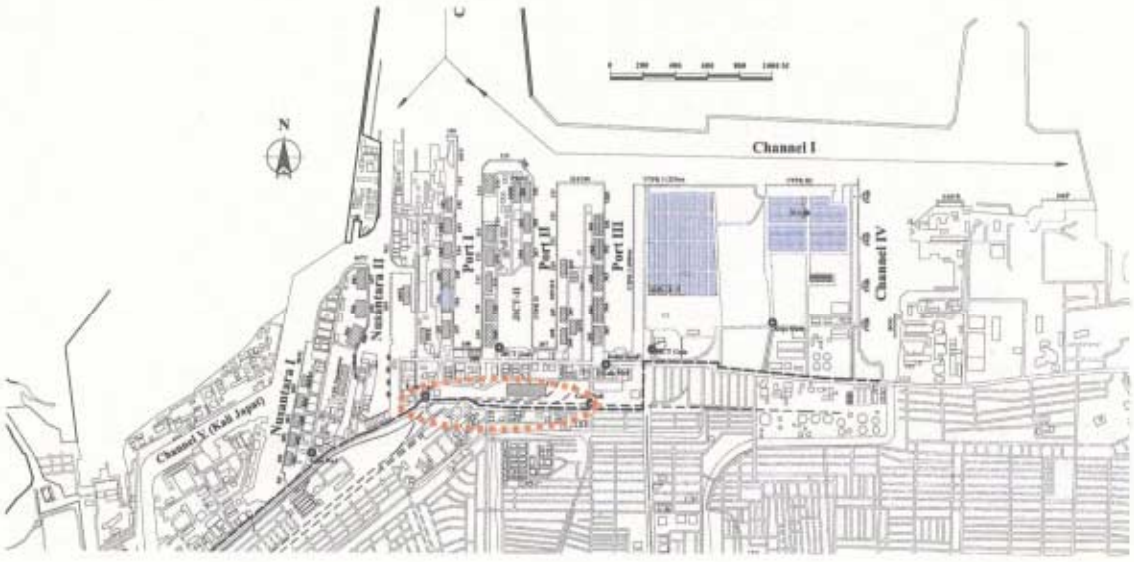
57. For the long term plan, the Study team proposes that Pertamina berths should be relocated to the offshore area in front of the new relocated breakwater. In fact, Channel IV, in front of the existing Pertamina berths, now has a sedimentation problem due to the drainage materials from the city, and the channel itself is relatively narrow and thus unsafe for vessels carrying dangerous cargo.

58. On the other hand, JICT2 container terminal is now operated separately from JICT1, which is not an efficient way of operation. Integration of JICT1 and JICT2, preferably including Koja terminal, would result in a more efficient terminal. It would also improve the traffic flow around the terminal. The Study team proposes that a new container berth with an apron of 100m in width and 500m in length be developed after the relocation of Pertamina berths. The expected vacant area at JICT2 will be used as an inter-island container terminal.

2) *Providing Suitable and Enough Land Space for the Better Management of the Port*

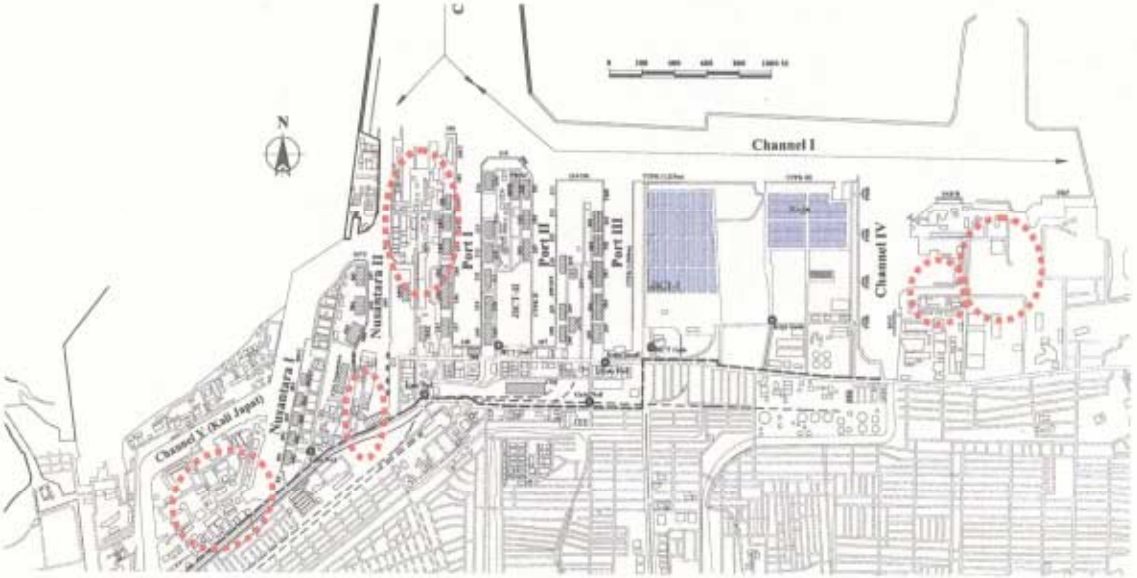
a) *In-land Yard Development*

59. Yard space will be short in future, especially for container as examined earlier. To provide enough yard space, the Study team proposes that a part of the central office zone located at the foot of Pier-I~III be converted to in-land yard space together with the improvement of the inner port road.



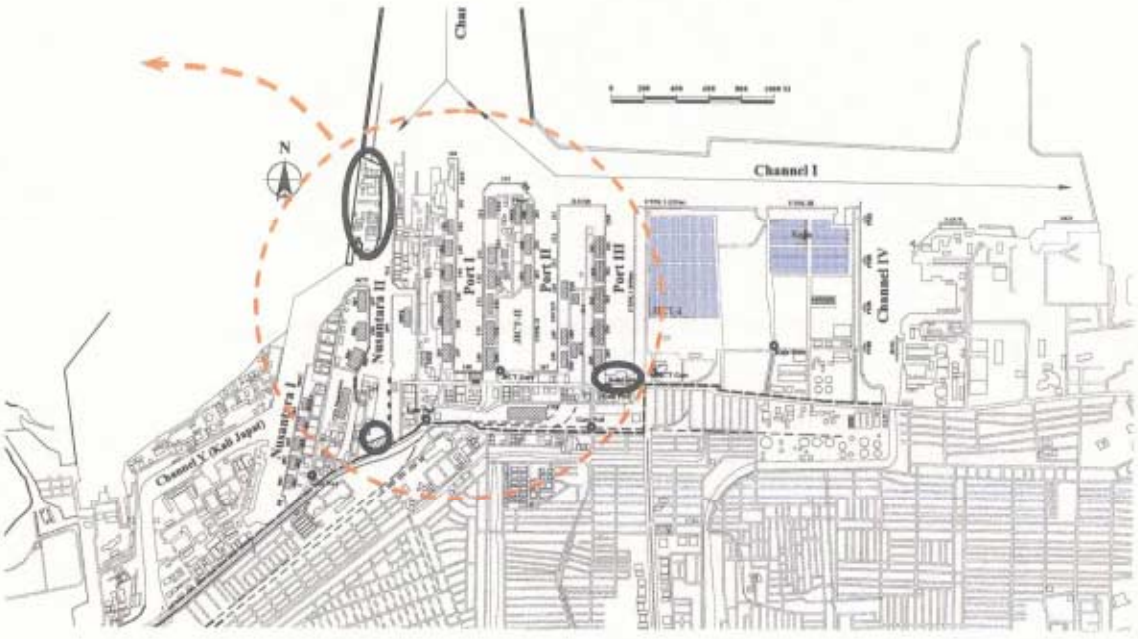
b) *Consolidation of Ship Building/Repairing Yards*

60. Another thing for the better management of the port is location of ship building/repairing yards. They are scattered in the port at the moment; in particular, there are a lot of small yards in the area of Nusantara and Kali Japat. Some of which are not well active. They should be consolidated step by step to enhance the competitiveness of the ship building industry. The Study team proposes that a new area for consolidating and relocating these activities be prepared. The vacant area after relocation can be used as a port function area such as MTI expansion, automobile terminal expansion, dry bulk terminal, port business area etc. by reclamation when needed.



c) Relocation of Military Base

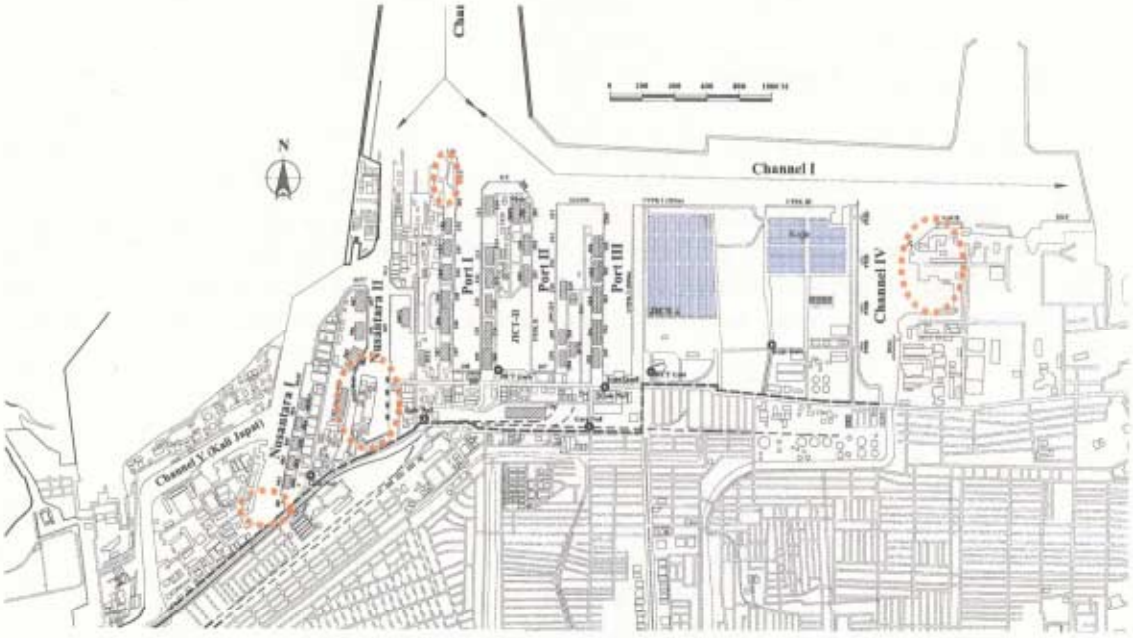
61. At this moment, there are 3 areas used by the military. To prevent interference with commercial port operations, they should be located at a separate port or area. Particularly, the military base located at the entrance of Nusantara basin is an obstacle to widen the channel accommodating larger vessels, which is one of the reasons the productivity of MTI is still at a low level. The Study team recommends that they should be moved and consolidated to another port such as Marunda, or at least, consolidated and located at non-congested area outside the existing port.



d) Providing Additional Land with Reclamation

62. To provide additional land space for re-development of the ports, the following reclamation project will be possible inside the existing port. In order to reclaim the water area, it is necessary to discontinue and/or relocate the current activities at the waterfront. The vacated area should be kept under the control of IPC-II and not be used for nearsighted needs.

Area	Function
Nusantara-II basin	Port business area including port administration function
Nusantara-I basin	Dry bulk handling area such as CPO, sand
Behind 101U	Yard for dry bulk such as scrap iron, clinker etc.
Bosagari Area	Special dry bulk such as grain, fertilizer etc.



3) Land-use Re-Development with Joint-Implementation between Ports Side and Urban Side

63. The Study team considers that there is a need for re-development of the urban area near the port. Because city activities around the port are closely related to the port activities in terms of traffic and land-use. Congestion in/around the port is the responsibility of both of the city and port, and re-development work should be carried out jointly. Re-development of urbanized areas especially around Tanjung Priok railway station and city road improvement are two areas where both sides need to work together.

64. The Study team strongly recommends an additional study be carried out for better planning of Tanjung Priok port. Plans focusing on the bus terminal together with the railway station will be examined in Figure 10-C-8.

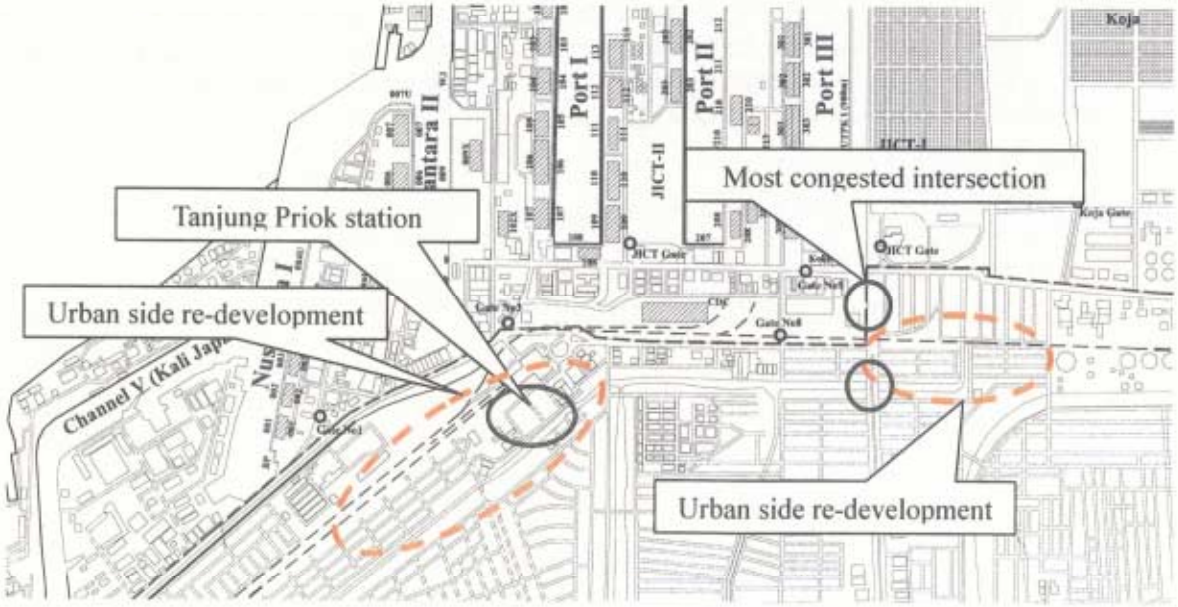


Figure 10-C-8 Land-use Re-Development

10-C-4 New Port Area Development

1) Concept

- ✓ *Development of new port area outside of the port by reclamation in order to re-develop the existing port as well as to accommodate the future increase in cargoes*

2) Evaluation of Candidate Area

65. In order to re-organize existing land-use of the port as well as to cope with the future cargo demand, new port area should be developed. The Study team examined the following candidate sites for new port development and proposes that Alternative-A (East-Ancol offshore area) be given first priority for the new port area. Alternative-C (Kalibaru offshore area) is considered as a second priority to be developed in the long term.

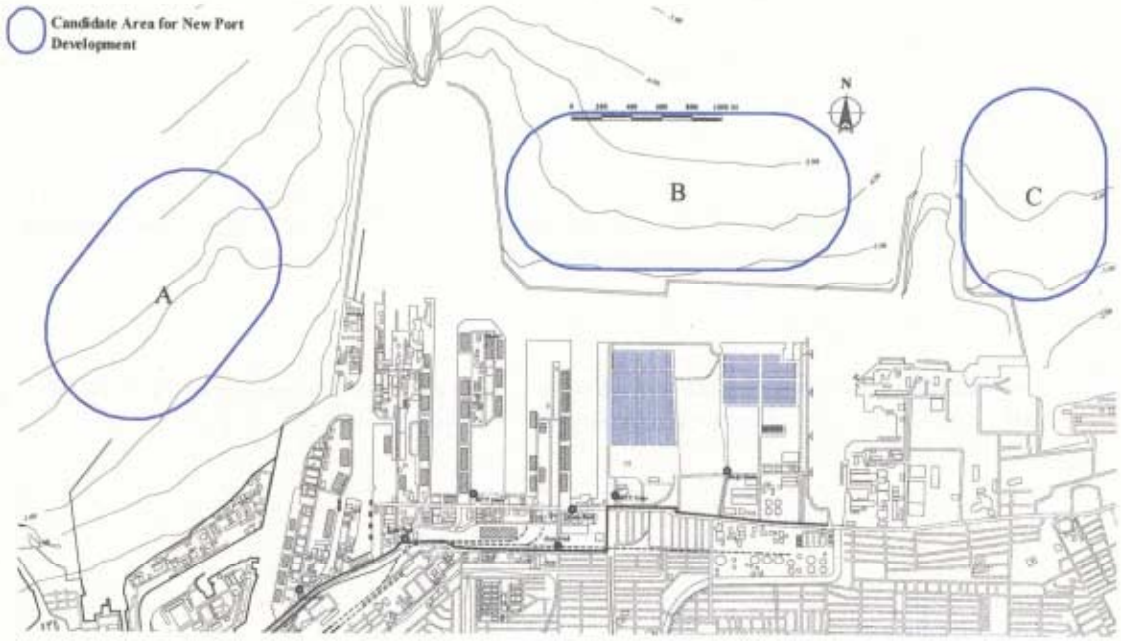


Figure 10-C-9 Candidate Sites for New Port Development Area

Table 10-C-6 Evaluation for Candidate Site for New Port Development

	Alternative-A	Alternative-B	Alternative-C
Location	East-Ancol offshore	Central Offshore	Kalibaru Offshore
Land Accessibility	Fairly easy to secure access road from the west side of the port.	Difficult to secure access road. (A large-scale bridge over the main channel is required.)	Not easy to secure access (Necessary to go through densely populated area.)
Ship Side Accessibility	Fairly easy to secure the access (Near to the existing main channel. Access channel is needed from the existing main channel.)	Easy to secure the access (Facing the existing main channel. No need for additional channel.)	Not easy to secure the access (Dredging of a long channel is required.)
Project Cost	Fairly High	Extremely High	High
Construction Period	Rather shorter than other alternatives because a reclamation plan already exists and some part of reclamation work has been started by a private company.	Seems to be long	Seems to be long (Settlement of residential area is required.)
Evaluation	First Priority	Last Priority	Second Priority

3) East-Ancol Development

- ✓ *Development of new port area in East-Ancol to relocate the passenger terminal from existing place and to develop multi purpose terminal*

a) Shape of Reclamation

66. The shape of new reclamation in East-Ancol area and development area for port facilities basically follows the current reclamation plan agreed between IPC-II and a private sector shown in Figure 10-C-10.

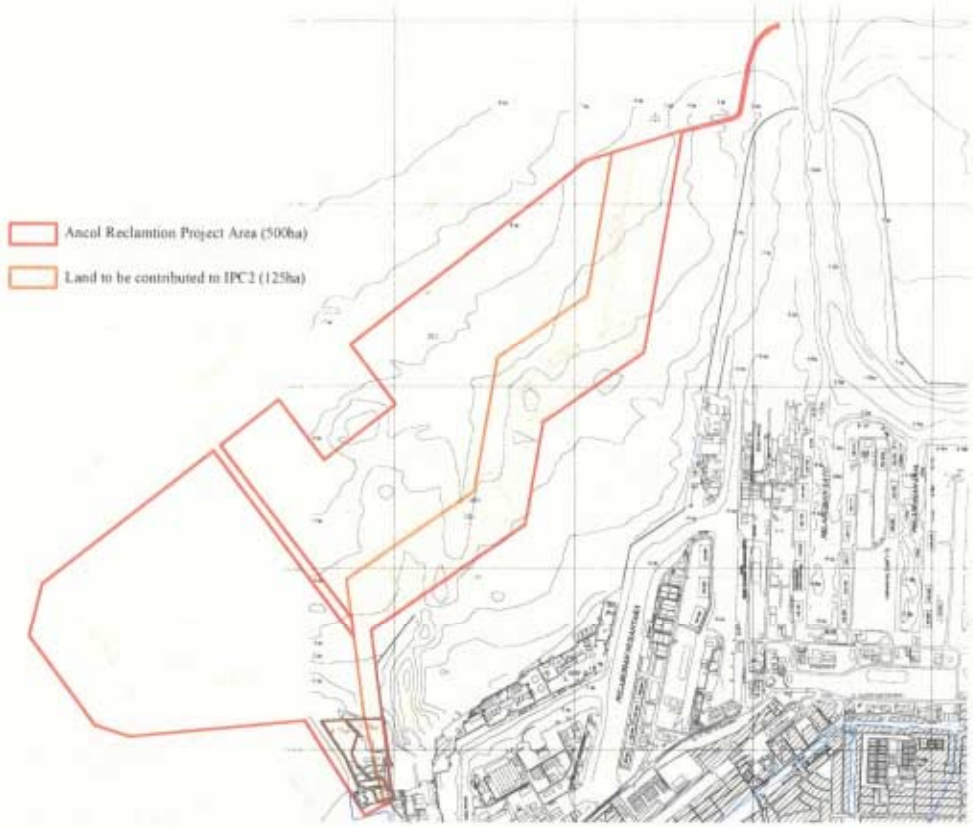


Figure 10-C-10 Current East-Ancol Development Plan

67. However, it has been slightly modified to ensure that the water area will not be closed due to the reclamation. The water area between the two reclamation sides has been increased to ensure that there is a sufficient water flow, which would reduce environmental impact of the reclamation. (See Figure 10-C-11)

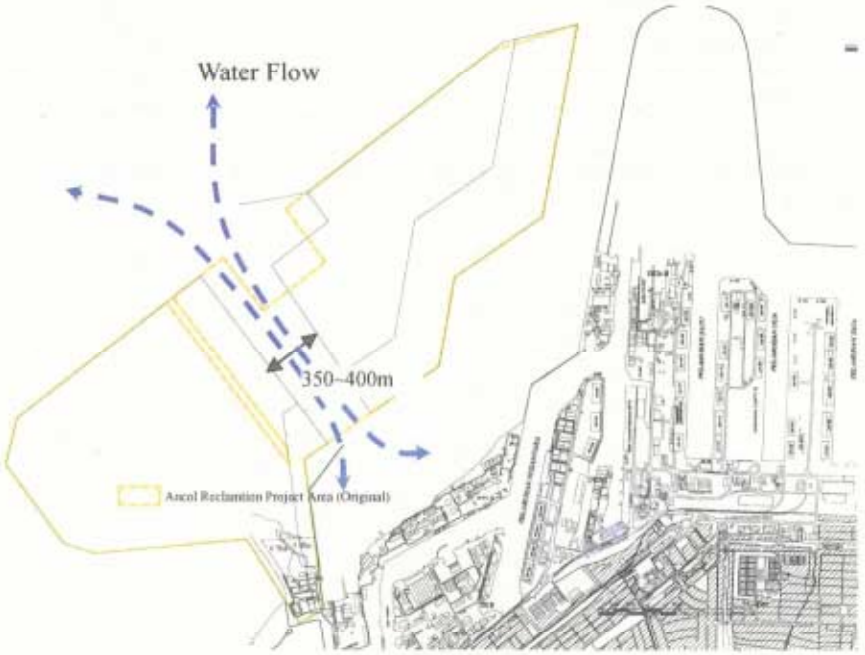


Figure 10-C-11 Modification of the Current Reclamation Plan

b) New Passenger Terminal Development

68. As stated in the previous section, a new passenger terminal should be relocated to the new port area of East-Ancol. The relocation would alleviate traffic concentration on Jl. Panaitan and Jl. Pelabuhan Rayathe intersection mixed with cargo traffic, and provide re-development space in the port. Park and amenity zone for passengers as well as visitors should also be developed around the terminal as a buffer to cargo handling zone.

69. Considering the ship size analysis and based on the demand, number of ship calls are estimated as follows

	~4999		~9999		~14999		Total	(Pax)
2012	298	18%	579	35%	778	47%	1,655	2,346,000
2025	360	18%	701	35%	941	47%	2,002	2,838,000
Pax/ship	244		756		2,360			

70. Assuming berthing average time (6hrs), operation hours (18hrs), required number of berths is calculated as follows on the condition of 70% of berth occupancy for regular services:

	Ship Calls	Berthing time (hr)	Annual Op. hrs (18*365)	BOR	Necessary No. berth
2012	1,655	6.0	6,570	70%	2.2
2025	2,002	6.0	6,570	70%	2.6

71. The required area for the passenger terminal and car parking area per berth is roughly calculated as follows:

Required area per person (m2) (A)	1.2	
Required area per car (m2) (B)	20.0	
Car utilization ratio per person (C)	0.25	
Peak Ratio (D)	1.8	
Loading/unloading passengers per ship (E)	2,360	
Required Terminal Area (m2)	5,098	=E*A*D
Required Parking Area (m2)	21,240	=E*C*B*D
Total Area (m2)	26,338	

72. In summary, the dimensions of the passenger terminal are set as follow considering the length and draft of ships.

	2012	2025
Number of Berths	2	3
Length of Berths *	350m	525m
Depth of Berths **	-7.5m	-7.5m
Terminal Size	350m x 200m	525m x 200m
Apron	350*20=7,000m2	525*20=10,500m2
Passenger Terminal	10,000m2	15,000m2
Parking	43,000m2	64,000m2
Others	10,000m2	15,500m2

* Length of ship (L) + Beam

** Draft of ship (D) + Allowance (D*10%)

c) Multi Purpose Terminal Development

73. Even if the existing area will be re-organized and utilized effectively as described in previous section 10-C-3, it is expected that port facilities in the existing port will reach the limit of their capacity for the future cargo demand centering on general (and bag) cargo. In order to meet the future demand of general and bag cargo as well as unitized cargo such as inter-island container and Ro-Ro cargo, multi purpose terminals is planned to be developed in East-Ancol area.

74. The dimensions of a multi purpose berth depends on the target vessels as follows:

Table 10-C-7 Dimensions of a Multi Purpose Berth

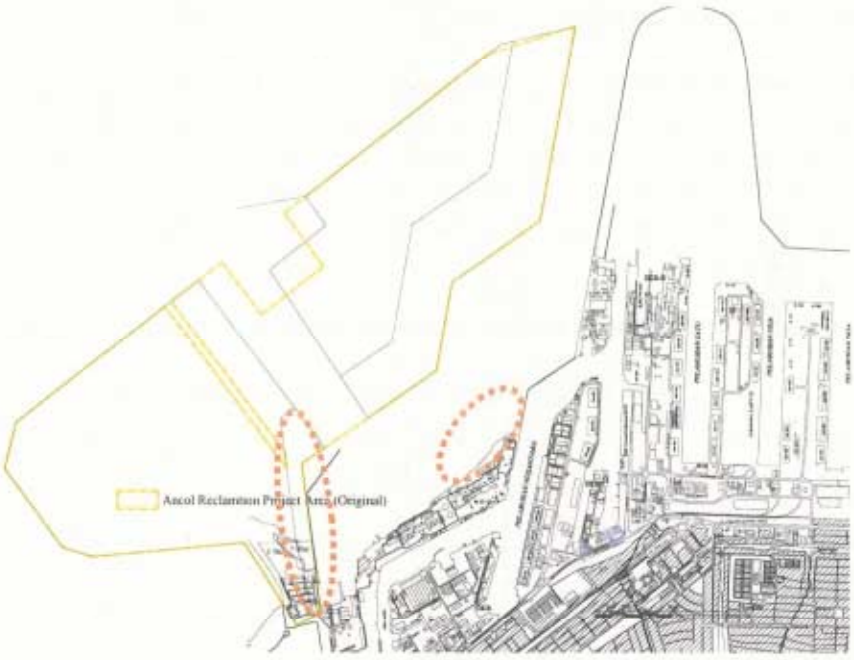
	Length of Berth (*)	Depth of Berths (**)	Terminal Width
General Cargo (20,000GT)	210m	-12m	around 300m
General Cargo (10,000GT)	170m	-10m	
Inter-island Container (10,000GT)	170m	-9~10m	
Ro-Ro Vessel (15,000GT)	220m	-10m	

* Length of ship (L) + Allowance (B)
** Draft of ship (D) + Allowance (D*10%)
*** 187m + 40m =221m ≈ 220m (As the same way for a car carrier vessel)

75. As it is assumed that the multi purpose berth will be used sequentially, not number of berths but necessary berth length will be set. Berth planning in East-Ancol is shown in 10-C-7. The depth of new established berth is set as -10m for initial development stage (toward 2012) while -12m for the next expansion stage (toward 2025). 300m is sufficient for the width of terminal even if considering container handling, or Ro-Ro cargo. The maximum diameter of turning basin in front of the proposed multi purpose terminal is set as follows considering an allowance: 2 *180m = 360m ≈ 400m.

d) Other Reclamation Related to Port Function

76. In order to relocate other port function such as mooring facility for small vessels including governmental ones, ship repairing service etc., there needs some land space together with some waterfront. The following area is proposed to be reclaimed and used for such above-mentioned function. The both places is not suitable for deep berths to be developed because of original shallow water.



e) Breakwater, Access Channel and Access Road

77. Breakwater as well as access channel should be developed cost-effectively in accordance with development phases. Initial development cost should be minimized by shortening the breakwater as well as the accesss channel with one-way traffic. In that case, breakwater should be constructed as it is easy to relocate some part of it in future. Based on the PIANC and IAPH standards, the widths of channel for two-way/ one-way traffic are set as follows:

Table 10-C-8 Widths of Channel

	Outer Channel		Inner Channel	
	One-way	Two-way	One-way	Two-way
Ancol	-	-	120m	250m

78. Access road is also dispensable to link with the existing road, Jalan Martadinata and/or Toll road. (Details on the road development are shown in Chapter-10.)

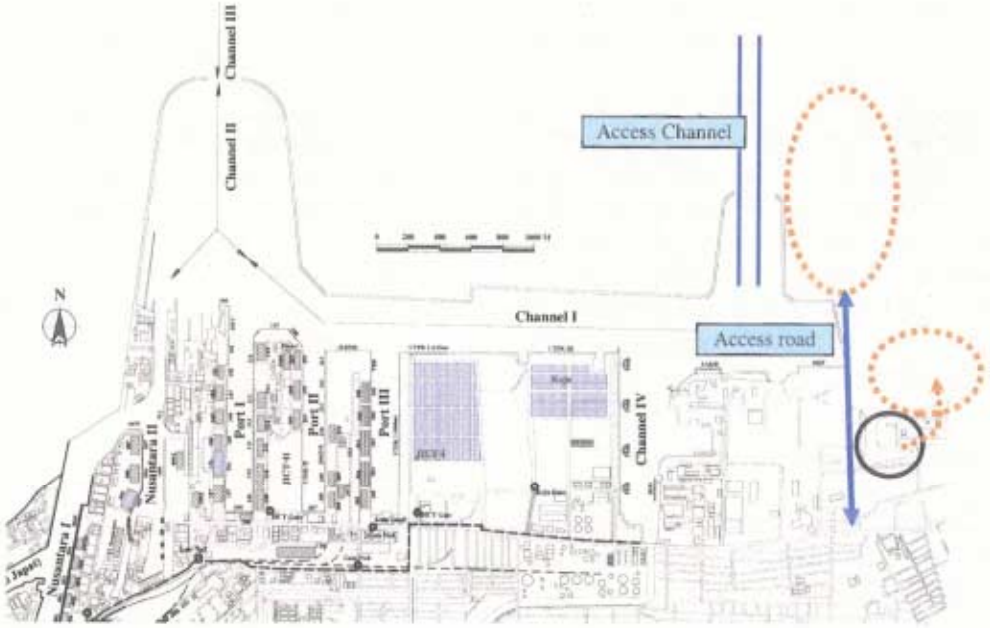
4) Kalibaru Offshore Development

- ✓ *Development of new port area in Kalibaru offshore area to relocate ship building/repairing facilities and to accommodate future demand of special bulk cargo*
- ✓ *Modernization of the existing Kalibaru port*

79. In order to consolidate the existing ship building/repairing facilities as well as to accommodate future demand of special bulk cargo such as grain, fertilizer etc., another new broad reclamation area should be developed. However, these seem to be rather long-term needs, and Kalibaru offshore area is considered suitable for this development in the long term as described earlier. When the existing ship building/repairing facilities can be consolidated to this area, the port activities would greatly benefit.

80. For the development of Kalibaru offshore area, an access channel is required. The study team proposes that the east channel should be opened as one-way channel with a depth of -14m.

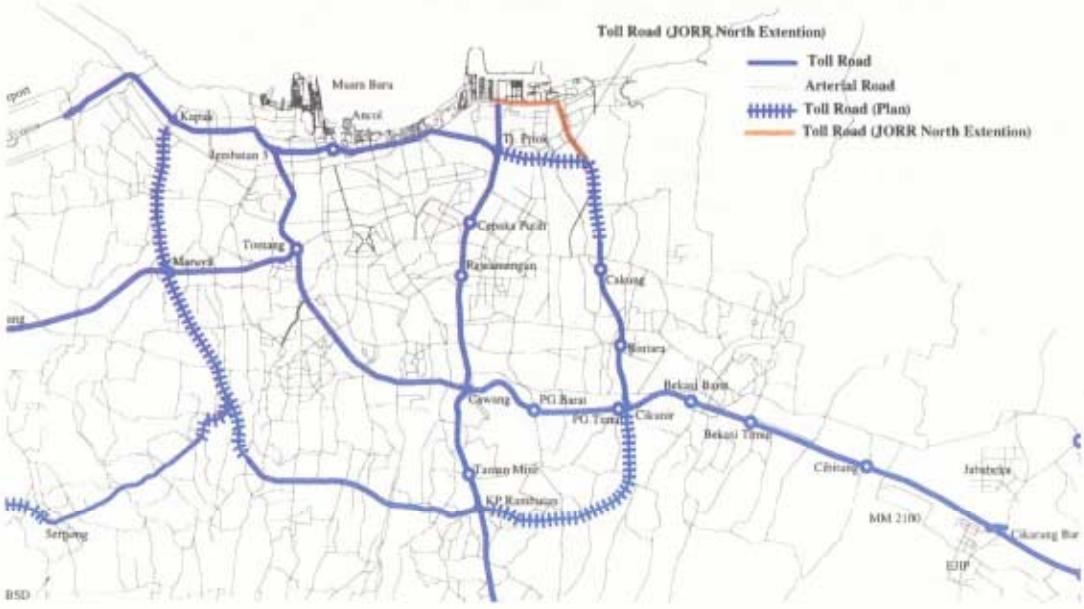
An access road, which will have some impact on existing Kalibaru port as well as the residential area, is also required. The study team proposes that another new port adjacent to the existing port with some area for residential use to mitigate the impact of port activities.



10-C-5 Port Access Improvement

81. To alleviate the road traffic congestion in/around the port, the improvement of the main road network in the port, with proper traffic management and with good linkage between the port and urban area, is vital. The main road from Gate-1 to Gate-9 should be re-organized to secure a circulating loop road with 4~6 lanes considering smooth inflow/outflow traffic of the piers/wharves.

82. In addition, to avoid mixing port related traffic with through traffic, especially through traffic in front of JICT gate, the development of an east-west highway connecting the port (Gate-9 & JICT-Koja Gate) with the JORR northern extension toll road is crucial.



10-C-6 Environmental Improvement

85. IPC2 acknowledges that there is serious water and sediment pollution within the breakwater, and this is mainly due to drainage and garbage from DKI Jakarta. In addition, floating garbage in the canals causes flood problems.

86. Hence, improvement for water and sediment quality is necessary for sustainable development of Tanjung Priok. Some examples of improvement are as follows:

- Improvement of breakwater alignment to make it easy for water to circulate
- Development of ecological waterfront with mangrove planting
- Improvement of waste and garbage management

87. For workers and passengers in the port as well as visitors to the port, amenity such as green park, an observation tower etc. should be provided in such appropriate place as the port business zone at Nusantara area and/or the passenger zone at East-Ancol area. (At present, sufficient amenities are not provided for passengers and workers in the port.)

10-C-7 Summary of Project Components and Berth Facility Plan

1) Project Components

88. Long-term project components are summarized in Table 10-C-9 including road components. Road components will be discussed in Chapter-10 though, here, it should be just pointed out that the improvement/development of port inner road as well as port access road are one of the most crucial matters to solve the capacity problem at Tanjung Priok port.

Table 10-C-9 Long-term Project Components for Tanjung Priok

Project	Contents
Navigational condition improvement (capacity and safety)	- Widening main channel & turning basin - Widening the channel & basin to the Nusantara area including MTI - Opening the east channel
Automobile terminal development	
Re-organizing land-use of the existing port	
Streamlined cargo handling zone	- Inter-island container handling (Pier III reorganization and MTI expansion) - Bulk cargo handling (CPO, sand, cement etc.) - Passenger terminal relocation - Pertamina berths relocation together with consolidation of international container terminal
Providing suitable and sufficient space for the better port management	- In-land yard development - Providing new space by reclamation - Relocation of military base - Consolidation of ship building yard
Land-use re-development in the urban area adjacent to the port	- Re-development around the Tanjung Priok railway station - Re-development of the residential area on the south of JICT container terminal
Ancol Development	- New Passenger Terminal - Multi Purpose Terminal - Access road
Kalibaru Off-shore Development	- Consolidation of ship building yard - Development of special cargo handling zone - Access road - Development of Kalibaru new port
Environmental Improvement	- Re-alignment of breakwater - Ecological waterfront development with mangrove planting
Road development/improvement in/around the existing port	- Inner Road Improvement - Eastern Port Access Highway to link with JORR - Improvement of the existing urban road including western port access road and access road to/from JIUT

2) Berth Planning

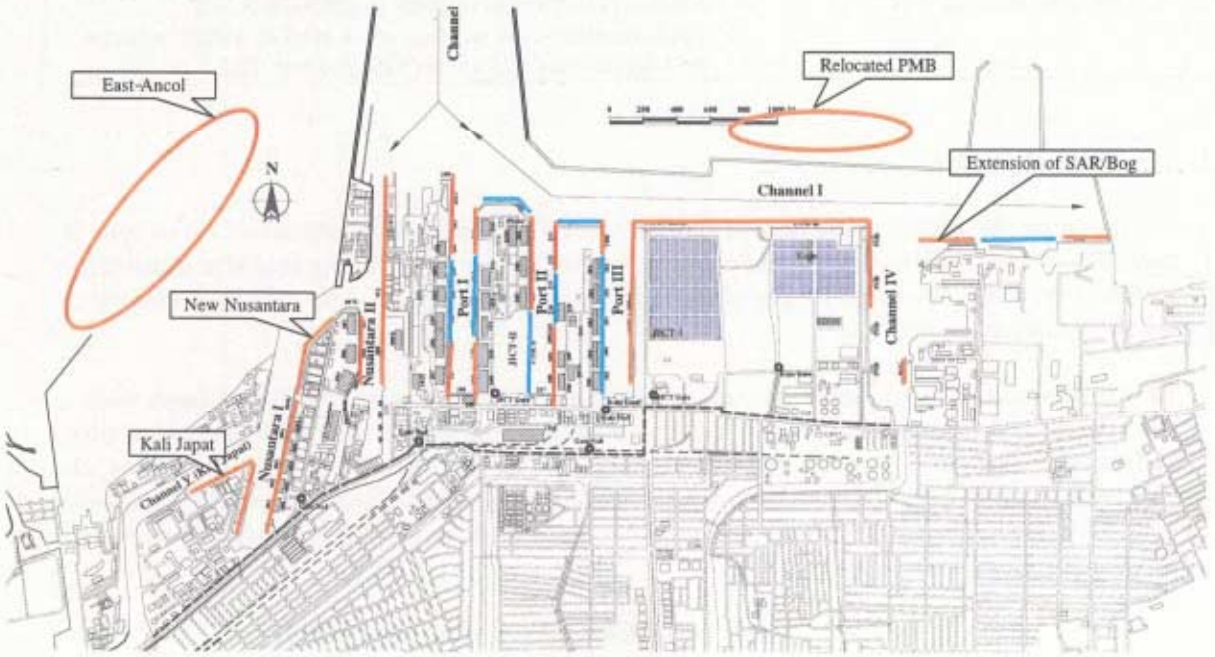
89. Based on the project components, the study team assumed the allotment of cargo type by berth as shown in Table 10-C-10 and checked the berth capacity assuming ship size distribution, handling productivity, cargo lot per ship, berth occupancy ratio etc. The details of calculation are shown in **Appendix**.

90. There was a trial and error process to reach the result, however, the future berth plan in accordance with the proposed project components can accommodate the future demand of cargo sufficiently. There will be great shortage of berth in 2025 without new development areas, and thus, new general cargo berth with around 1,700m length should be developed in East-Ancol area. Of course, the long-term development in East-Ancol and Kalibaru offshore should be flexible according to the cargo demand.

Table 10-C-10 Berth-wise Cargo Type Allotment (2025)

Berth-wise Cargo Type Allotment (2025)

Berth	Length	Depth	Int'l CT	Dom. CT	GC & Bag	DB	LB	CBU	Pax	Remarks
001-003	423	-6m			100%					
004-004U	455	-6m			100%					
005-007	540	-7m			100%					
New Nusantara	500	-7m			100%					Existing plan by Pelindo-II (See figure below)
MTI	1,150	-8m		100%						Including Ex.WJ & DKB-II area
WJ	100	-4m	-	-	-	-	-	-	-	Converted to MTI
100-102	504	-7~10m				100%				
103-105	454	-7m			100%					
Ex.Pass	300	-7m			100%					Shifted from Passenger Terminal
108-110	496	-7m			100%					
111-113	442	-7~9m			100%					
114	376	-10m				100%				
115-200	257	-10m				100%				
201-203	495	-9m			60%	40%				
Ex.JICT2	500	-8.6m		100%						Converted to Inter-island Container Terminal
207	141	-4m	-	-	-	-	-	-	-	Will be not used
208-209	439	-9m		100%						Inter-island Container Terminal
210-211	293	-9m		100%						Ditto
212-213	285	-9m		100%						Ditto
214/300	300	-12m		100%						Ditto
TBB	195	-12m		100%						Ditto
301-302	320	-12m			100%					
303-305	483	-12m			100%					
JICT1&Koja	2,750	-11~14m	100%							Including Ex.PMB (500m)
PMB	100	-11~14m					100%			Relocated to offshore
BOG	175	-6m				100%				
SAR/B	400	-10m,14m				100%				Expansion next to the existing berth
DKP	276	-9m					100%			
Car Terminal	500	-10~11m						100%		In case of expansion in DKB-IV Site
Kali Japat	800	-7m				40%	60%			Dry Bulk Terminal (See fugure below)
Ancol-Passenger	525	-7.5m							100%	
Ancol-MPT1	790	-10m			100%					Multi Purpose Terminal (Phase1)
Ancol-MTP2	1,700	-12m		20%	80%					Multi Purpose Terminal (Phase2)



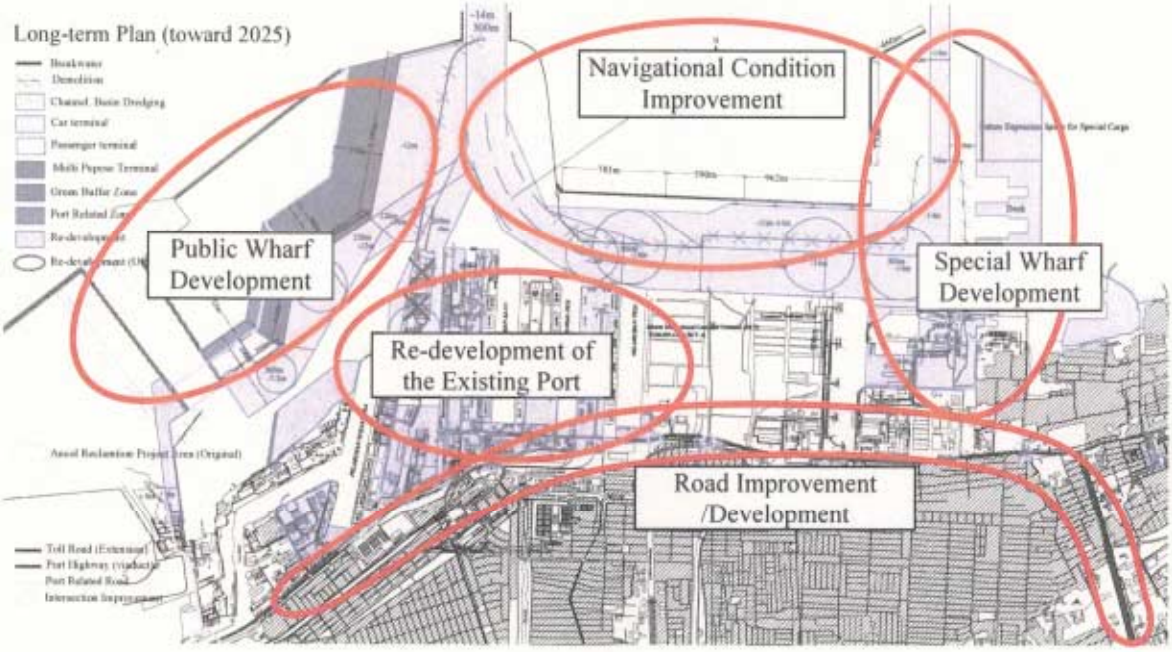
10-C-8 Layout of Port Facilities and Land-use Plan

91. Proposed layout of port facilities and the land-use plan for Tanjung Priok port toward 2025 are shown in. Figure 10-C-12 and Figure 10-C-13.

Figure 10-C-12 Layout of Port Facilities in Tanjung Priok (Toward 2025)

Figure 10-C-13 Land-use Plan of Tanjung Priok (Toward 2025)

92. The concept of the layout plan is summarized as below.

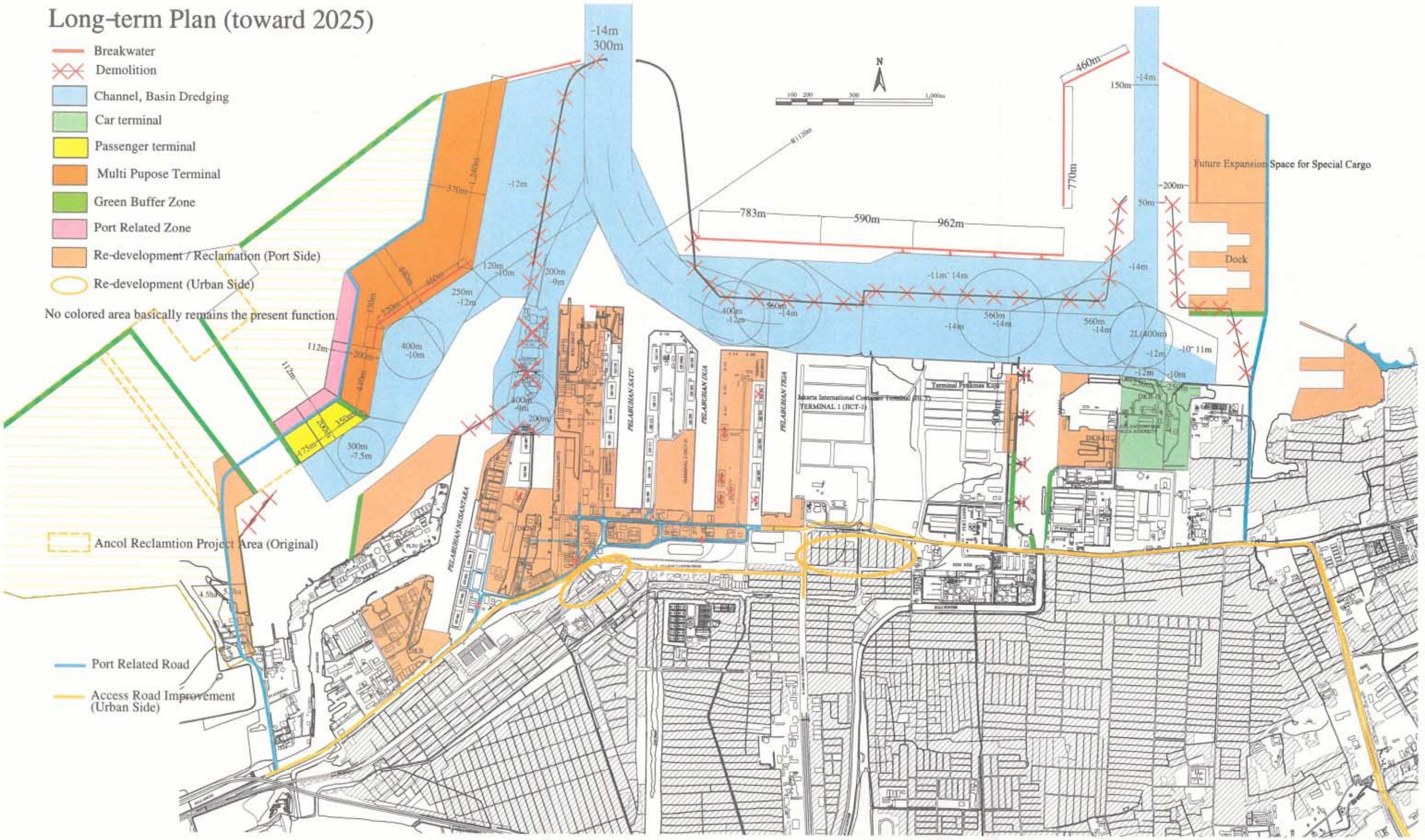


Long-term Plan (toward 2025)

- Breakwater
- Demolition
- Channel, Basin Dredging
- Car terminal
- Passenger terminal
- Multi Pupose Terminal
- Green Buffer Zone
- Port Related Zone
- Re-development / Reclamation (Port Side)
- Re-development (Urban Side)

No colored area basically remains the present function.

- Ancol Reclamtion Project Area (Original)
- Port Related Road
- Access Road Improvement (Urban Side)



Land Use Plan (toward 2025)

Port Related Area

- International Container Terminal
- Inter-island Container Terminal
- Multi Purpose / Conventional Terminal
- Bulk Terminal (Public)
- Bulk Terminal (Special)
- Port Logistic Area (Yard etc.)
- Government Related Area
- Port Business Area
- Dock Area
- Other Area
- Car Terminal
- Passenger Terminal

Urban Area