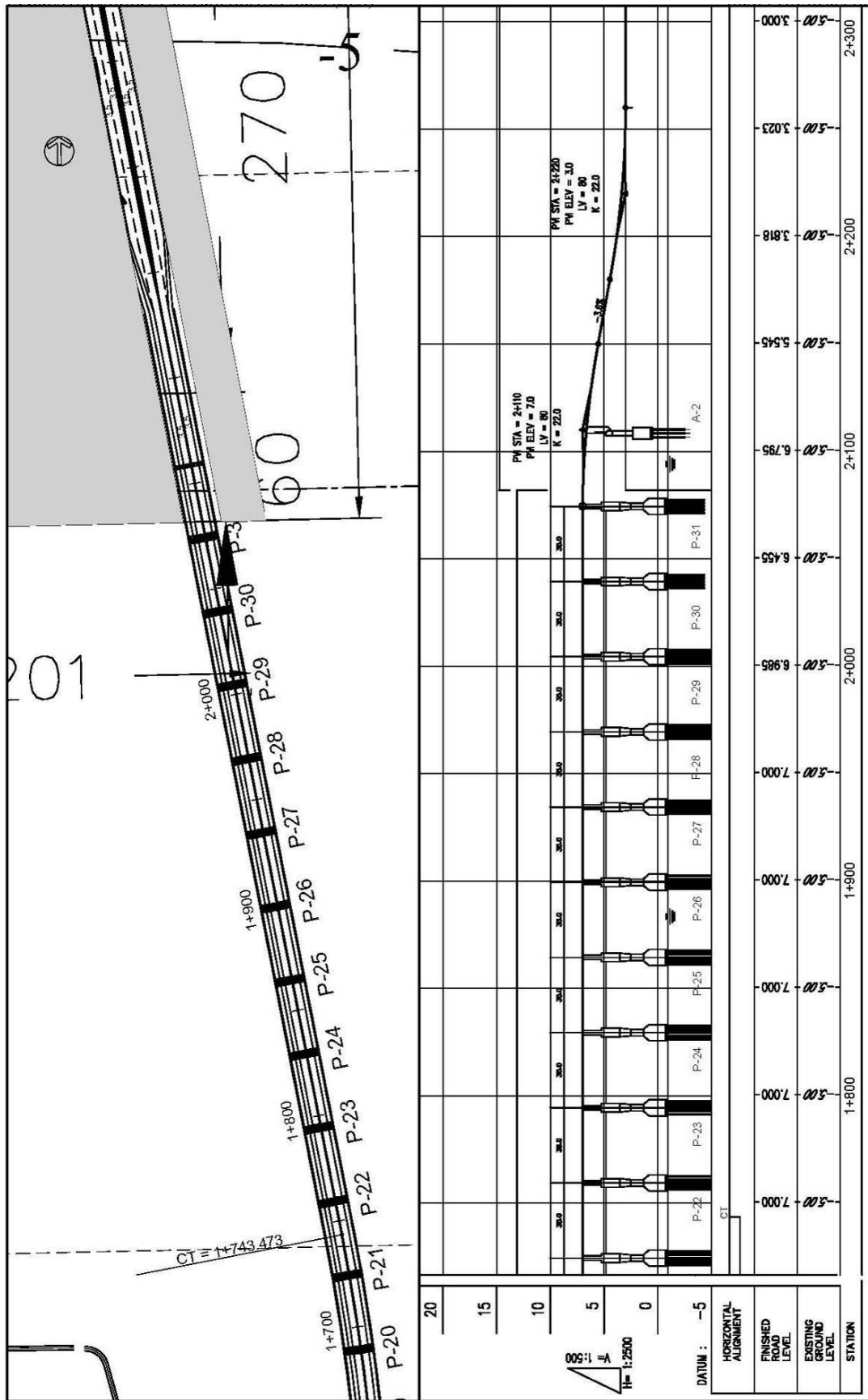
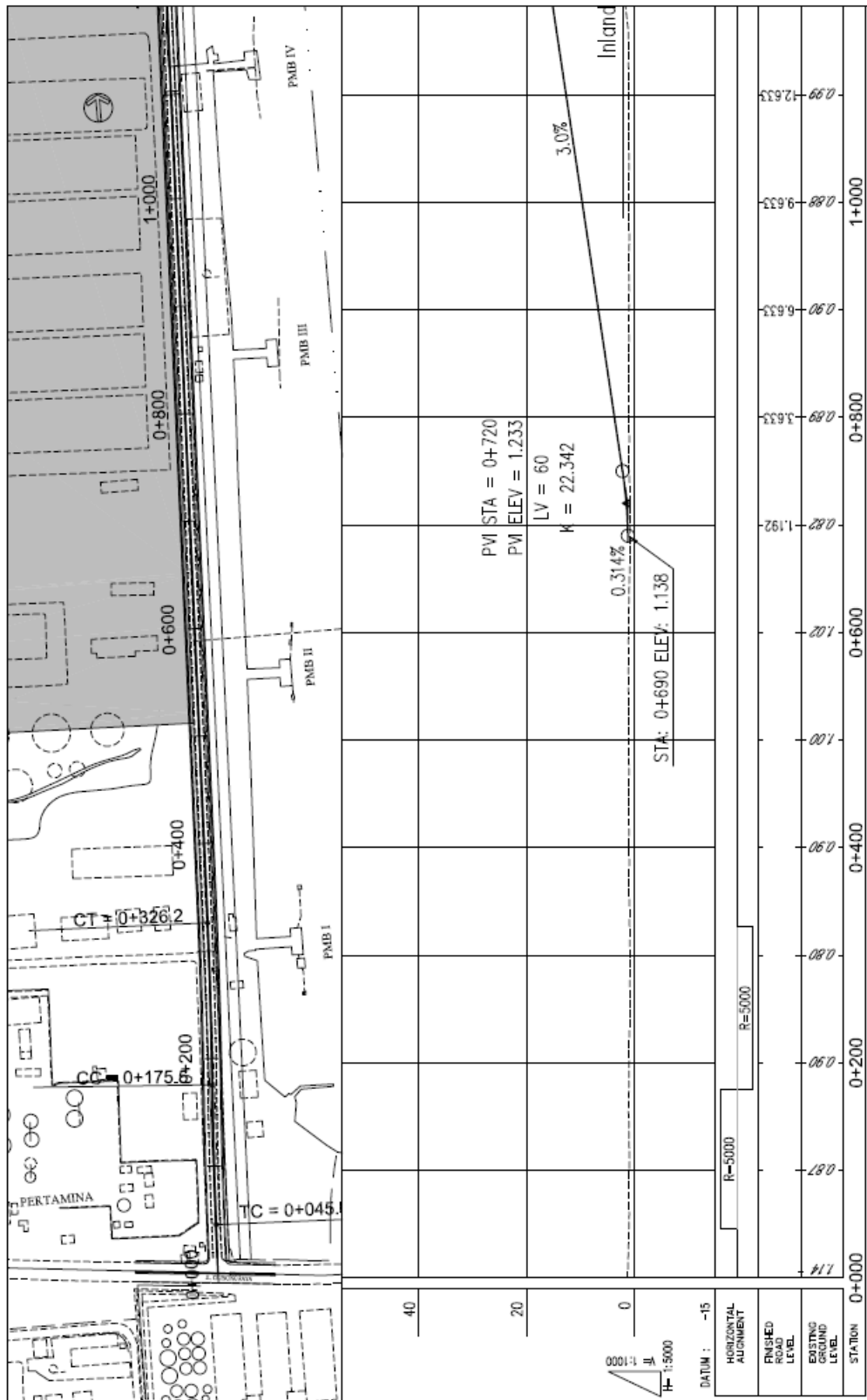
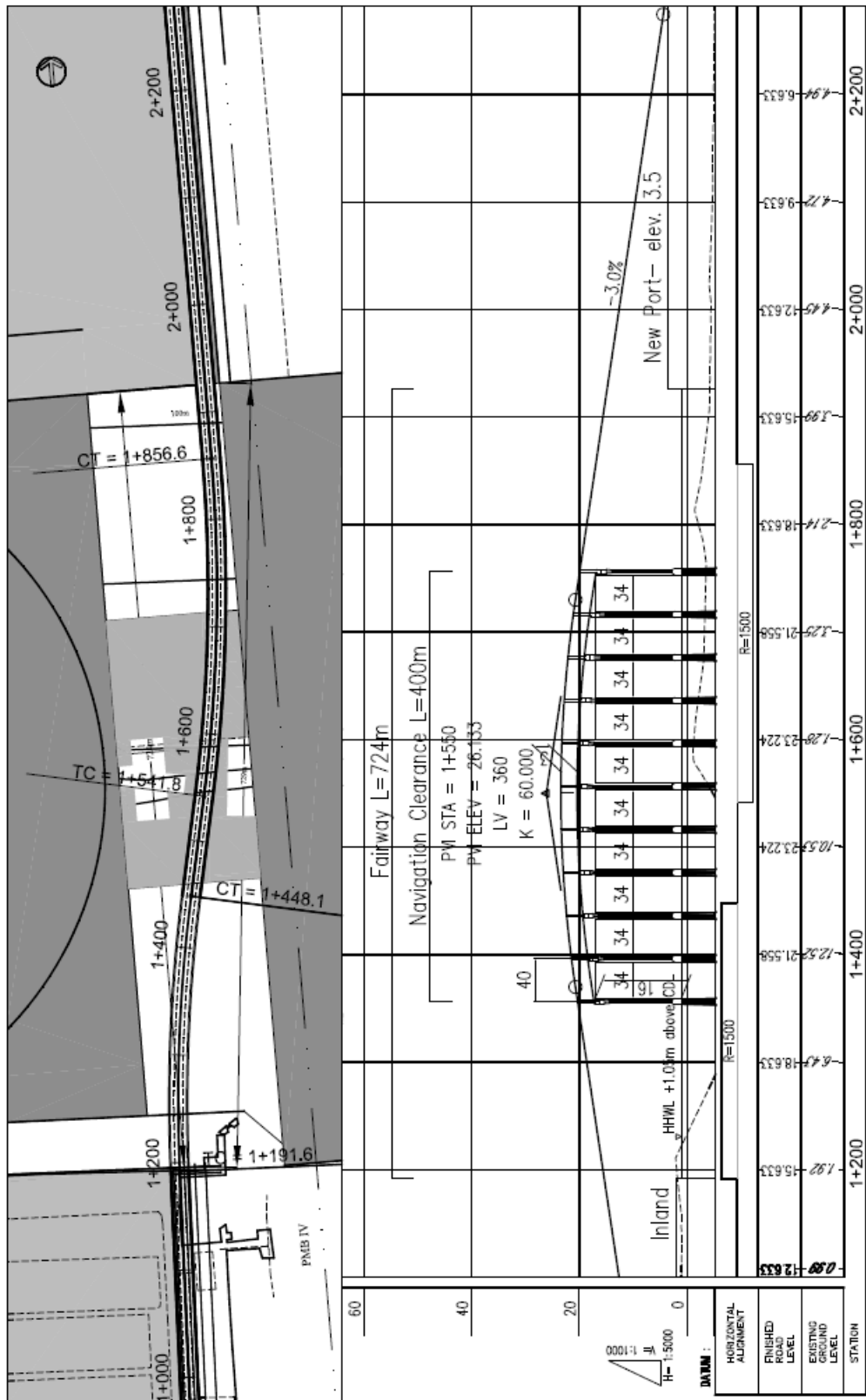


THE PROJECT OF MASTER PLAN STUDY ON PORT DEVELOPMENT AND LOGISTICS IN GREATER JAKARTA
METROPOLITAN AREA
ACCESS ROAD TO NORTH KALIBARU (PHASE-1) - PLAN AND PROFILE
STA. 1+150 ~ STA. 1+725

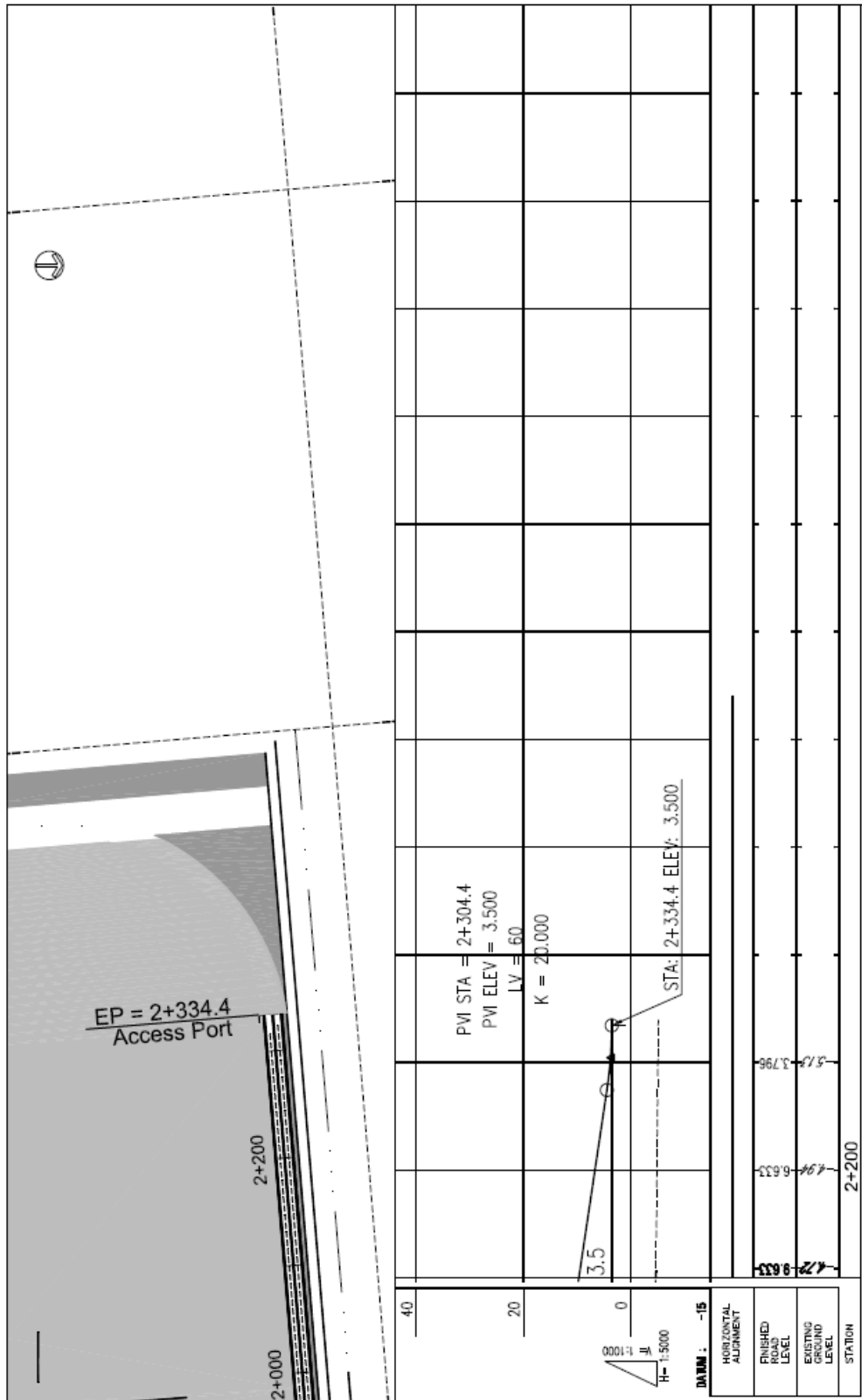




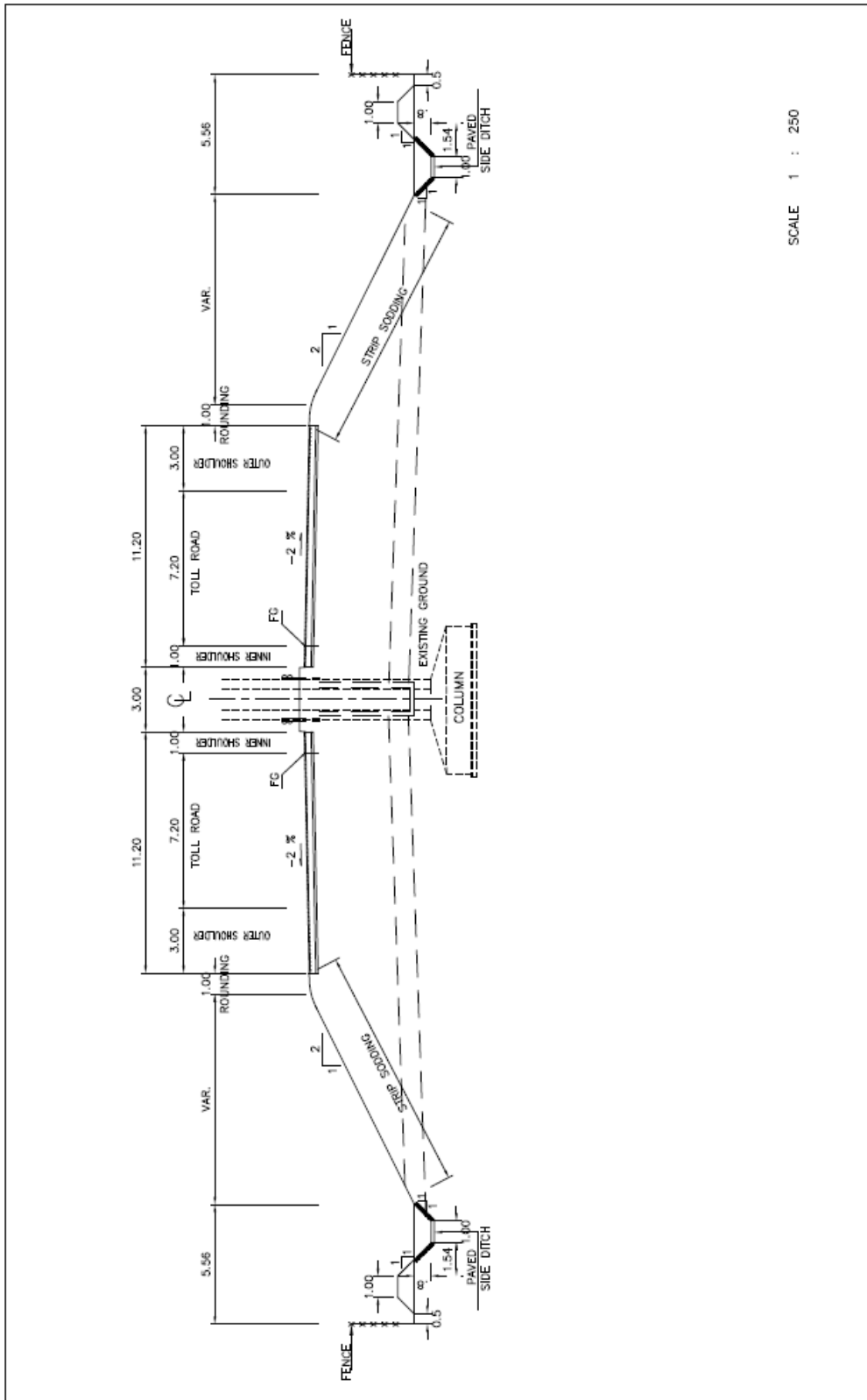
THE PROJECT OF MASTER PLAN STUDY ON PORT DEVELOPMENT AND LOGISTICS IN GREATER JAKARTA
 METROPOLITAN AREA
ACCESS ROAD TO NORTH KALIBARU (PHASE-1) - PLAN AND PROFILE (Alternative2) LOW NAVIGATION
 STA. 0+000 ~ STA. 1+100



THE PROJECT OF MASTER PLAN STUDY ON PORT DEVELOPMENT AND LOGISTICS IN GREATER JAKARTA
METROPOLITAN AREA
ACCESS ROAD TO NORTH KALIBARU (PHASE-1) - PLAN AND PROFILE (Alternative 2) LOW NAVIGATION
STA. 1+100 ~ STA. 2+200

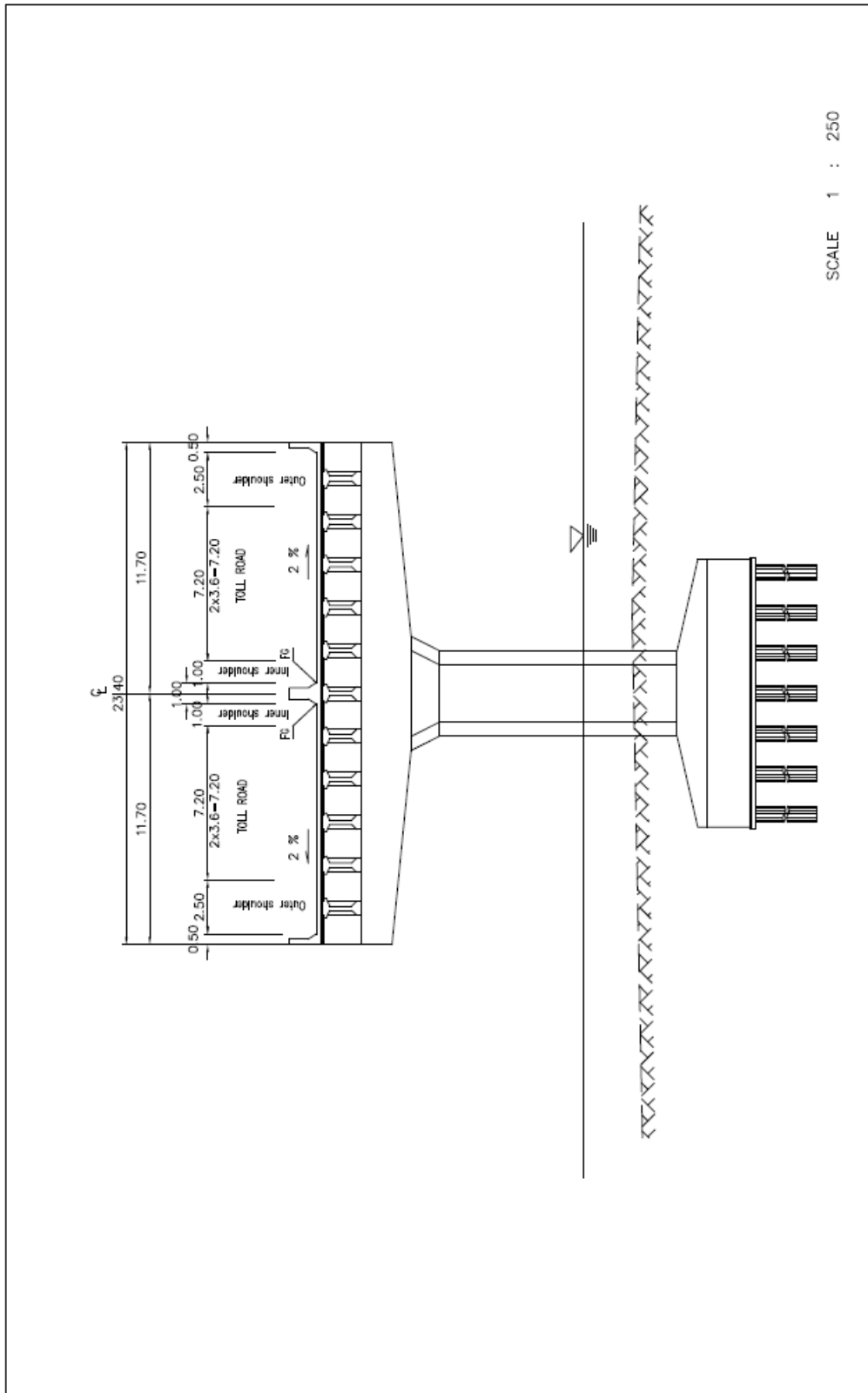


THE PROJECT OF MASTER PLAN STUDY ON PORT DEVELOPMENT AND LOGISTICS IN GREATER JAKARTA
 METROPOLITAN AREA
ACCESS ROAD TO NORTH KALIBARU (PHASE-1) - PLAN AND PROFILE (Alternative 2) LOW NAVIGATION
 STA. 2+200 ~ STA. 3+400



THE PROJECT OF MASTER PLAN STUDY ON PORT DEVELOPMENT AND LOGISTICS IN GREATER JAKARTA
METROPOLITAN AREA
NORTH KALIBARU ACCESS ROAD - TYPICAL CROSS SECTION
AT GRADE SECTION
METROPOLITAN AREA
NORTH KALIBARU ACCESS ROAD - GENERAL VIEW
STANDARD SPAN BRIDGE

SCALE 1 : 250



THE PROJECT OF MASTER PLAN STUDY ON PORT DEVELOPMENT AND LOGISTICS IN GREATER JAKARTA
METROPOLITAN AREA
NORTH KALIBARU ACCESS ROAD - TYPICAL CROSS SECTION
BRIDGE SECTION

5.4 Summary of Total Project Cost of Master Plan of Three Sites

Total project cost of the container terminal development in conjunction with Port Access Road Construction, Railway Connection and Rail Yard in the container terminal is presented in line with the phased development plan for each proposed project site, North Kalibaru, Cilamaya and Tangerang.

5.4.1 North Kalibaru

Summary of the project cost estimate for Alternative 1, Phase I development through Phase III is presented in Table 5.4.1-1.

Construction cost for at-grade road (0.95 km, 2-lane) and an access bridge (1.2 km) for Alternative 1 are added to the project cost of Phase I.

As for Phase II development, construction of road (9.0 km, 4-lane) along the river bank including 2 flyovers, access bridge (10.3 km), etc. are considered in the project cost. The figures include VAT (10 % of the estimated project cost).

Table 5.4.1-1 Total Project Cost of Development Option-1

North Kalibaru		Project Cost (Million Rupiah)	Project Cost (1,000 USD)	Project Cost (Million Yen)
Phase I (1.9 million TEU)	Port	8,230,382	914,487	74,822
	Road	513,692	57,077	4,670
Phase II (3.2 million TEU)	Port	10,875,477	1,208,386	98,868
	Road	11,940,860	1,326,762	108,553
Phase III (4.3 million TEU)	Port	17,913,623	1,990,404	162,851
Total		49,474,034	5,497,115	449,764

Source: JICA Study Team

5.4.2 North Kalibaru and Cilamaya

Summary of the project cost estimate for the second development scenario is presented in Table 5.4.2-1.

Port access road (around 30.6 km) connecting the new container terminal with a new junction at Cikampek Toll Road at Karawang is considered in the project cost.

The port access road consists of road construction (30.6 km, 4-lane) including 6 flyovers, port access bridge (800 m, 4-lane) and interchange construction. The figures include VAT (10 % of the estimated project cost).

Table 5.4.2-1 Total Project Cost of Development Option- 2

North Kalibaru Phase I and Cilamaya		Project Cost (Million Rupiah)	Project Cost (1,000 USD)	Project Cost (Million Yen)
Kalibaru: Phase I (1.9 million TEU)	Port	8,230,382	914,487	74,822
	Road	513,692	57,077	4,670
Cilamaya: Phase II (3.2 million TEU)	Port	13,072,629	1,452,514	118,842
	Road	2,663,586	295,954	24,214
Cilamaya: Phase III (4.3 million TEU)	Port	12,811,356	1,423,484	116,467
Total		37,291,645	4,143,516	339,015

Source: JICA Study Team

5.4.3 North Kalibaru and Tangerang

Summary of the project cost estimate for the third development scenario is presented in Table 5.4.3-1.

Port access road (around 5 km) connecting the new container terminal with a new junction on JORR2 is considered in the project cost.

The port access road consists of at-grade road (4.5 km, 2-lane) including flyovers, access bridge (500 m, 2-lane) and an interchange construction. The figures include VAT (10 % of the estimated project cost).

Table 5.4.3-1 Total Project Cost of Development Option 3

North Kalibaru and Tangerang		Project Cost (1,000 Rupiah)	Project Cost (1,000 USD)	Project Cost (Million Yen)
Kalibaru: Phase I (1.9 million TEU)	Port	8,230,382	914,487	74,822
	Road	513,692	57,077	4,670
Kalibaru: Phase II (3.2 million TEU)	Port	10,875,477	1,208,386	98,868
	Road	11,940,860	1,326,762	108,553
Kalibaru: Phase III (2.3 million TEU)	Port	11,353,928	1,261,548	103,218
Tangerang (2.0 million TEU)	Port	8,815,333	979,481	80,139
	Road	404,071	44,897	3,673
Total		52,133,743	5,792,638	473,943

Source: JICA Study Team

CHAPTER 6 EVALUATION ROAD MAP TOWARD INTERNATIONAL CONTAINER TERMINAL DEVELOPMENT IN GREATER JAKARTA METROPOLITAN AREA

6.1 Economic Feasibility

6.1.1 Purpose and Methodology of Project Evaluation

(1) Objective

The purpose of this section of the report is to evaluate the development options of the Master Plan with the target year of 2030 from the viewpoint of the national economy. Evaluation is carried out for ranking the port development alternatives (options), and appraising the economic feasibility of the project.

(2) Development Options

Following three (3) development options for the new container terminals for 2030 have been proposed in this study so far, hence their economic feasibility will be evaluated in this section:

- | | |
|----------|--|
| Option 1 | North Kalibaru Phase II and III |
| Option 2 | Cilamaya Phase II and III |
| Option 3 | Tangerang with North Kalibaru II and part of III |

It is assumed for all options that new container terminals with 1,200 m in length alongside berth are in operation at North Kalibaru (i.e., North Kalibaru Phase I) prior to these development options.

(3) Methodology Employed in this Economic Feasibility Analysis

Economic feasibility, or project evaluation, is in general carried out in the following steps: (i) Identification of benefits and costs, (ii) Pricing of benefits and costs, (iii) Present value of benefits and costs, (iv) Investment criteria, and (v) Sensitivity analysis.

Regarding the investment criteria, there are in general two methods to evaluate or appraise development projects: (i) Cost analysis, and (ii) Cost benefit analysis. The latter is further disaggregated into the Net Present Value method, the Benefit-Cost Ratio method and the Internal Rate of Return (EIRR) method. Project evaluation through ranking by B/C ratio or EIRR has often been carried out, but this is theoretically misused. Values of B/C ratio or EIRR are not necessarily suitable for economic ranking of the development options.

At this point, project benefits should be identified. If no investment is made to accommodate ever-increasing containers after Kalibaru Phase I Project, international containers will be soon overflow from the terminals. Capacity of JCT is estimated at around 4 million TEUs and that of Kalibaru Phase I is 1.9 million TEUs. As the total demand is estimated at 13.4 million TEUs in 2030, 7.5 million TEUs will overflow. There is no extra space at either Tanjung Priok Terminal or neighbouring ports. In such event investors and manufacturers are likely to shift to other promising nations and regions. Assuming this situation, greatest benefits arising from the development project for international containers are value added of exporting and importing goods. Project benefits, i.e., value added from this project, are likely almost even for all development options because all of the options are set to accommodate the same amount of throughput.

JICA Study Team employs two-step methodology for the economic feasibility. For the first step Cost Minimization method is applied for ranking the project options and selecting the best one. Cost Minimization approach focuses on the selection of least cost project from mutually exclusive projects supplying output which is identical in quantity and quality. Given the same amount of benefits, the Cost Minimization analysis leads to minimize the present value of the total cost for meeting the required service.

Unfortunately, however, the Cost Minimization method does not reveal the economic feasibility of the project; it is unknown whether earnings from the project are higher than the costs of the project. Therefore, JICA Study Team will proceed to the second step, and apply the EIRR method for the evaluation of the economic feasibility of the best option selected in the first step. Returns and costs of the option are going to be quantified by the difference between those of the “With-the Project” case and the “Without the Project” case.

6.1.2 Throughput of Each Development Option

JICA Study Team estimates that the existing Tanjung Priok Terminal can accommodate around 4 million TEUs of international containers although terminal conversion and cargo handling efficiency improvement are required to some extent. The new container terminals at North Kalibaru Phase I will accommodate up to 1.9 million TEUs.

International containers will overflow after the North Kalibaru Phase I terminals are saturated. There are no extra spaces at Tanjung Priok Terminal for loading and unloading international containers. Tanjung Emas Port is the closest to Tanjung Priok and Tanjung Perak Port is the 2nd largest port in Indonesia after Tanjung Priok. These ports are, however, already being operated at near full capacity the same as Tanjung Priok. Therefore, it is not realistic to expect that these ports will act as alternative ports to load and unload international containers originated from/destined to the Greater Jakarta Metropolitan area.

Consequently alternative terminals to accommodate 7.5 million TEU of international containers in 2030 cannot be found near the Greater Jakarta Metropolitan area, and investors and manufacturers are likely to shift to other promising nations and regions. In such event, new development of industrial estates will not be realized because of shortage of export/import capacity at the port.

Assuming this situation, greatest benefits arising from the development project for international containers is to gain value added through exporting and importing goods. There is no significant difference among development options because each option has identical throughput.

Table 6.1-1 shows planned throughput of each development option.

Table 6.1-1 Planned Throughput for Each Option

(Unit: '000 TEUs)

	Common for Each Option		Option 1		Option 2		Option 3			Total
	JCT	Kalibaru I	Kalibaru II	Kalibaru III	Cilamaya II	Cilamaya III	Kalibaru II	Kalibaru III	Tangerang	
2012	4,029									4,029
2013	4,460									4,460
2014	4,850									4,850
2015	4,850									4,850
2016	4,850	858								5,708
2017	4,850	1,245								6,095
2018	4,850	1,632								6,482
2019	4,850	1,900	119		119		119			6,869
2020	4,000	1,900	1,355		1,355		1,355			7,255
2021	4,000	1,900	1,877		1,877		1,877			7,777
2022	4,000	1,900	2,399		2,399		2,399			8,299
2023	4,000	1,900	2,921		2,921		2,921			8,821
2024	4,000	1,900	3,200	243	3,200	243	3,200	122	122	9,343
2025	4,000	1,900	3,200	765	3,200	765	3,200	383	383	9,865
2026	4,000	1,900	3,200	1,463	3,200	1,463	3,200	732	732	10,563
2027	4,000	1,900	3,200	2,161	3,200	2,161	3,200	1,081	1,081	11,261
2028	4,000	1,900	3,200	2,860	3,200	2,860	3,200	1,430	1,430	11,960
2029	4,000	1,900	3,200	3,558	3,200	3,558	3,200	1,779	1,779	12,658
2030	4,000	1,900	3,200	4,256	3,200	4,256	3,200	2,128	2,128	13,356

Source: Estimated by the Study Team

Note: Jakarta Container Terminal containing JICT, KOJA and MAL at Tanjung Priok Terminal

6.1.3 Economic Prices

(1) General

For the economic feasibility analysis, all prices must be expressed in economic prices, i.e., international prices or border prices. In general, the value of goods quoted at market price does not always represent the economic value of goods. They often include transfer items such as tax, customs duties, subsidies and profits, which do not actually reflect any consumption of resources. Therefore, the market prices shall be converted into economic prices by eliminating these transfer items.

(2) Conversion Factors

1) Standard Conversion Factor (SCF)

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

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

where, *I*: Total value of imports (CIF)
E: Total value of exports (FOB)
Di: Total value of import duties
De: Total value of export duties

SCF will become closer and closer to 1.00 as the free trade and open market is realized at the border. It is reported that SCF was more than 0.99 during the period 2001 – 2004 in Indonesia as shown in Table 6.1-2. After 2004 then, no revised figures on SCF have been revealed. As Indonesia holds a quite open market policy, it is assumed in this Study that the market mechanism is properly functioning; hence SCF is set at 1.0.

Table 6.1-2 Standard Conversion Factor (SCF)

Year	(Unit: Rp. Billion)				
	2001	2002	2003	2004	2005~2008
Total value of imports (CIF)	506,426	480,815	465,941	632,376	
Total value of exports (FOB)	642,595	595,514	613,721	739,639	
Total value of import duties	9,026	10,344	10,885	12,444	N.A
Total value of export duties	542	231	230	298	N.A
SCF	0.993	0.991	0.990	0.991	N.A

Source: Calculated by JICA Study Team using data of World Development Indicators, Wo

The reason why the Standard Conversion Factor in Indonesia is almost 1.0 is due to the lowered custom duties brought about by the following:

- In connection with the trade liberalization policy of the government, import duties are presently being lowered.
- Tariff rates with ASEAN Countries have been lowered to 0--5% by the year 2003.
- For purposes of industrial development, the Government employs import duties reduction and exemption measures including establishment of bonded areas and bonded warehouse systems for foreign and local investors.

2) Conversion Factor for Consumption (CFC)

This conversion factor is used to convert the market prices of consumer goods into border prices. The Conversion Factor for Consumption (CFC) is usually calculated in the same manner as the Standard Conversion Factor, replacing total imports and exports by total imports and exports of consumer goods. The CFC is obtained by the following formula.

$$\text{CFC} = \frac{I_c + E_c}{(I_c + D_{ic}) + (E_c - D_{ec})}$$

where, *I_c* : Total value of consumer goods imports (CIF)
E_c : Total value of consumer goods exports (FOB)
D_{ic} : Total value of consumer goods import duties
D_{ec} : Total value of consumer goods export duties

In calculating for the CFC, information on the tariff income for consumer goods is required, but it is not available. However, in Indonesia, the trade value for consumer goods in relation to the total trade amount is in the vicinity of 6% ~ 8% lately, and it is adjudged that the consumer lifestyle is controlled by non-tradable goods, thus the CFC is set at 1.00.

Table 6.1-3 Import Share of Consumer Goods by CIF Value

Year	2004	2005	2006	2007	2008
Import of Consumer Goods (%)	8.1%	8.0%	7.8%	8.8%	6.4%

Note; Figure 2008 includes bonded zones

Source: Statistical Yearbook of Indonesia

3) Conversion Factor for Skilled Labor (CFSL)

Cost of skilled labor is calculated based on actual market wages, assuming that the market mechanism is functioning properly. However, as the data are domestic prices or market prices, they should be converted to border prices by multiplying by the CFC. The Conversion Factor for Skilled Labor (CFSL) is expressed by the following formula:

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

where, *Opportunity cost of skilled labor / Actual market wages of skilled labor* = 1
CFC : Conversion Factor for Consumption =1.00

4) Conversion Factor for Unskilled Labor (CFUL)

As wage rate is controlled by a minimum wage system and other governmental regulations despite the existence of a large amount of unskilled labors, the wages paid to unskilled labors by a project are generally above the opportunity cost. Hence, these wages should not be regarded as the economic value of the unskilled labors. The Conversion Factor for Unskilled Labor (CFUL) is obtained by the following formula:

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

$$= \frac{\text{Provincial Minimum Wage} \times CFC}{\text{Assumed wage rate of unskilled labor}}$$

where, *CFC* : Conversion Factor for Consumption =1.00

In this Study, 0.81 is adopted as the Conversion Factor for Unskilled Labor (CFUL) as shown in Table 6.1-4.

Table 6.1-4 Minimum Wage in DKI and Conversion Factor for Unskilled Labor (CFUL)

Year	2008	2009	2010	Assumed Wage Rate of Unskilled Labor	CFUL
	(IDR/Month)				
Minimum Wage (IDR/Month)	972,604	1,069,865	1,118,009	1,380,000	0.81

Source: JICA Study Team, Wage Rates based on the JAKARTA POST

(3) Conversion to Economic Cost

In the economic feasibility analysis, all costs are assumed to be divided into the following four items: transfer items, traded goods and services, non-traded goods and services and labour. The market price of each item except the transfer items is changed to each economic price by each conversion factor corresponding with each item.

First is the transfer item. Import / export duties, other taxes and subsidies are merely transfer items which do not actually reflect any consumption of national resources. Therefore, these transfer items should be excluded in the calculation of the costs of the project for the economic feasibility analysis.

Next, traded goods are expressed at the price of cost, insurance and freight (CIF) for imports and at the price of free on board (FOB) for exports, which are border prices or economic prices themselves. The price of traded services is decided by the international market mechanism functioning properly, which is also expressed in border prices or economic prices.

“Traded goods” are defined as follows: those commodities which are imported or exported, or which would be imported or exported directly or indirectly as a result of a project under consideration being implemented (by Colin M.F. Bruce).

The economic price of the non-traded goods and services are calculated by multiplying the Standard Conversion Factor (SCF). By using the SCF, a difference between the domestic market price and international market price caused by customs duties and/or import/export subsidies can be avoided.

“Non-Traded goods” are defined as follows: those commodities and factors of production which are neither imported nor exported, or which would be neither imported nor exported directly or indirectly as a result of a project under consideration being implemented (by Colin M.F. Bruce).

The CFC is used for converting the price of consumer goods from domestic market price to border price or economic price.

The values of labour are further divided into values of skilled labour and values of unskilled labour. As the market mechanism of skilled labour is assumed to function properly, opportunity cost and market price is equal. The economic price of skilled labour is obtained by multiplying its domestic market price by the Conversion Factor for Consumption (CFC).

The market mechanism of unskilled labour does not function properly. Then, the opportunity costs and the market costs of unskilled labour must be estimated. In this study, unskilled labour is the port construction worker or cargo handling worker. The conversion factor of unskilled labour can be calculated by the market labour wage of the construction sector divided by the provincial minimum wages multiplied by the CFC.

“Opportunity Cost” is defined as follows: the marginal value of a resource, product, factor of production (land, labour, capital, management) or foreign exchange in its next best alternative use (by Colin M.F. Bruce).

6.1.4 Prerequisites for Calculating the Present Value

(1) Base Year

The “Base Year” here means the standard year in the estimation of costs and benefits, and usually it agrees with the year when the project starts. In this study, 2015 is set as the “Base Year”.

(2) Component of the Development Option in the Analysis

Main objective of this project evaluation study is to evaluate preference of the development options for new international container terminals among candidate sites. Therefore, each of the development options is assumed to accommodate the same volume of international containers, i.e., 7.5 million TEUs at new terminals in 2030, in order to maintain fairness of the evaluation.

Port access road is an important and indivisible component of the development options, and construction cost of the access road is included in the construction cost of each development option.

(3) Project Life

The period of calculation (project life) in this project evaluation is assumed to be 31 years (from 2015 to 2045) for the Master Plan, taking into consideration the depreciation period of the main facilities.

(4) Foreign Exchange Rate

The exchange rates adopted for this analysis are US\$ 1.00 = Rupiah 9,000 and JP¥1.0 = Rupiah 110, the same rates as used in the cost estimation.

6.1.5 Cost Components

(1) Construction Costs of the Terminals and Access Road

Construction costs basically consist of costs for breakwaters and seawalls, channel and basin, container terminals (quay wall, yard pavement, and terminal buildings), cargo handling equipment, security and utility, and the project related indirect costs. The cost for the port access road is also one of the important cost components of the project. The construction cost is firstly estimated by market price. After transfer items are removed, the costs expressed by market price are converted into economic pricing using conversion factors. Conversion factor of this category is set at 0.96 taking the cost component into consideration.

(2) Maintenance and Operation Costs of the Terminals and Access Road

1) Maintenance costs

The annual costs for maintaining the port facilities are estimated as a fixed rate of the initial investment, specifically 0.2% for port infrastructure (breakwaters, seawalls, quay walls, yard pavement, and buildings) and 5% of the original construction costs of the port access road. Annual maintenance costs for cargo handling equipment are estimated at 1% of their initial procurement cost. It is expected that maintenance dredging will be required every five years but its volume will be minimal. Conversion factor of this category is set at 0.95 taking the cost component into consideration.

2) Personnel and operation costs

Personnel costs for management and operation of the terminals are estimated based on information obtained through interviews with port management bodies and terminal operators. Utility costs including electricity are estimated at 2% of the initial equipment procurement costs. It is assumed that 50 % of the total work force is skilled labour and the rest is unskilled. Conversion factor of this category is set at 0.91 taking the composition of the work force into consideration.

3) Replacement Cost

Cargo handling equipment will be replaced after its life time is passed. Life time of the equipment is set individually by type of equipment: 25 years for quay cranes and 4 years for yard vehicles, and so on. Conversion factor of this category is set at 0.97 taking the cost component into consideration.

(3) Land Transportation Cost

1) Throughput and daily truck traffic

New terminals of each development option accommodate international containers of 1.4 million TEUs in 2020, 4 million TEUs in 2025, and 7.5 million TEUs in 2030. Daily traffic volume to/from new port terminals has also been estimated based on the allocated container throughputs. Daily traffic to/from the new terminals will reach 12,000 trucks per day in 2030. Details of container throughput and truck traffic for selected years are shown in Table 6.1-5.

Regional share of truck volume (vehicle/day) for 2030 has been estimated considering regional socio-economic indicators such as GRDP, regional population, consumption level, and results of OD traffic surveys conducted in 2002 and 2010. Resultant regional distribution of truck traffic is summarized in Table 6.1-6.

Table 6.1-5 Container Throughput and Daily Traffic at New Terminal

Year	2019	2020	2023	2025	2027	2030
International Container (thousand TEU)	1,000	1,400	2,900	4,000	5,400	7,500
Traffic from/to Terminal (trucks per day)	1,591	2,225	4,653	6,384	8,621	11,978

Source: JICA Study Team

Table 6.1-6 Estimated Regional Shares of Port Related Truck Traffic

	Banten	DKI	NE of W. Java	SW of W. Java
Consumer goods	20.3%	36.8%	34.3%	8.5%
Cargoes related to manufacturing industries	8.8%	17.3%	62.1%	11.8%

Source: JICA Study Team

2) Land transportation cost between terminals and factories/warehouses

People in the greater Jakarta metropolitan area have suffered from heavy traffic congestion. Road development has not been able to catch up with the ever-increasing traffic demand. Consequently, traffic congestion can be observed at all times throughout the capital region.

JICA study team conducted interview surveys with selected manufacturing companies in DKI, West Java province and Banten province. Regarding the traffic situation, following opinions are obtained; “Sometimes 5~7 hours are needed for transport between Tg. Priok Terminal and factory at Cibitung”, “Tg. Priok Terminal~Tangerang factory is 30 km, but only 1 round trip a day”, “Average 10~20 km/hour, taking 6 hours to get to the Tg Priok Terminal from Bekasi when congested.”

Development of the new container terminal will affect the traffic conditions in the Jakarta metropolitan area significantly, and trucking costs between the new container terminals and the factories/warehouses vary significantly among the development options due to differences of road distance and traffic speed.

Land transportation costs for every option between the new terminal and shippers/consigners are estimated taking trucking distance and congestion level into consideration. In this estimation, it is assumed that the 2nd JORR road networks have been constructed and in operation. Port access road which is proposed in each development option is operational too. Land transportation costs are estimated in economic price.

(4) Cost components in the Cost Minimization and EIRR analyses

In the Cost Minimization analysis, “Construction costs of terminals and access roads” and “Land transportation cost” are summed up as the cost of each development option while “Maintenance and operation costs” are also included as a part of cost components of the project in the EIRR analysis.

The reason for this is that Cost Minimization analysis aims to compare the options and select the one with the lowest cost, therefore cost components which are almost even among the options can be excluded for the efficiency of the analysis perspective. On the other hand, in the EIRR method, the total costs are compared to the total benefits of the project, therefore operation and maintenance costs generated throughout the project life are estimated and included into the total costs.

6.1.6 Best Option Selected By Cost Minimization Analysis

Present Value of combined construction cost and transportation cost of each development option is summarized in Table 6.1-9 in economic pricing. In expressing the Index of the Present Value, Option 1 is 125.0 and Option 3 is 129.9 while Option 2 serves as the base (=100). As having the minimum cost, Option 2 is the best choice from the economic view point, based on the cost minimization approach.

Table 6.1-7 Present Value of Construction Cost of Each Development Option

(Unit: Million Rupiah)

	Option 1 (Kalibaru)		Option 2 (Cilamaya)		Option 3 (Kali.+Tangerang)	
	Economic Construction Cost	PV in 2015	Economic Construction Cost	PV in 2015	Economic Construction Cost	PV in 2015
2013						
2014						
2015	127,834	127,834	217,166	217,166	127,834	127,834
2016	693,556	603,092	2,170,246	1,887,170	693,556	603,092
2017	2,235,482	1,690,346	4,822,155	3,646,242	2,235,482	1,690,346
2018	3,242,351	2,131,898	5,304,918	3,488,070	3,242,351	2,131,898
2019	3,016,670	1,724,791	1,012,059	578,648	3,016,670	1,724,791
2020	634,373	315,396	230,490	114,594	663,058	329,657
2021	4,100,761	1,772,872	150,589	65,104	5,328,548	2,303,678
2022	7,570,574	2,846,059	3,134,428	1,178,348	9,191,074	3,455,265
2023	7,559,365	2,471,170	4,530,881	1,481,153	9,819,787	3,210,106
2024	4,317,645	1,227,344	2,791,201	793,434	3,334,181	947,782
2025	1,924,407	475,684	367,060	90,732	346,346	85,612
2026	184,242	39,602	225,883	48,552	0	0
2027						
2028						
PV		15,426,087		13,589,213		16,610,061
Index		113.5		100.0		122.2

Note; Economic Pricing, and Social Discount Rate is set at 15%.

NPV indicates the discounted value to the base year of 2015.

(Source: JICA Study Team)

Table 6.1-8 Present Value of Trucking Cost of Each Development Option

(Unit: Million Rupiah)

	Trucking Cost (Rp. Million/Day)			Discounted Annual Trucking Cost (Rp. Million)		
	Option 1	Option 2	Option 3	Option 1	Option 2	Option 3
2011	0	0	0	0	0	0
2012	0	0	0	0	0	0
2013	0	0	0	0	0	0
2014	0	0	0	0	0	0
2015	0	0	0	0	0	0
2016	0	0	0	0	0	0
2017	0	0	0	0	0	0
2018	0	0	0	0	0	0
2019	1,802	1,223	1,802	361,684	245,364	361,684
2020	2,520	1,709	2,520	439,685	298,279	439,685
2021	3,432	2,328	3,432	520,787	353,298	520,787
2022	4,350	2,951	4,350	573,871	389,310	573,871
2023	5,271	3,576	5,271	604,693	410,219	604,693
2024	6,195	4,203	6,158	618,038	419,272	614,346
2025	7,231	4,905	7,163	627,294	425,552	621,369
2026	8,498	5,765	8,370	641,038	434,875	631,376
2027	9,765	6,624	9,577	640,539	434,537	628,214
2028	11,032	7,484	10,784	629,274	426,895	615,145
2029	12,299	8,344	11,992	610,058	413,859	594,804
2030	13,567	9,204	13,199	585,154	396,964	569,309
2031	13,567	9,204	13,199	508,830	345,186	495,052
2032	13,567	9,204	13,199	442,461	300,162	430,480
2033	13,567	9,204	13,199	384,749	261,010	374,330
2034	13,567	9,204	13,199	334,564	226,966	325,505
2035	13,567	9,204	13,199	290,925	197,361	283,047
2036	13,567	9,204	13,199	252,978	171,619	246,128
2037	13,567	9,204	13,199	219,981	149,234	214,025
2038	13,567	9,204	13,199	191,288	129,768	186,108
2039	13,567	9,204	13,199	166,337	112,842	161,833
2040	13,567	9,204	13,199	144,641	98,123	140,725
2041	13,567	9,204	13,199	125,775	85,325	122,369
2042	13,567	9,204	13,199	109,370	74,195	106,408
2043	13,567	9,204	13,199	95,104	64,518	92,529
2044	13,567	9,204	13,199	82,699	56,102	80,460
2045	13,567	9,204	13,199	71,912	48,785	69,965
PV=				10,273,732	6,969,620	10,104,247
Index				147.4	100.0	145.0

Notes: 30th daily traffic ratio is equal to 1.04

Social Discount Rate is set at 15% per year, and base year is 2015.

US\$1 = 9,000 Rupiah

Source: JICA Study Team

Table 6.1-9 Present Value of Construction and Trucking Costs of Each Development Option

(Unit: Million Rupiah)

	Option 1			Option 2			Option 3		
	Construction Cost	Trucking Cost	Discounted Cost in 2015	Construction Cost	Trucking Cost	Discounted Cost in 2015	Construction Cost	Trucking Cost	Discounted Cost in 2015
2011	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0
2015	127,834	0	127,834	217,166	0	217,166	127,834	0	127,834
2016	693,556	0	603,092	2,170,246	0	1,887,170	693,556	0	603,092
2017	2,235,482	0	1,690,346	4,822,155	0	3,646,242	2,235,482	0	1,690,346
2018	3,242,351	0	2,131,898	5,304,918	0	3,488,070	3,242,351	0	2,131,898
2019	3,016,670	632,588	2,086,475	1,012,059	429,143	824,012	3,016,670	632,588	2,086,475
2020	634,373	884,364	755,081	230,490	599,946	412,873	663,058	884,364	769,342
2021	4,100,761	1,204,612	2,293,659	150,589	817,200	418,402	5,328,548	1,204,612	2,824,465
2022	7,570,574	1,526,508	3,419,930	3,134,428	1,035,571	1,567,657	9,191,074	1,526,508	4,029,136
2023	7,559,365	1,849,771	3,075,863	4,530,881	1,254,870	1,891,372	9,819,787	1,849,771	3,814,799
2024	4,317,645	2,174,180	1,845,382	2,791,201	1,474,947	1,212,705	3,334,181	2,161,193	1,562,128
2025	1,924,407	2,537,755	1,102,978	367,060	1,721,594	516,283	346,346	2,513,784	706,980
2026	184,242	2,982,361	680,640	225,883	2,023,211	483,427	0	2,937,407	631,376
2027	0	3,427,044	640,539	0	2,324,880	434,537	0	3,361,102	628,214
2028	0	3,871,792	629,274	0	2,626,593	426,895	0	3,784,857	615,145
2029	0	4,316,592	610,058	0	2,928,343	413,859	0	4,208,660	594,804
2030	0	4,761,438	585,154	0	3,230,122	396,964	0	4,632,506	569,309
2031	0	4,761,438	508,830	0	3,230,122	345,186	0	4,632,506	495,052
2032	0	4,761,438	442,461	0	3,230,122	300,162	0	4,632,506	430,480
2033	0	4,761,438	384,749	0	3,230,122	261,010	0	4,632,506	374,330
2034	0	4,761,438	334,564	0	3,230,122	226,966	0	4,632,506	325,505
2035	0	4,761,438	290,925	0	3,230,122	197,361	0	4,632,506	283,047
2036	0	4,761,438	252,978	0	3,230,122	171,619	0	4,632,506	246,128
2037	0	4,761,438	219,981	0	3,230,122	149,234	0	4,632,506	214,025
2038	0	4,761,438	191,288	0	3,230,122	129,768	0	4,632,506	186,108
2039	0	4,761,438	166,337	0	3,230,122	112,842	0	4,632,506	161,833
2040	0	4,761,438	144,641	0	3,230,122	98,123	0	4,632,506	140,725
2041	0	4,761,438	125,775	0	3,230,122	85,325	0	4,632,506	122,369
2042	0	4,761,438	109,370	0	3,230,122	74,195	0	4,632,506	106,408
2043	0	4,761,438	95,104	0	3,230,122	64,518	0	4,632,506	92,529
2044	0	4,761,438	82,699	0	3,230,122	56,102	0	4,632,506	80,460
2045	0	4,761,438	71,912	0	3,230,122	48,785	0	4,632,506	69,965
PV			25,699,819			20,558,833			26,714,309
Index			125.0			100.0			129.9

Notes: 30th daily traffic ratio is equal to 1.04

Social Discount Rate is set at 15% per year, and discounted back to the base year 2015.

US\$1 = 9,000 Rupiah

(Source: JICA Study Team)

6.1.7 Economic Internal Rate of Return (EIRR) Analysis

(1) General

In the previous section of this Report, Option 2 (Cilamaya Terminal) is selected as the best option from the economic point of view, based on the Cost Minimization approach. Unfortunately, however, this method does not guarantee that the project is economically viable, i.e., whether this project earns more than the project cost is unknown.

JICA Study Team is going to the second step and applies the EIRR method to evaluate the profitability of the Option 2. The Internal Rate of Return (EIRR) is the rate of discount which equates the present value of the annual stream of benefits to the supply price of the project (or the present value of annual stream of costs). The profitability of a project is measured through the discounted cash flow method.

(2) Cost Items

In the EIRR analysis of Option 2, following items are counted as the cost components of the project:

- i) Construction cost of port facilities and access road
- ii) Management and operation cost
- iii) Maintenance cost
- iv) Replacement cost of cargo handling equipment

Methodologies for calculating each cost item and converting them into the economic pricing have been shown in Sections 6.1.3 through 6.1.5 of this Report.

(3) Benefit Item

1) Value added

Value added of exporting commodities which will be handled at the Cilamaya Container Terminal is counted as the benefit of the project. In the “Without” case, it is assumed that no port infrastructure development projects are implemented in the Greater Jakarta Metropolitan area, and Indonesian economy will lose this amount of economic benefits, or value added. In the EIRR method, economic benefit of the project is measured by the difference between benefit of the “With” case and that of the “Without” case.

Although both export commodities and import commodities contribute to generate value added in Indonesia, only value added generated from export commodities is counted in this EIRR analysis from the view point of simplifying the calculation of economic benefits. This assumption will result in smaller benefits than can actually be expected and thus can be viewed as a conservative estimate.

2) Average Value of Laden Export Containers

According to the source based on Indonesian Customs statistics, unit value of exported commodities through the Tanjung Priok Terminal is US\$2,431 per ton in 2009. As it is known that one laden container (TEU) holds 10.51 tons of cargo on average, it can be reasonably estimated that cargo with 10.51 tonnages will have commodity value of more than US\$25,547 on average.

On the other hand, according to the survey results implemented by the Bureau of Ports and Harbours, Ministry of Land, Infrastructure, and Transport of Japanese government during a 30 day period, commodity value of one laden TEU imported from Indonesia was ¥3,283,000 on average.

Based on the two independent data sources explained above, JICA Study Team set the value at US\$30,000/Laden Export TEU for this economic analysis, as shown in Table 6.1-10.

Table 6.1-10 Unit Export Value of Laden TEU

(Unit: US\$/Laden TEU)

	Indonesian Source (*)	Japanese Source (**)	JICA Team Estimate
Export from Indonesia	25,547	36,478	30,000

Note (*); Statistical Yearbook of Indonesia 2009, Based on customs declaration documents. Not only containers but other types of cargo are included.

Note (**); Survey Results of Export and Import Container Movement in Japan , Ministry for Land, Infrastructure and Transport of Japan, March 2008. Compiled by JICA Study Team

(Source: JICA Study Team)

3) Percentage of Operating Income to Total Sales

JICA Study Team assumes that percentage of operating income to the total sales of firms is equivalent to a percentage of the portion of value added to the declared value of exporting commodities in containers.

JICA Study Team has collected and analysed information and data on percentage of operating income to the total sale of individual firms and manufacturers including Indonesian companies which the JICA Study Team interviewed in 2010.

Percentage of operating income of individual firm varies widely from a few percentages up to 20 percent. Average percentage of the operating income of the about 30 samples is in the vicinity of 7 percent, which is adopted to estimate the value added in this economic analysis.

Detailed methodologies and data to estimate Value Added for the EIRR analysis are explained in Chapter 9.3.5.

(4) Calculation of the EIRR

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

It is calculated by using the following formula.

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

where, n : Period of economic calculation (project life = 35 years)

Bi : Benefits in i -th year

Ci : Costs in i -th year

r : Discount rate

Resultant EIRR of the Cilamaya Terminal Development Project is calculated at 46.2% as shown in Table 6.1-11.

The EIRR of the project is compared with the opportunity cost of capital in the project country, and if the former is higher than the latter, then it can be said that the project is economically feasible. The resultant EIRR (46.2%) is much higher than the opportunity cost in Indonesia.

(5) Sensitivity Analysis

In order to see whether the project is still feasible when some conditions change, a sensitivity analysis is made with the following assumption.

Assumption 1:	Costs increase by 10%
Assumption 2:	Benefits decrease by 10%
Assumption 3:	Both the costs increase by 10% and the benefits decrease by 10%

Even under the worst scenario, EIRR is 41.2% (see Table 6.1-12), which is much higher than the opportunity cost in Indonesia. This means that the planned project is economically feasible.

Table 6.1-11 EIRR of Cilamaya Terminal Development Project

(Unit: Rp. Billion)

	Project Cost					Benefit	Net Project Benefit
	Construction Cost	Manag't & Oper'n Cost	Maintenance Cost	Replacement Cost	Sub Total	Value Added	
2012	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2013	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2014	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2015	217.2	0.0	0.0	0.0	217.2	0.0	(217.2)
2016	2,170.2	0.0	0.0	0.0	2,170.2	0.0	(2,170.2)
2017	4,822.2	0.0	0.0	0.0	4,822.2	0.0	(4,822.2)
2018	5,304.9	0.0	0.0	0.0	5,304.9	0.0	(5,304.9)
2019	1,012.1	123.5	0.0	0.0	1,135.6	666.4	(469.2)
2020	230.5	123.5	127.5	0.0	481.5	7,806.6	7,325.1
2021	150.6	123.5	127.5	0.0	401.6	10,644.4	10,242.9
2022	3,134.4	123.5	127.5	0.0	3,385.4	13,389.6	10,004.2
2023	4,530.9	123.5	127.5	9.6	4,791.5	16,043.5	11,252.0
2024	2,791.2	282.7	127.5	11.5	3,213.0	18,607.7	15,394.8
2025	367.1	282.7	183.2	0.0	833.0	21,084.1	20,251.2
2026	225.9	282.7	180.2	0.0	688.9	24,395.5	23,706.6
2027	0.0	282.7	180.2	157.2	620.2	27,593.2	26,972.9
2028	0.0	282.7	180.2	9.6	472.6	30,685.1	30,212.5
2029	0.0	282.7	180.2	44.4	507.4	33,664.0	33,156.6
2030	0.0	282.7	183.2	0.0	465.9	36,538.1	36,072.2
2031	0.0	282.7	180.2	9.6	472.6	36,753.7	36,281.1
2032	0.0	282.7	180.2	194.8	657.8	36,753.7	36,095.9
2033	0.0	282.7	180.2	0.0	463.0	36,753.7	36,290.7
2034	0.0	282.7	180.2	1,034.4	1,497.4	36,753.7	35,256.3
2035	0.0	282.7	183.2	157.2	623.2	36,753.7	36,130.5
2036	0.0	282.7	180.2	9.6	472.6	36,753.7	36,281.1
2037	0.0	282.7	180.2	0.0	463.0	36,753.7	36,290.7
2038	0.0	282.7	180.2	0.0	463.0	36,753.7	36,290.7
2039	0.0	282.7	180.2	1,288.6	1,751.6	36,753.7	35,002.1
2040	0.0	282.7	183.2	194.8	660.7	36,753.7	36,093.0
2041	0.0	282.7	180.2	0.0	463.0	36,753.7	36,290.7
2042	0.0	282.7	180.2	0.0	463.0	36,753.7	36,290.7
2043	0.0	282.7	180.2	157.2	620.2	36,753.7	36,133.5
2044	0.0	282.7	180.2	2,361.6	2,824.6	36,753.7	33,929.1
2045	0.0	282.7	183.2	0.0	465.9	36,753.7	36,287.8
Source: JICA Study Team						IRR =	46.2%

Table 6.1-12 Sensitivity Analysis of Cilamaya Container Terminal Development Project

(Unit: Rp. Billion)

	Cost 10% Up			Benefit 10% Down			Cost 10% Up, Benefit 10% Down		
	Cost Sub Total	Benefit Sub Total	Net Project Benefit	Cost Sub Total	Benefit Sub Total	Net Project Benefit	Cost Sub Total	Benefit Sub Total	Net Project Benefit
2012	0.0	0.0	0.0	0.0	0	0.0	0.0	0	0.0
2013	0.0	0.0	0.0	0.0	0	0.0	0.0	0	0.0
2014	0.0	0.0	0.0	0.0	0	0.0	0.0	0	0.0
2015	238.9	0.0	(238.9)	217.2	0	(217.2)	238.9	0	-238.9
2016	2387.3	0.0	(2,387.3)	2,170.2	0	(2,170.2)	2387.3	0	-2,387.3
2017	5304.4	0.0	(5,304.4)	4,822.2	0	(4,822.2)	5304.4	0	-5,304.4
2018	5835.4	0.0	(5,835.4)	5,304.9	0	(5,304.9)	5835.4	0	-5,835.4
2019	1249.1	666.4	(582.7)	1,135.6	600	(535.8)	1249.1	600	-649.4
2020	529.6	7,806.6	7,277.0	481.5	7,026	6,544.5	529.6	7,026	6,496.3
2021	441.7	10,644.4	10,202.7	401.6	9,580	9,178.4	441.7	9,580	9,138.3
2022	3724.0	13,389.6	9,665.6	3,385.4	12,051	8,665.2	3724.0	12,051	8,326.7
2023	5270.6	16,043.5	10,772.8	4,791.5	14,439	9,647.6	5270.6	14,439	9,168.5
2024	3534.2	18,607.7	15,073.5	3,213.0	16,747	13,534.0	3534.2	16,747	13,212.7
2025	916.3	21,084.1	20,167.9	833.0	18,976	18,142.7	916.3	18,976	18,059.5
2026	757.7	24,395.5	23,637.7	688.9	21,956	21,267.1	757.7	21,956	21,198.2
2027	682.2	27,593.2	26,910.9	620.2	24,834	24,213.6	682.2	24,834	24,151.6
2028	519.9	30,685.1	30,165.2	472.6	27,617	27,144.0	519.9	27,617	27,096.7
2029	558.1	33,664.0	33,105.9	507.4	30,298	29,790.2	558.1	30,298	29,739.5
2030	512.5	36,538.1	36,025.6	465.9	32,884	32,418.4	512.5	32,884	32,371.8
2031	519.9	36,753.7	36,233.9	472.6	33,078	32,605.7	519.9	33,078	32,558.5
2032	723.5	36,753.7	36,030.2	657.8	33,078	32,420.6	723.5	33,078	32,354.8
2033	509.3	36,753.7	36,244.4	463.0	33,078	32,615.4	509.3	33,078	32,569.1
2034	1647.1	36,753.7	35,106.6	1,497.4	33,078	31,581.0	1647.1	33,078	31,431.2
2035	685.5	36,753.7	36,068.2	623.2	33,078	32,455.2	685.5	33,078	32,392.8
2036	519.9	36,753.7	36,233.9	472.6	33,078	32,605.7	519.9	33,078	32,558.5
2037	509.3	36,753.7	36,244.4	463.0	33,078	32,615.4	509.3	33,078	32,569.1
2038	509.3	36,753.7	36,244.4	463.0	33,078	32,615.4	509.3	33,078	32,569.1
2039	1926.8	36,753.7	34,826.9	1,751.6	33,078	31,326.7	1926.8	33,078	31,151.5
2040	726.8	36,753.7	36,026.9	660.7	33,078	32,417.6	726.8	33,078	32,351.6
2041	509.3	36,753.7	36,244.4	463.0	33,078	32,615.4	509.3	33,078	32,569.1
2042	509.3	36,753.7	36,244.4	463.0	33,078	32,615.4	509.3	33,078	32,569.1
2043	682.2	36,753.7	36,071.5	620.2	33,078	32,458.1	682.2	33,078	32,396.1
2044	3107.0	36,753.7	33,646.7	2,824.6	33,078	30,253.7	3107.0	33,078	29,971.3
2045	512.5	36,753.7	36,241.2	465.9	33,078	32,612.4	512.5	33,078	32,565.8
		IRR =	43.8%		IRR =	43.5%		IRR =	41.2%

(Source: JICA Study Team)

6.2 PPP Scheme for Port Development and Management System including Finance Resources

6.2.1 PPP (Public and Private Partnership) Alternatives

There are several PPP options when considering a terminal operation scheme, namely 1) Management Contract, 2) Lease and Rent, 3) Concession, 4) Joint Operation and 5) Joint Venture. Each option has its own advantages and disadvantages.

Management contract is to entrust some part of activities and/or management of assets for a certain period of time to the private entity aiming at improvement of productivity and effectiveness of management by introducing know-how and skills of the private entity.

In the lease and rent scheme, private operator leases the immovable assets from the public sector and installs the equipment to operate the terminal together with maintenance of leased facilities paying a lease fee to the public sector.

In the concession, public sector transfers its right and obligations to build, manage, operate and maintain the terminal for a long-term period (15-30 years). Public sector retains ownership of the facilities and gets part of the revenue from terminal operation as the concession fee. This type of privatization entrusts the private sector with greater rights and obligations and aims at more effective management of the terminal.

In joint operation, public sector and private sector both provide equity and jointly manage and operate the terminal for a certain period of time. Revenue from operation is shared in proportion to the amount of equity provided. This type of privatization is often used for large-scale port development projects.

In the joint venture, public sector and private sector jointly invest in the local enterprise to manage and operate a terminal. Usually there are 2 types of JV, newly established joint venture company and affiliate company of state own enterprise.

6.2.2 Review of Policies and Regulatory Framework of PPP

(1) Principal Regulations

Basic guideline on public-private partnership (PPP) projects in Indonesia in infrastructure provision is stipulated in Presidential Regulation No. 67, Year 2005. Substance of the regulation is as follows;

- PPP should be established in accordance with fairness, transparency and competitive circumstance beneficial to both public and private parties.
- Value and/or feasibility of PPP projects should be evaluated by the government in an appropriate manner prior to recruiting the projects.
- Risks should be borne by a party who can manage the risks more skilfully with less cost than other. Risk sharing scheme should be determined after a mutual agreement has been reached.
- Government support should be limited to projects socially desirable but fiscally non-feasible.
- PPP partners should be selected through competitive bidding.
- PPP projects can be proposed by private entities; however, the project tendering should be conducted under a competitive circumstance when the project is approved by the government.
- Price on PPP projects should be set based on repayment amount of capital cost for the project as well as legitimate profit of the investment.
- PPP projects should be executed by concession contract or by granting business right.

Basic regulatory framework on PPP in Indonesia is set forth in the Presidential Regulations and Ministerial Regulations shown in the table below.

Table 6.2-1 PPP Framework

	Regulations	Contents
1	Presidential Regulation No.42, year 2005	Regulation concerning establishment of KKPPI for accelerating infrastructure provision.
2	Presidential Regulation of the Republic of Indonesia No.67, year 2005	Regulation concerning PPP utilization in infrastructure provision, a principle regulation for driving PPP projects in the country.
3	Presidential Regulation No.36, year 2005	Regulation concerning procedures on acquisition of site for implementation of PPP projects.
4	Presidential Regulation No.65, year 2006	Revised edition of the regulation No.36/'05 concerning the acquisition of site.
5	Ministry of Finance Regulation No.38/PMK.01/2006	Regulation concerning government support and compensation on PPP implementation stipulated by Ministry of Finance.
6	Coordinating Ministry of Economic Affairs (CMEA) Decree as Head of the National Committee for the acceleration of infrastructure provision No. KEP-01/M. Econ/05/2006	Regulation concerning organization and procedures of KKPPI, a core organization for the acceleration of infrastructure provision in Indonesia, stipulated by CMEA.
7	Coordinating Ministry of Economic Affairs (CMEA) Regulation as Head of the National Committee for The Acceleration of Infrastructure Provision No. PER-03/M. Econ/06/2006	Regulation concerning listing and ranking priorities of PPP projects in Indonesia, stipulated by CMEA.
8	Coordinating Ministry of Economic Affairs (CMEA) Regulation as Head of the National Committee for The Acceleration of Infrastructure Provision No. PER-04/M. Econ/06/2006	Regulation concerning evaluation procedures of PPP application for providing government support applied based on Ministry of Finance Regulation No.38/PMK.01/2006.
9	Presidential Regulation No.13, Year 2010	Amendment to the Presidential Regulation, No.67 of 2005 regarding the Cooperation of Government and Business Entity in the Provision of Infrastructure.
10	National Development Planning Agency Regulation No.4, 2010	General Guidance for the Performance of PPP in the Provision of Infrastructures

Source: Amended by JICA Study Team based on the report of the Study on the New Public Private Partnership Strategy for the Port Development and Management in the Republic of Indonesia, 2009, JICA

(2) Port

1) PPP Projects in Port Sector

In the port sector, a variety of PPP schemes have been implemented. One way is to lease the facilities to the private stevedoring companies for a short period of time (5 years) for the operation of conventional terminals; a second type is to concede the international container terminal to the joint venture company between IPC and foreign terminal operator (partial concession); a third type is to operate the international container terminal under a joint operation contract with foreign terminal operator, while another type is total (Master) concession as in Bojonegara port.

Another type of operation is conducted by an affiliate company whose share is 100% owned by IPC for inter-island container terminal in Tg. Priok port. Concession of development, management and operation of international container terminal have been implemented in JICT terminal and Tg. Perak terminal between IPC and Joint Venture Company of IPC and foreign operators. Joint

operation by IPC and foreign operator is conducted in KOJA terminal in Tg. Priok port. The outline of existing PPP schemes is as follows;

- Partial Concession to Joint Venture Company (JICT and Tg. Perak) -

Jakarta International Container Terminal (JICT), formerly known as Terminal Peti Kemas I (TPK I) and Terminal Peti Kemas II (TPK II), used to be operated by IPC2. However, the terminal is now operated by PT JICT, a joint venture company between IPC2 (shares 49% in its equity by in-kind facilities) and Hutchison Port Holdings (HPH; shares 51% in its equity) by a concession scheme following the economic crisis in April 1999. In order to receive funds from the IMF, the Government of Indonesia had to comply with the IMF's requirement to privatize its operation.

The concession agreement was made between the parties without implementing either an open tender or receiving any business plans but a contractual proposal from HPH and hence some unilateral agreement terms and conditions can be found in the agreement. Expected performance of the terminal is usually included in the business plan proposed at the time of tendering by the potential concessionaire and agreed performance target is stipulated in the concession agreement. As the performance target, crane productivity – crane move per hour – is often quoted in the agreement, but total productivity of the terminal depends on other factors as well.

Terminal productivity is influenced by yard productivity, berth productivity (berth occupancy rate) and crane productivity. When yard space and layout and equipment are prepared properly according to the type of container and number of boxes to be loaded/unloaded per vessel, crane productivity is usually a decisive factor of terminal productivity, but in many cases low crane productivity is caused by defective yard planning and characteristics of containers handled. Terminal productivity becomes lower if the berth occupancy rate is low even if crane productivity is high. Hence, it is better to define the performance target by number of TEUs rather than by crane productivity.

Another issue concerns the concession fee. According to the agreement of JICT, 10% of gross revenue is paid to IPC2 as the royalty and 14.8% of the net profit of the company (JICT) after tax is paid to HPH as the head office management cost as well as technical know-how fee. It is difficult to analyze the proper level of concession fee without detailed data on the financial performance of JICT, but with the current volume handled and fairly high tariff applied at JICT, it is not necessary to make an additional payment to HPH.

Another issue concerns the monopolistic behaviour of JICT and KOJA, both of which are operated by IPC2 and HPH, and handled 2.7 million TEUs of international containers in 2008, equivalent to 86 % of all international containers handled at the port. Due to the absence of competition in the port, tariff rate for container handling at JICT/KOJA terminals is higher than neighbouring ports except Singapore. This monopolistic behaviour stems from another issue on concession system. IPC is playing the roles both of conceding authority and a partner of concessionaire JV Company and it is natural that IPC tends to pursue profit maximization rather than protect public interests.

- Joint Operation (KOJA) -

Koja Container Terminal (CT) was inaugurated in 1998 as a joint operation between IPC2 (it held a 52.12% share in its equity) and PT Ocean Terminal Petikemas (original name was HUMPAS T.P. and it held a 47.88% share in its equity) as a joint operation company; however, Hutchison Port Holdings (HPH) acquired PT Ocean Terminal Petikemas in 2000, therefore, Koja CT is a joint operation company between IPC2 and HPH today.

Joint operation agreement on KOJA container terminal seems to be somewhat irregular which might be caused by the lack of financial resources of IPC to develop a new container terminal. Royalty/concession fee was paid in advance by the presumed price factors and volumes to be handled at the terminal, including a 10% increase in the tariff every four years and expected land value. Most of the countable values are presumed without any evidence of appropriateness and it is very difficult to

evaluate the appropriateness of the operational performance even after the operation because of lack of clear definition of auditing method including accounting method of financial performance of both parties.

2) New Shipping Law

GOI promulgated a new shipping law in April 2008 which calls for port management to be conducted either by the Port Authority or Port Management Unit based on the concept of landlord port in which management is separated from operation. With this law, a framework for effective and efficient port development, management and operation through Public and Private Partnership can be established.

The new law dictates two major policies in the port sector, one is introduction of port management body, and the other is promotion of private sector participation in port development, management and operation. The objectives of introduction of new public-private partnership scheme to port development, management and operation can be said to be as follows:

- Increase operational efficiency
- Create a system to recover state investment and to raise state revenue
- Create conditions for more efficient and accountable entities in port management and operation
- Create a more transparent and competitive port concession scheme consistently applied throughout the country for financially sound and efficient port development , management and operation

(3) Roads

According to Law 38/2004 on Road, road provision is the responsibility of both the local and central government in Indonesia. Government of Indonesia (GOI) is responsible for inter-urban arterial and collector roads, while the provincial government is responsible for inter-regency collector and local roads, and regency government is responsible for intra-regency local roads.

Director General of Highways (DGH) under the Ministry of Public Works (MPW) is responsible for managing all national roads, including toll roads and limited access high grade highways. National roads are mostly in sound condition, but the overall network is in poor condition.

Road congestion has increased, especially in Java and urban centers, thus it is estimated that about 2,000 km of toll roads need to be constructed by 2010 or so to ease congestion; however, progress is slow due to lack of GOI budget for construction and rehabilitation of toll roads. There were 606.9 km of toll roads in operation in Jan 2005, and 458.6 km out of 606.9 km was operated solely by SOE Jasa Marga and the rest by private enterprises though some of them are jointly owned with Jasa Marga.

In December 2004, 6 toll road projects were tendered out in the first batch, and 35 consortia (20 foreign companies and 15 local companies) expressed interest in the pre-qualification (PQ). 18 consortia attended the pre-bid conference and conducted site visits. Under the 1st batch, 4 toll road projects elicited private investors, but there were no bids for the other two. In the second batch, 13 projects were tendered including the two that did not elicit any bids under batch-1 in late 2005. The PQ result was announced in early 2006, but only 4 projects in Jakarta Toll Road Network have a sufficient number of qualified bidders. Again there were no bids for Medan-Binjai (Sumatra) and Cileunyi-Sumedang (West Java) toll roads.

There was little interest from overseas investors for road provision PSP projects in Indonesia since the land for ROW (right of way) has not been acquired for any of the 13 toll roads tendered (projects in the 2nd batch). GOI considers this is a cross sector issue; thus policy, regulatory and institutional framework for land acquisition is being set up to improve marketability of the projects.

Another problem encountered was the biased nature of the concession agreement used, which investors regarded as not “bankable”, therefore a more bankable and investor friendly template concession agreement conforming to international standards needs to be developed.

(4) Railway

Railways are found only in Java and Sumatra in Indonesia. The total rail network in the country consists of 5,824 km, but only 4,337 km are in operation, mainly in Java Island. Major rail corridors in Java are Jakarta-Bandung, Jakarta-Semarang-Surabaya-Banyuwangi (known as the North Route), Bandung-Kroya-Yogyakarta-Surabaya (known as the South Route) with the connector route Cirebon-Purwokerto-Kroya. Most of the railway system in Indonesia is single-track, thus GOI intends to improve the capacity and quality of JABOTABEK rail network, which comprises nearly 266 km of double-track. Suburban and intercity trains use the Jabotabek network.

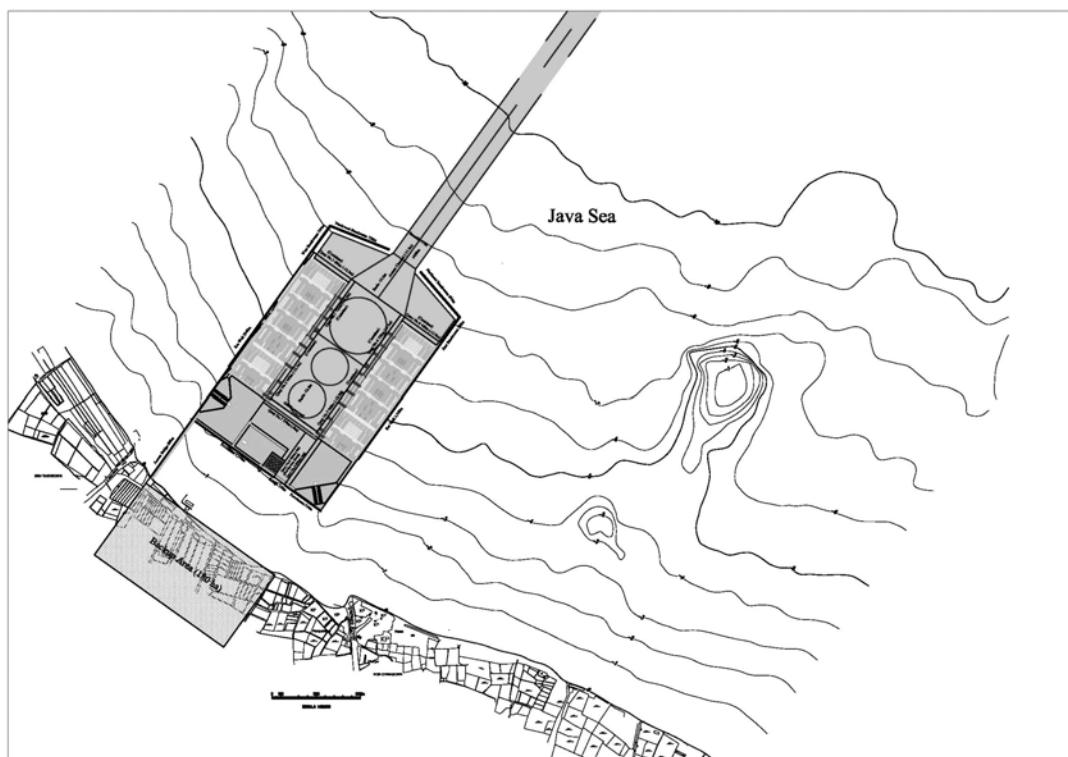
Rail transportation in Indonesia has declined during the last five years as only 29 % of the track is less than 10 years old while more than 25 % is older than 70 years. GOI recognizes that railway is the most energy efficient land transportation system available today requiring less land space.

There is no specific regulatory body existing in the railway sector. The regulatory role is shared between MOT and KAI (Indonesian Railway Corporation, one of SOEs); thus a functionally independent railway regulator needs to be established. The institutional arrangement in railway sector is far from ideal as KAI performs a triple role as operator, regulator and contracting agency.

The draft law allows the private sector to provide and operate both railway infrastructure and services. This will be a significant improvement to the regulatory framework. In IICE 2006, Manggarai-Soetta Railway Link, Development plan for coal transport in Sumatra and Kalimantan, Development plan Jakarta Mass Rapid Transit, Development plan for Double Track Project were proposed as the PPP model projects, but none of them have been implemented yet.

6.2.3 Projects to Be Examined

Chimalaya Container Terminal Development Plan (Master Plan Phase II and III) is examined.



Source: JICA Study Team

Figure 6.2-1 Phase II, II of Master Plan

Table 6.2-2 shows major characteristics of Phase II and III.

Table 6.2-2 Major Characteristics of Phase II and III of Master Plan

	Phase II, III
Terminal	Cilamaya
Quay Length	4,920 m
Capacity	7.5 million TEU
Estimated Cost*	2,876 million US\$ 25,884 billion IRP

*: Cost does not include expenditure for access road.

6.2.4 Preliminary Financial Analysis for Evaluation of PPP Scheme

As illustrated in the previous sections, PPP scheme has several variations. The most suitable one has to be selected taking the various conditions into consideration. Each option has its own principle of function and fund demarcation between port authority and private business entities. Financial Internal Rate of Return (FIRR) can provide fundamental information to evaluate the function and fund demarcation between port authority and private business entities. Accordingly, a preliminary financial analysis should be conducted.

Since FIRR can provide sufficient information to analyse the preferable PPP scheme, other statements and indexes including cash flow statement, profitability, operational efficiency and loan payment capacity, will not be analyzed.

Since FIRR in this section is calculated based on very simplified premises and figures, more precise and strict financial analysis should be conducted in a later stage.

(1) Method and Prerequisites

Financial analysis is conducted to examine the long-term project viability from the viewpoint of financial soundness of the port authority and private business entities. Prerequisites of calculation are as follows;

- Proposed master plan contains stage plans, namely phase I, II and III. Each phase has a project life of 30 years. In this analysis, it is assumed that Phase I, II and III are to be operational in 2014, 2019 and 2024/25 respectively.
- Container cargo demand, described in Chapter 4, is utilised in FIRR calculation.

(2) Expenditure

In this analysis, the following expenditure items are assumed;

1) Construction Expense including Port facilities, Dredging, Land Reclamation and Pavement

Cost estimation of construction works is illustrated in Chapter 5. Annual maintenance cost is assumed to be 1 % of accumulated construction cost.

In case of PPP project, this cost should be shared in accordance with the demarcated functions and roles between port authority and private business entities.

2) Expense for Container Handling Equipment and Operation System

Cost estimation of cargo handling machineries is illustrated in Chapter 5. Annual maintenance cost is assumed to be 4 % of accumulated procurement cost. Equipment and system are to be renewed every 15 years.

In case of PPP project, this cost is usually borne by private business entities.

3) Expense for Buildings including Offices, Maintenance Shops and Terminal Gates

Cost estimation of buildings is illustrated in Chapter 5. Annual maintenance cost is assumed to be 4 % of accumulated procurement cost. Buildings are to be renewed every 15 years.

In case of PPP project, this cost is usually borne by private business entities.

4) Expense for Other Facilities including Power Supply, Drainage and Security Facilities

Cost estimation of other facilities is illustrated in the Chapter 5. Annual maintenance cost is assumed to be 4 % of accumulated procurement cost. These facilities are to be renewed every 15 years.

In case of PPP project, this cost is usually borne by the port authority.

5) Operational Cost of Cargo Handling

In the final report of the previous study, The Study on The New Public Private Partnership Strategy for the Port Development and Management in the Republic on Indonesia, 2009, the Case Study on Development of Bojonegara Port shows an example of operational cost of container handling.

Planned container volume in Bojonegara Port is 900,000 TEU. Annual operational cost excluding maintenance cost of equipment and facilities, concession fee and depreciations is

US\$ 7,016,000 (24,172,000-4,019,000-588,000-3,218,000-9,331,000=7,016,000) This means that the average annual operational unit cost is approximately 7.8 US\$/TEU.

In case of PPP project, this cost is usually borne by private business entities.

6) Operational Cost of Port Management

In the final report of the previous study, The Study on The New Public Private Partnership Strategy for the Port Development and Management in the Republic on Indonesia, 2009, the Case Study on Development of Bojonegara Port shows an example of operational cost of port management.

Annual management cost excluding maintenance cost of equipment and facilities and depreciation is US\$ 394,000 US\$. This means that operational unit cost is approximately 0.44 US\$/TEU.

In case of PPP project, this cost is usually borne by the port authority.

7) Concession Fee for Port Business Entities

Concession fee is expenditure for private business entities. Private business entities pay this fee to port authority in case of concession contract. Concession fee is also revenue for port authority. In the financial analysis which calculates both FIRR of port authority and FIRR of private business entities, concession fee should be taken into account as expenditure for private business entities and revenue for port authority. In the financial analysis which calculates FIRR of whole project, concession fee gets balanced in the calculation.

Concession fee consists of fixed fee for recovery of necessary repayment amount for the investment in the port facilities by the port authority, land and water rent and variable fee in terms of revenue share.

8) Corporate Income Tax

Private business entities should pay corporate income tax depending on their annual incomes. Tax rate is 20 %. In the financial analysis which calculates both FIRR of port authority and FIRR of private business entities, corporate tax should be taken into account for private business entities.

(3) Revenue

1) Port Dues

Port due is basically revenue of port authority. Port dues consist of light due, harbour due, and wharfage for vessels. Among these items, wharfage for vessel is sometime revenue of private business entities; it depends on the contract between port authorities and port business entities. In the final report of the previous study, The Study on The New Public Private Partnership Strategy for the Port Development and Management in the Republic on Indonesia, 2009, the Case Study on Development of Bojonegara Port shows an example of annual revenue of port authority..

Annual revenue is US\$6,364,000. This means that annual unit revenue of port dues is approximately 7.1 US\$/TEU.

2) Cargo Handling Charges

Cargo handling charge is revenue of the terminal operator. Cargo handling charges consists of stevedoring, opening/closing ship hatch, lift on/off, cargo storage, reefer service,

mooring/unmooring and etc. Additional charges called Terminal Handling Charge (THC) is sometime also applied; it depends on a contract between the terminal operator and shipping companies.

In the final report of the previous study, The Study on The New Public Private Partnership Strategy for the Port Development and Management in the Republic on Indonesia, 2009, the Case Study on Development of Bojonegara Port shows an example of annual revenue of terminal operator.

Annual revenue is 61,588,000 US\$. ($64,363,000 - 2,775,000 = 61,588$) It means that annual unit revenue is approximately 68.4 US\$/TEU.

3) Concession Fee for Port Authority

Concession fee is revenue for port authority. Private business entities pay this fee to the port authority in case of concession contract. Concession fee is also expenditure for private business entities. In the financial analysis which calculates both FIRR of port authority and FIRR of private business entities, concession fee should be taken into account as an expenditure for private business entities and revenue for port authority. In the financial analysis which calculates FIRR of whole project, concession fee gets balanced in the calculation.

Concession fee consists of fixed fee for recovery of necessary repayment amount for the investment on the port facilities by the port authority, land and water rent and variable fee in terms of revenue share.

(4) FIRR of Proposed Master Plans

In this section, FIRR of chosen projects is to be calculated to evaluate the PPP schemes. Financial analysis could be divided into the following 3 cases;

Base Case

In the Base Case, public entities including the port authority are assumed to implement whole projects. Corporate tax is not taken into account in the FIRR calculation. FIRR of this case provides a general idea on long-term project viability from the viewpoint of financial soundness.

PPP Scheme (1): Case-1

In Case-1, the port authority procures major facilities and conducts major works including breakwater, seawalls, channel/water basin, land reclamation, soil improvement, direct access road/bridge to port, power/water supply, drainage, lighting and basic facilities for safety/security.

Private business entities procure container terminal facilities including quay walls, yard pavement, terminal buildings, container handling equipment including quay-side gantry cranes, RTG and other machineries, and operation system.

PPP Scheme (2): Case-2

In Case-2, port authority procures only fundamental port facilities including breakwater and channel/water basin.

Private business entities procure not only container terminal facilities including quay walls, yard pavement, terminal buildings, container handling equipment including quay-side gantry cranes, RTG and other machineries, and operation system but also other major facilities which were provided by port authority in PPP scheme (1), Case-1.

Table 6.2-3 illustrates the comparison between Case-1 and Case-2.

Table 6.2-3 Description of Case-1 and Case-2

	Public	Private
Case-1	Breakwater	Quay Wall
	Channel, Basin (Dredging)	Yard Pavement
	Seawall	Terminal Buildings, Terminal Gate
	Land Reclamation	Equipment
	Soil Improvement	(Quay-side GC, RTG, Top Lifter
	Direct Access Road/Bridge	Fork Lift, Tractor and Chassis)
	Power/Water Supply	
	Drainage	
	Lighting	
	X-ray Inspection Facility	
Case-2	Breakwater	Quay Wall
	Channel, Basin (Dredging)	Yard Pavement
		Terminal Buildings, Terminal Gate
		Equipment
		(Quay-side GC, RTG, Top Lifter
		Fork Lift, Tractor and Chassis)
		Seawall
		Land Reclamation
		Soil Improvement
		Direct Access Road/Bridge
		Power/Water Supply
		Drainage
		Lighting
	X-ray Inspection Facility	

Source: JICA Study Team

1) Master Plan Phase II and III in Cilamaya Terminal

Total cost of Option 2 (Phase II and III in Cilamaya Terminal) is summarized in Table 6.2-4 including cost demarcation between the public and private sectors. Total cost is estimated to be approximately US\$ 2,876 million. In case 1, the public sector bears 40.3 % of the cost and the private sector bears 59.7 %. In case 2, the public sector bears 9.4 % of the cost and the private sector bears 90.4 %.

Table 6.2-4 Total Cost and Cost Demarcation of Public and Private Sector (Phase II, III)

Items	cost	Case 1		Case 2	
		Public	Private	Public	Private
Civil Works	1,564	1,032	532	269	1,295
Equipment	1,172	-	1,172	-	1,172
Building	14	-	14	-	14
Utility Facilities	126	126	-	-	126
Total	2,876	1,158 (40.3 %)	1,718 (59.7 %)	269 (9.4 %)	2,607 (90.6 %)

Source: JICA Study Team

FIRR is summarized in Table 6.2-5.

Table 6.2-5 FIRR of Option 2 by case (Phase II, III)

Items	Base Case	Case 1		Case 2	
		Public	Private	Public	Private
FIRR	10.9 %	2.9 %	14.1 %	14.3 %	8.2 %

Source: JICA Study Team

FIRR of Base Case is 10.9 % which is lower than the financial market interest rate. This figure indicates that the project is not viable if all investment funds are procured from the commercial market. On the other hand, the project is viable if all investment funds are procured from low-interest foreign AID as the interest rate is lower.

FIRR of Case 1 for the public and private sectors are 2.9 % and 14.1 % respectively. Since FIRR calculation is conducted with a unit of US\$0.1 million, FIRR can not converge below 2.9 %. These figures indicate that if the public sector provides the project with adequate infrastructure utilizing low-interest foreign AID, the private sector might be able to invest in the project utilizing commercial market funds.

FIRR of Case 2 for the public and private sectors are 14.3 % and 8.2 % respectively. These figures indicate that even if the public sector provides the project with infrastructure utilizing foreign AID, the private sector might not be able to invest in the project utilizing commercial market funds.

6.2.5 PPP Scheme from the Viewpoint of FIRR

Based on the above analysis, following items are recommended;

- Public sector should play a significant role in the procurement of infrastructure. For example, public sector should basically procure major facilities and conduct major works including breakwater, seawalls, channel/water basin, land reclamation, soil improvement, direct access road/bridge to port, power/water supply, drainage, lighting and basic facilities for safety/security.
- Public sector should utilize low interest fund including foreign assistance as much as possible.
- Private sector should increase port investment drastically when the proposed master plan will be implemented.

6.3 Road Map toward International Container Terminal Development

6.3.1 Master Plans and Individual Projects included in the Master Plan

(1) Master Plans

In the New Shipping Law (No.17/2008), the most basic port plan, the National Port Master Plan which constitutes a guideline for determining the location, construction, operation, port development and preparation of Port Master Plan, is stipulated. The National Port Master Plan is stipulated by the Minister for a twenty (20)-year period and may be reviewed once every five years.

Based on the National Port Master Plan, Port Master Plan is stipulated for every port considering the National Port Master Plan, Provincial Spatial Plan, Regency/Municipal Spatial Plan, harmony and balance with other related activities at port, technical, economic and environmental feasibility, ship traffic security and safety and incorporating Port Working Area and Port Interest Area. Port Master Plan of a Main Port and National Port is arranged by the Port Management Body and

stipulated by the Minister upon obtaining recommendation from the governor and regent/mayor concerning the conformity with provincial and regency/municipal Spatial Plan.

In this chapter, “Master Plan” means Port Master Plan of new Tg. Priok Port of which Port Authority was recently established in December, 2010.

(2) Projects

Master Plan consists of various facility development plans by items and volumes of cargo and sites to be developed. Master Plan is usually realized by stages. Each stage is a component of the Master Plan.

In this chapter, “Projects” means these phased/divided facility development plans

6.3.2 Approval and Notification of Master Plan

(1) Major Characteristics of Recommended Master Plan

1) Rationale

Existing Tg. Priok Terminal is the sole terminal which can provide international container transport services in the western Java Area and has been playing important and indispensable roles in supporting the national economy, particularly in the Jakarta Greater Metropolitan Area. The volume of container cargo of the port has been increasing rapidly. The volume of international container reached more than 3 million TEU and that of domestic container reached 1 million TEU in 2008.

Demand forecast was conducted and the results are shown in Table 6.3-1. The volumes of international container will be 5.3 million TEU in 2015, 6.1 million TEU in 2020 and 13.4 million TEU in 2030. The volumes of domestic container will be 1.5 million TEU in 2015, 2.3 million TEU in 2020 and 3.2 million TEU in 2030.

Table 6.3-1 Forecast of Container Throughput at Tg. Priok Terminal

Basic Case

	International Total		Domestic Total		Grand Total	
	Ton ('000)	TEU ('000)	Ton ('000)	TEU ('000)	Ton ('000)	TEU ('000)
2009	28,596	2,736	7,662	1,068	36,258	3,804
2015	44,685	5,321	12,692	1,523	57,378	6,844
2020	61,153	7,255	18,549	2,284	79,702	9,539
2025	80,711	9,865	25,450	3,181	106,161	13,046
2030	106,183	13,356	34,685	4,382	140,868	17,738

Source: JICA Study Team

Analysis on container handling capacity was also conducted. Existing capacity for international container is approximately 4 million TEU and that for domestic container is 2.3 million TEU. The following conclusions were reached based on the analyses conducted in this Study.

- The volume of international container will exceed the existing capacity in 2014
- The volume of domestic container will exceed the existing capacity in 2020
- Additional facilities for international container are required urgently
- More facilities for container transport are required to meet the future cargo volume for both international and domestic trade by 2030

-
- Without these facilities, Indonesian economy would suffer. A steep price escalation of all commodities would occur and drastic decrease in the value of the IDR against other currencies would be observed. Consequently, Indonesian people would suffer a rapid decline in their standard of living.

2) Integrated Plan of Port and Road

Since there is very limited space for new container terminals in the existing area of Tg. Priok Terminal, several alternative sites including the existing area in Tg. Priok Terminal were scrutinized to identify the most suitable locations for the new container terminals. As a result, North Kalibaru Area is selected as the site for the urgent container terminal development project and Cilamaya Area is selected for future container terminal development projects until 2030.

Cilamaya is located in Karawan of West Java Province. Proposed project site has been designated as a port development area by local government and has several advantages for the new container terminal, namely vicinity to major industrial zones which have been requiring and manufacturing a lot of materials and products, limited environmental restrictions and ease of construction due to having good natural conditions and the lowest cost. Proposed project site, however, does not have a sufficient access road to Cikampek Toll Road which is 28.6 km from the proposed project site.

Since the function of new port facilities could not be fully and efficiently utilized without a sufficient road network, proposed Master Plan consists of not only new container terminals but also an access road to Cikampek Toll Road. Construction of both should be implemented in a well coordinated manner and simultaneously.

3) Required Huge Amount of Investment/ Required PPP

Estimated construction costs of the urgent container terminal development project in North Kalibaru and the future container terminal development projects in Cilamaya are US\$ 980 million and 2,876 million respectively. Estimated construction cost of access road in Cilamaya is US\$ 296 million. Although the total costs are much lower than at any other alternative project sites, total amount is still huge.

The Government of Indonesia has been pursuing introduction of PPP projects in infrastructure provision of various fields with the following goals;

- Increase operational efficiency
- Reduce operating subsidies
- Reduce national deficit
- Downsize government bureaucracy
- Promote equity ownership
- Provide private financing of public infrastructure

Particularly in the port sector, the following goals are to be added;

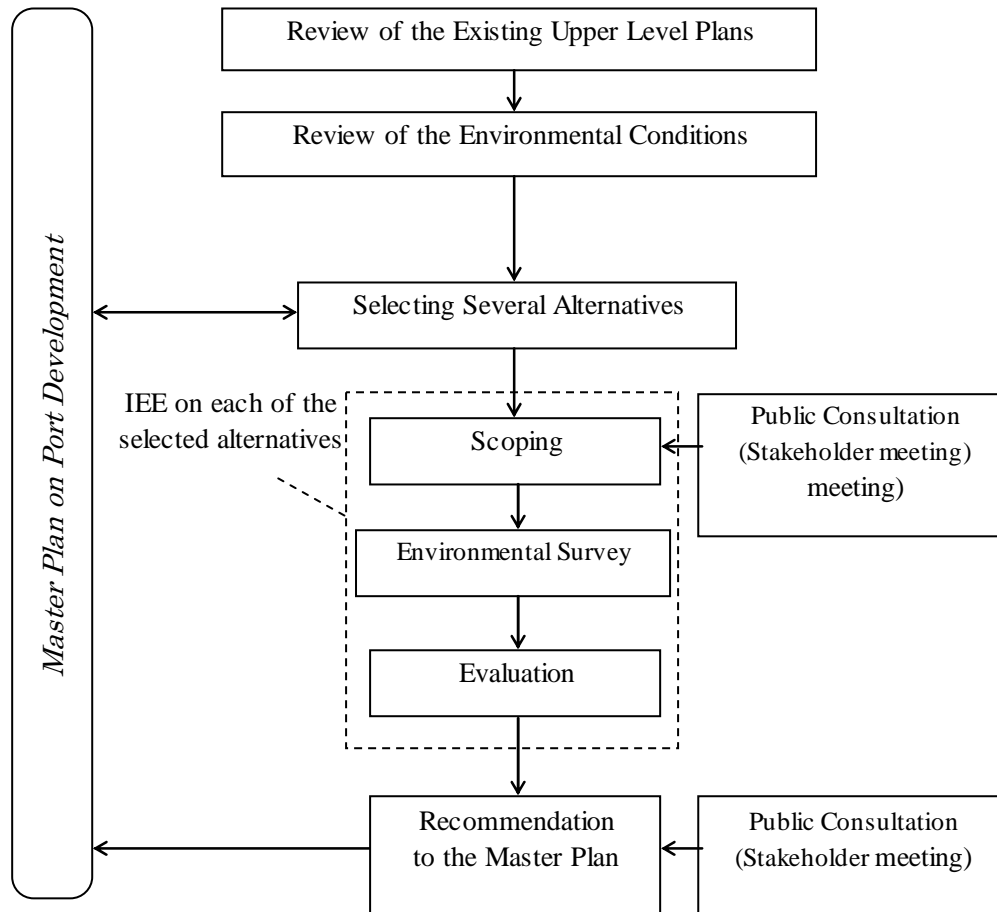
- Promote competition among ports and terminals
- Accelerate growth of traffic
- Depoliticize port management and labor

This report clearly shows that implementation of proposed Master Plan/ phased Projects could be feasible economically and financially if appropriate PPP projects are introduced. In the implementation of proposed Master Plan/ phased Projects, private sector will provide all necessary facilities and equipment for container terminals including quay-walls, quayside gantry cranes,

pavement and others for business activities. Public sector will provide basic facilities including breakwater, channels/basin, land reclamation, soil improvement, outer road of container terminal and other miscellaneous facilities which are commonly used by various private business entities in port and terminals.

4) Environment-conscious Plan

Since Strategic Environmental Assessment (SEA) has been legislated in Indonesia by Law No.32/ 2009, SEA was conducted in this Study. Figure 6.3-1 shows the flow chart of SEA.



Source: JICA Study Team

Figure 6.3-1 Flow Chart of SEA

The following environmental issues were analyzed in the SEA.

- Protected Area
- Coastal Environment
- Ecological Importance
- Land Use and Water Area Use
- Conformity with Spatial Plan
- Socio-economic Effects
- Traffic Congestion
- Involuntary resettlement and Alternation of Land Use
- Impact on Fishery

-
- Impact on Existing Infrastructure and Services
 - Impact on Mangrove, Coral Reefs and Tidal Flats
 - Impact on Fauna and Flora

Recommended Master Plan is formulated taking those environmental issues into consideration.

(2) Approval and Notification of Master Plan

New Shipping Law (No.17/2008) and Government Regulation (No.61/2009) regarding port stipulate that every port is obliged to have a Master Plan, that the Master Plan should be arranged by port authority/port management body and that Master Plans for main ports and hub ports should be stipulated by the Minister. These Laws and Regulations also stipulate that the Minister must have recommendation from the governor and regent/mayor regarding the suitability with the spatial plan of province and regency/municipal.

Since the recommended Master Plan fulfils all requirements stipulated by the law and regulation, the recommended Master Plan should be approved and notified as soon as possible. This requires the following procedures.

- Recommended Master Plan is authorized as a draft Master Plan of port authority
- Port authority submits the draft Master Plan to the Ministry of Transport for approval as the Master Plan.
- Port authority/the Ministry acquire the recommendation from the Governor of the Province
- The Minister approves the draft Master plan as the Master Plan of Tg. Priok Port
- The Ministry notifies the result

6.3.3 Implementation of Individual Project included in the Master Plan

(1) Policies and Regulatory Framework of PPP

1) General

Basic regulatory framework on PPP in Indonesia which has been in force in the Presidential Regulations and Ministerial Regulations is shown in Table 6.3-2.

Table 6.3-2 PPP Framework

	Regulations	Contents
1	Presidential Regulation No.42, year 2005	Regulation concerning establishment of KKPPI for accelerating infrastructure provision.
2	Presidential Regulation of the Republic of Indonesia No.67, year 2005	Regulation concerning PPP utilization in infrastructure provision, a principle regulation for driving PPP projects in the country.
3	Presidential Regulation No.36, year 2005	Regulation concerning procedures on acquisition of site for implementation of PPP projects.
4	Presidential Regulation No.65, year 2006	Revised edition of the regulation No.36/'05 concerning the acquisition of site.
5	Ministry of Finance Regulation No.38/PMK.01/2006	Regulation concerning government support and compensation on PPP implementation stipulated by Ministry of Finance.
6	Coordinating Ministry of Economic Affairs (CMEA) Decree as Head of the National Committee for the acceleration of infrastructure provision No. KEP-01/M. Econ/05/2006	Regulation concerning organization and procedures of KKPPI, a core organization for the acceleration of infrastructure provision in Indonesia, stipulated by CMEA.
7	Coordinating Ministry of Economic Affairs (CMEA) Regulation as Head of the National Committee for The Acceleration of Infrastructure Provision No. PER-03/M. Econ/06/2006	Regulation concerning listing and ranking priorities of PPP projects in Indonesia, stipulated by CMEA.
8	Coordinating Ministry of Economic Affairs (CMEA) Regulation as Head of the National Committee for The Acceleration of Infrastructure Provision No. PER-04/M. Econ/06/2006	Regulation concerning evaluation procedures of PPP application for providing government support applied based on Ministry of Finance Regulation No.38/PMK.01/2006.
9	Presidential Regulation No.13, Year 2010	Amendment to the Presidential Regulation, No.67 of 2005 regarding the Cooperation of Government and Business Entity in the Provision of Infrastructure.
10	National Development Planning Agency Regulation No.4, 2010	General Guidance for the Performance of PPP in the Provision of Infrastructures

Source: Amended by JICA Study Team based on the report of the Study on the New Public Private Partnership Strategy for the Port Development and Management in the Republic of Indonesia, 2009, JICA

Presidential Regulation No.67, Year 2005 and No.13, Year 2010

Basic guideline on public-private partnership (PPP) projects in Indonesia in infrastructure provision is stipulated in Presidential Regulation No. 67, Year 2005. Substance of the regulation is as follows;

- PPP should be established in accordance with fairness, transparency and competitive circumstance beneficial to both public and private parties.
- Value and/or feasibility of PPP projects should be evaluated by the government in an appropriate manner prior to recruiting the projects.
- Any risks should be borne by a party who can manage the risks more skilfully with less cost than others. Risk sharing scheme should be determined after a mutual agreement has been reached.
- Government support should be limited to projects socially desirable but fiscally non-feasible.
- PPP partners should be selected through competitive bidding.

-
- PPP projects can be proposed by private entities; however, the project tendering should be conducted under a competitive circumstance when the project is approved by the government.
 - Cost of PPP projects should be set based on repayment amount of capital cost for the project as well as legitimate profit of the investment.
 - PPP projects should be executed by concession contract or by granting business right.

Article 9 of this regulation declares that in identifying the project for which cooperation shall be established, Minister/Chairman of the Institution/Head of the Region shall engage in a public consultation.

Article 10 of this regulation allows business entities to submit Partnership Project Initiatives which are not included in the authorized project list.

Presidential Regulation No.13, Year 2010

Although this regulation does not change the basic idea of Presidential Regulation No.67, 2005 drastically, this regulation provides articles of the Presidential Regulation No.67 with clear definitions including the following items;

- Article 1 regarding government guarantee
- Article 2 regarding state-owned enterprise and region-owned enterprise
- Article 4 regarding types of infrastructures
- Article 10 regarding business entities' initiatives of partnership project
- Article 13 and 14 regarding compensation for business entity
- Article 16 regarding risk management
- Article 17 regarding government supports and government guarantee
- Article 20 regarding procurement procedures
- Article 23 and 24 regarding partnership agreement
- Appendix is added for procurement procedures

Ministry of Finance Regulation No.38/PMK.01, Year 2006

Ministry of Finance Regulation No.38/PMK.01/2006 is also a core regulation for accelerating infrastructure development using government support to drive the PPP and increasing investment in infrastructure provision in Indonesia. This regulation also stipulates rules and procedures for risk control and risk management in infrastructure provision.

Types of risks in PPP project for infrastructure provision are categorized as political risk, project performance risk and demand risk in this regulation. Scope of risk control and risk management including functions and responsibilities of key organizations are stipulated in this regulation as follows;

- Project planning and technical and financial feasibility evaluation are undertaken by the Technical Department or Institute,
- Evaluation of project feasibility and prioritization with regard to national development priorities are undertaken by KKPPI,
- Evaluation of financial and fiscal risks is undertaken by the Ministry of Finance through its Risk Management Unit.

Type of risks and forms of government support in the infrastructure provision PPP projects are also stipulated in the regulation as follows;

- Political Risk may be agreed to provide compensation to an asset owner/Business enterprise based on a risk sharing scheme between the Government and Business

Enterprise.

- Project Performance Risk caused by delay of land acquisition, increase in land price or delay in approval of commencement of commercial operation, delay in tariff adjustment and changes in the specification of outputs of those already agreed by the Minister/Head of Institute which cause financial loss for the Business Enterprise may also be compensated by extension of the concession period and/or by other means approved by the Minister of Finance or by recalculation of the cost of production.
- When Demand Risk cases show lower revenue than the minimum total revenues guaranteed by the Government as a result of decrease in total demand on which the agreement was based, financial and/or other forms of compensation may be also approved by the Minister of Finance.

The procedure for giving Government Support for infrastructure provision PPP projects is stipulated in the regulation as follows.

- Related Minister/Head of Institution submits a proposal requesting Government Support to KKPPI.
- The Minister/Head of Institution is obliged to undertake an evaluation and calculation of the project feasibility with or without Government Support in risk management and to provide copies of the following documents.
 - . Pre-feasibility study report
 - . Plan of the cooperation form
 - . Plan for project financing and source of funds
 - . Plan for the tendering of PPP project, including schedule, process and evaluation method
 - . Documentation of the results of the public consultation

National Development Planning Agency Regulation No.4, Year 2010

There are two (2) kinds of Partnership Projects. One is public initiative project and other is private initiative project. This section deals with the case of public initiative projects.

This regulation stipulates required procedures taken by Partnership Project Responsible Party (PJPK) in four (4) stages from the beginning to the end of the Partnership Project, namely “Planning of Partnership Projects”, “Preparation of Feasibility Pre-study of the Partnership Projects”, “Transaction for Partnership Project” and “Management for Implementation of the Partnership Project”. PJPK may be the Minister, Head of Region/President Director of Region-/State-Owned Enterprises. Major activities of PJPK in each stage described in this regulation are as follows;

- a. Stage of Planning of Partnership Projects
 - Identification and Selection of Partnership Projects
 - Decision on Priority of Partnership Projects
 - . A unit in charge of planning is formed in PJPK.
 - . Director General, Head of Government Agency, President Director of the State-owned enterprises conducts prioritization of identified projects.
 - . Priority list of Partnership Projects is submitted to the unit.
 - . The unit evaluates the list and submits the result to the Minister.
 - . The Minister finalizes the priority list.
 - . The Minister submits the priority list to the Minister of Planning.
 - . The Minister of Planning evaluates and concludes the priority list.
 - Public Consultation
 - b. Stage of Preparation of Feasibility Pre-Study of the Partnership Projects
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- Conducting Basic Assessment on fundamental issues including target, obstacles, technical options, principal problems, risks, Government Support/Guarantee, form of cooperation, condition of Partnership Agreement, mitigation and land procurement
 - Conducting Assessment in Readiness on required procedures for Government Support/Guarantee
 - . Executive Team/Partnership Project Managing Board is formed in PJPK.
 - . Request for Government Support/Guarantee is submitted to the Minister of Finance, if Government Support/Guarantee is needed.
 - Conducting Final Assessment of the issues including readiness of the Partnership Projects, detailed design, tariff structure, risk allocation, mechanism of Government Support/Guarantee, Business Entity procurement strategy and condition of the Partnership Agreement
 - Public Consultation
- c. Stage of Transaction for Partnership Project
- Planning of Business Entity Procurement
 - . Procurement Committee, consisting at least five (5) people, is formed in PJPK.
 - . Procurement Committee prepares procurement schedule and draft announcement for procurement.
 - . PJPK makes market sounding more than one time in the form of seminar and workshop or road show.
 - . Procurement Committee prepares HPS (Self-Calculated Price).
 - . Procurement Committee prepares Prequalification Documents.
 - . Procurement Committee prepares Procurement Documents including draft Partnership Agreement Document at the stage of Preparation of Feasibility Pre-Study of the Partnership Projects.
 - Implementation of Business Entity Procurement
 - . Procurement Committee prepares prequalification criteria.
 - . Procurement Committee announces widely on the prequalification of Business Entity.
 - . Procurement Committee makes registration of prospective Procurement Participants.
 - . Prospective Procurement Participants submits the Expression of Interest (EOI) and Prequalification Documents to the Procurement Committee.
 - . Procurement Committee conducts prequalification and announces the results in the official notice board or website of PJPK.
 - . Procurement Committee prepares bidding evaluation criteria.
 - . Procurement Committee hosts procurement briefing.
 - . Pre-qualified Business Entities submits bidding documents.
 - . Procurement Committee opens bidding documents.
 - . Procurement Committee conducts evaluation of bidding documents and announces the results on the official notice board.
 - Signing of Partnership Agreement
 - Public Consultation
 - Formation of Managing Unit for the Implementation of Partnership Agreement for the next Stage
- d. Stage of Management for Implementation of Partnership Agreement
- Management Planning of Implementation of Partnership Agreement
-

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- . Managing Unit prepares management plan of implementation of Partnership Agreement
 - . Managing Unit reports periodically to PJKP on the results of management activities.

 - Management of Implementation of Partnership Agreement
 - . Managing Unit manages the fulfilment of preliminary requirements by Business Entity and monitoring in pre-construction stage.
 - . Managing Unit manages various issues stemming from construction works in construction stage.
 - . Managing Unit manages performance of the Partnership Project and monitoring in commercial operation stage.
 - . Managing Unit conducts asset appraisal and management in expiration of Partnership Agreement stage.
 - . A Team for Asset Transfer is formed in PJKP.

 - Public Consultation

2) Port

New Shipping Law (No.17/2008) and Government regulation (No.61/2009) regarding Harbor Matters

New shipping law is stipulated mainly to separate the regulatory function and operation function of existing IPC aiming at more efficient and effective port development, management and operation. It does not, however, stipulate necessary regulation on the rules and procedures for the promotion of port concession. Government Regulation Number 61 year 2009 on new shipping law stipulates the following:

a. National Port Master Plan and Port Master Plan

Concerning the National Port Master Plan and Port Master Plan, explanation is described in the first part of this section.

b. Government Port management

Article 37

- i) Government port management consists of at least the following functions;
 - a. organization and supervision, controlling, and monitoring port operation; and
 - b. security and safety of shipping operation
- ii) Besides the government port management, there are other government functions as follows;
 - a. customs, immigration, quarantine and other required functions.

Article 38

- i) Functions including organization and supervision, controlling, and monitoring port operation are executed by port managing body/ port Authority.

Article 39

- i) Shipping functions of security and safety are executed by the harbor master.

c. Port Authority

Article 42

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- i) Port authority conducts the duties and responsibilities of:
 - a. providing areas of land and water in the port;
 - b. providing and maintaining shelters, port pool, navigation channels, and road networks;
 - c. providing and maintaining Marine Navigational Aids facilities;
 - d. ensuring port security and stability;
 - e. ensuring and maintaining port environmental conservation;
 - f. arranging Port Master Plan as well as port Area of Working and Area of Interest;
 - g. proposing tariffs to be stipulated by the Minister, for water and/or land utilization, and port facilities which are provided by the Government as well as port services provided by the port authority according to the provisions of laws; and
 - h. ensuring the unimpeded flow of cargo traffic.
 - ii) Besides the duties and responsibilities as referred to in section ①, port authority executes the operation and provision of services of the port, which are needed by the customers, but which are not provided by the Port Enterprises.

d. Business Activities in Ports

Article 69

- i) Operation and/or provision of services of ships, passengers, and goods consist of:
 - a. operation and/or provision of services of wharfs for mooring;
 - b. operation and/or provision of fuelling and clean water services;
 - c. operation and/or provision of services of boarding and disembarking of passengers and/or vehicles;
 - d. operation and/or provision of services of wharfs for loading and unloading goods and cargoes;
 - e. operation and/or provision of services of warehouses and yards, loading and unloading equipments, as well as port tools;
 - f. operation and/or provision of services of container terminal, dry bulk, liquid bulk, and ro-ro;
 - g. operation and/or provision of services of loading and unloading goods;
 - h. operation and/or provision of services of goods distribution and consolidation center; and/or
 - i. operation and/or provision of services related to ship delay.
- ii) Activities are implemented by Port Enterprises.

e. Port Enterprises

Article 71

- i) Port Enterprises operate business at 1 (one) or several terminals within 1 (one) port.
 - ii) Port Enterprises in operating their business are obliged to hold business license which shall be provided by:
 - a. Minister for Port Enterprises in main ports and hub ports;
 - iii) Business licenses are granted after fulfilling the requirements of:
 - a. holding Taxpayer Identification Number;
 - b. being a state-owned enterprise, local-owned enterprise, or incorporated company particularly established in relation to harbor affairs;
 - c. holding the certificate of incorporation; and
-

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- d. holding company's domicile.

Article t3

- i) In operating their business in ports, Port Enterprises are obliged to:
 - a. provide and maintain the viability of port facilities;
 - b. provide services for port customers following the service standards stipulated by the Government;
 - c. ensure security, safety, and stability of the terminals and port facilities which are operated;
 - d. maintain safety, security, and stability concerning water transport;
 - e. maintain environmental conservation;
 - f. fulfilling the obligation according to the concession in the agreement; and
 - g. follow the provisions of laws both nationally and internationally.
- ii) Concession or Other Forms

Concerning concession and other forms, explanation is described in 9.4 of Chapter 9.

Ministry of Transport Regulation (No.KM63/2010) regarding Organization and Working Procedures of Port Authority

Article 29

- i) Port Authority Office shall be set up in 4 (four) locations, comprised of:
 - a. Port Authority Office I in Belawan, North Sumatra Province;
 - b. Port Authority Office II in Tanjung Priok, DKI Jakarta Province;
 - c. Port Authority Office III in Tanjung Perak, East Java Province; and
 - d. Port Authority Office IV in Makassar, South Sulawesi Province.

(2) Project Approval by the Government

Taking various laws and regulations which stipulate objectives, procedures and requirements of PPP projects into consideration, the Ministry of transport should conduct the following activities in order to obtain project approval.

1) Identification and Selection of Partnership Projects

- i) Director General/Port Authority conducts a pre-feasibility study which could be utilized in a later stage as a Feasibility Pre-study referred in National Development Planning Agency Regulation No.4, Year 2010, to identify and select the candidates of Partnership Projects which are parts of the Port Master Plan.

2) Decision on Priority of Partnership Projects

- i) A unit in charge of planning is formed in MOT/Port Authority.
 - ii) Director General/Port Authority conducts prioritization of identified projects.
 - iii) Priority list of Partnership Projects is submitted to the unit.
 - iv) The unit evaluates the list and submits the result to the Minister.
 - v) The Minister finalizes the priority list.
 - vi) The Minister submits the priority list to the Minister of Planning.
-

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- vii) The Minister of Planning evaluates and concludes the priority list.
-
- 3) Public Consultation
 - i) Public consultation should be conducted appropriately by MOT/Port Authority until the end of above mentioned item 2).
 - 4) Basic Assessment
 - i) Director General/Port Authority conducts Feasibility Pre-study, if necessary. This feasibility Pre-study should cover the following assessments on legal, technical, project feasibility, environmental (Initial Environmental Examination) and social aspects, form of cooperation, need of Government support/guarantee, business entity procurement plan and draft conditions of Partnership Agreement.
 - ii) Procedures for environmental impact assessment are carried out pursuant to the provisions of the prevailing laws and regulations on the environment.
 - 5) Assessment in Readiness
 - i) Executive Team/Partnership Project Managing Board is formed in MOT/Port Authority.
 - ii) Request for Government Support/Guarantee is submitted to the Minister of Finance, if Government Support/Guarantee is needed.
 - 6) Final Assessment
 - i) Director General/Port Authority conducts the final assessment.
 - 7) Public Consultation
 - i) Public consultation should be conducted appropriately by MOT/Port Authority until the end of above mentioned item 6).
-
- (3) Project Resolution by the Government
 - 1) Submission to KKPPI
 - i) Ministry of Transport submits Partnership Projects with required documents to KKPPI.
 - ii) KKPPI evaluates the feasibility of the Partnership projects and prioritizes the projects with regard to national development priorities.
 - 2) Submission to Ministry of Finance (MOF)
 - i) Ministry of Transport submits Partnership Projects with an evaluation report of KKPPI to the Ministry of Finance (MOF).
 - ii) Risk management unit (RMU) of MOF evaluates financial and fiscal risks.
 - iii) MOF prepares budget for Partnership Projects.
-

(4) Transaction for Partnership Projects

1) Planning of Business Entity Procurement

- i) Procurement Committee, consisting at least five (5) people, is formed in MOT/Port Authority
- ii) Procurement Committee prepares procurement schedule and draft announcement for procurement.
- iii) MOT/Port Authority makes market sounding more than one time in the form of seminar and workshop or road show.
- iv) Procurement Committee prepares HPS (Self-Calculated Price).
- v) Procurement Committee prepares Prequalification Documents.
- vi) Procurement Committee prepares Procurement Documents including draft Partnership Agreement Document at the stage of Preparation of Feasibility Pre-Study of the Partnership Projects.

2) Implementation of Business Entity Procurement

- i) Procurement Committee prepares prequalification criteria.
- ii) Procurement Committee announces the prequalification of Business Entity.
- iii) Procurement Committee makes registration of prospective Procurement Participants.
- iv) Prospective Procurement Participants submits the Expression of Interest (EOI) and Prequalification Documents to the Procurement Committee.
- v) Procurement Committee conducts prequalification and announces the results in the official notice board or website of PJPK.
- vi) Procurement Committee prepares bidding evaluation criteria.
- vii) Procurement Committee hosts procurement briefing.
- viii) Pre-qualified Business Entities submits bidding documents.
- ix) Procurement Committee opens bidding documents.
- x) Procurement Committee conducts evaluation of bidding documents and announces the results on the official notice board.

3) Signing of Partnership Agreement

4) Public Consultation

- i) Public consultation should be conducted appropriately by MOT/Port Authority until the end of above mentioned item 3).

5) Formation of Managing Unit

- i) Managing Unit is formed in MOT/Port Authority for the Implementation of Partnership Agreement for the next Stage

(5) Implementation of Partnership Projects

1) Procurement of Budget and Fund

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- i) House of Representatives (DPR) approves budget proposed by MOF in above mentioned item (3), 2), iii).
 - ii) MOF and MOT procure soft loan. Exchange of Note (E/N) and Loan Agreement (L/A) are required.
- 2) Management Planning of Implementation of Partnership Agreement
 - i) Managing Unit prepares management plan of implementation of Partnership Agreement
 - ii) Managing Unit reports periodically to PJKP on the results of management activities.
- 3) Management of Implementation of Partnership Agreement
 - i) Managing Unit manages the fulfilment of preliminary requirements by Business Entity and monitoring in pre-construction stage.
 - ii) Managing Unit manages various issues stemming from construction works in construction stage.
 - iii) Managing Unit manages performance of the Partnership Project and monitoring in commercial operation stage.
 - iv) Managing Unit conducts asset appraisal and management in the expiration of Partnership Agreement stage.
 - v) A Team for Asset Transfer is formed in MOT/Port Authority.
- 4) Public Consultation
 - i) Public consultation should be conducted appropriately by MOT/Port Authority until the end of above mentioned item 3).

6.3.4 Roadmap toward International Container Terminal Development

(1) Approval and Notification of Master Plan

Since there is no Port Master Plan stipulated by the New Shipping Law (NO.17/2008), Master Plan should be authorized as soon as possible. The following actions are required.

- Recommended Master Plan is authorized as a draft Master Plan of port authority.
- Port authority submits the draft Master Plan to the Ministry of Transport for approval as the Master Plan.
- Port authority/the Ministry acquire the recommendation from the Governor of the Province.
- The Minister approves the draft Master plan as the Master Plan of Tg. Priok Port.
- The Ministry notifies the result.

(2) Implementation of the Master Plan

There are a lot of procedures and activities to do, documents to be prepared and Ministerial/Organization interactions. These issues should be dealt with in a timely and precise

manner. Table 6.3.3 illustrates phased procedures stipulated by the National Development Planning Agency Regulation (No.4/2010). Figure 6.3-2 illustrates a flowchart of the regulation. And Table 6.3-4 shows required activities of MOT/Port Authority stipulated by regulations concerned.

Based on these Figure and Tables, a roadmap toward for the implementation of Master Plan (Phase II, Cilamaya international container terminal development projects) is illustrated in Figure 6.3-3.

Table 6.3-3 Phased procedures stipulated by Bappenas Regulation

STAGE I: PARTNERSHIP PROJECT PLANNING	STAGE II: PREPARATION FOR FEASIBILITY PRE-STUDY OF PARTNERSHIP PROJECT	STAGE III: TRANSACTION FOR PARTNERSHIP PROJECT	STAGE IV: MANAGEMENT FOR IMPLEMENTATION OF PARTNERSHIP PROJECT
Partnership Project Identification	Preparation by Basic Assessment of Feasibility Pre-Study of Partnership Project	Business Entity Procurement Plan	Management Planning for Implementation of Partnership Agreement
Partnership Project Selection	Preparation by Assessment on Readiness of Partnership Project	Implementation for Business Entity Procurement	Management for Implementation of Partnership Agreement
Decision for Priority of Partnership Project	Completion by Final Assessment of Feasibility Pre-Study of Partnership Project	Signature of Partnership Agreement	Output: Document of Report on Management for Implementation of Partnership Agreement
Output: List of Priorities for Partnership Project and Document of Preparatory Study	Output: Document of Feasibility Pre-Study of Partnership Project	Output: Signature of Partnership Agreement	
Process of Application for Needs	Process of Application for Needs	Confirmation of Government Guarantee by PPRF/BUPI	
Government Support (DP) & Government Guarantee (JP)	Government Support (DP) & Government Guarantee (JP)		
LAND PROCUREMENT PROCESS			
INVOLVEMENT OF GOVERNMENT AGENCIES/INSTITUTIONS			
Partnership Project Responsible Party (PJK) / National Development Planning Agency (BAPPENAS)	PJK, KKPP, BKPM, BAPPENAS, Ministry of Finance (PPRF/BUPI)	PJK, KKPI, PPRF/BUPI, BKPM, BAPPENAS	PPJK, PPRF/BUPI, BKPM, BAPPENAS
Public Consultation:	Public Consultation:	Public Consultation:	
Information Dissemination	Consultative Interaction	Market Sounding	
	List of Planned Partnership Projects		

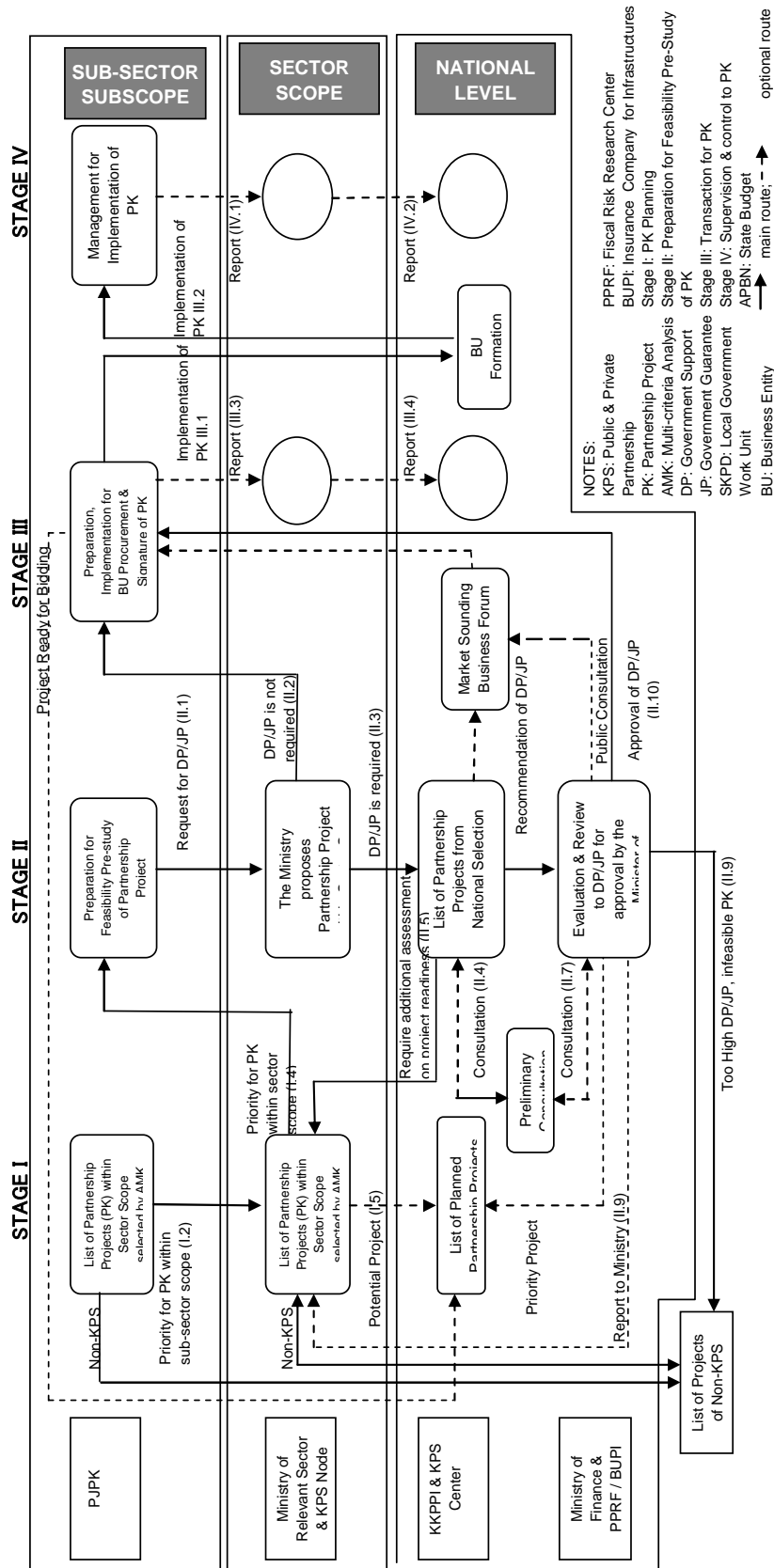


Figure 6.3-2 Flowchart of Implementation for National Partnership Project

Table 6.3-4 Activities of MOT/Port Authority

Port Master Plan					
Stage	Internal				Inter-Ministerial
	Major Activities	Institutional	Studies	Documents	
I	<ul style="list-style-type: none"> ● Identification and Selection of PP ● Public Consultation 	<ul style="list-style-type: none"> ● Unit in charge of PP 	<ul style="list-style-type: none"> ● Pre-feasibility Study (which could be utilized in a later stage as a Feasibility Pre-Study referred in National Development Planning Agency Regulation No.4, Year 2010) 	<ul style="list-style-type: none"> ● Report of Pre-feasibility Study ● Priority List of PP 	<ul style="list-style-type: none"> ● Submission of Priority List to Ministry of Planning (the Ministry evaluates the list)
II	<ul style="list-style-type: none"> ● Basic Assessment ● Assessment in Readiness ● Final Assessment ● Public Consultation 	<ul style="list-style-type: none"> ● Executive Team/PP Management Board 	<ul style="list-style-type: none"> ● Feasibility Pre-Study (if necessary) (Environmental Assessment IEE) ● Study on EIA (if necessary) 	<ul style="list-style-type: none"> ● Report of Feasibility Pre-Study ● Report of Basic Assessment ● Report of Basic Assessment in Readiness ● Report of Final Assessment 	<ul style="list-style-type: none"> ● Request for Government's Support/Guarantee (if necessary) ● Submission of PP to KKPPPI (KKPPPI evaluate PP)
III	<ul style="list-style-type: none"> ● Market Sounding ● PQ Announcement ● PQ Evaluation and ● Announcement of Results ● Procurement Briefing ● Bidding Evaluation and Announcement of Results ● Signing of P.A. ● Public Consultation 	<ul style="list-style-type: none"> ● Procurement Committee ● Managing Unit of PP 		<ul style="list-style-type: none"> ● HPS (Self-Calculated Price) ● PQ Document ● Procurement (Tender) Document ● PQ Criteria ● PQ Evaluation Report ● Bidding Evaluation Criteria 	
IV	<ul style="list-style-type: none"> ● Procurement of Budget and Fund ● Public Consultation 	<ul style="list-style-type: none"> ● Team for Assets Transfer 		<ul style="list-style-type: none"> ● Management ● Report of Implementation ● Report of Activity ● Report of Monitoring ● Report of Assets Appraisal 	

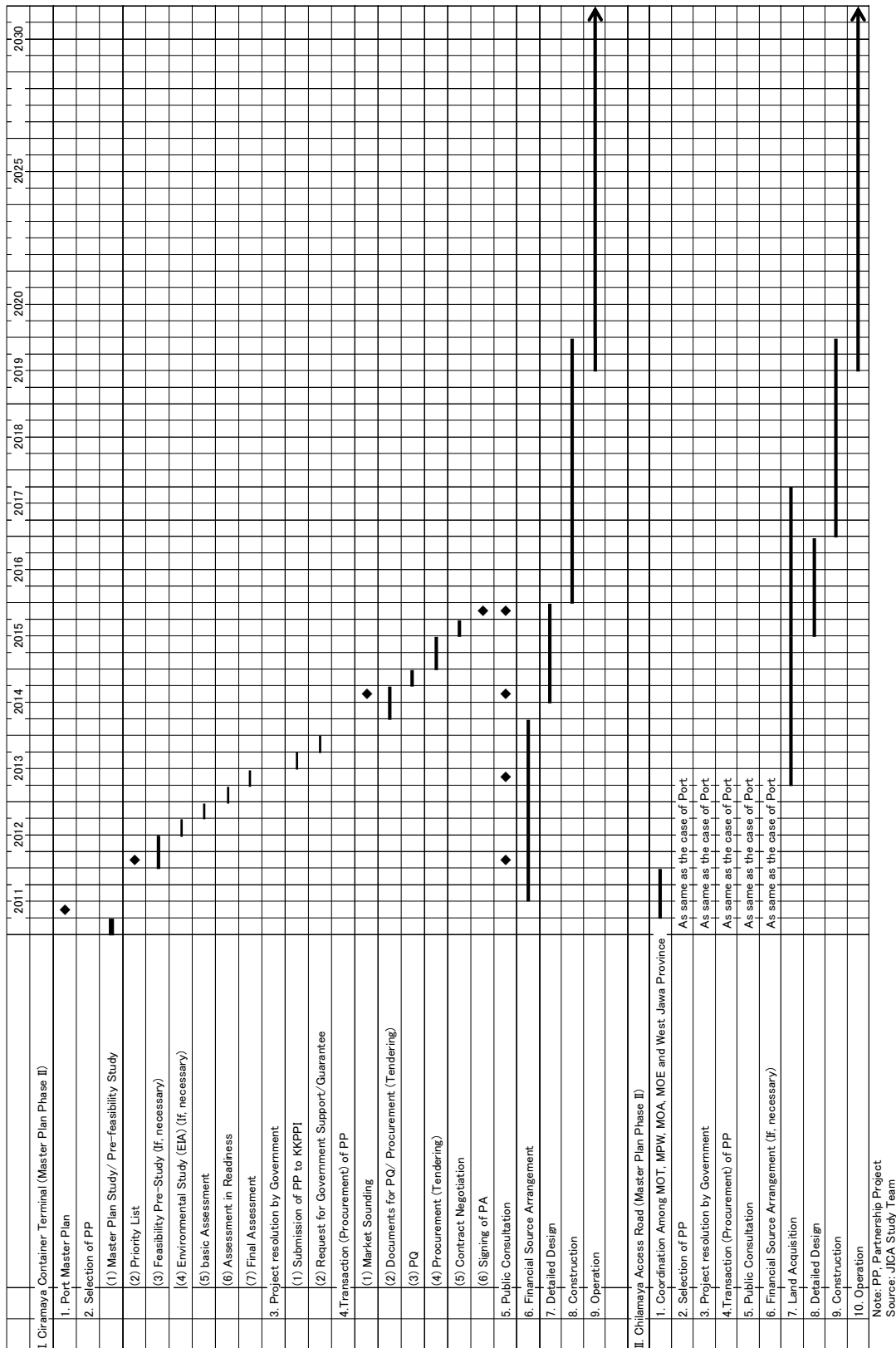


Figure 6.3-3 Road Map for Cilamaya Container Terminal (Master Plan Phase II)

6.3.5 Issues to be considered

(1) International Consultants

Since there are many procedures and activities to be followed and documents to be prepared are very complicated, a lot of experience and know-how of international concession contracts and maritime container transport are required. Accordingly, it is recommended that MOT/Port Authority utilize well-experienced international consultants.

(2) Establishment of New Special Economic Zones

This report deals with issues related to the development of the new international container terminal; although the project is economically and financially feasible, it is recommended that the establishment of a new Special Economic Zone for international manufacturers and trading companies be considered to further boost the national economy of Indonesia.

(3) Countermeasures against Speculative Land Acquisition

The Study Team is concerned that the approval and notification of the Master Plan by MOT may provoke a speculative land acquisition movement within Indonesian business circle. Since a sharp rise in land price has an adverse effect on smooth implementation of the project, it is recommended that effective countermeasures against speculative land acquisition be considered.

CHAPTER 7 STRATEGIC ENVIRONMENTAL ASSESSMENT

7.1 Objectives

As described in Chapter 2.12, Strategic Environmental Assessment (SEA) has been legislated in Indonesia by Law No.32/2009. In accordance with the legislation, JICA conducted SEA in this master plan study.

Law No.32/2009 defines SEA as a series of systematic, comprehensive and participative analyses to assure the sustainable development principles, which is applied and integrated in the development process in an area and/or policy, plan and program (Article 1). As indicated in this article, fundamental idea of SEA is to analyze environmental impact at the early stage of the developmental process and integrate necessary consideration o make wise decisions for sustainable development. In the case of this master plan study, the developmental process is in the stage of evaluating and prioritizing the alternatives for a new container terminal and formulating a master plan as described in the objectives below. Therefore, the objectives of the SEA study are set as follows.

Objectives of the Master Plan Study

- To evaluate and prioritize development alternatives for a new container terminal.
- To formulate the master plan for port development together with access infrastructure development/improvement in/around the Greater Jakarta Metropolitan Area.

Objectives of the SEA Study

- To integrate environmental and social consideration into evaluating and prioritizing development alternatives for a new container terminal.
- To contribute to decision making on formulating the master plan.

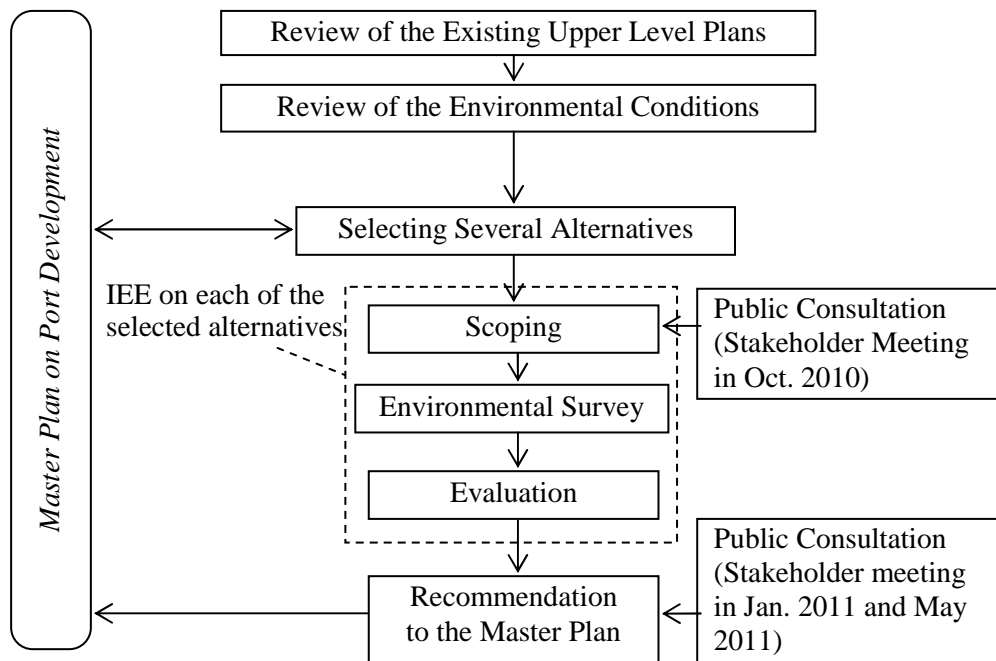
7.2 Methodology of SEA

7.2.1 Basic Approach

Since there is no universal way or approach or technique for application of SEA, SEA can be adapted and adjusted in accordance with the application context (cited from “Handbook of Strategic Environmental Assessment” developed by the Ministry of Environment in 2007). In the case of this master plan study, the objective of SEA is to integrate environmental and social consideration into the process of selecting appropriate site for the new container terminal. Therefore, the point of this SEA is to evaluate environmental impact that may be caused by each of the several alternatives and to compare the results to make suggestion for the site selection. The evaluation was conducted in the level of IEE (Initial Environmental Examination) based on the secondary data and supplemental primary data.

The flow chart of the SEA is shown in Figure 7.2-1. Firstly, information of the related upper level plans, such as spatial planning was collected to review the existing regional policy and plans. Also, secondary data about the environmental conditions in the study area, the north coastal area of Banten province, DKI Jakarta and West Java province was collected. Based on the collected information, conditions of the nine potential sites for the new container terminal were reviewed in terms of the consistency with the spatial plans and environmental considerations in order to screen the potential sites for the new terminal (described in the section 4.6).

After screening and selecting options (alternatives), scope of the IEE on selected options was discussed thorough a Focus Group Discussion. Based on the scoping results, each alternative was evaluated to make recommendations for the master plan in terms of environmental consideration.



Source: JICA Study Team

Figure 7.2-1 Flow Chart of the SEA

7.2.2 Policy for Public Consultation

Law No.32/2009 requires SEA process to involve community and stakeholders. The specific procedure has not been legislated yet, therefore, the project proponent shall decide it considering the study context, according to the Ministry of Environment.

For this study, following three meetings were held as opportunities for public consultation.

Table 7.2-1 Outline of the Public Consultations (Stakeholder Meetings)

	First Meeting	Second Meeting	Third Meeting
Date	22 October, 2010	13 January, 2011	19 May, 2011
Venue	University of Indonesia	University of Indonesia	University of Indonesia
Purpose	To collect information and public opinion on possible consequences to be considered during and after the project.	To inform the preliminary results of SEA to related organizations.	To confirm the results of SEA and discuss further studies and considerations.
Participants	- Central government - Local governments - Associations - NGO - Port developers/operators - Academicians	- Central government - Local governments - Port authorities - Port developers/operators	- Central government - Local governments - Associations - NGO - Port authorities/operators - Academicians

Source: JICA Study Team

7.3 Results of Reviewing

7.3.1 Review of the Existing Upper Level Plans

In order to consider upper level plans for selecting alternative sites for the new container terminal, following upper level plans were reviewed.

- National policy on transportation
- Development strategies and plans in port area
- Spatial plan by local governments

As directly related upper level plans to the site selection, spatial plans of local governments were summarized in this section.

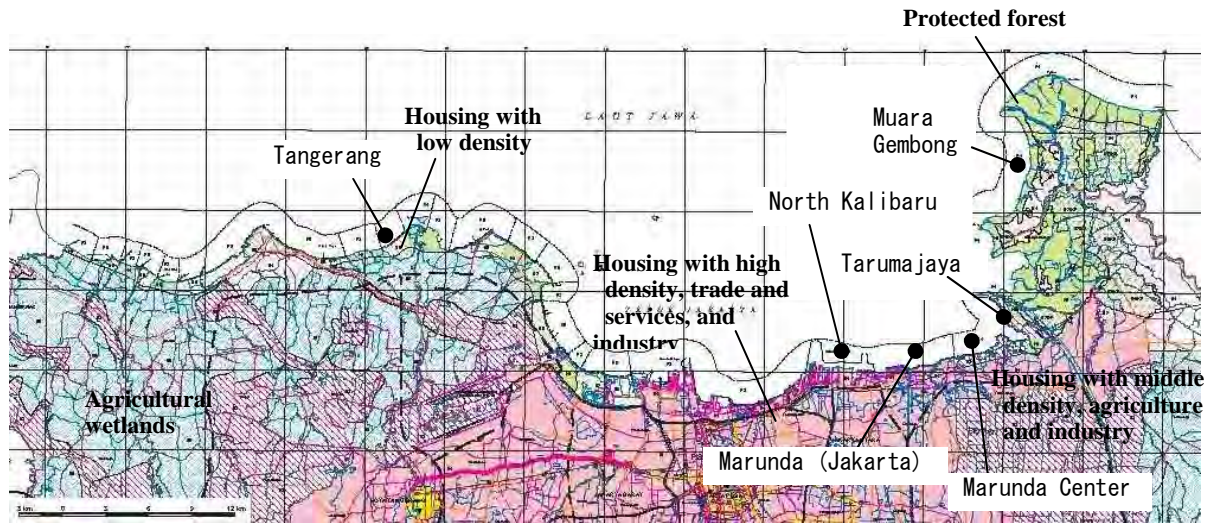
Each site for the nine existing port-development plans described in the Chapter 2.2 has been planned as shown in the Table 7.3-1 in each spatial plan.

The two sites for the port plans in DKI Jakarta, North Kalibaru and Marunda (Jakarta) have been planned as highly used area for high occupancy housing, trade and services and industry by the plan of JABODETABEKPUNJUR. Also, the sites for Marunda Center and Tarumajaya in Kabupaten Bekasi have been planned as middle occupancy housing, agriculture and industry use. For the sites of Cilamaya in Kabupaten Karawang and Tangerang in Banten Province, it is planned to be low occupancy housing, agriculture and fishpond. It is notable that Muara Gembong in Kabupaten Bekasi and Ciasem in Kabupaten Subang are designated as protected forest in conformity with the designation by the Ministry of Forestry which is explained in the following section. Typical maps of the spatial plans are shown in Figure 7.3-1 - Figure 7.3-3.

Table 7.3-1 Use of the Each Site for the Existing Port Plans in the Spatial Plans

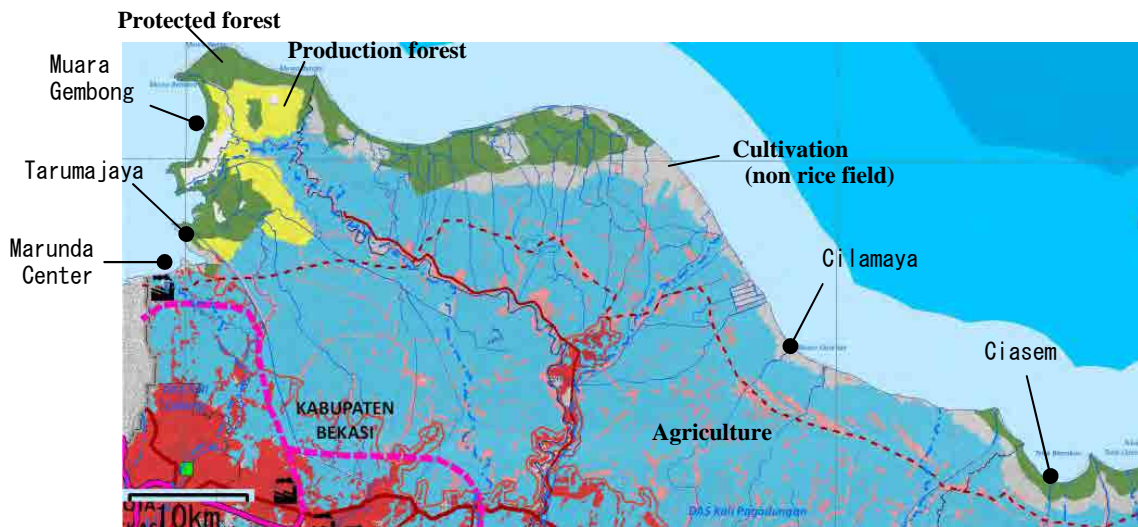
Area		Sites		Type of Use in the Spatial Plans		
				Plan of JABODETABEKPUNJUR	Plan of Province	Plan of Kabupaten
DKI Jakarta		1	North Kalibaru and East Ancol	High occupancy housing, trade and services, and industry	-	-
		2	Marunda (Jakarta)	High occupancy housing, trade and services, and industry	-	-
West Java	Bekasi Regent	3	Marunda Center	Middle occupancy housing, agriculture and industry	Industry	Industry
		4	Tarumajaya	Middle occupancy housing, agriculture and industry	Agriculture	Industry
		5	Muara Gembong	Protected forest	Protected forest	Protected forest
	Karawang Regent	6	Cilamaya	-	Agriculture	Fishpond (2009) Port (2004) Rice field
		7	Ciasem	-	Protected forest	
Banten	Tangerang Regent	8	Tangerang	Low occupancy housing	Agriculture	Urban settlement Rice field
	Serang Regent	9	Bojonegara	-	Settlement	Port

Source: Presidential Decree 54/2008 on Organization of Spatial Area of JABODETABEKPUNJUR
Map of the Spatial Plan of West Java Province 2009-2029
Map of the Spatial Plan of Banten Province 2010-2030
Map of the Spatial Plan of Kabupaten Bekasi 2009-2025
Map of the Spatial Plan of Kabupaten Karawang 2009
Map of the Spatial Plan of Kabupaten Karawang 2004
Map of the Spatial Plan of Kabupaten Tangerang 2008-2010



Source: Presidential Decree 54/2008 on Organization of Spatial Area of JABODETABEKPUNJUR

Figure 7.3-1 Spatial Plan of JABODETABEKPUNJUR and Location of the Existing Port Plans



Source: Map of the Spatial Plan of West Java Province 2009-2029

Figure 7.3-2 Spatial Plan of West Java Province and Location of the Existing Port Plans



Source: Map of the Spatial Plan of Banten Province 2010-2030

Figure 7.3-3 Spatial Plan of Banten Province and Location of the Existing Port Plans

7.3.2 Review of the Environmental Conditions

An overview of environmental conditions in the study area is given below.

(1) Protected Area

Based on the Law No.41/1999 on Forestry, the forest area in Indonesia has been designated and regulated with following categories by the Ministry of Forestry.

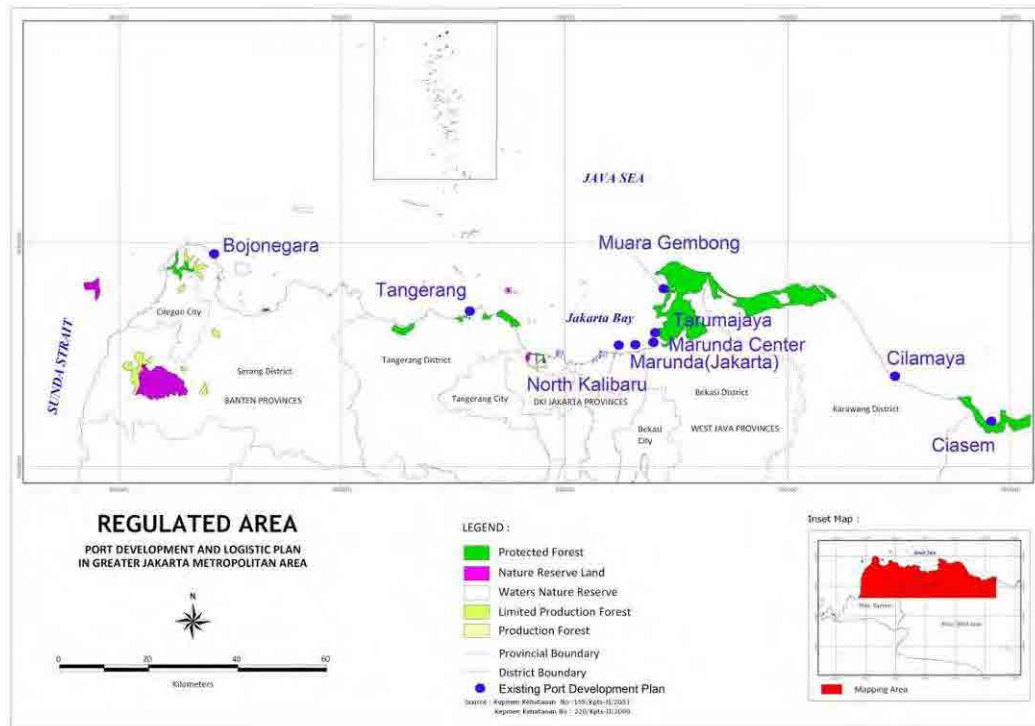
- Protected Forest: a forest area having the main function of protecting life-supporting systems for hydrology, preventing floods, controlling erosion, preventing sea water intrusion and maintaining soil fertility.
- Conservation Forest: a forest area with specific characteristics, having the main function of preserving plant and animal diversity and its ecosystem. (e.g. nature reserve)
- Production Forest: a forest area having the main function of producing forest products.

Designation in the study area is shown in Figure 7.3-4. Some parts of the coastal area are designated as Protected Forest including the existing port-development sites of Muara Gembong, Tarumajaya and Ciasem.

Apart from the designation by the Ministry of Forestry, local governments have been proposing their own land-use plan in the spatial plans (see section 7.3.1). In the special plans, Tarumajaya has been suggested to be released from the designation by local governments, while Muara Gembong and Ciasem are still maintained as Protected Forest. It suggests that the local government intends to construct a port in Tarumajaya independently from this new container terminal project.

In Muara Gembong and Ciasem, most of the designated areas have been used as fishponds in reality; however, the Ministry of Forestry points out that it is illegal use and the activities which diminish the forest function should be prohibited. Originally, it is assumed that these areas used to be mangroves, which remain to some extent (Photo 7.3-1).

Also, off shore islands are designated as conservation areas in terms of ecological conservation.



Source: JICA Study Team developed from Kepmen Kehutanan No.195/Kpts-II/2003 and 220/Kpts-II2000

Figure 7.3-4 Protected Area



Mangrove at the coast of
Muara Gembong



Mangrove and fishpond in
Muara Gembong

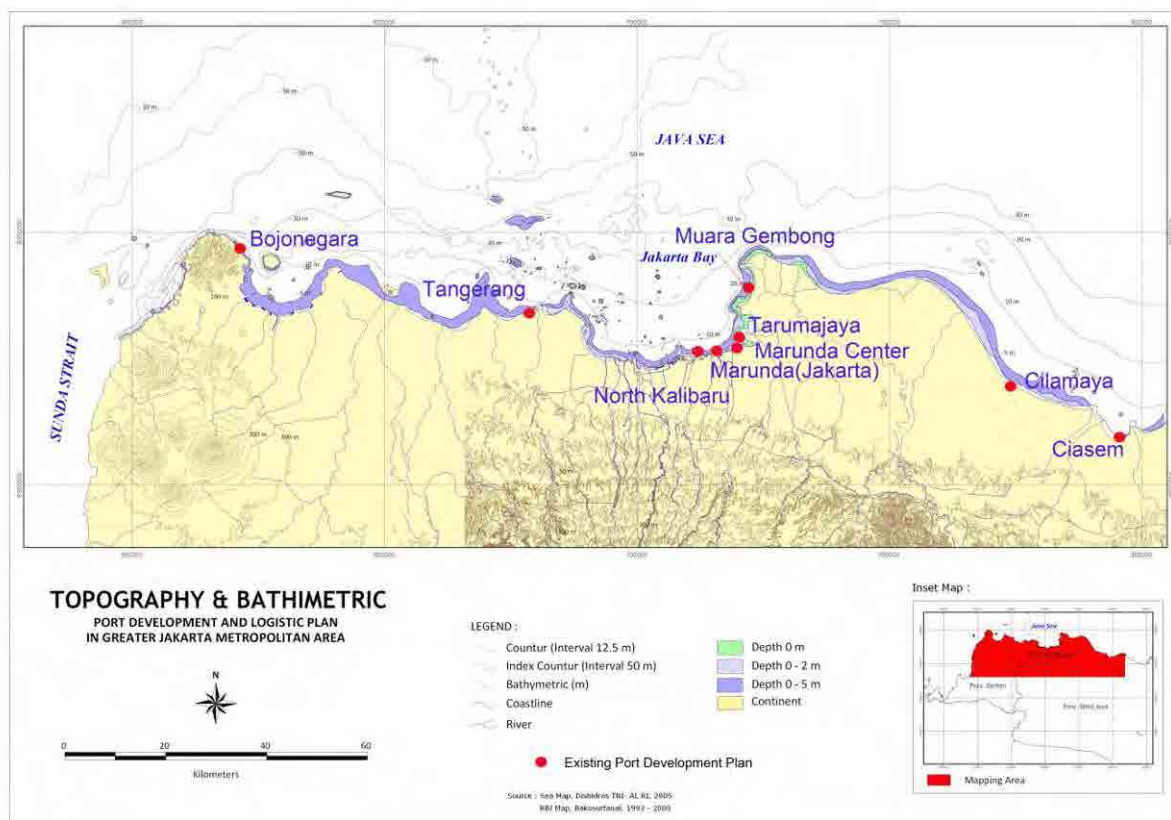


Mangrove in Ciasesem

Photo 7.3-1 Mangrove in the Protected Area

(2) Coastal Environment

Topography and bathymetry of the study area are described in Figure 7.3-5. Most part of the coastal area in the study area consists of gently shelving shallow beach; the area of which water depth is less than five meters stretches up to four km from the coastal line. The upper parts of the shallow area are so called tidal flats, which become exposed at low tide. The bottom of the tidal flats and the shallow sea areas are composed of muddy sediment brought by the week current. In those shallow sea areas, equipment for fisheries set on the sea bottom are often observed (Photo 7.3-2).



Source: JICA Study Team developed from Chart TNI-Alri, 2005 and RBI Map Bakosurtanal, 1993-2000

Figure 7.3-5 Topography and Bathymetry of the Study Area



Tidal flat in Tangerang



Mudskipper living in the tidal flat in Tangerang



Equipment for Fisheries in Tarumajaya

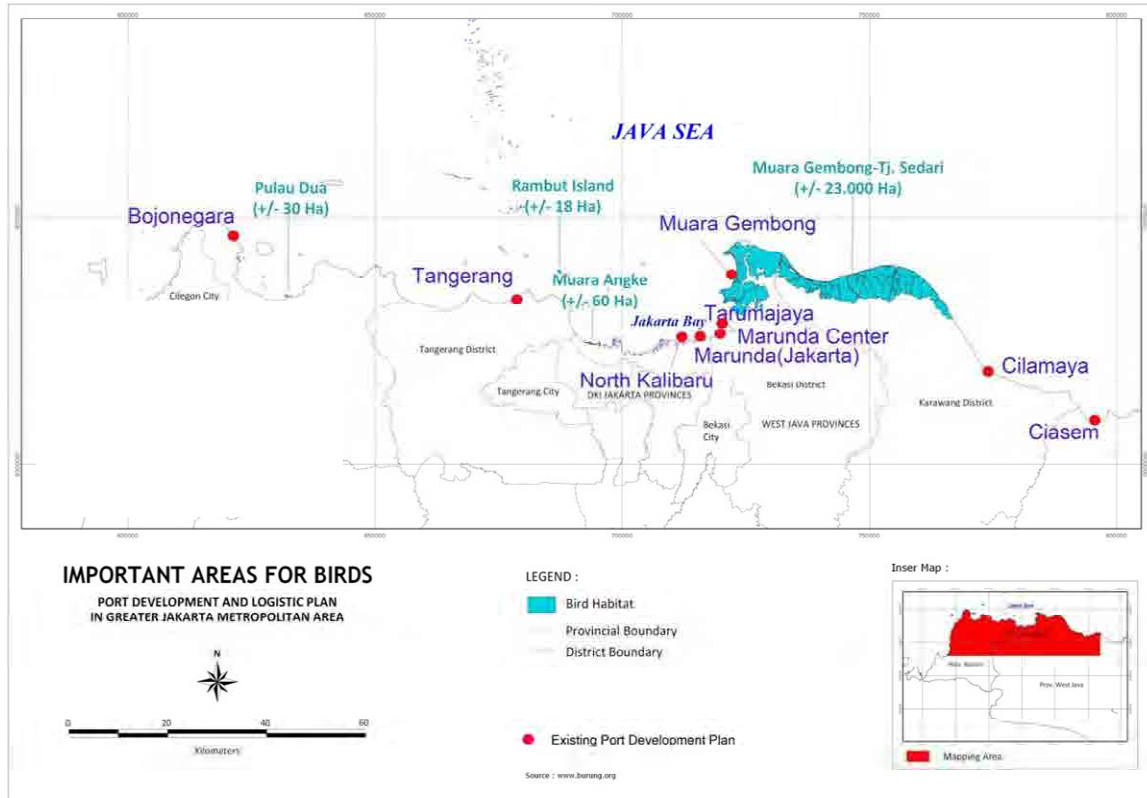
Photo 7.3-2 Coastal Environment

(3) Ecological Importance

Bird Life International, non-government organization, has listed the important bird habitat in the world (IBA: Important Bird Areas). The listed areas in the study area are shown in Figure 7.3-6. Along the coastal area, four areas have been listed: Muara Gembong-Tanjung Sedari, Muara Angke, Pulau Rambut and Pulau Dua.. The habitat types of the largest area, Muara Gembong-Tanjung Sedari, are ponds, small shrubs, mangrove and freshwater swamps. The other three areas also consist of mangrove and the other vegetation. Also, Plau Rambut is known as the largest water bird breeding ground in West Java. (<http://www.burung.org>)

Figure 7.3-7 shows location of water areas which have been recognized as important area from ecological view points: large scale mangrove, coral reefs and sea grass bed. The area around the off

shore islands, Plau Surib (Thousand Island) is designated as conservation water area by the Ministry of Forestry.

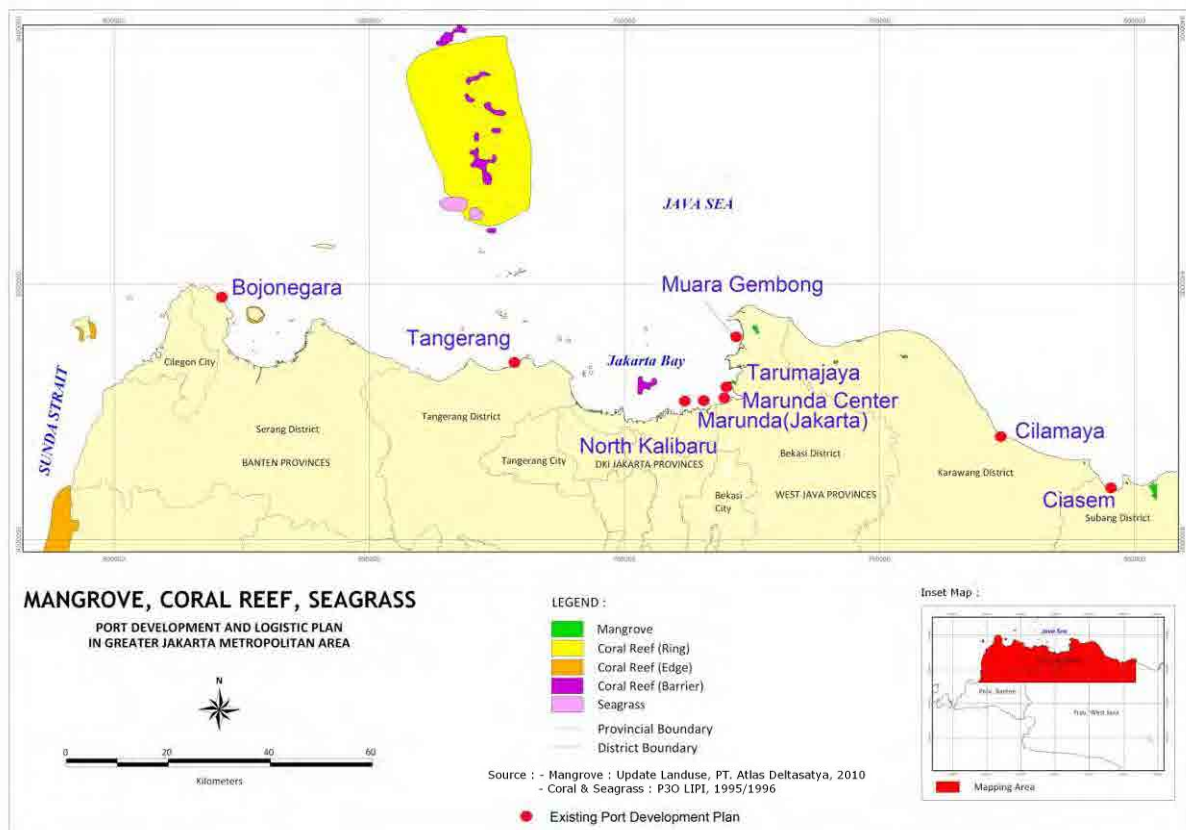


Source: JICA Study Team developed from www.brung.org

Figure 7.3-6 Important Bird Areas



Photo 7.3-3 Birds Observed in Muara Gemgong



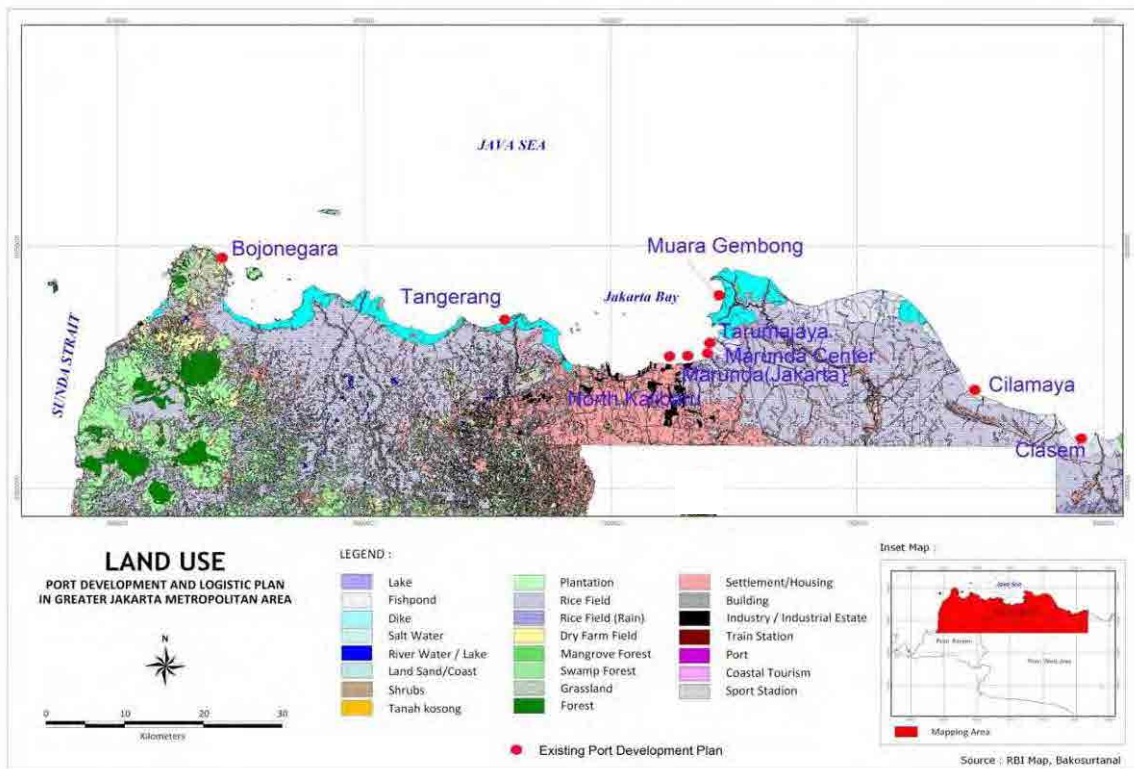
Source: JICA Study Team

Figure 7.3-7 Mangrove, Coral Reef and Seagrass Bed

(4) Land Use and Water Area Use

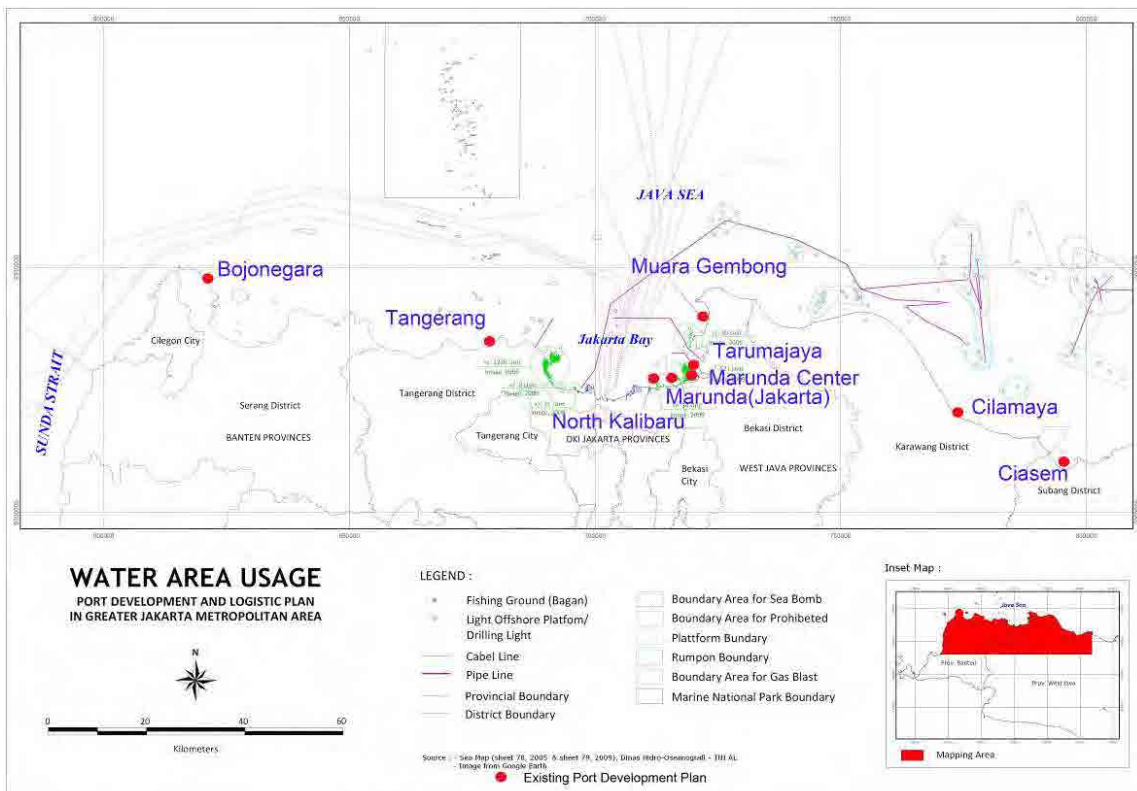
Figure 7.3-8 shows land use in the study area. Most part of the outside of Jakarta city consists of rice field. Coastal area is expressed as dike in this map; however, most of the areas are used as fishpond in reality.

In water areas, activities such as fishery and oil drilling are conducted as shown in Figure 7.3-9. In Jakarta Bay, coastal area is used for fishery with settled equipment called 'bagan'. Oil drilling is conducted off shore of Karawang and Subang district.



Source: JICA Study Team developed from RBI Map Makosurtanal

Figure 7.3-8 Land Use



Source: JICA Study Team developed from Chart TNI-ALRI 2005 and Google Earth

Figure 7.3-9 Water Area Use

7.4 Selecting Several Alternatives

Considering the results of the preliminary review and the analysis of natural condition (Chapter 3) and traffic capacity (Chapter 4), criteria shown in Table 7.4-1 were selected to evaluate the sites in terms of environmental and social considerations to screen the sites for the new container terminal. The criteria were selected from following viewpoints. The other important criteria for environmental and social considerations such as involuntary resettlement are introduced in the next scoping stage after narrowing down to some alternatives (see Section 7.6).

- Criteria that is strongly related to the site location; there is not much choice except to change the site to mitigate the impact.
- Criteria that is available to collect broad-based information for fair evaluation among the nine candidate sites.

The results of screening by the criteria were shown in Table 7.4-2.

Combined with the other evaluation results apart from the environmental viewpoints, the candidate sites for the new container terminal were narrowed down as follows (refer to Chapter 4.6).

- North Kalibaru
- Cilamaya
- Tangerang

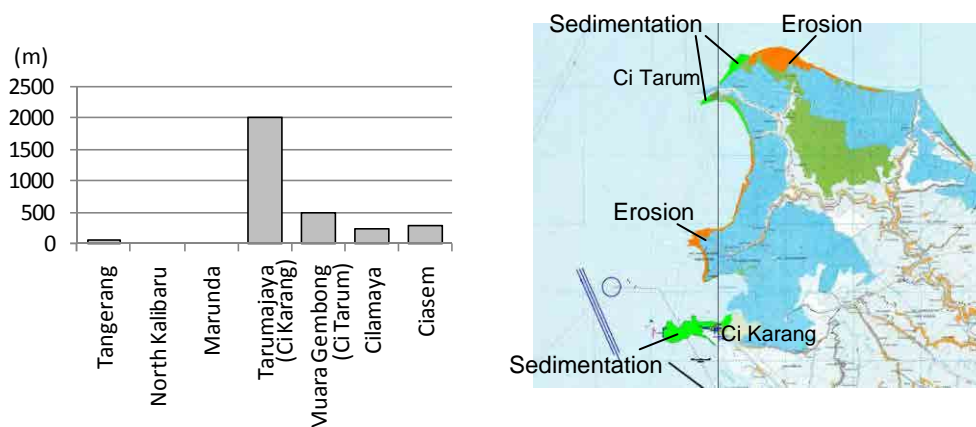
Taking account of the forecast demand, capacity analyses and the three sites which have been narrowed down, the following three options for the development of international container terminals have been drafted.

Outline of each option is summarised in Table 7.4-3. Each option consists of container terminal and access road. Railway is not included since it is recognized as a long-term plan.)

- Option 1: Fully concentration on Tanjung Priok Terminal
- Option 2: Split to Tanjung Priok Terminal and Cilamaya
- Option 3: Split to Tanjung Priok Terminal and Tangerang

Table 7.4-1 Criteria in Terms of Environmental and Social Considerations

Criteria Items		Explanation
Natural Environment	Regulated Forest Area (Protected Forest)	As shown in the section 7.3.2 (1), some sites are located in the regulated forest area designated by the Ministry of Forestry. The designation is for conservation of the forest function; therefore, it is disobedience in case that the sites are located in the area. The protected forest is also described in the spatial plans of local governments; therefore, obedience to the spatial plans was also evaluated together with the designation by the Ministry.
	Ecological Importance	In terms of ecological conservation, developmental project needs to avoid ecologically important areas. There are some important habitats for birds in the coastal area of the study area as described section 7.3.2 (3). Bird can be an indicator of the ecological condition as it shares higher trophic level in ecosystem. Besides, there is little information of the other animals and plants along the coastal area; therefore, the ecological importance was evaluated in terms of the bird habitat.
	Coastal Line Changes	Coastal line changes caused by natural erosion and sedimentation indicate instability of the coastal environment. Areas with large amount of changes are concerned about a risk of environmental balance change when the port structure is constructed. Therefore, amount of coastal line changes analyzed in the Chapter 3 was used as one of the criteria items. Changes in 16 years from 1993 to 2009 in each site were summarized in Figure 7.4.1.
Social Environment	Traffic Congestion	Since JABODETABEK area has already suffered from serious traffic congestion, the sites which alleviate the problem are desirable in terms of social environment.




Source: JICA Study Team

Figure 7.4-1 Coastal Line Changes in recent 16 years (1993-2009)

Table 7.4-2 Site Evaluation in Terms of Environmental and Social Considerations

Area		Sites	Criteria Items				Natural Environment			Social Environment
			Regulated Forest Area (Protected Forest)			Ecological Importance	Coastal Line Changes	JABODETA BEK Traffic Congestion		
			Regulation by the Ministry of Forestry	Spatial Plan of Provincial Government	Spatial Plan of the Government of Regent					
DKI Jakarta		1 North Kalibaru							Acceleration	
		2 Marunda (Jakarta)							Acceleration	
West Java	Bekasi Regent	3 Marunda Center							Acceleration	
		4 Tarumajaya	Disobedience				Excessive	Acceleration		
		5 Muara Gembong	Disobedience	Disobedience	Disobedience	Important for birds	Unstable	Acceleration		
	Karawang Regent	6 Cilamaya						Alleviation		
	Subang Regent	7 Ciasem	Disobedience	Disobedience	Disobedience			Alleviation		
Banten	Tangerang Regent	8 Tangerang						Acceleration		
	Serang Regent	9 Bojonegara						Acceleration		

 : Negative evaluation results for the new container terminal.

Source: JICA Study Team

Table 7.4-3 Outlines of Selected Alternatives

Alternatives	Outline
Option-1 Phase I-III at North Kalibaru	Fully concentration to the existing Tanjung Priok Terminal with North Kalibaru Phase I-III. There are three alternatives for the layout of the new terminal: alternative 1, 2 and 3. New access road (Eastbound Access Road) is constructed to connect the new terminal with the toll road in the industrial area in Kabupaten Karawang. The road from the new terminal until Kabupaten Bekasi is planned to be an off-shore elevated road with bridge structure. Part of the alignment on land area is along with the 2nd Outer Ring Road (JORR2), which has been planned by the Government of Indonesia.
Option-2 Phase II-III at Cilamaya after Phase I at North Kalibaru	Split to the existing Tanjung Priok Terminal and Cilamaya with North Kalibaru Phase I. There are three alternatives for the layout of Phase I at North Kalibaru. New access road is constructed to connect the new terminal at Cilamaya with the toll road at the industrial area in Kabupaten Karawang.
Option-3 Phase I-III at North Kalibaru and Tangerang	Split to the existing Tanjung Priok Terminal and Tangerang with North Kalibaru Phase I-III. There are three alternatives for the layout at North Kalibaru. In addition to the new access road of option 1, another new access road is constructed from the new terminal in Tangerang until the junction of the planned 2nd Outer Ring Road (JORR2).
Without project	No infrastructure is prepared for increased port cargo. Overflowed cargo is handled in Marunda Port using barges.

Source: JICA Study Team

7.5 Results of Public Consultation-1 (Scoping)

7.5.1 Outline

A stakeholder meeting was held on the 22nd in October, 2010. The objectives were as follows. In total, 23 people participated excluding JICA team and organizer (see Table 7.5-1).

Objectives

1. Explaining alternatives of the new international container terminal to be developed.
2. Discussing consequences of those alternatives in terms of environment aspects, as well as social and economic aspects.
3. Discussing key or focal issues to be considered during and after the development of new terminal

Table 7.5-1 Participants of the Focus Group Discussion

Category (Number of Participants)	Organization
Central Government (3)	DGST, Ministry of Transportation
Local Governments (8)	Bappeda (Regional Development Planning Board), DKI Jakarta
	BPLHD (Environmental Management Agency), DKI Jakarta
	BPLHD (Environmental Management Agency), West Java Province
	BKSP Jabodetabekjur (Development Cooperation Agency of Jakarta, Bogor, Depok, Tangerang, Bekasi and Cianjur)
Associations (6)	HNSI (Indonesian Fishery Community)
	APBMI (Indonesian Cargo Handling Companies Association)
	GPEI (Association of Indonesian Exporter)
	IPERINDO (Association of Indonesian Shipping and Offshore Infrastructure)
	GAFEKSI (Association of Indonesian Forwarder)
NGO (1)	WALHI (Wahana Lingkungan Hidup)
Port developer/operator (2)	Pelindo II
Academicians (3)	University of Indonesia

Source: JICA Study Team

7.5.2 Results of Discussion

In the meeting, JICA Study Team presented the outline of the project and process of selecting the alternatives which was described in section 7.4. After the presentation, possible consequences and key issue on developing the terminal was discussed.

Considering the requirements of the port development due to the demand increase and the government policy, necessity of the project was basically agreed between the participants. However, the suitable location for the new terminal became the matter of discussion: one option is expanding the current Tanjung Priok terminal while the other is to make a new terminal outside of Jakarta. Some participants expressed their views that the terminal should be moved outside of Jakarta because terrible congestion in the urban area needed to be concerned. On the other hand, it was also pointed out that moving the port-related facilities to the new terminal was difficult considering the cost and the duration to be completed. The evaluation on the cost and the other economic aspects was requested to decide the suitable location as well as providing infrastructure plans for the port traffic. In addition, it was notified that influence on the rice field should be considered to secure the food production in the case of development in Cilamaya, Karawang.

Regarding the items to be evaluated in the SEA study, it was reminded that positive effects brought by the project should be considered as well as the negative aspects.

7.6 Scoping

In order to decide appropriate site for the new terminal in terms of the environmental aspects, possible environmental consequences shown in Table 7.6-1 were determined to be evaluated for each of the three alternatives; option-1 (North Kalibaru expansion), option-2 (a new terminal in Cilamaya) and option-3 (North Kalibaru expansion and a new terminal in Tangerang).

Since the SEA study is focusing on the site selection, these evaluation items were determined considering possibility of the regional differences between those three options. The items was discussed not only from negative aspects but also from positive aspects such as socio-economic effects brought by the new terminal.

Based on the scoping results, supplemental environmental survey (field reconnaissance and interview) was conducted at the three candidate sites to obtain information of fishing activities, ecological condition, existing road and community condition.

Table 7.6-1 Possible Consequences to be Evaluated in the Stage of Site Selection (Scoping for SEA level)

No.	Possible Consequences (Evaluation Items)	Brief Description
Social environment		
1	Impact on rice field	In Indonesia, agricultural land is conserved for securing food production. New access road may cause impact on the rice field.
2	Socio-economic effects	The new terminal is expected to bring positive effects on socio-economic condition such as increasing opportunities for employment.
3	Traffic congestion	The new terminal may accelerate traffic congestion of JABODETABEK area.
4	Involuntary resettlement	Involuntary resettlement will be required for the new access road.
5	Impact on fishery	Fishing ground may be eliminated by the reclamation and the channel dredging. Fishing activity may be affected by appearance of the new terminal.
6	Impact on existing infrastructures and services	New access road may split the existing road and communities.
Natural environment		
7	Impact on mangrove, coral reefs and tidal flats	Mangrove, coral reefs and tidal flats in/around the project site may be affected by construction of the new terminal.
8	Impact on fauna and flora	Aquatic/terrestrial flora and fauna in/around the project site may be affected by construction of the new terminal and the new road.

Source: JICA Study Team

7.7 Evaluation

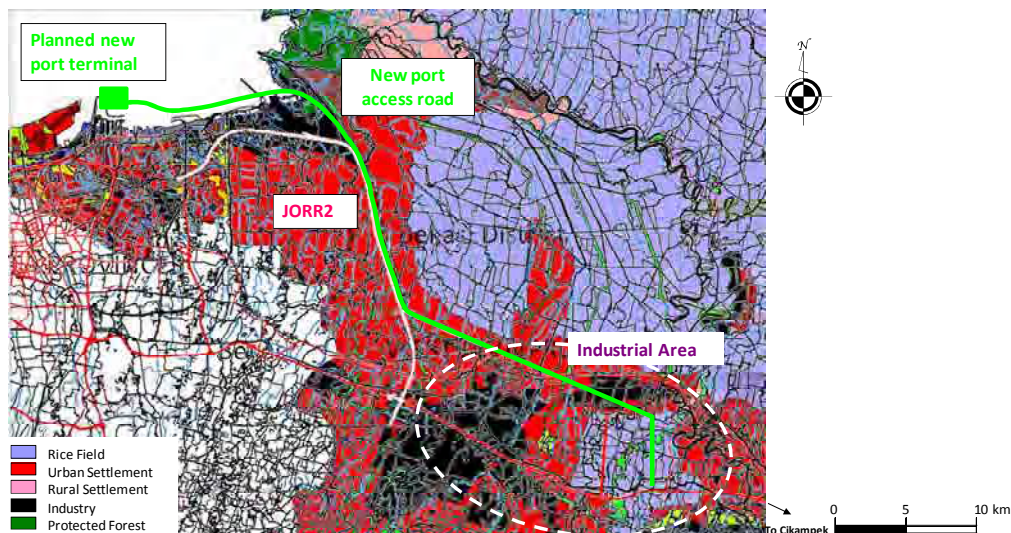
(1) Impact on Rice Field

In Indonesia, agricultural land is protected by Law No.41/2009. According to the law, agricultural land especially designated in the spatial plan has to be protected to secure food production. Agricultural land can be converted to the other land use in the case of public interest; however, at least three times the original area is required to be prepared with irrigation in addition to the compensation for farmers.

Figure 7.7-1 - Figure 7.7-3 shows access road plan in each candidate site together with spatial plan developed by local governments. For either of the plans, impact on rice field is unavoidable as every route of the planned access road needs to pass through the rice field area.

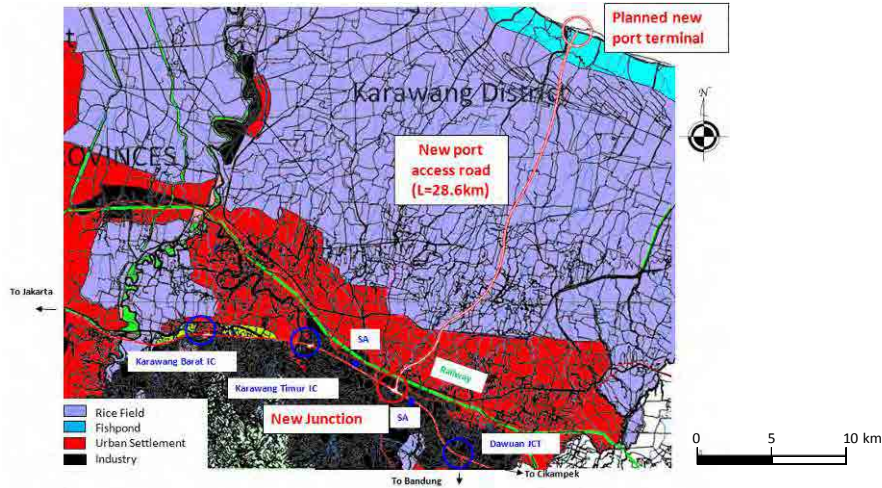
Figure 7.7-4 is showing actual area of each land use to be altered for the access road plans. Option-2 needs the largest alteration of rice field; however, the other options also require almost same level of alterations.

To minimize the alteration of rice field, it is necessary to discuss the possibility of designing the road as a dedicated road for port traffic to prevent disorderly development along the new road.



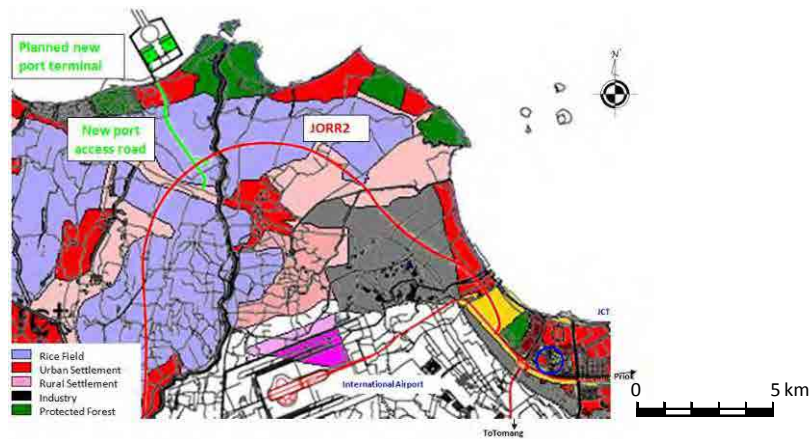
Source: JICA Study Team

Figure 7.7-1 Access Road Plan for the Kalibaru Expansion (Option-1 and 3) and Spatial Plan of DKI and Kabupaten Bekasi



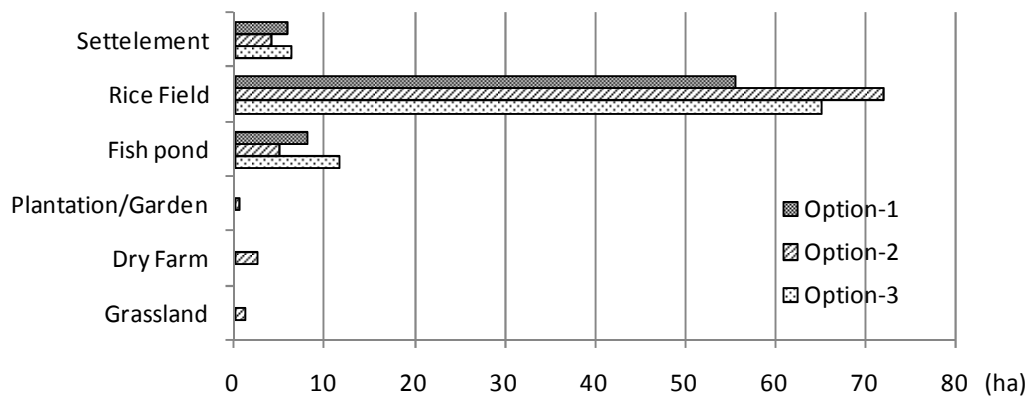
Source: JICA Study Team

Figure 7.7-2 Access Road Plan for the Cilamaya (Option-2) and Spatial Plan of Kabupaten Karawang



Source: JICA Study Team

Figure 7.7-3 Access Road Plan for the Tangerang (Option-3) and Spatial Plan of Kabupaten Tangerang

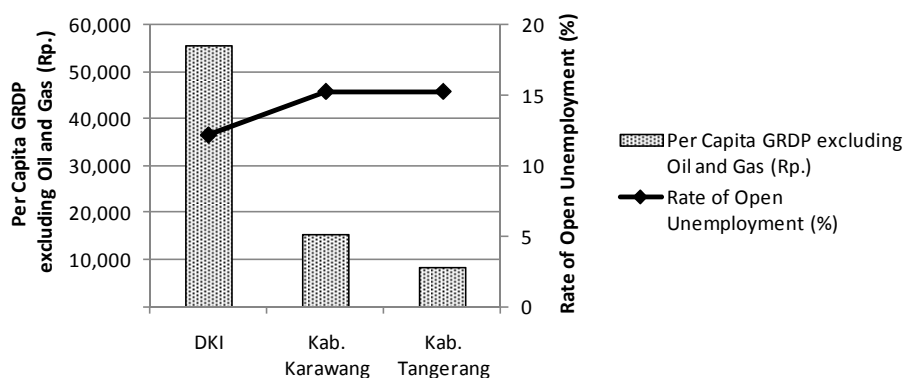


Notes) 1. Estimated based on RBI Map updated in 2010.
2. On the assumption that the width of alteration area for access road is 30m.
Source: JICA Study Team

Figure 7.7-4 Area of Land Use to be Altered for the Access Road

(2) Socio-economic Effects

The new terminal is expected to bring socio-economic effects to the region by increasing employment opportunities and investments. Figure 7.7-5 and Table 7.7-1 show the current socio-economic condition of each region for the alternatives. DKI Jakarta has high GRDP per capita compared with Tangerang and Karawang in addition to a lower rate of unemployment. This fact indicates the economic gap between DKI Jakarta and the surrounding regions. In terms of narrowing the regional economic gap, option 2 and 3 are considered to have a positive effect, since they will attract investments to the surrounding regions.



Source: BPS, Produk Domestik Regional Bruto Kabupaten/Kota di Indonesia 2004-2008
BPS, DKI Jakarta Dalam Angka 2009

Figure 7.7-5 Socio-economic Condition of each Region for Alternatives

Table 7.7-1 Socio-economic Condition of each Region for Alternatives

Area	DKI		Kab. Karawang	Kab. Tangerang
	Jakarta Utara	Total		
Per Capita GRDP* excluding Oil and Gas (Rp.) (2006)	65,486	55,711	15,276	8,330
Rate of Open Unemployment (%) (2008)	13.93	12.16	15.23	15.23
Unemployed Polulation (2008)	109,600	580,511	142,967	252,574
Area (km2)	147	662	1,753	1,110
Population (2008)	1,459,360	9,146,181	2,112,433	3,574,048

* Current Market Price

Source: BPS, Produk Domestik Regional Bruto Kabupaten/Kota di Indonesia 2004-2008
BPS, DKI Jakarta Dalam Angka 2009

(3) Traffic Congestion

Table 7.7-2 and Figure 7.7-7 show the results of estimation of port-related truck occupancy to the road capacity in each option in 2030. In the case without the project, truck occupancy ratio in the eastern part of JABODETABEK area (section C and G) is estimated to be over 50%, the acceptable limit for port traffic to share with non-port related vehicles on the public toll road. The high ratio in the eastern part is due to increase of industrial cargo produced in West Java Province which needs to flow toward Tanjung Priok Terminal. In the case of option-1 and 3 with Kalibaru expansion, the ratio in the eastern part is estimated to be decreased compared to the without case because the cargo will be separated to the new access road. However, the ratio in the eastern part including the new access road (section I) is still high, around 50%.

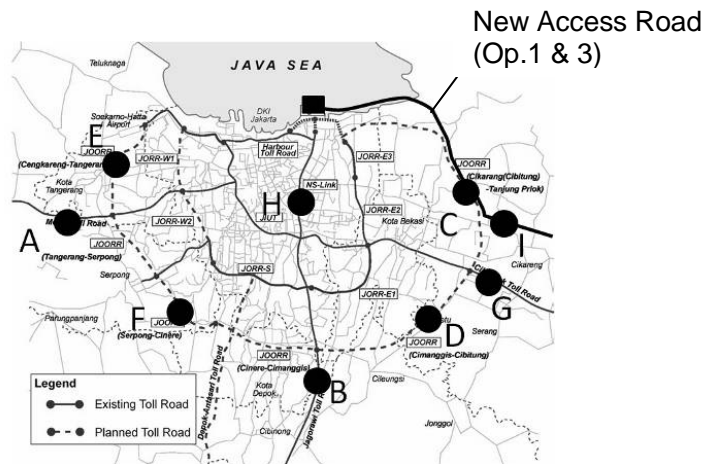
On the other hand, the ratio in the eastern part is relatively low in the case of option-2 because industrial cargo produced in West Java Province will be handled in the new terminal of Cilamaya and not flow into JABODETABEK area. Therefore, constructing new terminal in Cilamaya will contribute to the alleviation of traffic congestion in JABODETABEK area.

There is no difference on the truck occupancy ratio in the center of Jakarta (section H) and the eastern and southern part of JABODETABEK area (section E, A and B) between the cases, since the port traffic from/to Banten Province, DKI Jakarta and Bogor will take same route in all cases.

Table 7.7-2 Estimation of Port-Related Truck Occupancy in 2030

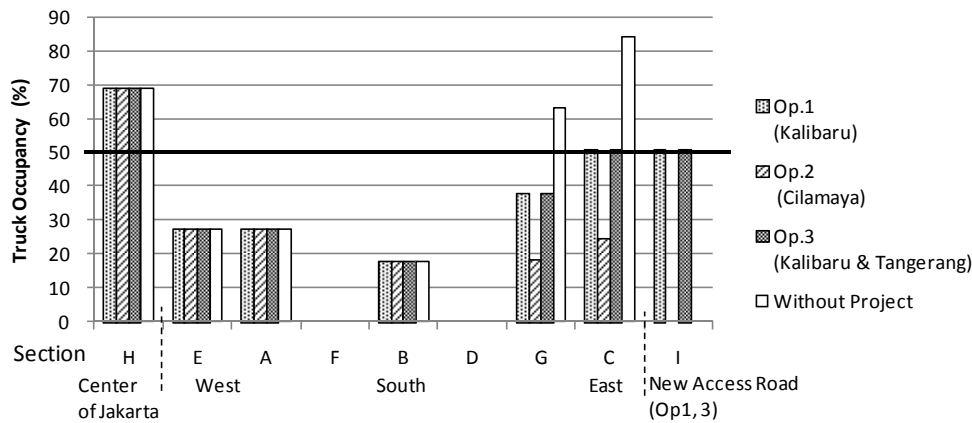
Section	Route	Nos. of Lane	Capacity (pcu/day)	Op.1 Kalibaru		Op.2 Cilamaya		Op.3 Kalibaru & Tangerang		Without Project	
				Truck Volume (veh/day)	Truck occupancy	Truck Volume (veh/day)	Truck occupancy	Truck Volume (veh/day)	Truck occupancy	Truck Volume (veh/day)	Truck occupancy
A	JKT Center ~Cilegon	3	60,000	5,485	27%	5,485	27%	5,485	27%	5,485	27%
B	JKT~Bogour	3	60,000	3,598	18%	3,598	18%	3,598	18%	3,598	18%
C	2nd Outer Ring Road (NE)	3	60,000	10,117	51%	4,884	24%	10,117	51%	16,861	84%
D	2rd Outer Ring Road (SE)	3	60,000	-	0%	-	0%	-	0%	-	0%
E	2rd Outer Ring Road (NW)	3	60,000	5,485	27%	5,485	27%	5,485	27%	5,485	27%
F	2rd Outer Ring Road (SW)	3	60,000	-	0%	-	0%	-	0%	-	0%
G	JKT Center~Cikanpec	4	80,000	10,117	38%	4,884	18%	10,117	38%	16,861	63%
H	North~South Inner Road	3	60,000	13,751	69%	13,751	69%	13,751	69%	13,751	69%
I	New Access Road (NE)	2	40,000	6,744	51%	-	-	6,744	51%	-	-

Source: JICA Study Team



Source: JICA Study Team

Figure 7.7-6 Location of the Section for Estimating Port-Related Truck Occupancy



Source: JICA Study Team

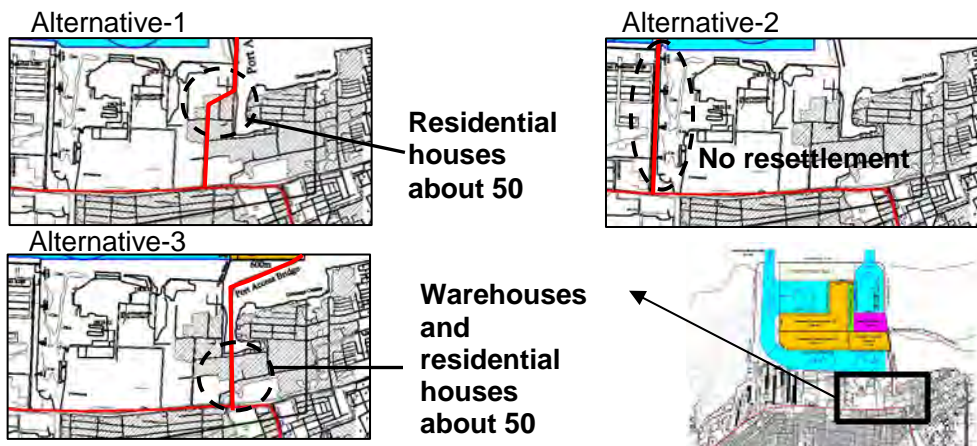
Figure 7.7-7 Estimated Port-Related Truck Occupancy Ratio in 2030

(4) Involuntary Resettlement

In order to construct the new access road, involuntary resettlement is required.

Phase II and III project, the number of houses to be relocated is about 160 for each option. Those buildings are residential houses for middle-classed inhabitants, shops, offices and warehouses.

Phase I project at North Kalibaru, which is common among the three options, includes development of North-South Access Road (Figure 7.7-8). In the case that the alternative-1 or 3 is selected for the layout plan of Phase I, about 50 houses are added to each option for developing North-South Access Road. Those houses are located in Kelurahan Kalibaru, Kecamatan Cilincing, the poorest Kelurahan in Jakarta Province with 85 % of the households living below the poverty line (according to a newspaper Pos Kota, 25/10/2010).



Source: JICA Study Team

Figure 7.7-8 Location and the Number of the Buildings to be Resettled for North-South Access Road in North Kalibaru Phase I Project

(5) Impact on Fishery

Impact on fishery was assessed based on the information of current fishing activities around each site. The information was collected by interviews to the fishermen and local governments.

Due to limited available information, impacts were roughly evaluated mainly focusing on whether the affected area would cover the fishing ground or not. The detailed information of fishing activities such as number of affected fishermen and their income needs to be considered in the EIA stage.

1) Kalibaru (Option-1 and 3)

Fishing ground around Tanjung Priok Terminal is divided into the east and the west by the port. The impact caused by the Kalibaru project may be appeared in the east fishing ground since the new terminal and the access road are planned to be in the east of the current port area.

In the east of the port area, various types of fishing activity are operated by local fishermen as shown in Table 7.7-3 and Figure 7.7-9. The closest fishing ground to the port is for aquaculture of mussel by the fishermen who base in Kalibaru and Cilincing. They farm mussels using bamboo poles fixed on the sea bottom with the depth of about five meters. According to the marine affairs of DKI Jakarta (Dinas Kelautan dan Pertanian), fishing activities using fixed equipment is prohibited in Jakarta Bay; however, many fishermen are still operating with those methods.

Table 7.7-4 shows the numbers of fisherman, platform and production of mussel aquaculture in Kelurahan Cilincing.

The new access road (Eastbound Access Road) is planned to be constructed in the shallow fishing ground along the coast. Therefore, coordination with the fishing activities is required although it is planned as bridge style to minimize the impact to the fishing ground.

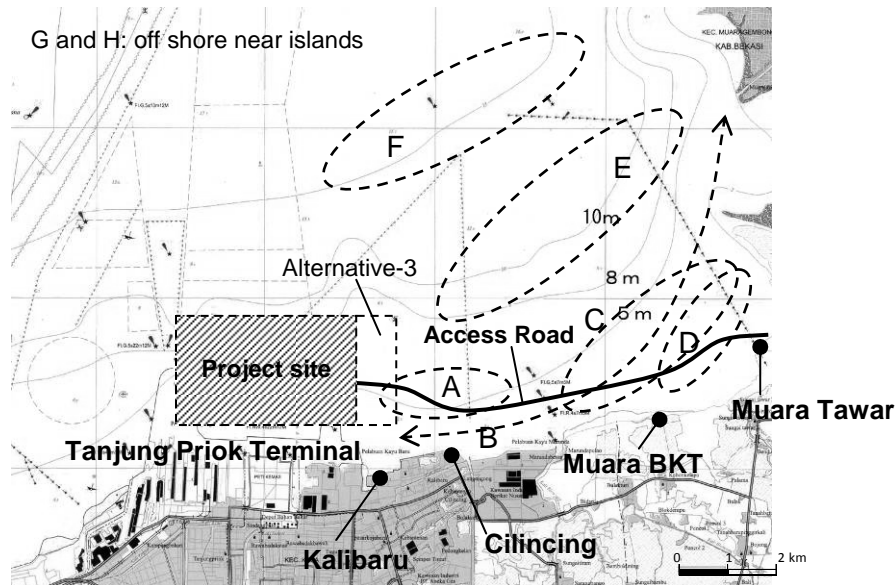
Comparing between the three alternatives (alternative 1 to 3), impact on the fishery will be larger in the case of alternative-3, since the port area will be extended closer to the aquaculture ground and may partly eliminate the ground (see Figure 7.7-9). In addition, fishing boats leaving from Kalibaru have to go around due to the new terminal in the case of alternative-3.

Table 7.7-3 Fishing Ground and Type of Fishing Activities around the Site of Kalibaru

Area	Depth	Fishing Method	Type of Fish	Fish Catch	Base (port)	Notes
A	5 m	Aquaculture with bamboo poles	Mussel	?	Cilincing Kalibaru	3months to grow.
B	3-4 m	Diving with harpoon	Fish, seaweed	1-5kg/trip	Kalibaru, Muara BKT	
C	2-5m	Sero (stationary fish trap)	Small fish for livestock, small shrimp, shrimp	1-3kg/trip	Muara BKT, Muara Tawar	
D	2-3m	Bondet net	Small fish, mullet, shrimp, squid	300-1000kg/trip	Muara Tawar	One day/trip
E	10m	Rampus net (gill net)	Mackerel, Spanish mackerel, snapper, ray fish	200-1000kg/trip	Muara Tawar	One day/trip
F	15m	Bagan (stationary lift net)	Small fish, mullet, squid	20-200kg/trip	Cilincing Kalibaru	
G	20m	Net (Boat 5GT)	Small fish, white pomfret, squid	100-500kg/trip	Cilincing	One day/trip
H	15m	Net (Boat 18GT)	Mackerel, snapper, squid	1-2ton/trip	Kalibaru	3-4day/trip

Notes) Location of each fishing ground is shown in Figure 7.7.10.

Source: JICA Study Team based on the interview to fishermen at Kalibau, Cilincing, Muara BKT and Muara Tawar.



Notes) A-H shows estimated location of fishing ground.

Source: JICA Study Team based on the interview to fishermen at Kalibau, Cilincing, Muara BKT and Muara Tawar.

Figure 7.7-9 Estimated Fishing Ground around the Site of Kalibaru

Table 7.7-4 Numbers of Fisherman, Platform and Production of Mussel Aquaculture in Kelurahan Cilincing

Year	Number of Fisherman			Number of Platform (Unit)	Production (Ton)
	Owner	Worker	Total		
2005	240	720	980	1,299	200,000
2006	235	648	883	1,160	180,000
2007	60	175	235	630	90,780
2008	307	1,535	1,842	1,396	34,900
2009	326	1,300	1,626	1,030	31,100

Source: Dinas Kelautan dan Pertanian, DKI Jakarta

Table 7.7-5 Number of Fishing Vessels in Kalibaru and Cilincing

Year	Kelurahan	Kalibaru	Cilincing
2009		137	445

Source: Dinas Kelautan dan Pertanian, DKI Jakarta

2) Cilamaya (Option 2)

Outline of the fishery in Kabupaten Karawang is shown in Table 7.7-6. According to the fisheries affair (Suku Dinas Perikanan) of Karawang, the fishing ground in Karawang has been kept in relatively good condition comparing with the neighbors.

The fishing ground and the fishing activities around the project site are summarized in Table 7.7-7 and Figure 7.7-11.

In the south-east of the project site, there are small coral reefs which are exposed at low tide. Since coral reef plays important role for marine environment as well as fishery production, the location of the terminal was proposed so not to eliminate the coral reef area.

The shallow area around the project site is utilized as fishing ground of fish and shrimp. Some parts of the fishing ground will be eliminated by construction of the terminal.

The land area along the shoreline is used as fishponds. The total production of the fishpond in Kabupaten Karawang is shown in Table 7.7-8.

Table 7.7-6 Outline of the Fishery in Kabupaten Karawang (Sea Area)

Items	Data
Number of Vessels	1,088
Number of Fishermen	5,257
Number of Bases (Fish Landing Place)	11
Production	7,590.9 tons (Rp 55,403,550,000)
Equipments	Seine net (Payang): 14.52% Gill net (Rampus): 58.18% Lift net (Bagan): 0.18% Long line (Pancing): 21.60% Trap (Bubu): 5.51%

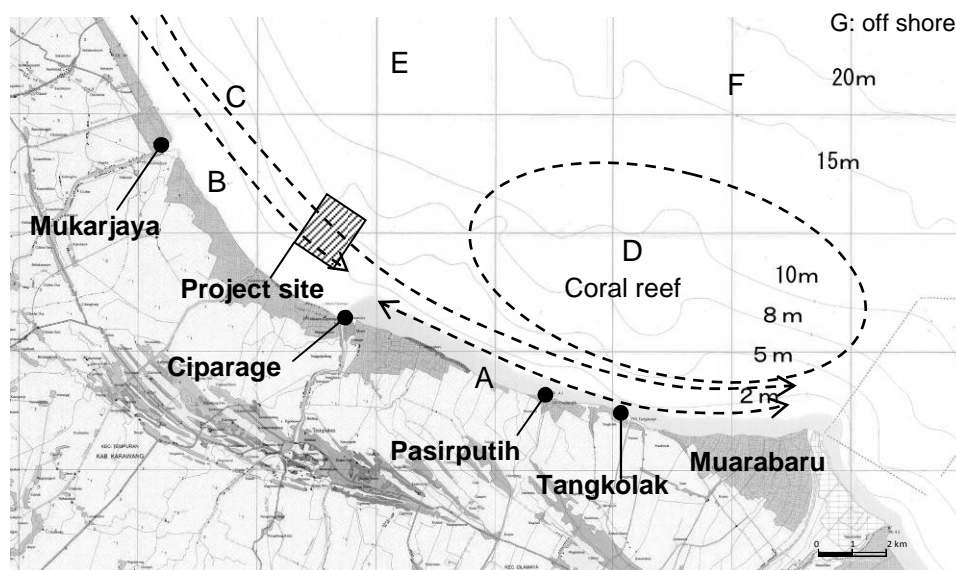
Source: Suku Dinas Perikanan, Kabupaten Karawang.

Table 7.7-7 Fishing Ground and Type of Fishing Activities around the Site of Cilamaya

Area	Depth	Fishing Method	Type of Fish	Fish Catch	Base (port)	Notes
A	< 2m	Net	Shrimp	?	Muara Baru, Ciparage and others	
B	2m	Bondet net	Shrimp, small fish	50-200kg/trip	Ciparage and others	
C	4m	Rampus net (gill net)	Fringescale sardinella, belo	?	Ciparage and others	Around 40 boats in Ciparage
D	<10m	Bubu (crab trap) and others	Crab and others	?	?	Coral reef
E	12m	Payang net (seine net)	Whitebait, small fish, squid	3-200kg/trip	Ciparage	
F	15-20 m	Rampus net (gill net)	?	?	Ciparage and others	
G	25-30 m	Payang net (seine net) with light	Fringescale sardinella, cob, spanish mackerel, pomfret	50-500kg/trip	Ciparage	

Notes) Location of each fishing ground is shown in Figure 7.7.11

Source: JICA Study Team based on the interview to fishermen at Ciparage and Dinas Perikanan of Kab. Karawang.



Notes) A-G shows estimated location of fishing ground.

Source: JICA Study Team based on the interview to fishermen at Ciparage and Dinas Perikanan of Kab. Karawang.

Figure 7.7-10 Estimated Fishing Ground around the Site of Cilamaya

Table 7.7-8 Production of Fishpond in Kabupaten Karawang

	Data
Total Production	35,101.2 tons (656,270,401,190 Rp.)
Major species	Shrimp and Milkfish

Source: Suku Dinas Perikanan, Kabupaten Karawang.

3) Tangerang (Option-3)

The fishing ground and the fishing activities around the project site are summarized in Table 7.7-9 and Figure 7.7-11.

Around the project site, fisheries using net and fishing rod are operated. Some of the fishing ground will be eliminated by construction of the terminal.

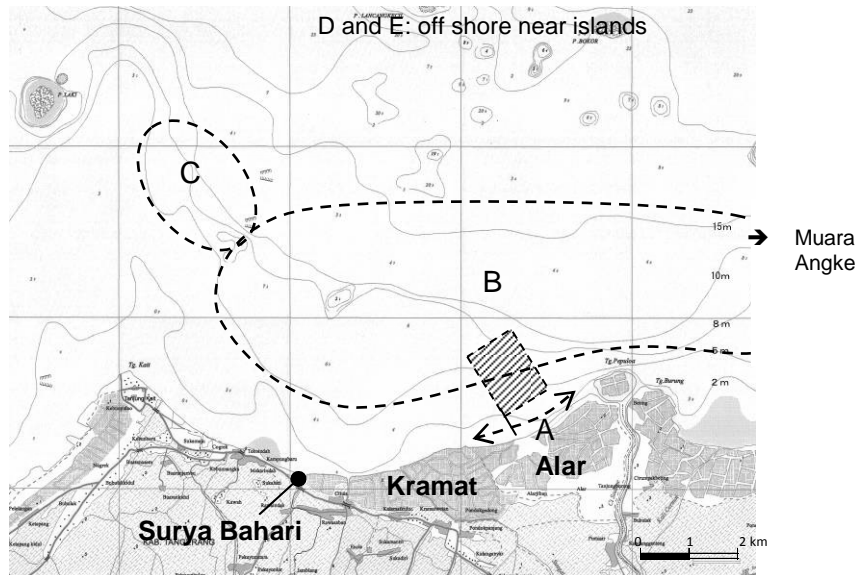
Table 7.7-9 Fishing Ground and Type of Fishing Activities around the Site of Tangerang

Area	Depth	Fishing Method	Type of Fish	Fish Catch	Base (port)	Notes
A	1-1.5m	Fish net and sudu (net for small shrimp) by walk	Small shrimp (rebon) and crab	10-100k g/trip	Kampung Alar Desa Kohod	
B	5-15m	Net and fishing rod	Mackerel, spanish mackerel, como	20-50kg/ trip (including at Plau seribu)	Desa Surya Bahari	One day trip. In early morning, fishing in Plau seribu. Around 100 boats in Surya Bahari
C	10m	Bagan (stationary lift net)	Small fish	?	Desa Surya Bahari	

D	20m	Fishing rod	Mackerel, spanish mackerel, snapper	10-20kg/ trip	Desa Kramat	3-4days/trip
E	25m	Bubu (crab trap)	Crab	100-400 kg/trip	Desa Kramat	1week/trip

Notes) Location of each fishing ground is shown in Figure 7.7.12.

Source: JICA Study Team based on the interview to fishermen and village office in Tangerang



Notes) A-E shows estimated location of fishing ground.

Source: JICA Study Team based on the interview to fishermen and village office in Tangerang.

Figure 7.7-11 Estimated Fishing Ground around the Site of Tangerang

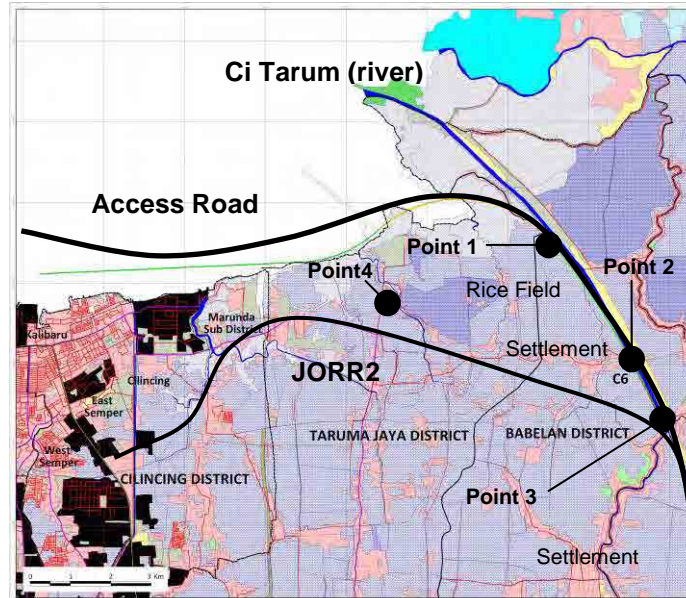
(6) Impact on Existing Infrastructures and Services

The new access road is constructed through the existing residential area; therefore, there is a possibility the new road splits the communities and the existing road. In this study, the community conditions along the alignments were observed and traffic volume was counted (ten minutes in each survey points) to collect supplemental data to explain the condition. Since the detail of the route alignment has not been proposed in this master plan study, the degree of the potential impact needs to be assessed in the next stage.

1) Kalibaru (Option-1 and 3)

The surroundings of the planned Eastbound Access Road are basically rice field with farmers' communities. The existing road along the alignment is relatively small scale used mainly by motorbikes (Table 7.7-10).

The alignment of the access road is planned to run along the river side; however, in order to connect with the industrial area in Kabupaten Karawang, it is necessary to pass through the residential area. Further impact assessment is required when the detailed route alignment is discussed.



Source: JICA Study Team

Figure 7.7-12 Survey Points along the New Access Road of North Kalibaru

Table 7.7-10 Results of Existing Traffic Volume Counting along the New Access Road of North Kalibaru

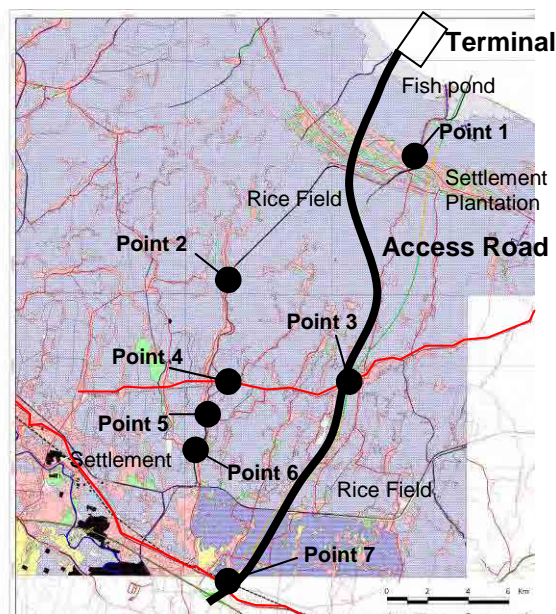
Point No.	1	2	3	4
Date	2010/10/14	2010/10/14	2010/10/14	2010/10/14
Time	Start	14.35	13.25	12.37
	End	14.45	13.35	12.47
General condition of surroundings	rice field, residential area	rice field, residential area	rice field, dry farm, river side	rice field, local shop
Number of Traffic in Ten (10) Minutes	Large truck			1
	Small to regular truck		1	3
	Passenger car		2	4
	Moterbike	18	61	74
	Bicycle	1	2	
	Walker	2		
	Others (Bus)			
	Total	21	66	82

Source: JICA Study team

2) Cilamaya (Option-2)

The surroundings of the planned access road are basically rice field with communities formed along the existing road and the river. Around the northern part of the alignments (point 1), the communities are in rural style consisting of farmers' houses. On the other hand, the southern part (point 2-7) is relatively more developed with commercial buildings.

The results of the traffic volume survey (Table 7.7-11) show that the roads toward the east and west have relatively large traffic volume (point 3, 4 and 7). The new access road and the railway will cross the existing road toward east and west; therefore, they will affect the existing traffic and the communities along the road by splitting them.



Source: JICA Study Team

Figure 7.7-13 Survey Points along the New Access Road of Cilamaya

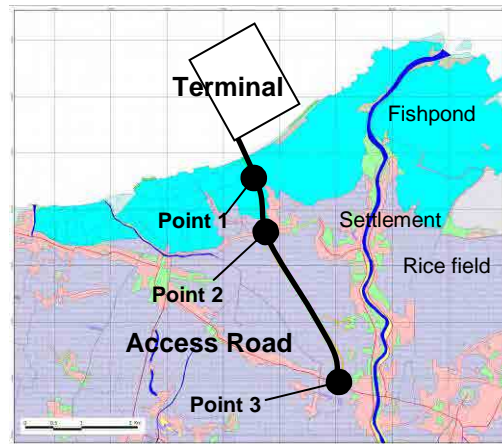
Table 7.7-11 Results of Existing Traffic Volume Counting along the New Access Road of Cilamaya

Point No.		1	2	3	4	5	6	7	
Date		2010/10/19	2010/10/19	2010/10/19	2010/10/19	2010/10/19	2010/10/19	2010/10/19	
Time	Start	14:42	15:50	9:47	16:20	16:48	17:06	17:44	
	End	14:52	16:00	9:57	16:30	16:58	17:16	17:54	
General condition of surroundings		local shop, residential area	local shop, residential area	residential area, warehouse	local shop, office, local business area, community	river, local shop, residential area	river, rice field	local shop, warehouse, regional (province) road	
Number of Traffic in Ten (10) Minutes	Large truck				1			39	
	Small to regular truck	15	8	27	9	13		52	
	Passenger car	6	11	20	20	11	1	131	
	Moterbike	102	44	182	107	97	45	455	
	Bicycle	3	1	5	2	3	3		
	Walker		7	6	5		5		
	Bus								16
	Becak			6	4				
Total		126	71	246	138	124	54	693	

Source: JICA Study team

3) Tangerang (Option-3)

The surroundings consist of rice field and fishpond. There is a small farmers' community crossed by the new access road (around the point 2); therefore, the community will be split by the project.



Source: JICA Study Team

Figure 7.7-14 Survey Points along the New Access Road of Tangerang

Table 7.7-12 Results of Existing Traffic Volume Counting along the New Access Road of Tangerang

Point No.		1	2	3
Date		2010/10/11	2010/10/11	2010/10/11
Time	Start	15:10	14:27	9:47
	End	15:20	14:37	9:57
General condition of surroundings		fish pond	residential area, rice field	rice field
Number of Traffic in Ten (10) Minutes	Large truck			2
	Small to regular truck		6	6
	Passenger car			8
	Moterbike	3	19	142
	Bicycle		2	4
	Walker	2		1
	Total	5	27	163

Source: JICA Study team

(7) Impact on Mangrove, Coral Reefs and Tidal Flats

Existence of mangrove, coral reefs and tidal flats around the project site were examined through the field observation.

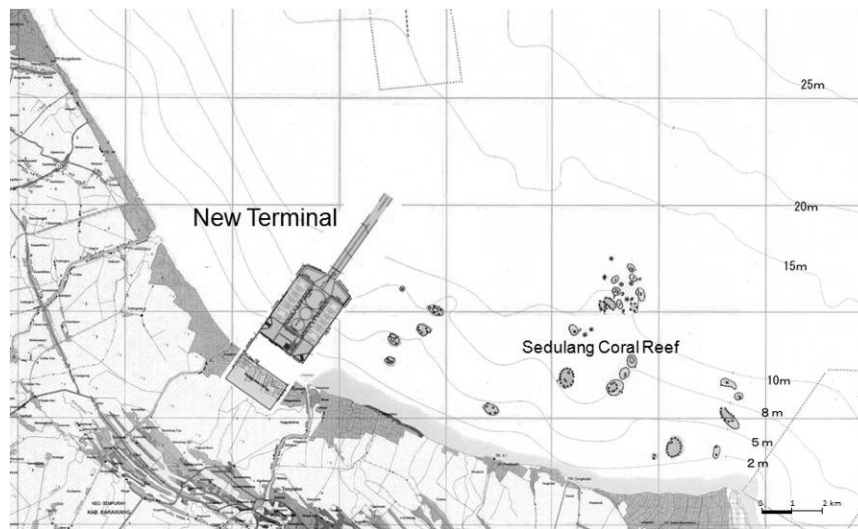
1) Kalibaru (Option-1 and 3)

Neither mangrove, coral reefs nor tidal flats with large scale was observed near the planned terminal site although small scale mangrove had been formed in/around fishpond along the alignment of Eastbound Access Road (coastal area).

2) Cilamaya (Option 2)

As mentioned in the section (6), there are coral reefs to the east of the project site. However, the project site is located about 2-14 km away from the coral reefs. Therefore, direct extinction by reclamation and dredging will be avoided although indirect impacts need to be considered which may be caused by the environmental change around the project area. (e.g. hydrological change) .

The coast of the terminal site is a gently shelving shallow beach, which corresponds to tidal flat. However, the tidal flat area is not directly reclaimed because the terminal is planned to be offshore island style beyond the tidal flat.



Source: JICA Study Team

Figure 7.7-15 Location of the Coral Reefs at the Site of Cilamaya

3) Tangerang (Option-3)

Although no mangrove forest with large scale was observed around the site, mangrove species (plants) can be found at the coast. This seems to indicate that most of the coastal area used to be mangrove forest before it was altered to fish ponds. It may be possible to recover the mangrove forest if the fish ponds can be demolished. The potential for recovery will not be affected by the port development.

The coast of the terminal site is tidal flat; however, the impact will be minimized due to the same reason of Cilamaya.

(8) Impact on Fauna and Flora

The existing study on aquatic flora and fauna around the terminal sites is limited; however, no information has been found which indicates inhabitation of species to be protected such as rare species.

Regarding the terrestrial flora and fauna around the planned access roads, observed species are recognized as common species in agricultural area.

As the information is limited in the stage of SEA, impact on fauna and flora needs to be assessed in the next stage based on the detailed survey for EIA.

(9) Summary of Evaluation

The results of evaluation of Option-1 ,2 and 3 were summarized in Table 7.7-13. In order to objectify the evaluation, quantitative indicators for each evaluation item were selected and shown in the table.

Comparison between three alternatives (alternative-1, 2 and 3) for the layout plan of North Kalibaru was summarized in Table 7.7-14. The evaluation on water quality was added, since the site around Kalibaru is suffering from land loaded water pollution. The impact on water quality will be

larger in the case of alternative-3 because the terminal of Phase I extends to the south and nearly enclose the port basin.

Considering the results of the environmental evaluation described in the above section, Cilamaya (Option-2) was selected for the site of the new terminal together with alternative-1 for the North Kalibaru phase I project (see Chapter 4.7).

Table 7.7-13 Summary of Evaluation for SEA

Alternatives Items		Op.1 Kalibaru	Op. 2 Cilamaya	Op. 3 Kalibaru & Tangerang	Without Project (zero-option)
1	Impact on rice field [Area of rice field to be altered to land for road (ha)]	[56 ha] Some of the rice field needs to be altered for the access road.	[72 ha] Some of the rice field needs to be altered for the access road.	[65 ha] Some of the rice field needs to be altered for the access road.	-
2	Socio-economic effects on narrowing the regional economic gaps [GRDP per capita of the regions of the project area]	[56,000 Rp.] No effect on narrowing the regional economic gap.	[15,000 Rp.] Socio-economic gap against DKI Jakarta will be narrower by investment to Karawang.	[43,000 Rp.]* Socio-economic gap against DKI Jakarta will be narrower by investment to Tangerang; however the effect is small because the planned cargo capacity of the new terminal in Tangerang is relatively small.	- No effect on narrowing the regional economic gap
3	Traffic congestion in JABODETABEK area [Container traffic volume to/from JABODETABEK area from/to Bekasi ~ Carawan industrial estates in the year of 2030]	[101,000pcu/day] Congestion will be accelerated although new access road is prepared.	[29,000pcu/day] Congestion will be alleviated since part of the port traffic will move out of JABODETABEK area.	[101,000pcu/day] Congestion will be accelerated although new access road is prepared.	[101,000pcu/day] Congestion will be accelerated due to traffic increase in JABODETABEK area.
4	Involuntary resettlement [Building to be removed for road construction]	[About 160houses] Middle-classed inhabitants' houses, shops, offices and warehouses are required to be resettled for the access road.	[About 170houses] Middle-classed inhabitants' houses, shops, offices and warehouses are required to be resettled for the access road.	[About 160houses] Middle-classed inhabitants' houses, shops, offices and warehouses are required to be resettled for the access road.	-
5	Impact on fishery [Area of fishing grounds to be disappeared for port construction]	[0.3 sq.km] Reclamation area is outside of the fishing ground.	[14 sq.km] Part of the fishing ground will be eliminated by the new terminal.	[6 sq.km] Part of the fishing ground in Tangerang will be eliminated by the	-

				new terminal.	
6	Impact on existing infrastructures and services	(The impact needs to be assessed in detail when the detailed route alignment is discussed.) New access road will split existing communities.			-
7	Impact on mangrove, coral reefs and tidal flats [Distance from the nearest coral reef]	[far] No large scale mangrove, coral reefs and tidal flats around the site.	[2km] Consideration is required to protect coral reefs near the site. Impact on the tidal flat is reduced since the reclamation area is offshore.	[far] Impact on the tidal flat is minimized since the reclamation area is offshore.	-
8	Impact on fauna and flora	(Further study is required in EIA) No rear species have been found around the site.			-

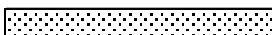
[] Quantitative indicators

*) GRDP per capita for Option-3 was calculated from GRDP of DKI Jakarta and Kabupaten Tangerang corresponding to the planned distribution of the cargo capacity between the two regions.

Source: JICA Study Team

Table 7.7-14 Comparison between Alternatives for Kalibaru

		Alternative-1	Alternative-2	Alternative-3
Impact on the Residents	Involuntary resettlement	About 50 residential houses are required to be resettled for the North-South access road.	Resettlement is not required for utilizing the existing road.	Warehouses and about 50 residential houses are required to be resettled for the North-South access road.
	Impact on noise, vibration and safety along port access road at Kalibaru	Residents along the access road will be affected.	No residents along the planned access road	Residents along the access road will be affected.
Impact on Fishery	Obstacle to navigation of fishing boats	No obstacle to the existing navigation.	No obstacle to the existing navigation.	Fishing boats have to go around due to the new terminal.
	Elimination of fishing ground	Fishing ground will be secured.	Fishing ground will be secured.	A part of shallow fishing ground for shell aquaculture will be eliminated.
Impact on Water Quality	Impact on water quality within the port basins	Water exchange will be secured to prevent water quality degradation.	Water exchange will be secured to prevent water quality degradation.	Water stagnation may cause degradation of water quality.
	Impact on smell within the port area	Reclamation for new terminal will not cause water quality degradation, which may cause bad smell.	Reclamation for new terminal will not cause water quality degradation, which may cause bad smell.	Water quality degradation may cause bad smell.

Note:  Negative factor

Source: JICA Study Team