

CHAPTER-9. PORT DEVELOPMENT STRATEGY

9-A. EXISTING PROBLEMS

554. Major problems confronting Tanjung Priok are identified in the area of development capacity, efficiency/productivity and the environment. These are critical problems since Tanjung Priok is expected to play a key role not only for the Metropolitan Area but also for the whole nation at present and in the future. Existing issues/problems in Tanjung Priok can be summarized below.

- Inability to Accommodate the Needs of Port Users
- Inability to Function as a Hub Port
- Deteriorated Environment in/around the Port

9-A-1 Inability to Accommodate the Needs of Port Users

555. With its substantial share of GDP and population (30% and 25% respectively), Western Java area consisting of Jakarta DKI, West Java province and Banten province is vital to the socio-economic development of Indonesia. To stimulate economic growth in Indonesia, more investment in this area is needed.

556. One of the most important factors in good investment climate is a smooth cargo logistic network for industry. Especially in Indonesia as an archipelago, ports are key infrastructures for cargo distribution system and port service level has a great influence on economic and industrial activities.

557. Tanjung Priok port now functions as the largest trading port in the Western Java area. However, its physical figure is almost the same as it was in the Dutch colonial era and the port productivity has been gradually deteriorated compared to major ASEAN ports. This will let the port's function paralyzed in near future, and which will surely depress the investment climate especially for foreign investors. As a result, global companies will likely withdraw from this area and Indonesian products will lose competitiveness in the international market, especially in the ASEAN market.

558. One of the most urgent issues of the port, for example, is providing appropriate service for car products export, which is expected to increase in volume under ASEAN Free Trade Agreement (AFTA). In fact, several car manufacturing companies in Indonesia intend to export their products to ASEAN countries and they strongly desire a dedicated car terminal to be prepared at least by 2005 to accommodate their handling. However, proper space can hardly be found under the present situation of Tanjung Priok.

559. The critical issue now facing the existing Tanjung Priok port are as follows, which are summarized in "being unable to meet the port users' needs":

- Lack of speedy and credible cargo transit through the port
- Lack of safe and secure cargo handling
- Lack of available port facilities and space to accommodate the cargo demand
- Lack of fair and transparent dues and charge

560. Causes of this unfavorable situation are found in the following points:

- Capacity constraints from the viewpoints of ship navigation, land space and inland transport
- Low efficiency/productivity for cargo handling stemming from capacity constraints and disorderly land use
- Institutional defectiveness in trade facilitation such as inefficient customs clearance, inefficient and inflexible terminal operating system, ineffective EDI system etc.

561. In particular, with regard to the first point, the narrow channel, which can only support one-way traffic, will place a limitation on the number of calling vessels viewing from the safe navigation. It is foreseen that the demand will exceed the estimated capacity in near future. Two-way channel has been already standard for modern ports in the world. Moreover, there are many narrow pier-type wharves and berths in the end of basins are not accessible and land space is also insufficient. And being surrounded by the long breakwaters, it is hard to expand the land and water space within the port.

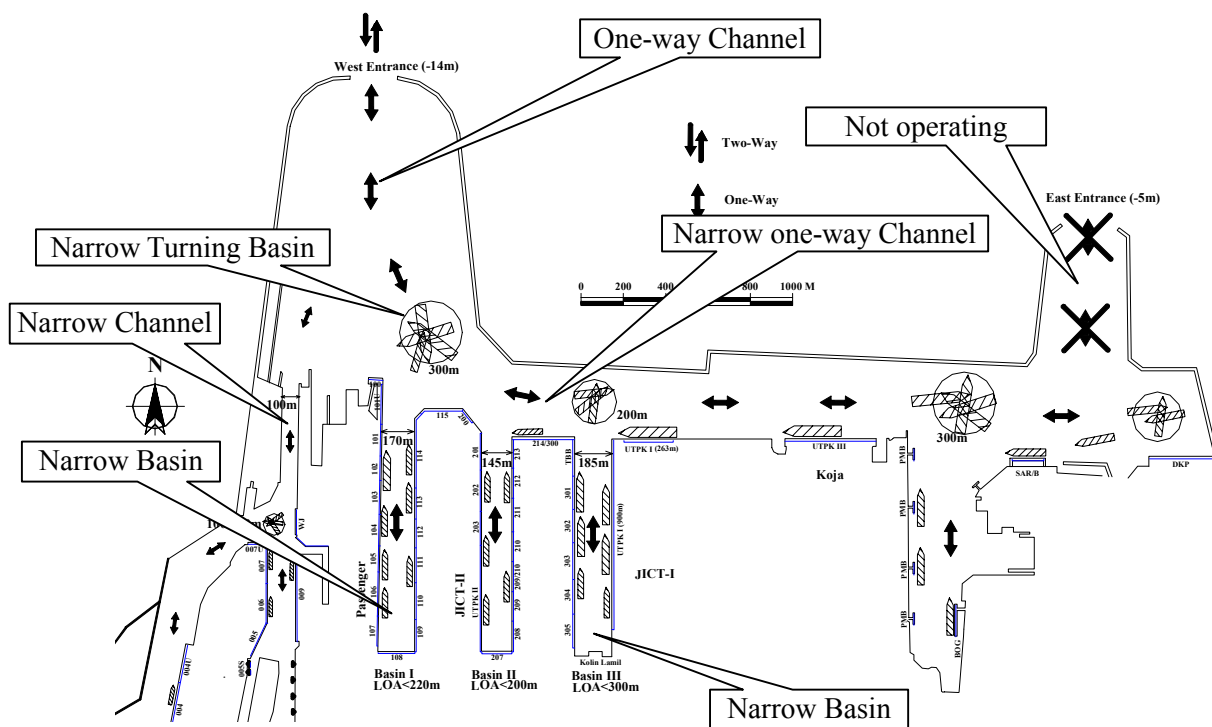
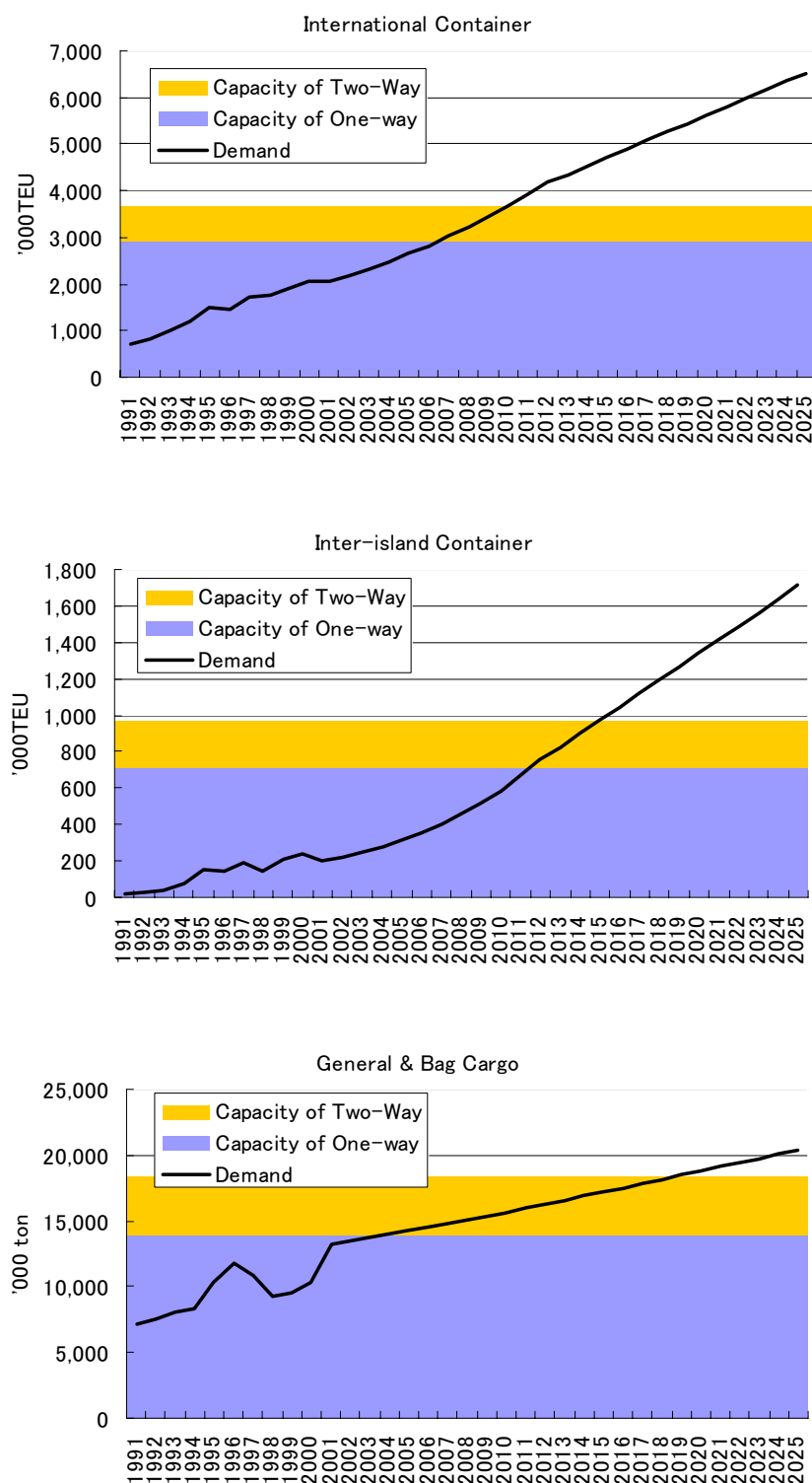


Figure 9-A-1 Current Situation of Ship Navigation



9-A-2 Comparison with Other Asian Ports

562. Compared to other Asian ports, especially those of ASEAN countries, Tanjung Priok is inferior in terms of port facility level and logistic cost. Examples are given below.

1) *Comparison of Main Channel in the Ports with Other Asian Ports*

563. In the case of Japanese ports, more than one channel is available to accommodate the many vessels. The channels of main ASEAN ports are around 250m in minimum width and allow for two-way traffic. (Although the main channel of Port of Tanjung Pelepas is 250m in width, there is 600m wide turning basin in front of the quay.) Port of Sai Gon and Hai Phong are located around twenty nautical miles (37km) from the ocean as river ports. In contrast, Tanjung Priok's single lane and 125m wide channel clearly falls short of international standards. Pelindo-II should improve the channel as soon as possible.

Table 9-A-1 Channel Characteristics of Main Japanese Ports

Port	Tokyo	Yokohama	Kobe	Osaka
Nation	Japan	Japan	Japan	Japan
Handling Volume in 2000 (000' TEU)	2,899	2,317	2,266	1,724
Calling Ships	34,250	48,044	46,570	40,825
Number of Container Berth	14	24	23	23
Largest Vessel	50,000DW	50,000DW	100,000DW	70,285GT
Fairway Width	450m	500m	400m	250m
Fairway Depth	-15m	-16m	-14m	-13m
Traffic	Two-way	Two-way	Two-way	Two-way

Table 9-A-2 Channel Characteristics of Main ASEAN Ports

Port	Manila	Laem Chabang	Port Klang	Tanjung Pelepas	Sai Gon	Hai Phong	Tg. Priok
Nation	Philippines	Thailand	Malaysia	Malaysia	Vietnam	Vietnam	Indonesia
Handling Volume in 2000 (000' TEU)	2,868	2,195	3,207	2,010	237	219	2,476
Calling Ships	32,294	4,713	12,416	-	1,811	1,593	17,058
Number of Container Berth	15	5	15	6	3	2	11
Largest Vessel	-	50,000DW	-	-	30,000DW	15,000DW	
Fairway Width	250m	325m	366m	564. 250m			125m
Fairway Depth	-15m	-14m	-15m	-15m	-9.7m		-14m
Traffic	Two-way	Two-way	Two-way	Two-way	One-way (Planning to Two-way)		One-way (Planning to Two-way)

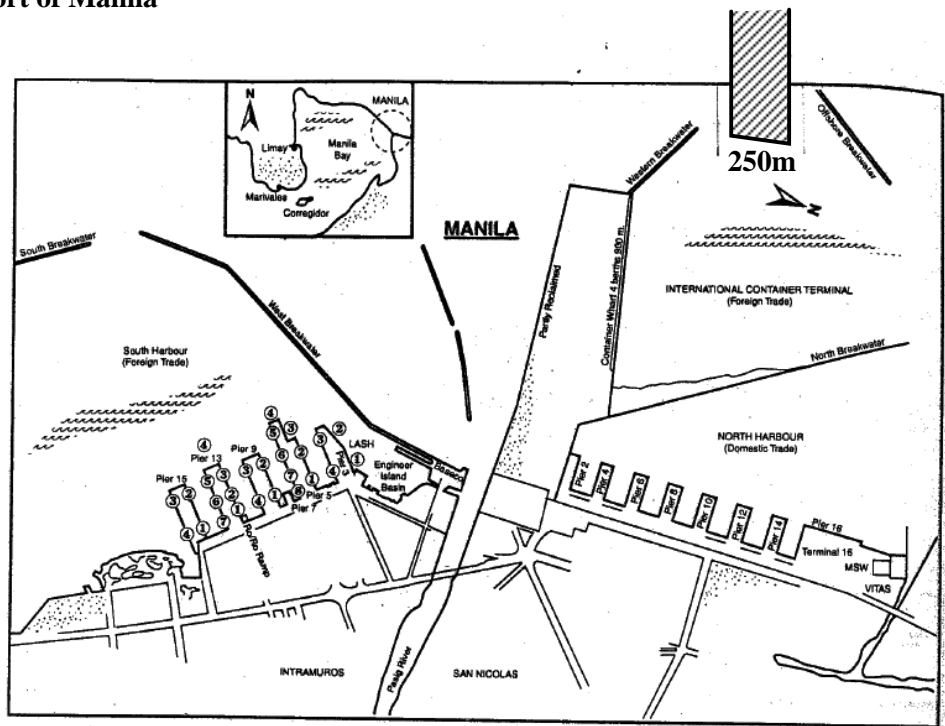
*Source: Containerization International Yearbook 2002
 Guide of Port Entry 2001/2002
 Lloyd's List Ports of the World 2002

Figure 9-A-2 Main Channel in the Ports with Other Asian Ports

The map shows the Yokohama Harbor area, including the Naka Ward, East Bk, and various piers and facilities. Key features include:

- NAKA-WARD**: The central area of the map, showing various streets and buildings.
- EAST BkW**: The area to the east of the Naka Ward, featuring the Yokohama Air Cargo Terminal and other facilities.
- SECTION 2**: A designated area in the East BkW, marked with a diagonal hatched pattern.
- SECTION 3**: A designated area further east, also marked with a diagonal hatched pattern.
- HONMOKU RIVER**: A river flowing through the area, with several bridges and piers.
- DAIKOKU PIER**: A large pier located in the southern part of the map.
- Scale**: A scale bar indicating 500m.
- Infrastructure**: Various roads, bridges, and public facilities are labeled throughout the map.

Port of Manila



Port of Laem Chabang

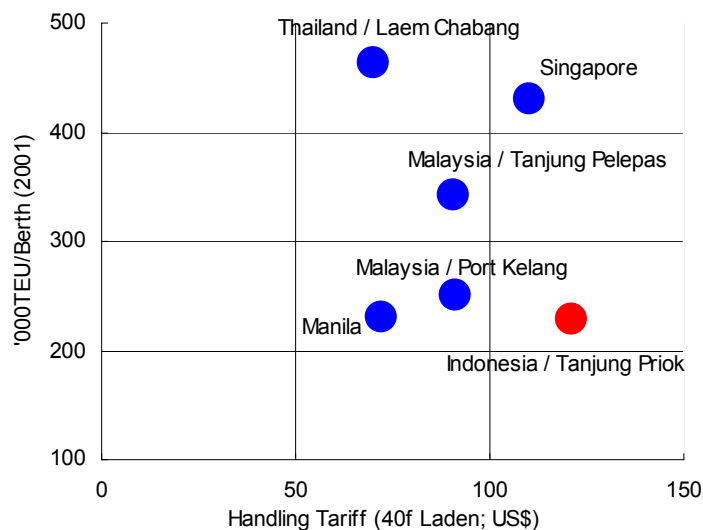


Port of Tanjung Pelepas



2) Comparison of Handling Productivity and Cost for Container Handling

565. The following graphs indicate berth productivity and tariff for container handling at major ASEAN ports.



Note) Handling Tariff:

US\$ per FEU (40f FCL Container)

Loading/Discharging plus moving to/from CT yard

10% discount from official tariff as for Singapore and Malaysian ports

Source: JICA Study survey

Figure 9-A-3 Berth Productivity and Handling Tariff (40f Laden)

3) Comparison of Port Facilities and Handling Cost for Automobile Products

566. Currently, Tanjung Priok has no appropriate terminal facility to load/unload automobile products. Figure 9-A-4 shows the current situation of automobile terminal in Laem Chabang Port.



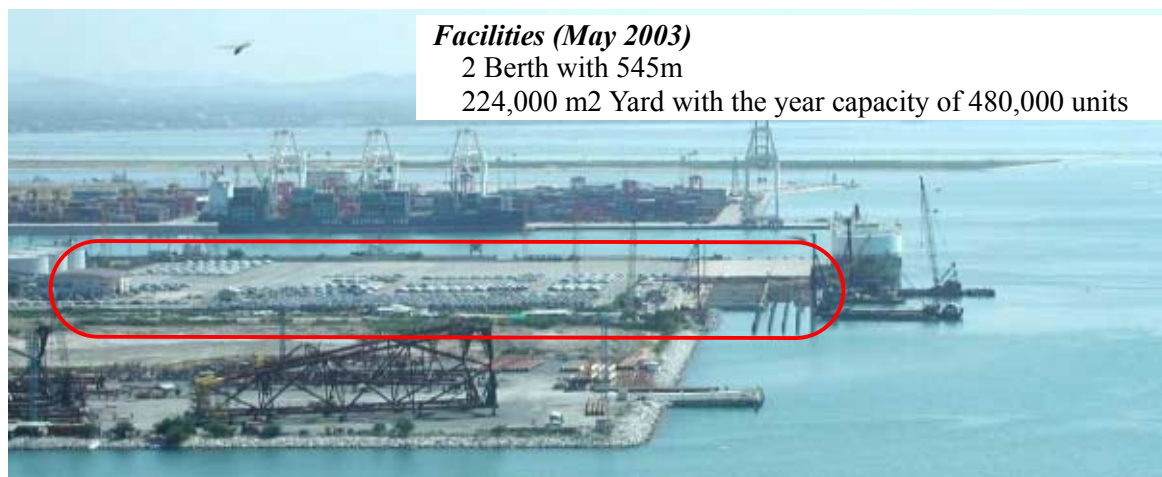


Figure 9-A-4 Automobile Terminal in Laem Chabang port (Thailand)

567. For export/import automobiles, tariff has not yet been set. When comparing real handling and storage cost offered by stevedoring in Tanjung Priok, there is a great difference with other ASEAN ports such as Laem Chabang of Thailand. For example, a difference of US\$30 per unit will translates into a difference of US\$1.5 million per year assuming annual trade of 50,000 units.

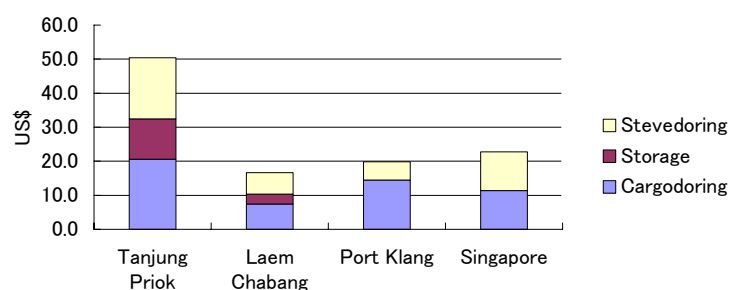


Figure 9-A-5 Charge for Automobile Export (per 1 Unit (12 tonne), with 5 days of Storage)

9-A-3 Inability to Function as a Hub Port

568. In order for the port(s) to function as a regional hub, it is necessary to attract as many trunk lines as possible supported by sufficient amount of local cargo and good quality of services. In case of Tanjung Priok, it has abundant local cargo though, there is little transshipment container even linking inter-island with ocean-going line as shown in below.

- Transshipment Ratio: 3%

Transshipment (Inter-island ~ Trunk-line) container is estimated around 60,000TEUs, mainly to/from Makassar, Banjarmasin, Pontianak etc. On the other hand, total throughput of import/export container is around 2.1 million TEUs.

- Competition with Tanjung Perak for transshipment containers

	Tg. Priok	Tg. Perak	Remarks
Makassar	50%	50%	As of Jan.02 ~ May.02
Banjarmasin	30%	70%	

9-A-4 Deteriorated Environment in/around the Port

569. Conservation of good amenity and environment is a must for the Metropolitan port for the better cohabitation with city function. The port of Tanjung Priok is however lacking consideration on this point and causes severely deteriorated water quality within the port, chronicle traffic jam, drainage problem of Jakarta and lack of amenity especially for passengers and workers in the port.

570. For achieving the role as a capital city port, it is necessary to harmonize functions and environment of port and city. In this connection, current land use in and around the port is an obstacle both for smooth traffic and beautification of the city together with heavily deteriorated water quality within the port.

9-A-5 Countermeasures for Solving Problems**1) Overcoming Shortage of Capacity at Tanjung Priok**

571. There are two principal methods to overcome the shortage of capacity of at Tanjung Priok. They are:

- To maximize the capacity of existing berths of Tanjung Priok through radical improvement of channels, basins and road network as well as increasing cargo handling efficiency. Improvement of channels and basins include securing enough space for the channels and turning basins by relocation of the breakwater, and/or opening the east entrance channels. With regard to the container capacity, it is considered that these countermeasures including improvement of handling productivity would increase the port capacity by around 0.5 ~ 1 million TEUs, bringing the total capacity to around 4.5 million TEUs.
- To secure developing space outside current Tanjung Priok port by following measures;
 - ♦ To secure spaces around existing Tanjung Priok port, including Ancol area to the west side of the port, Kalibaru area to the east side of the port and offshore area beyond the breakwaters of the port.
 - ♦ To utilize other existing ports such port as Ciwandan, Merakmas in Banten area

- and Cirebon in east side of the Study area.
- ♦ To develop a new port in Bojonegara (Banten) area.

2) *Simplifying the Land Use/Layout of Tanjung Priok*

572. For the problems of mixed-use to achieve simple and convenient land use of the port, the following solutions are to be examined in the Study:

- Relocation and sorting together of facilities that are not always necessary to the port activities of a commercial port. The Study team will consider the relocation of passenger terminal and military facilities in the short term, and the relocation and sorting together of shipbuilding zones, bulk terminals for the long term.
- Demolition of some facilities such as warehouses that are not utilized efficiently.
- Allocating land not utilized efficiently for other purpose.

3) *Improving Efficiency of the Port Operation*

573. For improving efficiency of port operations, the following solutions are to be examined in the Study:

- Improvement of cargo handling efficiency through securing sufficient yard area and introducing appropriate equipment as well as separating handling area according to the type of cargo. This is closely connected to the redevelopment program mentioned above.
- Improvement of custom clearance system through introducing integrated information system together with the existing EDI system, merging the three customs offices into one.
- Enhancing sound competition among the terminal operators especially for container handling. Terminal operators handling containers in conventional berths should be reorganized into a few operators under transparent contract to create a competitive situation. Furthermore, monopolistic practices should be eradicated.

4) *Improving Environment*

574. For improving environment of not only the port area but also the city area around the port, the following solutions are to be examined in the Study:

- Improving water quality in the port through re-arrangement of breakwaters to make the water area more open to the sea.
- Securing smooth cargo distribution to/from the port by establishing effective and efficient road network as well as utilizing railway system. Improving road network between the port and city area will be attained through widening the existing road and developing new connection road. Special attention should be paid to the traffic flow between the wharves and inland deposit area around the ports.
- Securing smooth drainage from the city area by re-arrangement of existing drainage network with the rehabilitation of the port.

9-B. DEVELOPMENT TARGETS AND FOCUSES

575. In order to overcome hardship of economy and to achieve sustainable economic growth, one of the most important tasks is to establish an effective and efficient cargo logistics with reliable transportation services. The Study Team proposes development targets of Jakarta Metropolitan ports as follows:

- To make the Greater Jakarta Metropolitan port function as a “**Logistic Center**” in **ASEAN region** in order to maintain and enhance the competitiveness of Indonesian industry in the region by providing attractive business /investment environment.
- To make the Greater Jakarta Metropolitan port function as a “**Regional Hub Port**” not only attracting international trunk line but also linking them to domestic/inter-island lines

576. In order to achieve the above development targets, the following points should be focused:

Best Use of the Existing Facilities

To increase and **maximize the capacity/productivity** of the existing port facilities in a comprehensive manner by means of:

- Rehabilitation and re-organization of the port facilities and land-use, including channels, basins, quays, yards, warehouses, roads etc.
- Good maintenance of the port facilities and proper regulation of land-use

Port User Friendliness

To encourage existing trading industry as well as new industrial location/investment by achieving the best use of the existing facilities and providing good services, i.e. speediness and credibility of cargo transit through the port by means of:

- Improving the productivity of cargo handling at the wharves
- Securing easy-access and flexible use of the port facilities and spaces
- Securing smooth traffic flow in/around the port
- Ensuring the safety of sea/land transport as well as the security of cargo
- Developing an integrated information system achieving single-window procedure

Strategic Manners of Port Development and Management

- To meet the future demand properly and to secure good communication with port users as well as establishing feed back system of their needs through better management and operation
- To clarify the sales points of each port and to carry out port sales promotion activity to its potential users
- To make a good coordination with regional development, especially industrial location
- To secure transparency of price setting and to provide reasonable and competitive price with a proper tariff system

Environment Friendliness

- To make the Greater Jakarta Metropolitan port function as a environmental friendly port

9-C. BASIC PORT DEVELOPMENT SCENARIO IN WESTERN JAVA AREA

577. In this section, on the basis of functional allotment, several staged development scenarios among the ports in the study area are formulated and evaluated.

9-C-1 Development Scenario Alternatives

578. Basic port development scenario depends on how to share international container cargoes between Tanjung Priok and other ports, because they are most important and strategic cargoes in terms of not only volume but also expecting rapid increase in future.

579. Viewing from existing capacity limits of Tanjung Priok and the situation not being optimized and maximized the existing facilities' productivity, as well as not serving its all the potential hinterland and users, urgent rehabilitation of Tanjung Priok is strongly recommended. Here, the following two scenarios about Tanjung Priok port are examined:

➤ Scenario-1

Navigational condition at Tanjung Priok will be improved near future, which will increase the international container handling capacity of the port up to around 3.6~3.8 million TEUs

➤ Scenario-2

Navigational condition at Tanjung Priok will remain unchanged, which will not increase the international container handling capacity of the port remaining at the level of around 3.0 million TEUs

580. The relation between the demand of international container and supply/capacity for each scenario can be described as follow:

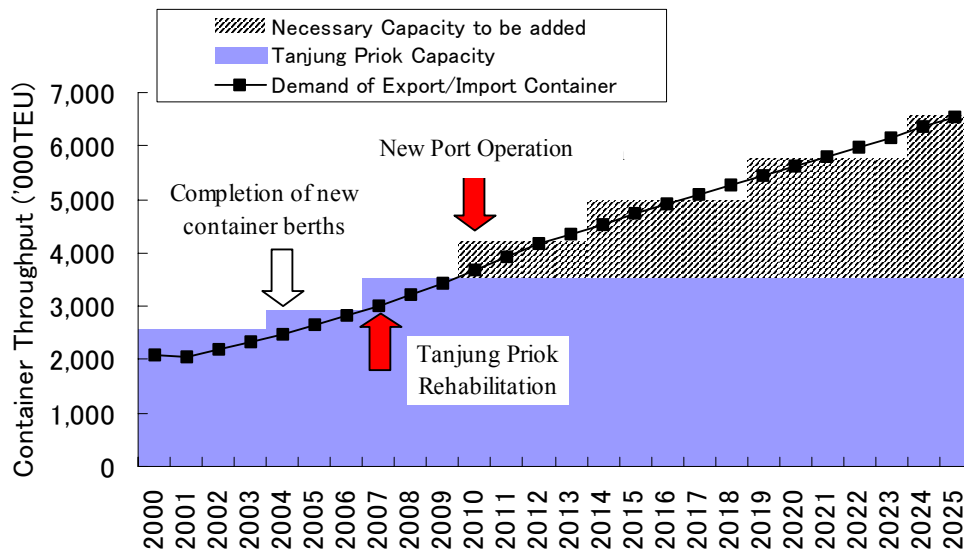


Figure 9-C-1 Development Scenario-1

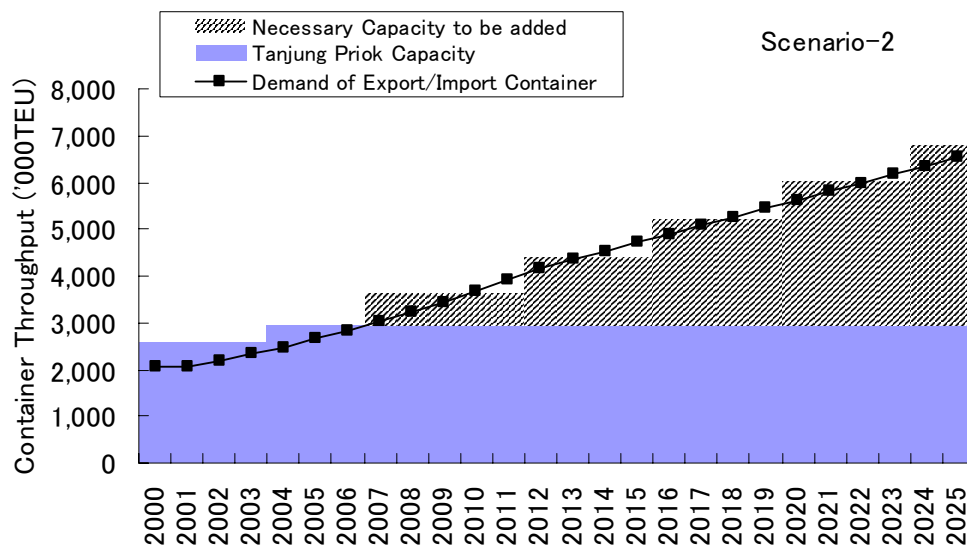


Figure 9-C-2 Development Scenario-2

581. For export/import container, if there will be no rehabilitation of Tanjung Priok including improvement of navigational condition, the capacity of JICT and Koja container terminal in Tanjung Priok will reach their capacity at around 2007 even after completion of JICT & Koja's 3 new berths in 2004. To cope with this situation, Scenario-1 is that navigational condition at Tanjung Priok will be improved which will increase the international container handling capacity of the port up to around 3.6~3.8 million TEUs, while Scenario-2 is that a new container terminal will be established without increase of Tanjung Priok capacity.

582. In either event of scenarios, it is obvious that Tanjung Priok will reach the capacity limits sooner or later. To avoid intensive concentration of inland cargo traffic especially large container trailer, a new port apart from Tanjung Priok should be developed. The Study Team examined several alternative sites for development of a new container terminal and considers that Bojonegara, located at Banten peninsula, is the best site for a new port development. The reason is that Banten peninsula is a sole area blessed with deep sea and easy to develop a large scale port with enough depth for large container vessels, and Bojonegara site is remained undeveloped in the peninsula, while the rest of the area has been already developed by private sectors. Other sites along the northern coast of Western Java area such as Tangerang, Karawang, Cirebon etc., are not suitable to develop such a large scale port because of extreme shallow sea.

9-C-2 Comparison of the Scenarios

583. Comparing the above two scenarios, the Study team proposes Scenario-1 with the following reasons.

➤ Expecting hinterland of Tanjung Priok and Bojonegara new port

In Scenario-2, the container handling share of Bojonegara will reach more than 50%, however, it is not realistic viewing from the expecting hinterland share of Bojonegara. The existing cargo distribution of Banten province, which is considered as a basic potential hinterland of Bojonegara, is 20%. Even in a long-term and with a great effort to attract cargo to Bojonegara, its hinterland will expand to at most 40%.

➤ Urgent needs of potential users of Tanjung Priok.

Around 80% of total container cargoes are generated in the hinterland of Tanjung Priok. For these potential users of Tanjung Priok, viewing from existing capacity limits of Tanjung Priok, urgent improvement of Tanjung Priok is strongly desired, otherwise, economic activity as well as investment climate will be surely depressed. Car manufacturing sector is a typical example. Furthermore, the rehabilitation of Tanjung Priok Port is necessary and urgent not only for international container but also for increasing the capacity and productivity of conventional wharves including inter-island container handling, together with alleviating the traffic congestion in/around the port.

➤ Time of realization of Bojonegara new port

The rehabilitation of Tanjung Priok Port is necessary and urgent even if the development of a new port (here we assume it will be Bojonegara new port) will be developed, since operation of the new port would not commence until around 2008~9, considering the preparation and port construction period as well as the development of a new access road which requires land acquisition. Scenario-2, which envisages that a new container terminal of Bojonegara will be in operation by 2007, is risky and unrealistic.

➤ Investment efficiency

It is better to optimize and make the best use of the existing port facilities in Tanjung Priok. When comparing the investment cost for increasing the container handling capacity of Tanjung Priok to that of Bojonegara, Tanjung Priok rehabilitation is more cost-effective being able to increase container handling capacity by 600,000 TEU at a cost of 1,100 billion Rp, while the development of Bojonegara new port with the capacity of 700,000 TEU requires investment of 1,600 billion Rp.

584. However, in terms of export/import container, Tanjung Priok will reach its capacity limit again around 2010. Considering the following points, a new port as a complementary international container handling port is recommended to be developed by the time when the demand of international container will reach the capacity of Tanjung Priok again. The Study team proposes that a **new port should be developed and operated by 2010 in Bojonegara** for the following reasons:

- Spatial constraints for new development in the existing Tanjung Priok port and huge cost for new development outside Tanjung Priok port
- Avoiding intensive concentration of cargo traffic especially large container trailers on the roads of the metropolitan area.

9-D. FUNCTIONAL ALLOTMENT

585. The functional allotment among the ports should be examined based on their potential hinterland area. The estimated future cargo will be allocated according to the share of each port's hinterland in future.

9-D-1 Principle of Functional Allotment of Bojonegara

586. First, the characteristics of Bojonegara new port should be clarified. It is widely recognized that the existing Tanjung Priok has been getting seriously congested. Moreover, the port capacity as well as the capacity of inland transport in the Jakarta Metropolitan area is

reaching its limit. Therefore, a new port to cope with the future demand need to be developed. The advantage of the Bojonegara site is that a sufficient water depth for a commercial port can be secured, however, available space for the future expansion seems to be not always so sufficient from the geographical point of view. Large scale development will be accompanied by huge investment because of the necessity of a breakwater.

587. The strength and the weakness of Tanjung Priok and Bojonegara can be summarized as shown below.

Tanjung Priok

Strength	Economic potential of cargo hinterland (Located at the center of Western Java area)
	Big assets of port facilities (Breakwater, deep channels, basins and quays)
Weakness	Narrow space of land area as well as ship navigational area inside the port
	Mixed land-use and heavy congestion inside the port
	Highly urbanized and congested area around the port
	Many vested interest related to the port

Bojonegara

Strength	Blessed with deep sea (Easy to develop a port with deep draft)
	No vested interest
Weakness	Limited cargo hinterland (Located far west in Western Java area, long way from one of most major industrial area of eastern Jakarta)
	Narrow land space behind the port

588. Based on the above characteristics and in accordance with the development targets, the basic functions of Tanjung Priok and Bojonegara are set as follows:

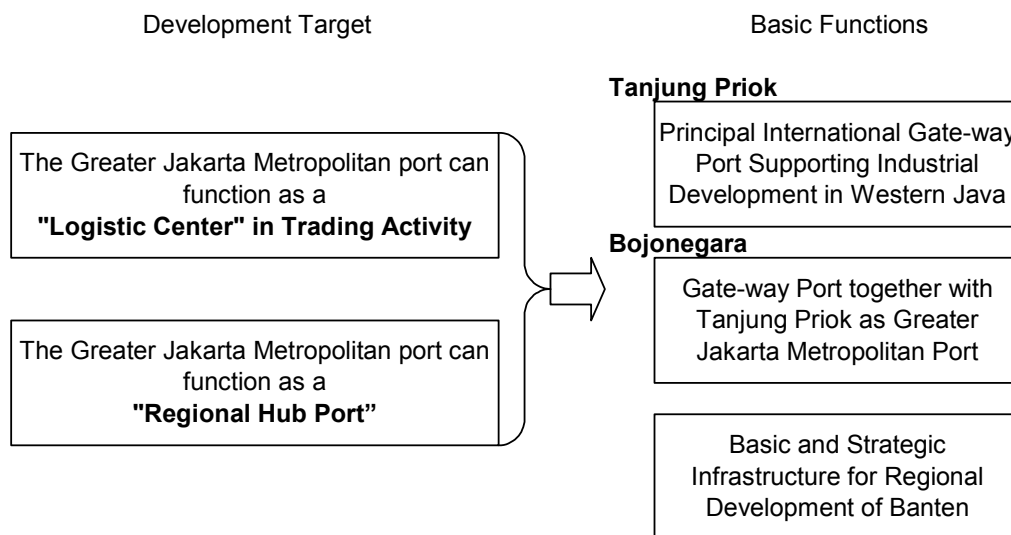


Figure 9-D-1 Basic Function of the Ports

9-D-2 International Container

589. In the demand analysis described in Chapter II, future volume of international (import/export) containers are estimated for Tanjung Priok and Banten including Ciwandan and Merakmas. Merakmas is the private port majored by a paper company's container. Here, for the demand of the existing Banten port, the estimated figure of Banten is used as it is, and the

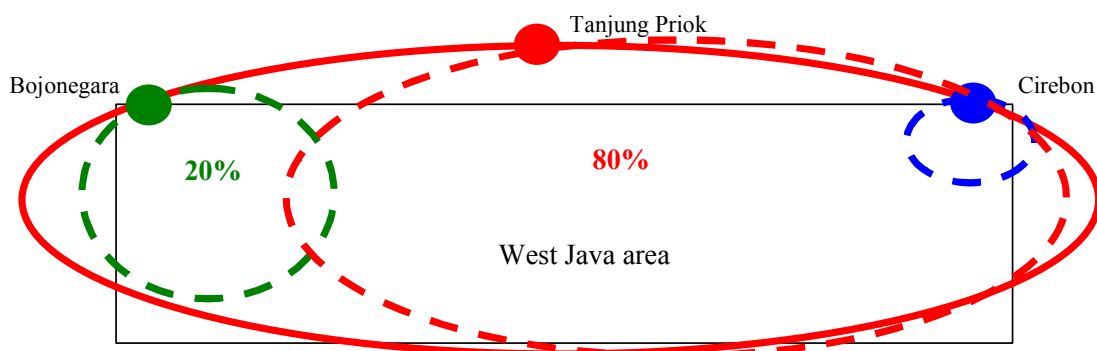
estimated demand of Tanjung Priok would be re-allocated among the ports including Bojonegara new port.

1) *Summary of Estimated Demand*

	Tanjung Priok			Banten		
	ton			TEU		
	EX. CT	IM. CT	Total	EX. CT	IM. CT	Total
1991	2,658	4,148	6,806	356	362	718
1992	3,698	4,473	8,171	425	416	842
1993	4,195	5,077	9,273	508	505	1,013
1994	4,650	6,014	10,665	611	582	1,193
1995	5,480	7,152	12,632	808	672	1,480
1996	6,346	7,515	13,861	741	725	1,466
1997	6,339	8,594	14,933	858	864	1,722
1998	8,288	5,282	13,570	881	874	1,755
1999	8,820	8,327	17,147	948	961	1,910
2000	8,111	10,602	18,713	1,014	1,059	2,073
2001	8,368	10,273	18,641	1,001	1,055	2,056
2002	8,931	10,871	19,802	1,088	1,088	2,177
2003	9,533	11,503	21,036	1,162	1,162	2,323
2004	10,175	12,172	22,347	1,240	1,240	2,480
2005	10,860	12,880	23,740	1,323	1,323	2,647
2006	11,592	13,629	25,221	1,413	1,413	2,825
2007	12,372	14,422	26,795	1,508	1,508	3,015
2008	13,206	15,261	28,467	1,609	1,609	3,219
2009	14,095	16,149	30,244	1,718	1,718	3,435
2010	15,045	17,088	32,133	1,833	1,833	3,667
2011	16,058	18,082	34,140	1,957	1,957	3,914
2012	17,140	19,134	36,273	2,089	2,089	4,177
2013	17,882	20,650	38,533	2,179	2,179	4,358
2014	18,625	22,167	40,792	2,270	2,270	4,539
2015	19,368	23,684	43,052	2,360	2,360	4,720
2016	20,110	25,201	45,311	2,451	2,451	4,901
2017	20,853	26,717	47,570	2,541	2,541	5,082
2018	21,596	28,234	49,830	2,632	2,632	5,263
2019	22,338	29,751	52,089	2,722	2,722	5,444
2020	23,081	31,268	54,349	2,813	2,813	5,625
2021	23,824	32,784	56,608	2,903	2,903	5,806
2022	24,567	34,301	58,868	2,994	2,994	5,987
2023	25,309	35,818	61,127	3,084	3,084	6,168
2024	26,052	37,335	63,387	3,175	3,175	6,349
2025	26,795	38,851	65,646	3,265	3,265	6,530

2) *Concept of Cargo Volume Allocation*

590. Existing hinterland of the ports is shown in Figure 9-D-2. Dotted lines show potential hinterlands. The share of the container cargo distribution is estimated around 20% for Banten province based on the data described in 8-E-1. Currently, Tanjung Priok hinterland extends over the whole West Java area.



Area	Portion of Container Distribution	Potential Port
Jakarta	34.8%	Tanjung Priok
South JKT	1.3%	Tanjung Priok
East JKT	15.6%	Tanjung Priok
Central JKT	2.6%	Tanjung Priok
West JKT	8.0%	Tanjung Priok
North JKT	7.4%	Tanjung Priok
Tangerang	12.2%	Bojonegara
Serang	7.9%	Bojonegara
Bogor	8.5%	Tanjung Priok
Bandung	9.0%	Tanjung Priok
Cirebon	3.0%	Cirebon
Purwakarta	3.0%	Tanjung Priok
Karawang	3.0%	Tanjung Priok
Bekasi	16.2%	Tanjung Priok
Other Area	2.5%	Tanjung Priok
Total	100.0%	

	Portion
Tanjung Priok	77.0%
Bojonegara	20.0%
Cirebon	3.0%

Figure 9-D-2 Hinterland Potential

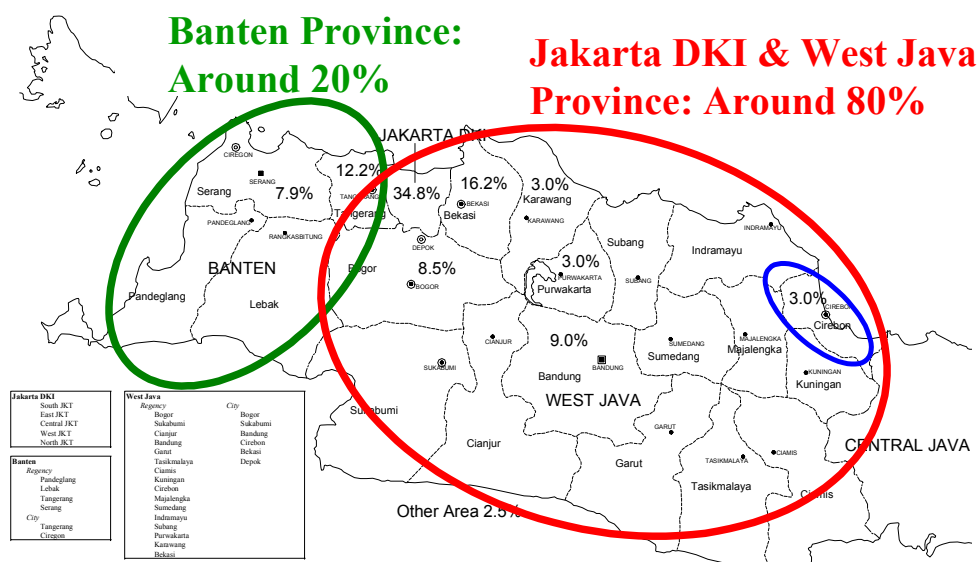


Figure 9-D-3 Current Cargo Distribution

591. According to the demand analysis, container volumes in 2012 and 2025 are beyond the capacity of existing Tanjung Priok. Port of Banten should be developed to supplement Tanjung Priok. To avoid handling container cargo at scattering places and to secure scale economy and

intensive and effective investment for developing container terminal, Bojonegara can be selected as a port to share 20% of total container cargo according to its hinterland share. However, even 20% of total container cargo is diverted to Bojonegara, Tanjung Priok still may not be able to handle the remaining.

592. The hinterland of Bojonegara new port is assumed to be extended only to Banten province viewing from transportation time. However, if the road network around Jakarta DKI including JORR will be developed and if the new port can provide better services than Tanjung Priok, the new port can attract more customers who are reluctant to use the congested roads within Jakarta and in this case, there is a potential for the hinterland to expand to the west and south of Jakarta and Bogor regency.

593. Thus, the Study team assumes that the hinterland of Bojonegara will be Banten province at the time of initial stage of operation, and will gradually expand to West Jakarta, South Jakarta and Bogor regency as shown in Figure 9-D-4 in accordance with road network development and by efforts of port sales of Bojonegara providing good service and price.

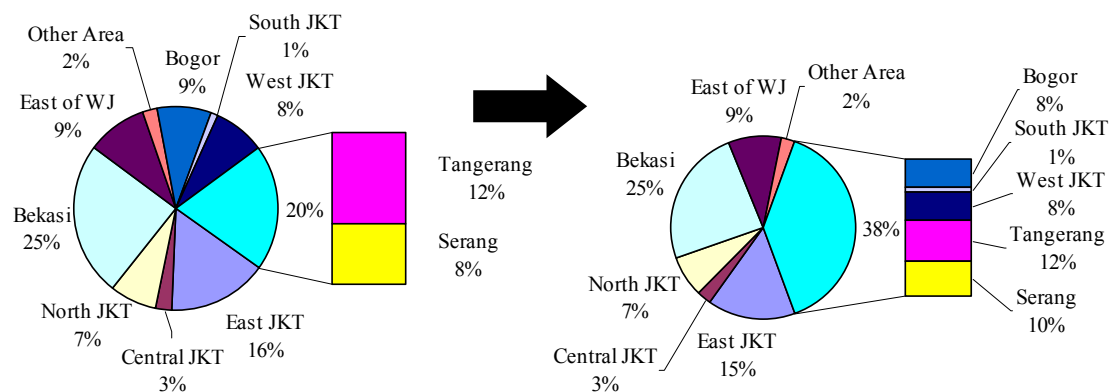
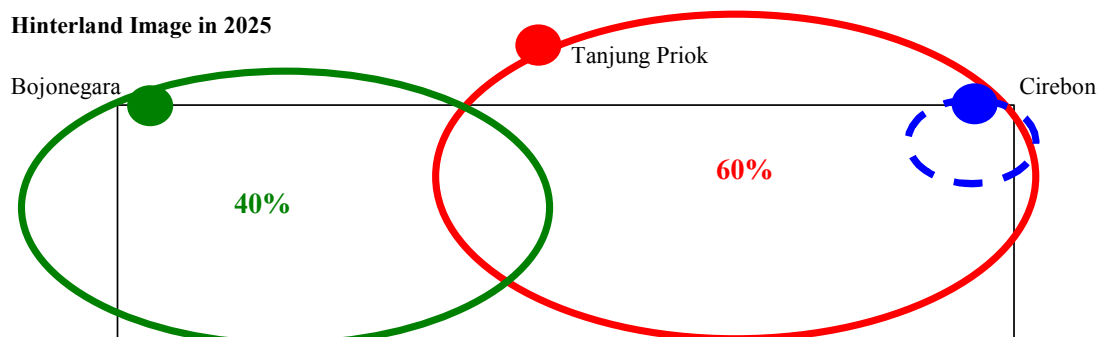


Figure 9-D-4 Bojonegara Hinterland (Current Situation and Future)

594. The hinterland of Tanjung Priok is estimated by the rest of total container, excluding Bojonegara. For Cirebon, there will be a potential to handle container in future according to the increase of its potential. The Study team, taking this into consideration, allocates container cargo with the GRDP share of Cirebon once it will be operated for handling container.

595. The conceptual image of each port's hinterland in 2025 is shown below.



3) International Container Volume by Port

596. Based on the development scenario in Figure 9-C-2, the Study team conditions that container handling in Bojonegara will start at 2010 when the capacity of Tanjung Priok exceeds the demand. As to Cirebon, it is assumed that container handling will be started at 2012 when the potential volume of Cirebon will reach 100,000TEU. The Study team also assumes that handling volume in Bojonegara and Cirebon will gradually increase and reach the estimated volume after 5 years since their operation. And after that, the hinterland of Bojonegara will be expanding gradually towards 2025. The result is shown in Figure 9-D-5.

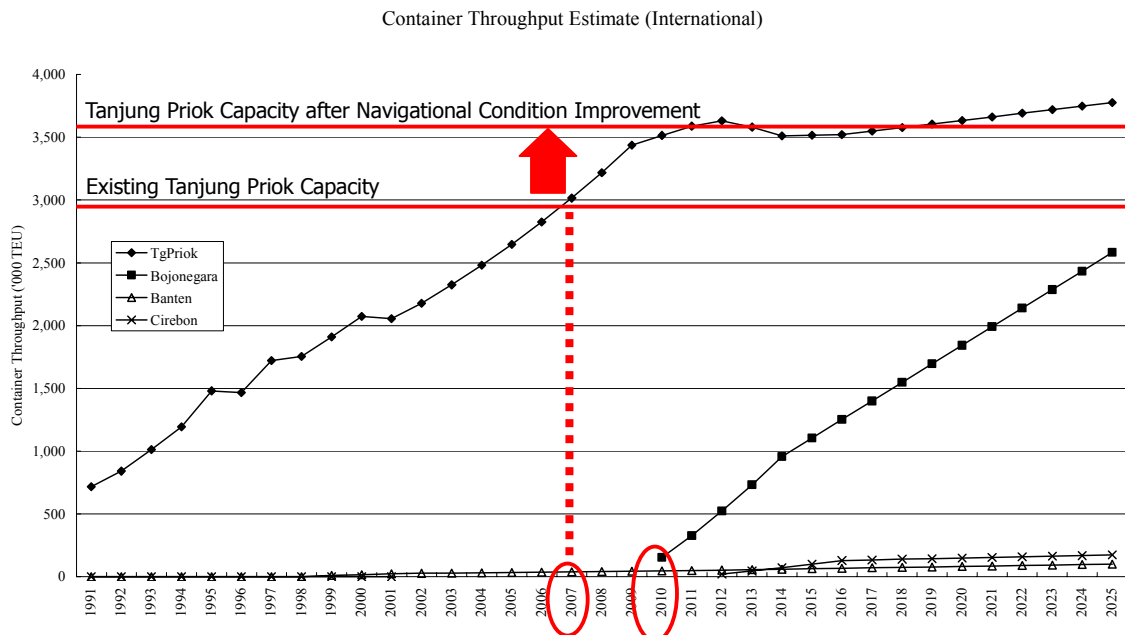


Figure 9-D-5 Functional Allotment of International Container

Table 9-D-1 Cargo Demand by Port (Container Cargo)

Unit: '000TEU

	Total				International				Domestic			
	Total				Total				Total			
		TgPriok	Bojonegara	Banten	Cirebon		TgPriok	Bojonegara	Banten	Cirebon		
1991	737	736	0	0	0	718	718	0	0	0	19	19
1992	867	867	0	0	0	842	842	0	0	0	25	25
1993	1,054	1,054	0	0	0	1,013	1,013	0	0	0	41	41
1994	1,270	1,270	0	0	0	1,194	1,193	0	0	0	77	77
1995	1,631	1,630	0	0	0	1,480	1,480	0	0	0	151	151
1996	1,607	1,607	0	0	0	1,467	1,466	0	0	0	140	140
1997	1,909	1,909	0	0	0	1,722	1,722	0	0	0	187	187
1998	1,899	1,898	0	1	0	1,756	1,755	1	0	0	143	143
1999	2,129	2,119	0	10	0	1,920	1,910	10	0	0	209	209
2000	2,326	2,310	0	16	0	2,089	2,073	16	0	0	237	237
2001	2,279	2,255	0	24	0	2,080	2,056	24	0	0	199	199
2002	2,422	2,394	0	28	0	2,205	2,177	28	0	0	217	217
2003	2,599	2,570	0	30	0	2,353	2,323	30	0	0	246	246
2004	2,790	2,759	0	32	0	2,512	2,480	32	0	0	279	279
2005	2,997	2,963	0	34	0	2,681	2,647	34	0	0	316	316
2006	3,219	3,183	0	36	0	2,861	2,825	36	0	0	358	358
2007	3,459	3,420	0	39	0	3,054	3,015	39	0	0	405	405
2008	3,718	3,677	0	41	0	3,260	3,219	41	0	0	458	458
2009	3,999	3,954	0	44	0	3,479	3,435	44	0	0	519	519
2010	4,302	4,092	162	47	0	3,714	3,514	47	153	0	588	578
2011	4,630	4,230	349	50	0	3,964	3,587	50	327	0	666	643
2012	4,985	4,346	563	54	22	4,231	3,631	54	525	22	754	715
2013	5,243	4,350	790	57	46	4,416	3,580	57	732	46	827	770
2014	5,501	4,333	1,035	61	72	4,600	3,511	61	957	72	901	822
2015	5,759	4,404	1,190	64	100	4,785	3,516	64	1,104	100	974	889
2016	6,017	4,474	1,345	68	130	4,969	3,519	68	1,252	130	1,048	955
2017	6,275	4,569	1,500	72	135	5,154	3,548	72	1,400	135	1,121	1,021
2018	6,533	4,663	1,655	75	139	5,338	3,576	75	1,547	139	1,195	1,087
2019	6,791	4,758	1,811	79	144	5,523	3,605	79	1,695	144	1,268	1,153
2020	7,049	4,852	1,966	82	149	5,708	3,633	82	1,843	149	1,342	1,218
2021	7,307	4,946	2,122	86	154	5,892	3,662	86	1,991	154	1,415	1,284
2022	7,565	5,040	2,277	89	159	6,077	3,690	89	2,138	159	1,489	1,350
2023	7,824	5,134	2,433	93	164	6,261	3,719	93	2,286	164	1,562	1,415
2024	8,082	5,228	2,589	96	168	6,446	3,747	96	2,434	168	1,636	1,480
2025	8,340	5,321	2,745	100	173	6,630	3,776	100	2,581	173	1,709	1,545

9-D-3 Inter-island Container

597. Inter-island container is handled only at Tanjung Priok right now. In the demand analysis described in Chapter II, future volume of inter-island containers was estimated for Tanjung Priok. Here, this estimated demand of Tanjung Priok would be re-allocated among the ports including Bojonegara new port.

1) Summary of Estimated Demand

	Tanjung Priok					
	ton			TEU		
	LD. CT	ULD. CT	Total	LD. CT	ULD. CT	Total
2001	951	842	1,792	70	129	199
2012	3,731	1,929	5,660	377	377	754
2025	8,461	4,219	12,680	855	855	1,709

2) Concept of Cargo Volume Allocation

598. The natural hinterland of Bojonegara new port is assumed to be distributed to Banten province as mentioned earlier. Moreover, unlike with international container, hinterland would not be distributed widely like to South of Jakarta and Bogor province because its total transportation time is not as long as international one.

599. Thus, the Study team assumes the hinterland of Bojonegara will be limited within Banten province even in 2025. Handling volume of the existing Banten and Cirebon are set as zero because their hinterlands are considered to be for international trade. As the same manner in international container, the Study team assumes that handling volume in Bojonegara will gradually increase and reach the estimated volume after 5 years since its operation.

3) Inter-island Container Volume by Port

600. The result is shown in Figure 9-D-6.

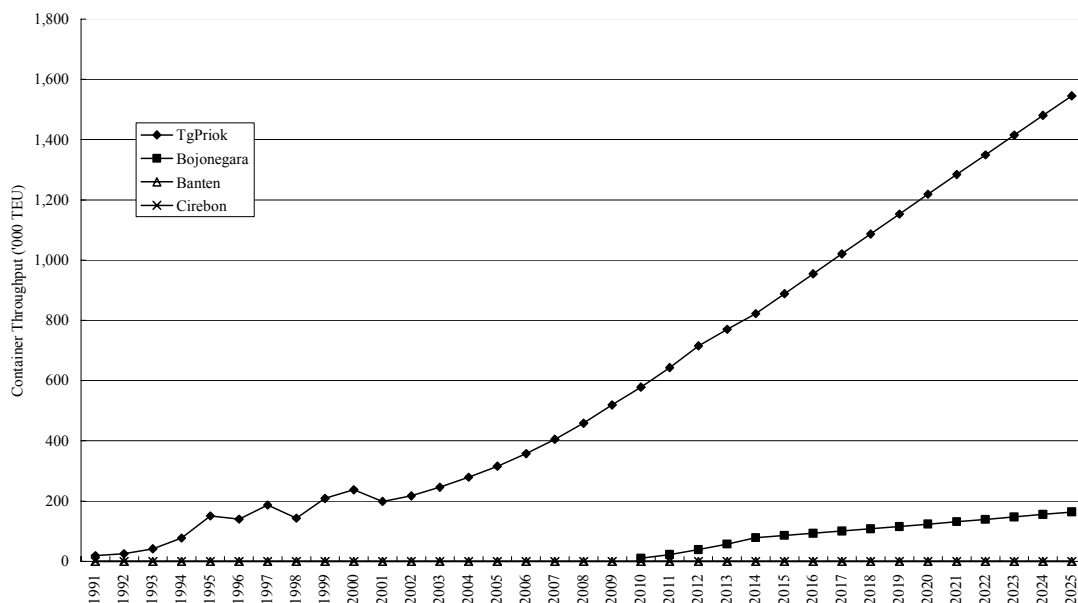


Figure 9-D-6 Functional Allotment of Inter-island Container

9-D-4 Transshipment Container (Ocean-going - Inter-island)

601. To enhance the handling of transshipment container is surely one of the development target for the Greater Jakarta Metropolitan port, however, its volume is not expected much as such a level of 100,000 ~ 200,000 TEU, and its estimate accompanies with uncertainty and difficulty, the Study team does not consider its demand for port facility planning.

9-D-5 General and Bag Cargo

602. General and bag cargo handling is also concentrated to Tanjung Priok. The current share of each port is shown below:

	Total	TgPriok	Sunda K.	Banten	Cirebon
2001	16,456	13,190	1,733	729	804
Share	100.0%	80.2%	10.5%	4.4%	4.9%

603. In the demand analysis, the total volume covering the above 4 ports has been estimated. Here, this estimated demand is allocated among the ports including Bojonegara new port.

1) Summary of Estimated Demand

	General	Bag	Total
2001	11,060	5,396	16,456
2012			22,351
2025			28,591

2) Concept of Cargo Volume Allocation

604. The natural hinterland of Banten port including Bojonegara is assumed to be distributed to Banten province as mentioned earlier. However, the share of existing port Ciwandan, public port in Banten, does not reach the existing share of GRDP. Thus, the Study team assumes the hinterland of Banten port including Bojonegara will reach to the GRDP share. Allocation between Bojonegara and public port Ciwandan is assumed 1/3 and 2/3 respectively considering the advantage of the existing port.

605. Share of Cirebon is assumed as the same as existing because the existing cargo handling share already exceeds GRDP share.

606. As for Sunda Kelapa, considering the limit of capacity and heavy congestion around the port as located in the center of Jakarta DKI, handling volume will be peaked at the level of 2 million ton as estimated in the demand analysis.

607. Handling volume at Tanjung Priok is the rest of total, excluding Banten, Cirebon and Sunda Kelapa.

608. Allocation between general cargo and bag cargo is set as an average ratio in recent 3 years as shown in below:

	Total	TgPriok	Sunda K.	Banten	Cirebon
1991	63.5%	57.3%	69.5%	99.9%	33.3%
1992	66.0%	62.3%	70.3%	99.9%	41.7%
1993	68.3%	64.3%	72.6%	99.6%	39.4%
1994	65.9%	60.5%	75.8%	95.8%	43.8%
1995	67.2%	67.8%	61.7%	92.4%	36.4%
1996	66.9%	71.1%	56.9%	62.5%	34.7%
1997	72.3%	74.8%	52.4%	96.3%	28.8%
1998	64.4%	66.6%	47.8%	88.6%	29.1%
1999	65.9%	65.7%	53.2%	89.3%	30.8%
2000	80.1%	83.9%	55.5%	90.7%	43.7%
2001	67.2%	71.4%	43.3%	90.5%	28.4%
	71.1%	73.7%	50.7%	90.2%	34.3%

Average (1999–2001)

3) General and Bag Cargo Volume by Port

609. The result is shown in Figure 9-D-7. (Banten includes Ciwandan and Bojonegara new port.)

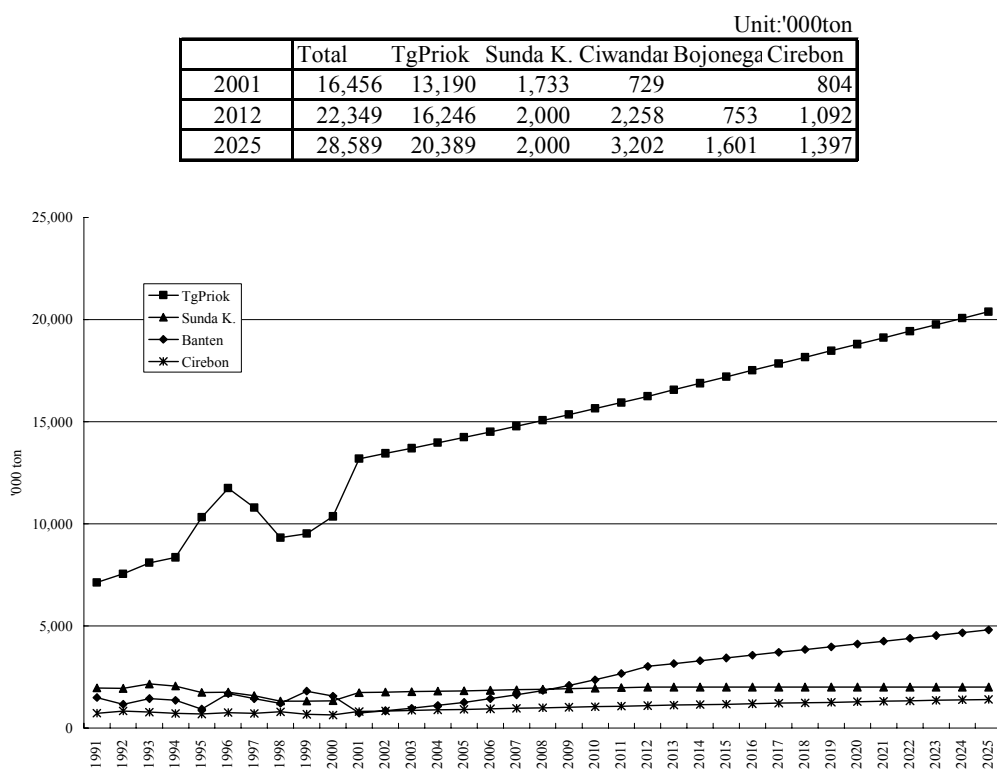


Figure 9-D-7 Functional Allotment of General and Bag Cargo

Table 9-D-2 Cargo Demand by Port (General and Bag Cargo)

'000ton

	General Cargo						Bag Cargo							
	Total	TgPriok	Sunda K.	Banten	Ciwandan	Bojonegara	Cirebon	Total	TgPriok	Sunda K.	Banten	Ciwandan	Bojonegara	Cirebon
1991	8,647	4,077	1,360	1,485	1,485		240	4,127	3,044	598	2	2		481
1992	8,728	4,705	1,364	1,157	1,157		345	3,907	2,845	577	1	1		483
1993	9,939	5,203	1,564	1,434	1,434		304	3,954	2,884	591	6	6		467
1994	9,507	5,048	1,555	1,297	1,297		310	4,310	3,301	497	57	57		398
1995	10,015	6,998	1,075	849	849		244	4,551	3,317	667	70	70		427
1996	11,717	8,355	996	1,053	1,053		260	5,900	3,390	754	633	633		490
1997	11,876	8,078	829	1,382	1,382		205	4,083	2,715	754	53	53		508
1998	9,206	6,212	629	1,068	1,068		229	4,631	3,111	688	137	137		558
1999	10,372	6,255	699	1,607	1,607		204	4,721	3,263	616	192	192		458
2000	12,531	8,692	740	1,412	1,412		275	2,904	1,665	594	145	145		355
2001	11,720	9,421	751	660	660		228	5,465	3,769	982	69	69		576
2002	12,143	9,628	772	751	751		241	5,565	3,815	982	90	90		589
2003	12,595	9,840	793	854	854		255	5,666	3,861	983	110	110		602
2004	13,081	10,057	815	971	971		268	5,766	3,907	983	131	131		615
2005	13,605	10,279	837	1,104	1,104		281	5,867	3,953	984	151	151		628
2006	14,171	10,505	860	1,255	1,255		294	5,967	3,999	984	172	172		640
2007	14,783	10,736	884	1,428	1,428		308	6,068	4,045	985	193	193		653
2008	15,449	10,973	909	1,624	1,542	81	321	6,168	4,091	985	213	203	11	666
2009	16,175	11,214	934	1,846	1,662	185	334	6,269	4,137	986	234	210	23	679
2010	16,968	11,461	959	2,100	1,785	315	348	6,369	4,183	986	254	216	38	692
2011	17,836	11,713	986	2,388	1,910	478	361	6,470	4,229	986	275	220	55	705
2012	18,790	11,971	1,013	2,716	2,037	679	374	6,570	4,274	987	296	222	74	718
2013	19,281	12,206	1,013	2,840	2,102	738	382	6,697	4,358	987	309	229	80	733
2014	19,773	12,441	1,013	2,964	2,168	797	390	6,823	4,442	987	323	236	87	748
2015	20,264	12,676	1,013	3,088	2,233	855	398	6,949	4,526	987	336	243	93	764
2016	20,756	12,911	1,013	3,213	2,298	914	406	7,076	4,610	987	350	250	100	779
2017	21,247	13,146	1,013	3,337	2,364	973	414	7,202	4,694	987	363	257	106	795
2018	21,739	13,381	1,013	3,461	2,429	1,032	422	7,328	4,778	987	377	264	112	810
2019	22,230	13,615	1,013	3,586	2,495	1,091	431	7,455	4,861	987	390	272	119	826
2020	22,722	13,850	1,013	3,710	2,560	1,150	439	7,581	4,945	987	404	279	125	841
2021	23,213	14,085	1,013	3,834	2,626	1,208	447	7,707	5,029	987	417	286	132	856
2022	23,705	14,320	1,013	3,959	2,691	1,267	455	7,834	5,113	987	431	293	138	872
2023	24,196	14,555	1,013	4,083	2,757	1,326	463	7,960	5,197	987	444	300	144	887
2024	24,688	14,790	1,013	4,207	2,822	1,385	471	8,086	5,281	987	458	307	151	903
2025	25,179	15,025	1,013	4,331	2,888	1,444	479	8,213	5,365	987	471	314	157	918

9-D-6 Dry Bulk & Liquid Bulk

610. As for handling volume of dry-bulk and liquid bulk cargo, special wharves are dominant. The demand of them for each port is set as in the demand analysis in Chapter II.

Dry Bulk

	Unit:'000ton				
	Total	TgPriok	Sunda K.	Banten	Cirebon
2012	33,452	11,004	0	20,288	2,160
2025	58,470	20,129	0	33,908	4,433

Liquid Bulk

	Unit:'000ton				
	Total	TgPriok	Sunda K.	Banten	Cirebon
2012	33,049	11,644	0	21,255	150
2025	60,370	14,046	0	46,174	150

9-D-7 Automobile Products

611. Considering that major car assembling factories are located just behind and on the east side of Tanjung Priok along the Jakarta – Cikampek toll road, it is natural that the automobiles should be handled at Tanjung Priok.

612. The Study team initially examined the following four alternatives as an automobile terminal development site. It is considered that the location at Tanjung Priok should come first viewing from its hinterland, however, Bojonegara has been included among the alternatives for comparison. Other sites at the exiting piers of Tanjung Priok would not be suitable for a car dedicated terminal due to the limits of yard.

- Alternative-1: Establish a car terminal in Ancol reclamation project area
- Alternative-2: Converted DKB-IV's unused area into a car terminal
- Alternative-3: Dedicated use of JICT-2 for a car terminal
- Alternative-4: Establish a car terminal in the Bojonegara new port

613. Each alternative is evaluated from Accessibility, Logistic cost, Project cost and Project period (Time of realization).

614. Based on the evaluation as shown Table 9-D-3, Alternative-2 could be the best choice among the alternatives both time-wise and cost-wise. Alternative-1 is difficult to choose at the moment because of the long period required to realize it. Alternative-3 is not realistic because it would be almost impossible to convert half of a container terminal to a car terminal because container handling is more profitable than automobile handling. Alternative-4 is also difficult to choose at the moment in terms of accessibility as well as the time of realization.

Table 9-D-3 Preliminary Comparison for Developing an Automobile Terminal

	Alternative-1	Alternative-2	Alternative-3	Alternative-4
	Tanjung Priok			Bojonegara
	Ancol	DKB-IV	JICT-2	
Accessibility from Karawang	Turn around time = around 3hr	Turn around time = around 3hr	Turn around time = around 3hr	Turn around time = around 7hr (need to develop an access road)
Logistic Cost	Not High	Not High	Not High	High
	The location in Bojonegara makes the transportation cost almost double against Tanjung Priok. The difference will amount to 5-10 billion Rp for 50,000 units, which will be significant value considering the company's ROE. (Assuming transportation cost from Karawang to Tanjung Priok is around 100,000 ~ 150,000Rp per unit)			
Project Cost	High	Not high (But need to pay some compensation to DKB)	Low (But high in compensation for the profit of container terminal use)	High
Environment	Nothing remarked because of offshore location.	Located in a busy area in the port. Mixed transport with other bulk cargo.	Isolated area located in the special cargo zone and less congestion. Need to check the influence from the DKB activity.	Nothing remarked because of being located thinly-populated area. Need to check the influence from neighboring steel and chemical industry.
Project Period	Long	Short	Expected to be long. (Difficult to coordinate with JICT until demand of 2 berths is elicited. Unfavorable operation of 1 berth for container handling.)	Long
Coordination with the existing use and plan	Need coordination and modification on the existing reclamation project.	Need coordination with DKB, however, the business is not active and some part of the land has not been utilized. The land itself is owned by IPC-II, and leased to DKB free of charge. Also need to coordinate with IBRA because DKB is now under the control of IBRA.	Need coordination with existing use of container handling. Depending on JICT's agreement on conversion and/or handover of container terminal.	Nothing remarked.
Evaluation	Poor (Time required for realization is too long given the urgent need of the terminal.)	Best (Better than other alternatives both time-wise and cost-wise.)	Not realistic (Almost impossible to convert a half of existing container terminal to a car terminal from profit view.)	Poor (The weakness of this alternative is its location. Time required for realization is also too long given the urgent need of the terminal.)

9-D-8 Passenger

615. Passengers are considered to be distributed mainly to/from Jakarta Metropolitan area. Accordingly, Tanjung Priok should function as the sole port handling passengers.

9-D-9 Ro-Ro Cargo

616. In the case of capacity shortage at the current ferry port, Merak, there is a possibility to establish a new Ro-Ro- terminal in Bojonegara. In the study, some space for Ro-Ro cargo vessel is reserved in the development plan.

9-D-10 Summary

617. Based on the above examinations as well as functional allotment of other cargoes, the results are summarized in Table 9-D-4 and Table 9-D-5.

Table 9-D-4 Summary of Functional Allotment among the Port in Western Java Area

	Tanjung Priok	Bojonegara	Ciwandan	Merakmas	Cirebon	(Merak)
Export/Import Container	+++	+++	+	+	+	-
Domestic Container	+++	+	-	-	-	-
Transshipment Container	++	++	-	-	-	-
Conventional Cargo	+++	+++	+++	+	+++	-
Passenger	+++	-	-	-	+	-
Ro-Ro Cargo	++	++	-	-	-	+++
Car Cargo	+++	+	-	-	-	-

+++ indicates principal ports

++ indicates ports which may become principal ports in future

+ indicates ports which may handle a small portion of cargo in future

- indicates that cargo will not be handled

Table 9-D-5 Summary of Cargo Volume Allotment among the Port in Western Java Area

Unit: 000'ton/TEU

	Tanjung Priok		Banten*		Bojonegara		Cirebon		Sunda K		Total	
	2012	2025	2012	2025	2012	2025	2012	2025	2012	2025	2012	2025
Container (TEU)												
Import/Export	3,631	3,776	54	100	525	2,581	22	173			4,232	6,630
Domestic Container	715	1,545			39	164					754	1,709
Conventional Cargo (ton)	38,894	54,564	43,801	83,284	753	1,601	3,402	5,980	4,000	4,000	90,850	149,429
General & Bag Cargo	16,246	20,389	2,258	3,202	753	1,601	1,092	1,397	2,000	2,000	22,349	28,589
Dry Bulk Cargo	11,004	20,129	20,288	33,908			2,160	4,433			33,452	58,470
(Public)	6,563	10,720									6,563	10,720
(Special)	4,441	9,409									4,441	9,409
Liquid Bulk Cargo	11,644	14,046	21,255	46,174			150	150			33,049	60,370
(Public)	2,386	3,480									2,386	3,480
(Special)	9,258	10,566									9,258	10,566
Others									2,000	2,000	2,000	2,000
Newly Emerged Cargo												
Pure Cars (000'cars)	207	391									207	391

*) Banten includes Ciwandan, Merakmas and other special wharves.

9-E. PROPOSED DEVELOPMENT SCENARIO

618. Based on the functional allotment described in the previous section, proposed development scenario of the ports in Western Java area is as follows:

Proposed Development Scenario

			Short Term	Long Term
	Container	Import/Export		
Tanjung Priok			<ul style="list-style-type: none"> Start the operation of new berths (675m, -14m) in JICT & Koja. Increase the capacity of quay by improving navigational condition and handling productivity in order to cope with the demand until operation at Bojonegara container terminal begin. 	(Nothing special development)
		Domestic	<ul style="list-style-type: none"> Increase the capacity of quay by improving navigational condition and handling productivity Convert some warehouses to container yard. Start the operation of a new dedicated domestic container terminal 	<ul style="list-style-type: none"> Expand the terminal according to the demand
	Automobile Products		<ul style="list-style-type: none"> Start the operation of a new dedicated automobile terminal 	<ul style="list-style-type: none"> Expand the terminal according to the demand
	Conventional Cargo		<ul style="list-style-type: none"> Increase the quay side capacity by improving navigational condition and handling productivity. Increase the yard capacity by demolishing some warehouses Re-organize cargo handling zones by cargo type. 	<ul style="list-style-type: none"> Develop wharves in a new area according to the demand.
	Passenger		<ul style="list-style-type: none"> Start the operation of a new passenger terminal at a newly developed port area. 	<ul style="list-style-type: none"> Expand the terminal according to the demand
Bojonegara	Container (Import/Export)		<ul style="list-style-type: none"> Start the operation of a newly established container terminal 	<ul style="list-style-type: none"> Expand the terminal according to the demand
	Conventional Cargo		<ul style="list-style-type: none"> Start the operation of a new Multi Purpose terminal for regional development in Bojonegara. 	<ul style="list-style-type: none"> Expand the terminal according to the demand of regional development in Bojonegara.
Banten/Ciwandan	Ro-Ro Cargo		Start the operation of a new Ro-Ro cargo terminal	
	Container (Import/Export)		<ul style="list-style-type: none"> Cope with the demand overflowing from Tanjung Priok until operation at Bojonegara container terminal begin. 	(Nothing special development)
	Conventional Cargo		<ul style="list-style-type: none"> Develop wharves according to the demand of Banten province. 	<ul style="list-style-type: none"> Expand wharves according to the demand of Banten province and some part of West Java.
Banten/Merakmas	Container (Import/Export)		<ul style="list-style-type: none"> Cope with the demand overflowing from Tanjung Priok until operation at Bojonegara container terminal begin. 	(Nothing special development)
	Conventional Cargo		<ul style="list-style-type: none"> Cope with the demand of Banten province. 	(Nothing special development)
Cirebon	Container (Import/Export)		Utilize the multi-purpose terminal and realize feeder services for the demand of Cirebon area.	
	Conventional Cargo		<ul style="list-style-type: none"> Develop wharves according to the demand of Cirebon area. 	<ul style="list-style-type: none"> Develop wharves according to the demand of Cirebon area and some part of West Java.

Appendix A

APPENDIX A: INDUSTRIAL CONDITION IN HINTERLAND OF TANJUNG PRIOK PORT

A.1 IMPLEMENTATION OF FIELD SURVEY

A.1.1 Interview Survey on Industrial Enterprise

In order to identify the requests of improvement of on land transport access for import and export service and also future prospective of these industries development from the industries who are using the Tanjung Priok port for export/import of their products.

The interview survey were conducted from some industries located around Jakarta, Bekasi, Bogor, Cirebon and Cilegon where large xport/import industrial complex are located. Considerable time was required to coordinate implementation of the survey with the relevant authorities. The time for a survey with one respondent took an average of two weeks and total duration for the survey was March to September 2002.

The purpose of the survey was to determinate the interrelation between industry and the port used for the import and export of raw materials and products. The questions were designed to obtain information directly from user of port.

The survey form as prepared were distributed for requesting answer/inputs from industrial enterprises, with respect to accesibility in distribution of the raw material and the processing of products. Input could be submitted to the regional administration and the central government as the policy makers. The survey also asked which routes onland areas were taken to the port.

The enterprises surveyed were representative of various types of products. PT. Bridgestone in tire industry and 4 automative companies including PT Indomobil Suzuki International, PT. Hino Indonesia Manufacture, PT. Krama Yudha Tiga Berlian Motors and PT. Toyota Astra Motors.

A.1.2 Survey with Goods Transportation Operators

Interview surveys were also conducted with some operators involved with goods transportation to determine the movement pattern of operators involved with goods transportation. Each operator focused on one vehicle and the routes passed in daily activity.

The goods transportation operators were surveyed by random sampling from the list of enterprises existing in DKI Jakarta. The operators were surveyed from two enterprises.

A.2 RESULT OF SURVEY

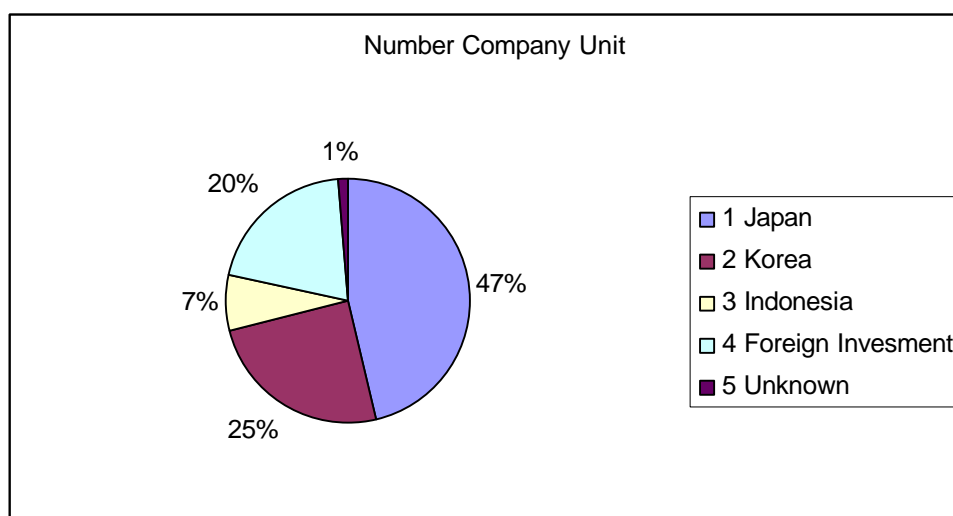
A.2.1 Interview Surveys with Industrial Enterprises

Interview surveys with industrial enterprises were difficult to conduct, it required careful approach and not all companies were willing to participate. The final number of companies interviewed was 69. **Table A-1** presented the number of company of the origin countries and **Figure A-1** show it in the graphic .

Table A-1. Number Company Investment by Origin Countries.

No of Catagory	Category of Country Origin	Number of Company	
		Unit	%tage
1	Japan	32	46
2	Korea	17	25
3	Indonesia	5	7
4	PMA (FI)	14	20
5	Others	1	1
	Total	69	99

Sources : Field Survey, 2002.

Figure A-1. Proportion of Company by Countries Origin

The above table indicate that the share of company from Japans is largest among others, next is South Korea, and then Indonesia companies. The location of such industries as the hinterlands of Tanjung Priok port is summarized in **Table A-2**, and the distribution of factory location around the Jakarta city show in **Figure A-3**.

As seen from the Table A-2, mostly the factories are located in West Java Province, especially investment companies from Japan is around 46.4% located in this area.

According to the Statistical Year Book of Indonesia, 2001 most of the Japanese factories are establishes in Jakarta metropolitan and west Jawa region. 65.73% out of total investment foreign companies are loacted in this region.

The companies produce many different kinds of products. **Table A-3** show the number of company by the type of industries product.

The export destination based on type of product and origin of company show in **Table A-4**.

Table A-2. Distribution of Factory Location by Origin of Company

N o	Factory Location	Japan		Korea		Indonesia		PMA		Other	
		Unit	%	Unit	%	Unit	%	Unit	%	Unit	%
1	Bekasi	8	11.6	4	5.8	1	1.4	5	7.2		
2	Cikarang	3	4.3	2	2.9			2	2.9		
3	Cibitung	2	2.9					3	4.3		
4	Pulo Gadung	5	7.2	1	1.4						
5	Cakung Cilincing	4	5.8	3	4.3					1	1.4
6	Jakarta Timur	2	2.9			1	1.4	1	1.4		
7	Cibinong	1	1.4	3	4.3	1	1.4				
8	Bandung	2	2.9	1	1.4	1	1.4				
9	Cilegon			1	1.4	1	1.4	2	2.9		
10	Serang			2	2.9						
11	Cirebon	4	5.8								
12	Karawang	1	1.4								
13	Jakarta Utara							1	1.4		
	Total	32	46.4	17	24.6	5	7.2	14	20.3	1	1.4

Source : Field survey, 2002

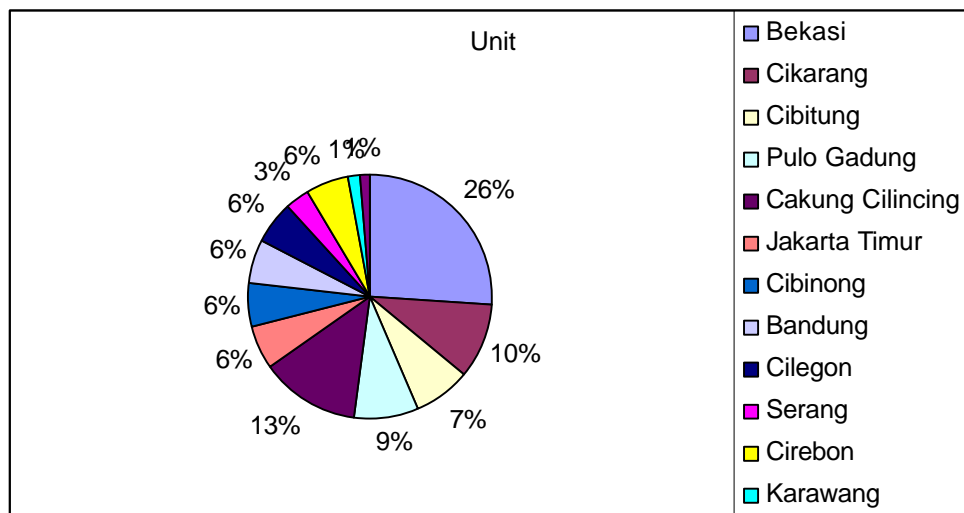
Figure A-2. Distribution of Factory Location

Figure A- 3. Distribution of Factory Location in Greater Jakarta

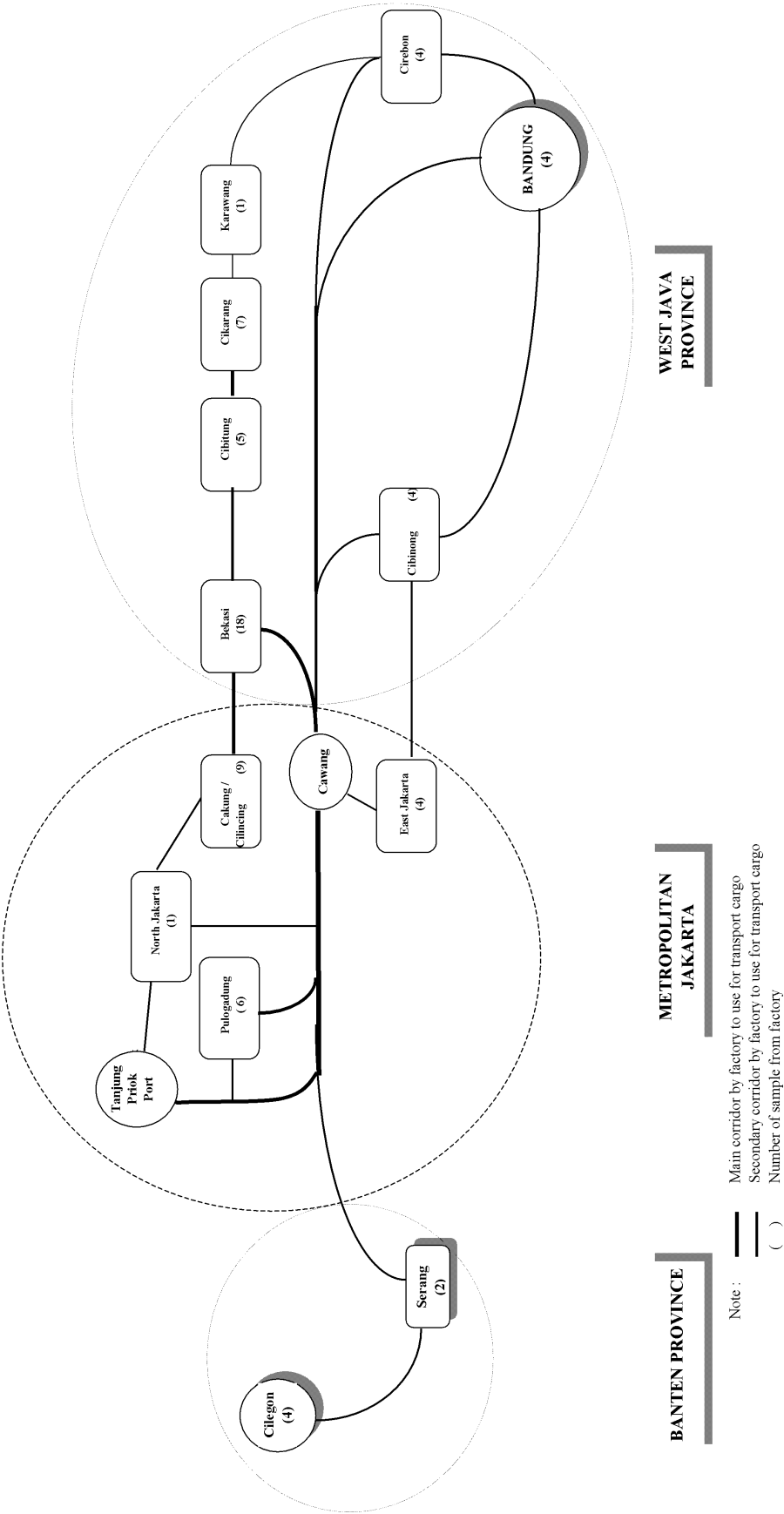


Table A-3. Number of Company by Type of Industries Product

No Of catagories Of Prodsuts	Type of Product	Number of Company	
		Unit	%
1	Food, Beverages & Tobacco	2	4
2	Textile, Wearing Apparel & Leather Industries	8	16
3	Wood & wood product, including furniture	4	8
4	Paper and paper products, Printing and Publishing	1	2
5	Chemical and Chemical Products, Petroleum, Coal, Rubber and Plastic.	8	16
6	Non metallic mineral products, except product of petroleum and coal.	1	2
7	Basic metal industry	2	4
8	Fabricated metal product, Machinery and Equipment	15	31
9	Other manufacturing industry	8	16
	Total	49	99

Note : Others 20 of companies investment without information of type of product.

Source : Field survey, 2002

Table A-4 Export Destination by Type of Product, Origin of Company and Port Using

No	Export Destination	Type of Product	Origin of Company	Port Using
1	Australia	2,3,5,9	1,2,3	Tanjung Priok
2	New Zeland	1,2	1,3	Tanjung Priok
3	East Timor	8	1	Tanjung Perak
4	ASEAN	5,8,9	1,2,3,4	Tanjung Priok
5	Ceylon	5	1	Tanjung Priok
6	India	5	4	Tanjung Priok
7	Pakistan	9	1	Tanjung Priok
8	Taiwan	3,5,7	3,4	Tanjung Priok
9	China	5	4	Tanjung Priok
10	Korea	2,3	1,2	Tanjung Priok
11	Japan	2,3,5,8,9	1,2,4	Tanjung Priok
12	Middle East	4,5,9	1	Tanjung Priok
13	Europe	2,9	1	Tanjung Priok
14	Rotterdam	3	2	Tanjung Priok
15	Italy	2,7	1,4	Tanjung Priok
16	Germany	9	1	Tanjung Priok
17	United Kingdom	1,7,9	1,4	Tanjung Priok
18	USA	2,3,5,7,9	1,2,4	Tanjung Priok
19	Canada	3	2	Tanjung Priok
20	South Africa	8	4	Tanjung Perak

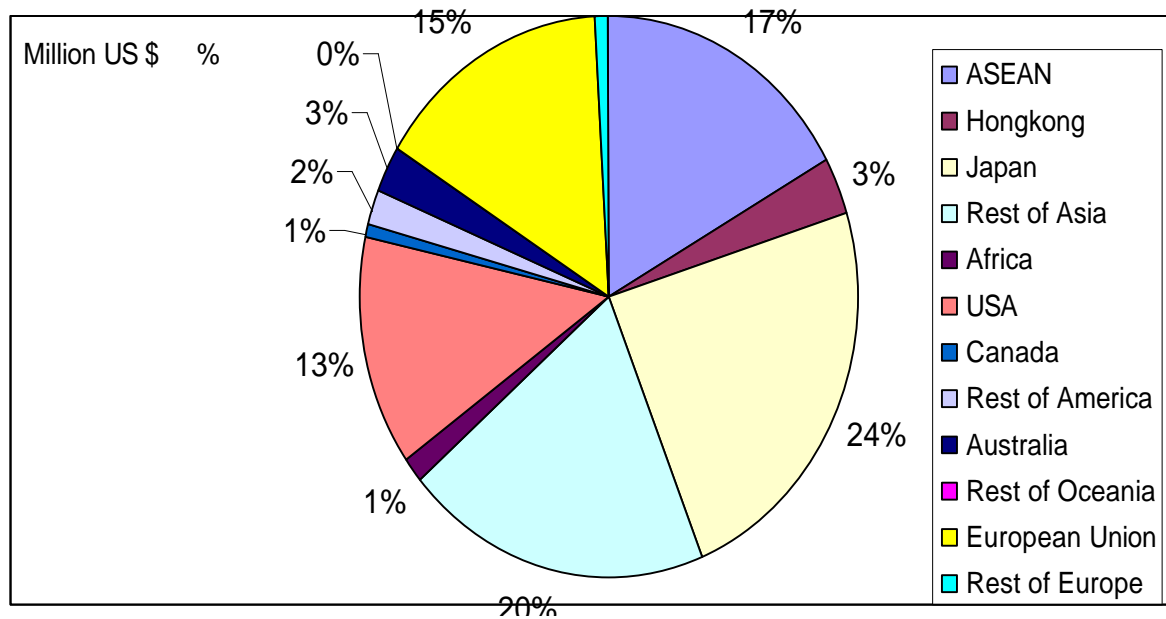
Note : - Type of product base on category in Table 3.

- Origin Countries of Company base on category in Table 1.

Source: Field survey, 2002

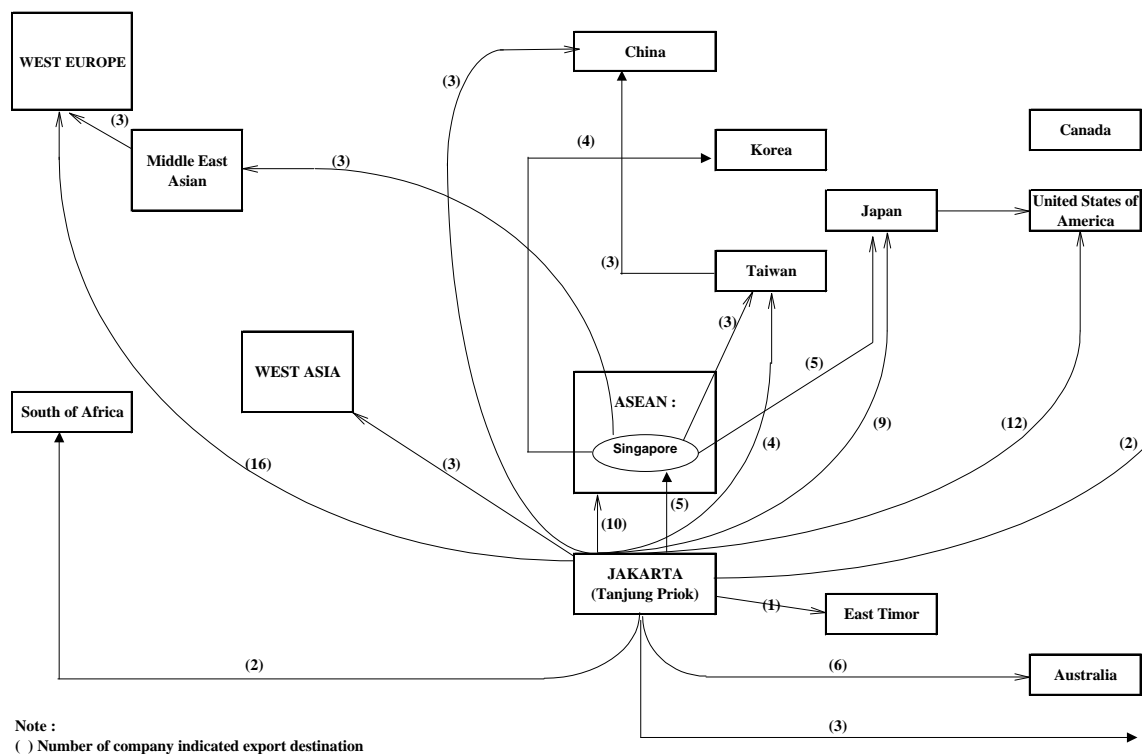
According to the Statistical Year Book of Indonesia (2001), the export value to Japan is 23.10% of total export from Indonesia in 2001. In 1997 – 2001 share of export to Japan average 24 %. **FigureA-4** presented the proportion export by country destination and **FigureA- 5** the Scheme of export destination result from field survey.

Figure A-4. Proportion Export by Country Destination (1997 – 2001)



Source : BPS, Statistical Year Book of Indonesia (2001).

Figure A-5. Export Destination (Sample by Field Survey)



Since economic crisis occurring in Indonesia, many industrial enterprises collapse and stop the activity. But this field survey indicate that the business by foreign and Indonesian investors are still operating well and optimistic for prospect development in near future. Table A-5 below showed the prospect development by origin of company.

TableA-5 Prospect Development by Origin of Company

No	Prospect Development	Japan		Korea		Indonesia		PMA		Total	
		Unit	%	Unit	%	Unit	%	Unit	%	Unit	%
1	Increase	8	29	4	14			4	14	16	57
2	Maintain	5	18	4	14	2	7			11	39
3	Withdraw	1	4							1	4
	Total	14	51	8	28	2	7	4	14	28	100

Source : Field survey, 2002.

There are 28 industrial enterprises mentioned the opinion regarding prospect development of business in future. Most of the company (57%) anticipate to increase their business in future.

A.2.2 Interview Survey with Companies Involved Goods Transportation

From the interview survey with operators of goods transportation the improvement of the access to the port were the largest requests among the others including development of the highway facilities, handling of traffic congestion by road improvement and widening and development of toll road system. The direct acces is requesting to industrial estate with other regions as the distribution zones of products and raw material. Table A- 6 show comments from Industries Enterprises Related to Import/Export Operation

Table A-6 Comments from Industries Enterprises Related to Import/Export Operation

No	Opinion/Comment	Number of Company	
		Unit	%
1	Improve acces road from factory location to Tanjung Priok (especially from East Jakarta)	7	15.9
2	Construct new acces road in Tanjung Priok to increase road capacity	3	6.82
3	Improve port facilities & infrastructure (especially for CBU operation: wharf yard, marshalling yard, etc)	5	11.36
4	Solve road stagnation and illegal payment in export line	5	11.36
5	Improve road condition around factory location	13	29.55
6	Improve traffic condition to the port (evaluation of transportation arrangement periodically)	9	20.45
7	Increase security in environment working place (added safety officer to protect road user)	2	4.54
	Total	44	99.98

Source : Field survey, 2002