Japan International Cooperation Agency (JICA)

NO.

Confidential

Final Report

The Study on the Port Security Enhancement Program of the Major Indonesian Public Ports in the Republic of Indonesia

August 2006

The Overseas Coastal Area Development Institute of Japan (OCDI)
NIPPON KOEI CO.,LTD.

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1 US$ = 9,770 Rupiah

1 Japanese ¥ = 86.79 Rupiah

(As August 2005)

PREFACE

In response to a request from the Government of the Republic of Indonesia (hereinafter referred to as “GOI”), the Government of Japan decided to conduct a Study on the Port Security Enhancement Program of the Major Indonesian Public Ports in the Republic of Indonesia and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team to Indonesia three times between April 2005 and July 2006, which was headed by Mr. Hisao Ouchi of the Overseas Coastal Area Development Institute of Japan (OCDI) and was comprised of OCDI and Nippon Koei Co., Ltd.

The team held discussions with the officials concerned of GOI and conducted field surveys at the study ports. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the port security of the major Indonesian public ports and to the enhancement of friendly relations between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of GOI for the close cooperation extended to the team.

August 2006

Takashi Kaneko
Vice President
Japan International Cooperation Agency

LETTER OF TRANSMITTAL

August 2006

Mr. Takashi Kaneko
Vice President
Japan International Cooperation Agency

Dear Mr. Kaneko:

It is my great pleasure to submit herewith the Final Report of "The Study on the Port Security Enhancement Program of the Major Indonesian Public Ports in the Republic of Indonesia".

The study team comprised of the Overseas Coastal Area Development Institute of Japan (OCDI) and Nippon Koei Co., Ltd conducted surveys in the Republic of Indonesia during the period between April 2005 and July 2006 according to the contract with the Japan International Cooperation Agency (JICA).

The study team compiled this report, which proposes the development plan for facilities, equipment and personnel training necessary for the establishment of the port security system and supporting tools for port security, through close consultations with officials of the Directorate General of Sea Transportation, the Ministry of Transportation of the Indonesian Government and authorities concerned.

On behalf of the study team, I would like to express my sincere appreciation to the Directorate General of Sea Transportation and other authorities concerned for their cooperation, assistance, and heartfelt hospitalities extended to the study team.

I am also very grateful to the Japan International Cooperation Agency, the Ministry of Foreign Affairs, the Ministry of Land, Infrastructure and Transport, and the Embassy of Japan in Indonesia for giving us valuable suggestions and assistance during the course of the study.

Yours faithfully,

Hisao OUCHI
Team Leader
The Study on the Port Security Enhancement Program of the Major Indonesian Public Ports in the Republic of Indonesia

Present Condition Photo

Access Control Gate (1)

Access Control Gate (2)

Access Control Inspection Tool

Access Control Inspection (1)

Access Control Inspection (2)

Security Level Indication Board

Restricted Area Boundary Fence with Top Guard

Movable Fence

LIST OF ABBREVIATIONS

ADPEL	Port Administration Office
AIS	Automatic Identification Systems
APEC	Asia-Pacific Economic Cooperation Conference
ASEAN	Association of Southeast Asian Nations
BAPPENAS	National Development Planning Agency
B/L	Bill of Lading
BJTI	Berlian Jasa Terminal Indonesia
BKPM	Investment Coordinating Board
BOT	Build-Operate-Transfer
BPS	Badan Pusat Statistik (Central Bureau of Statistics)
CCTV	Closed-circuit Television
CG	Contracting Government
CGI	Computer Graphic Interface
CKD	Complete Knock Down
CPI	Consumer Price Index
CPO	Crude, Palm and Oil
CSO	Company Security Officer
DA	Designated Authority
DGST	Directorate General of Sea Transportation
DKI	Daerah Khusus Ibukota (Special Capital District)
DNV	Det Norske Veritas
DoS	Declaration of Security
DT	Deep Tank
DWT	Dead Weight Tonnage
ETA	Estimated Time of Arrival
ETA	Education and Training Agency
ETD	Estimated Time of Departure
FLEET (SCGB)	Sea and coast guarding base (SCGB). SCGB is responsible for guarding activities, rescuing activities and reinforcing maritime laws and regulations in sea and coast waters.
G8	Group of Eight Countries
GAM	Gerakan Aceh Merdeka (Free Aceh Movement)
GDP	Gross Domestic Product
GOI	Government of the Republic of Indonesia
GOJ	Government of Japan
GRDP	Gross Regional Domestic Product
GRT, GT	Gross Tonnage
HBL	Horsburgh Lighthouse
HHWS	Highest High Water Spring
ICA	Immigration and Checkpoint Authority (Singapore)
ID	Identification Card
ILO	International Labour Organization. The UN specialized agency which seeks the promotion of social justice and internationally recognized human and labour rights.

IMB	International Maritime Bureau. A division of the International Chamber of Commerce. IMB's task is to prevent fraud in international trade and maritime transport, reduce the risk of piracy and assist law enforcement in protecting crews. It tracks cargoes and shipments and verifies their arrival at scheduled ports. IMB's regional office in Kuala Lumpur, Malaysia is also the home of the Piracy Reporting Centre which responds to acts of piracy and collects evidence for law enforcement agencies.
IPC	Indonesian Port Coorporations
ISPS Code	International Ship and Port Facility Security Code -- The code is part of SOLAS and comes into effect on 1st July 2004. It provides a framework for cooperation between vessels and port facilities in terms of maritime security. Specific requirements include the implementation of security plans, the appointment of security officers and the installation of automatic identification systems (AIS). Abbreviation: ISPS Code.
ISSC	International Ship Security Certificate
JICA	Japan International Cooperation Agency
JY	Japanese Yen
KAMPEL	Port Office
KL	Kuala Lumpur (Capital of Malaysia)
KM	Minstry of Communication Decree e.g. KM 62 Year 2001
KPLP	Sea and Coast Guard Unit
KPPP	Port Police (Kesatuan Palaksana Pengamanan Pelabuhan)
LLWS	Lowest Low Water Spring
LNG	Liquid Natural Gas
LOA	Length overall
LWS	Low Water Spring
MEH	Maritime Electronic Highway
METC	Pertamina Maritime Education & Training Centre
MLIT	Ministry of Land, Infrastructure and Transport
MLWS	Mean Low Water Spring
M/M	Men Month
MOC	Ministry of Communications
MPA	Maritime Port Authority (Singapore)
MSC Circular	Maritime Safety Committee Circular
MSE	Maritime Security Department
NavHaz	Navigation Hazards
O&M	Operation and Maintenance
PA System	Public Address System
PASO	Port Area Security Officer (Malaysia)
PASP	Port Area Security Plan (Malaysia)
PEB	Cargo Information for Export
PELINDO	Pelabuhan Indonesia (Indonesian Port Corporation)
PERSERO	Company or Share holder
PFSA	Port Facility Security Assessment
PFSO	Port Facility Security Officer
PFSP	Port Facility Security Plan
PIB	Cargo Information for Import
PLN	State Electric Company

PLO	Palestine Liberation Organization
POCC	Port Operations Control Center (Singapore)
POLAIR	Water Police
PSA	Port Security Assessment
PSC	Port Security Committee
PSO	Port Security Officer
PSP	Port Security Plan
PT.	Limited Company
PT. KAI	PT. Kereta Api Indonesia
ReCAAP	a Regional Cooperation Agreement on Combating Piracy and Armed Robbery
RMSI	Regional Maritime Security Initiative
RORO vessel	Roll-on Roll-off vessel
Rp	Rupiah (Indonesian Currency)
RSO	Recognized Security Organization
SAFTI	Secure and Facilitated International
SATPAM	Private establishments engaged in all activities of environmental security and order, in the form of the provision of Satuan Pengaman (SATPAM : Private Civil Defence Forces)
SoCPF	Statement of Compliance of a Port Facility
SOLAS	International Convention for Safety of Life at Sea
SSO	Ship Security Officer
STET	ST Education & Training Pte Ltd
STRAITREP	Mandatory Ship Reporting System in the Straits of Malacca and Singapore - STRAITREP
TEU	Twenty-foot Equivalent Unit
TOT Course	Training Of Trainer
TPS	Terminal Petikemas Surabaya
UM	Unit of Measure
UNLCOS	United Nation Convention on the Law of the Sea
UPS	Uninterruptable Power Supply
US$	United State Dollar
USA	United States of America
VAT	Value Added Tax
VTIS	Vessel Traffic Information System
VTS	Vessel Traffic Service
WPI	Wholesale Price Index
WW II	World War II

1. NECESSITY OF PORT SECURITY

1-1 Threat of terrorism

1. The heinous September 11 terrorist attacks in New York and Washington D.C.had a heavy impact on the world economy and society. As a result, people in the world recognized that security for transportation irrespective of passenger or cargo must be ensured. In particular, security for port facilities has not been generally as strict as at airport facilities, although ports are connection points for cargo transportation and passenger travel. In addition, port facilities and vessels are easily targeted and weapons and other materials can be imported and exported through international trade ports. Therefore strengthening security for international trade ports is an urgent issue.

1-2 Adoption of the revised SOLAS Convention

2. Under these circumstances, inter-governmental conference for the 5th Conference of contracting Governments to the International Convention for the Safety of Life at Sea (known as "SOLAS Convention") was held at the headquarters in London in 2002. Amendments to the 1974 SOLAS Convention aiming at enhancing maritime security on board ships and at ship/port interface areas were adopted. All contracting countries have been obliged to further strengthen security systems on ships and international ports after the amendment came into force in July 2004.

1-3 Threat of terrorism in Indonesia

3. In Indonesia, serious terrorism incidents have occurred in four successive years. It is thought that a south-east Asia Muslim-based terrorist group hides and operates in Indonesia. Indonesia is one of the countries where strict measures against terrorist attacks must be taken.

4. In addition, the Indonesian sea is notorious as a sea infested with many pirates. More than one-fourth of piracies in the world were reported there and the numbers have been drastically increasing. It is strongly desired that security measures be strengthened.

1-4 Enhancing security of international trade ports in Indonesia

5. Enhancing security of international trade ports in Indonesia is indispensable for the development of the economy and society. Indonesia has ratified the International Convention for the Safety of Life at Sea (SOLAS Convention) and is now making port facility security plans, constructing facilities, installing equipment for security, training security officers and so on. However, problems such as the shortage of facilities and equipment for security, the lumbering buildup of the organization due to lack of funds, and the insufficient education and training of security officers due to lack of know-how and training need to be overcome.

2. FRAMEWORK OF PORT SECURITY IN INDONESIA

2-1 Port Hierarchy in Indonesia

6. In Indonesia, the national port system became effective by Ministerial decree (KM53/2001). Under this system, there are two kinds of ports: general ports for public use and

special ports for private company use. The ISPS Code is applied to ports providing maritime transport. General port includes five kinds of ports providing maritime transport: International hub port, International port, National port, Regional port and Local port.

7. In this study, 26 ports were selected as study ports in the Steering Committee meeting. Port hierarchy of the 26 study ports is shown in Table 2-1-1.

Table 2-1-1 Port Hierarchy of Study Ports

Port Hierarchy	Number of ports in Indonesia	26 Study Ports
-International Hub Port (Primary trunk port)	2	Tanjung Priok, Tanjung Perak: 2 ports
-International Port (Secondary trunk port)	18	Belawan, Dumai, Teluk Bayur, Palembang, Panjang, Pontianak, Banten, Tanjung Emas, Cilacap, Benoa, Kupang, Banjarmasin, Balikpapan, Bitung, Makassar, Sorong: 16 ports
-National Port (Tertiary trunk port)	245	Pekanbaru, Tanjung Pinag, Batam, Kendari, Samarinda, Ambon, Biak, Jayapura: 8 ports
-Regional Port (Primary feeder port)	139	
-Local Port (Secondary feeder port)	321	

Source: DGST

2-2 Security Measures of Public Ports

8. The government nominated DGSC (now DGST), Ministry of Communications as the designated authority by Ministerial Decree (KM33:2003 and KM3:2004). DGST is responsible for supervising implementation of the Decree.

9. Port Security Officer (PSO) is nominated from the Port Administration Office or Port Office. In the Port Administration Office, PSO is the head of Guard and Rescue Division who represents KPLP.

10. PELINDO also plays an important role in port security measures and bears most of the costs for security measures in a port. The port facility security officers (PFSOs) of public ports are nominated from PELINDO.

11. The port administration office is obligated to form the Port Security Committee to oversee maritime security duties. Members of the Port Security Committee are as follows:

1) Coordinator; Head of Port Administration Office or Port Office
2) Coordinating Manager; Head of KPLP
3) Members
    - Representatives of government agencies such as Customs, Immigration and Quarantine which perform port related services
    - Representatives of government agencies such as Coast Radio Station and Navigation Aids Office which perform navigation safety tasks.
    - Representatives of security agencies such as KPPP and Navy which control bomb, drug and terrorists.
    - Representatives of private agencies such as PT. PELINDO, shipping companies and Associations which perform port activities.
    - Representatives of private agencies which support port activities such as industries in a port
    - Representatives of other agencies whose service is related to port security.

12. RSOs play fundamental roles in formulating port facility security assessments (PFSAs) and port facility security plans (PFSPs). In Indonesia, 26 RSOs in which two specialize only in ship security are registered as of August 2005.

13. The basic procedure for formulating PFSA and PFSP is shown in Figure 2-2-1.

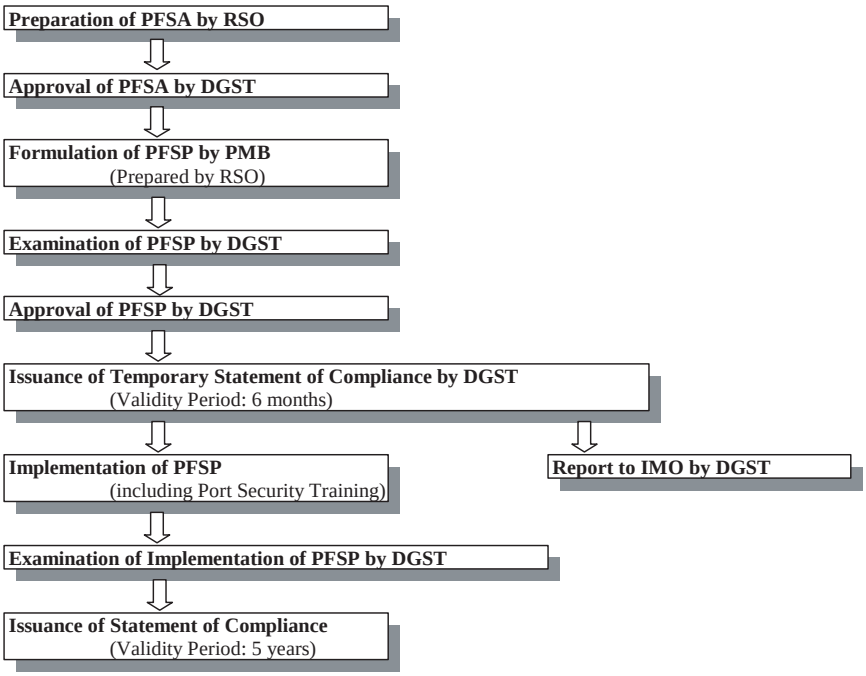


Figure 2-2-1 Procedure for Formulating PFSA and PFSP

14. The current status of ISPS Code implementation in Indonesia as of February 2006 is that two hundred and seven (207) port facilities have received permanent SoCPF, of which 27 are public port facilities, and 180 are special port facilities.

15. KPLP belonging to ADPEL and KAMPEL which have a total of 159 patrol boats patrols the water area in a port for ship safety and security. Many of the patrol boats were aged and another big issue is the shortage of fuel for patrol boats.

3. ISSUES RELATED TO PORT SECURITY IN INDONESIA

3-1 Security Condition

16. In many ports in Indonesia, problems including the gate & gate control and fencing are observed. Security measures and immediate responses are needed to cope with these issues. An overview of the study results concerning the present situation of port security measures is shown in Table 3-1-1. “X” indicates that some/problems are found.

17. As to the remaining ports, PFSPs have not been prepared and security measures are inadequate. Insufficient or no access control is conducted. Security facilities and equipment such as gates, fence and lighting are also poor. As to the ports of which international cargo volume is not large, flexible system including combination of mobile fence and security guards should be introduced.

Table 3-1-1 Port Security Measures of ISPS Code Compliant Ports

	Gate	Fence	Metal-detector, X-ray	CCTV	Lighting	Communication	PA	Access control	Clear zone	Patrol	Others
Belawan	x	x	x			x	x	x			
Dumai	x	x	x					x			
Tg.Pinang		x	x		x	x	x	x			
Batam		x(m)			x			x			x
Teluk Bayur				x					x		
Palembang	x	x						x			
Panjang		x									x
Tg.Priok	x	x(m)									x
Pontianak								x	x		
Banten		x		x							
Tg.Emas		x							x		x
Tg.Perak		x(m)									x

Note: (m) stands for "mobile fence" and PA "Public Adress system"
Source: JICA Study Team

3-2 Port Security Issues

18. Indonesia has its own natural conditions and different social, economic and financial situations and organizations from other countries. Although port security measures have to be established according to the ISPS Code, Indonesia should have its own security measures in conformity with its conditions and situation. Issues related to port security in Indonesia are summarized as follows

- In small ports international and domestic vessels use the same berth.
- There are many river ports where water depth is shallow.
- Budget for port security is small.
- Many patrol boats are aged and the number of boat is inadequate in some ports.
- There are no technical standards and manuals for port security.
- Piracy and property loss are found.
- Poverty.

(1) River Port and Patrol Boat

19. There are many river ports in Indonesia and most of them have a restriction on water depth. Therefore large bulk vessels cannot directly berth at wharves. They cast anchors at anchorages in a river or around the river mouth area. Cargo is transshipped from a large vessel to barges and carried to a wharf. Based on the above, ISPS Code is applied only to the anchorage area. However, it is deemed necessary that security measures be applied to not only the anchorage area but to the channel and main port area. It is advisable that water area security in a port is regarded as ship/ port interface and is included in the PFSP.

20. KPLP cannot fully patrol the water area due to budget constraints. DGST is requested to make efforts for increasing the budget relevant to water area security. In parallel with this effort, KPLP has to try to formulate a system in which all port management bodies share the cost of patrol boat's fuel for some time to come.

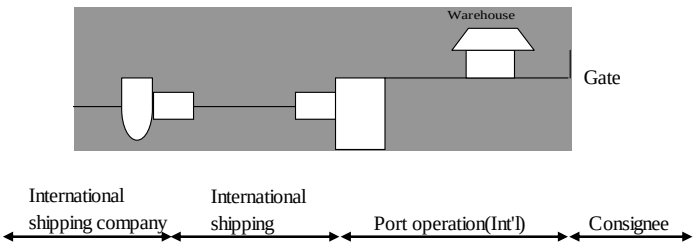


Figure 3-2-1 Ship/Port Interface at a River Port

21. In addition, it is proposed to have a security guard(s) board a barge or small vessel for transshipment of cargo. This can be applied to even a long channel.

(2) Mixed Use of Wharf by International and Domestic Ships

22. In some small ports which receive a few international ships, domestic vessels often use the same berth. This kind of mixed use of a wharf by international and domestic ships is found even in a large port. In this case, fixed fence to enclose a restricted area becomes an obstacle for domestic cargo handling; instead, it is proposed to install a mobile fence and to station security guards.

4. PORT SECURITY IMPROVEMENT STRATEGY

4-1 Necessity of Comprehensive Security Measures

23. When formulating port security measures, the following comprehensive security measures should be considered in addition to the measures prescribed by the ISPS Code.

- Increasing awareness about port security
- Making clear the responsibility
- Enlightening residents and stake holders
- Introduction of optimum transport security system
- Cooperation with other relevant organizations
- Appropriate education and training
- Sharing of latest security information
- Security of information on international cargo
- Formulation of Implementation Plan on Port Security Improvement Strategy

4-2 Identification of International Public Ports Where Security Measures are to be Implemented

24. Security measures for port facilities are classified into two categories considering importance of facilities, risk of destructive act occurrence (seriousness of incident impact and possibility of threat occurrence), budget restriction, etc. The Study Team proposes to introduce two groups as below.

1) Group A: Port facilities which need strict security measures
   - Container berths,
   - Passenger berths and
   - Hazardous material berths
2) Group B: Other port facilities
   - Bulk material berths and
   - Multi purpose berths

25. The Study Team proposes that the Group A port facilities and the Group B port facilities satisfying the following conditions in terms of numbers of calling vessels should be required to conduct a port facility security assessment and to formulate a port facility security plan.

- International cargo vessel: more than 12 vessels per year
- International passenger vessel: more than 1 vessel per year

4-3 Port Facility Security Improvement

26. The following port facility security improvement shall be the standard for Group A and B Facilities.

1) For Group A Facility
   - Fence: Fixed type
   - Monitoring: Round-the-clock monitoring by CCTV except the time when no ship and no cargo are at a berth.
   - Patrolling: Check regularly in the restricted area by security guards
   - Others: X-ray inspection apparatus (for liner passenger berths)

   If CCTV and X-ray inspection apparatus are not installed due to the budget restriction, security guards are deployed around the boundary of the restricted area and patrol intervals by security guards are shortened.

2) For Group B Facility
   - Fence: Fixed or mobile type
   - Monitoring: Conducted by security guards. Put security guards every 300m for fixed fence and every 40m for mobile fence.
   - Patrolling: Check in the restricted area by security guards.

5. IMPROVEMENT OF EDUCATION AND TRAINING ORGANIZATION

5-1 Present Situation

27. Pertamina Maritime Education & Training Centre (METC) provides education and training services to Pertamina seafarers. In addition, it has contracted outside consultants to conduct PFSO courses for State-owned port facilities (Pertamina staff) as well as to the non-State owned ports. METC has thus far trained more than 692 PFSOs since 2003 to March 2005 of which 95% are mainly applicants from non state-owned facilities.

28. Port administrators and PSOs should have a clear understanding of both the ISPS Code requirements and an awareness of the concepts advocated in the Code of Practice. KPPP staffs require greater understanding of the ISPS Code and also about the role of PFSO with regards to port facility. All PFSO's have attended the PFSO Courses conducted by DGST and the RSO. However, it is observed that most PFSOs require more training on the content of their PFSP and the application of DoS.

5-2 Basic Policy for Improving Education and Training

29. It is recommended that the following measures be taken to realize more effective training:

1) All ISPS legislated course syllabi should be submitted to DGST.
2) All trainers for ISPS courses should be submitted to DGST and registered.
3) ISPS trainers need to be updated on current developments in governmental legislation and international requirements.
4) Procedures and processes to audit the competency of trainers and relevancy of subject matters for statutory courses should be established.

6. PORT SECURITY DEVELOPMENT PLAN

6-1 General

30. The port security development plan is composed of the development plan for port security facilities and equipment and the development plan of port security human resources including education and training. The development plan for port security facilities and equipment is prepared for 12 ports which have already complied with the ISPS Code and 10 ports which have not complied. The Study Team conducted a site survey for these 22 ports.

6-2 Development Cost

31. The development direct cost and the total development cost for port security facilities and equipment and patrol boats is estimated and tabulated in Table 6-2-1 and 6-2-2.

32. The cost for human resource development such as training on port security in Indonesia is estimated assuming the maximum number of participants, duration of training and the trainers cost. An overview of the development cost for human resources in 2006 and 2007 is shown below. Almost the same amount will be needed every two years.

Table 6-2-1 Development Direct Cost

Unit:US$

	Port	Facilities and Equipment	Patrol Boat	Total
I	Belawan	2,780,000		2,780,000
	Dumai	1,211,000	722,000	1,933,000
	Pekanbaru		722,000	722,000
	Tg.Pinang	724,000		724,000
	sub total	4,715,000	1,444,000	6,159,000
BDA	Batam	244,000	1,444,000	1,688,000
II	Teluk Bayur	855,000	722,000	1,577,000
	Palembang	1,416,000		1,416,000
	Panjang	1,000		1,000
	Tg.Priok	4,100,000		4,100,000
	Pontianak	1,054,000	722,000	1,776,000
	Banten	61,000	722,000	783,000
	sub total	7,487,000	2,166,000	9,653,000
III	Cilacap	254,000		254,000
	Tg.Emas	1,000		1,000
	Tg.Perak	4,100,000		4,100,000
	Benoa	123,000		123,000
	Kupang	1,438,000	722,000	2,160,000
	Banjarmasin	501,000		501,000
	sub total	6,417,000	722,000	7,139,000
IV	Samarinda	44,000	722,000	766,000
	Balikpapan	7,000		7,000
	Bitung	269,000		269,000
	Kendari	5,000	1,444,000	1,449,000
	Makassar	1,660,000	722,000	2,382,000
	sub total	1,985,000	2,888,000	4,873,000
Total		20,848,000	8,664,000	29,512,000

Source:JICA Study team

Table 6-2-2 Total Development Cost

Unit: thousand US $

	Cost Items	Amount
1	Direct cost *1	29,512
2	Training cost of operators for facilities and equipment by experts from manufacturers or agents *2	240
3	Land acquisition cost (1.0% of 1)	295
4	Administration expenses (2% of 1)	590
5	Engineering service cost *3 (20% of 1)	5,902
Total		36,540

Table 6-2-3 Cost for Human Resource Development

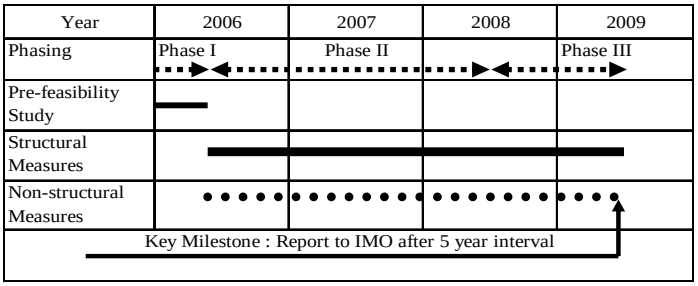
Unit: US$

Security Related Human Resource Development Program		Unit	Quantity	Unit cost	Amount
Cost for participants					
1	ISPS auditor training for port security	persons	138	700	96,600
2	Training, drills and exercises	port facility	25	8,000	200,000
3	Maritime security training of trainers	persons	28	600	16,800
4	Port facility security officer training	persons	30	600	18,000
5	Port facility security awareness course	persons	26	90	2,340
6	Facility security management in port area	persons	78	600	46,800
7	Code of practice for port security in the supply chain	persons	202	800	161,600
8	Bomb incident management for non security personnel	persons	81	90	7,290
9	Port state control	persons	128	600	76,800
Cost for trainer					132,000
Total					758,230

6-3 Implementation Schedule

33. The development for port security facilities and equipment will start as soon as possible and will be completed within two years, although this time frame could change depending on the financial situation of port management bodies. In case that the development is implemented by foreign aid, it usually takes a long time to start a project. To take Japanese Yen loan as an example, a total of 3 years is needed from the beginning to completion. In case of emergency grant aid, it may take almost two years for completion.

Table 6-3-1 Schedule of Development Plan



6-4 Urgent Port Security Development Plan

34. The Study Team selected port security facilities and equipment which are thought to be installed as soon as possible in the development plan and proposed them as the urgent port security development plan. The direct cost is shown in Table 6-4-1. The total development cost including administration expenses and engineering service cost is 11,972 thousand US$.

Table 6-4-1 Direct Cost of Urgent Development Plan

Unit: US$

Name of Port		New Gate and Fence	CCTV Camera System	X-ray System	Walk-through type Metal Detector	Lighting System	Communi-cation System	Hand Hole Wiring	Total
1	Belawan	7,500	1,390,000	87,000		200,000	87,000	914,000	2,685,500
2	Dumai	113,000	506,600	87,000	10,000	150,300	87,000	243,800	1,197,700
3	Tg. Pinang		515,000	87,000				122,000	724,000
4	Teluk Bayur		679,400					169,000	848,400
5	Palembang	32,100	641,000			230,300	87,000	406,500	1,396,900
6	Pontianak	56,300	640,900			90,100	87,000	111,800	986,100
7	Benoa	8,600		87,000	9,800				105,400
8	Bitung					60,100	87,000	121,900	269,000
9	Makassar	4,900	755,100				87,000	609,800	1,456,800
Total		222,400	5,128,000	348,000	19,800	730,800	522,000	2,698,800	9,669,800

Source: JICA Study Team

7. RECOMMENDATIONS

7-1 General

35. The ISPS Code requires port facility personnel to be proficient in all assigned security duties, at all security levels, and to be able to identify any security related deficiencies. It is important to conduct training, drills and exercises in an honest way.

36. Threats to port security are becoming increasingly complex. In order to cope with these threats, it is necessary to obtain information from all over the world, prepare appropriate counter-measures, and put them in practice. In addition, it is indispensable to randomly review the existing security measures and improve them as necessary. This entails introduction of the "Plan-Do-See" system.

37. Port security measures are incomplete without cooperation and concerted implementation with many other countries. Therefore it is advisable to participate in international meetings and symposiums on port security in a positive way and to contribute to the realization of a secure world through such discussions.

7-2 Establishment of Port Security System

38. The study team has completed draft PFSAs and PFSPs for the foreign trade ports which have not complied with the ISPS Code. It is recommended that all foreign trade ports follow the prescribed procedure using the draft PFSAs and PFSPs and comply with the ISPS Code as soon as possible.

39. Although the framework and system on port security in Indonesia has become regular in shape, actual situation of security measures is not always satisfactory. The study team pointed out the problematical points in detail in the study. In addition, the team members had discussions with officials who were in charge of port security and the team held seminars and workshops. It is recommended that the Indonesian officials take proper security measures using what they have learnt during the study as reference.

40. The study team proposed the development plan for port security facilities and equipment and suggested that expensive facilities and equipment be developed by foreign loan and/or grant. It is recommended that the Indonesian government make efforts to ensure that these proposals are carried out. Other facilities and equipment such as fence and gate should be installed at an early date using Indonesia's own funds.

41. The study team proposed the draft technical standards for port security facilities and equipment. It is recommended that this technical standard be amended as necessary and be distributed to officials in charge of port security at an early date. The technical standards can be a textbook on port security facilities and equipment and it is advisable that it become required reading for persons related to port security.

7-3 Build-up of System

42. In the present port security system in Indonesia, only some officials belonging to the Directorate of Sea and Coast Guard, DGST have wide knowledge on port security and have to assume all responsibilities in responding to port security incidents in Indonesia. In the future it is expected that PSC will fully function and PSO will be able to undertake his/her role. However, strengthening of the organization assigned to port security in the Directorate of Sea

and Coast Guard is an urgent issue because the intermediate audit is forthcoming and the officials will have many works to handle in updating the PFSPs in the days to come.

43. In addition, the officials have to handle confidential information in many cases and a vast number of related documents have been accumulated. Therefore it is recommended to refurbish and improve the office where documents are reviewed and filed.

44. Although the ISPS Code prescribes provisions to be observed, it can be interpreted in several ways and thus a variety of methods can be adopted. This study has showed the basic approach to port security in Indonesia. However, Sea and Coast Guard of DGST still needs technical supports to put the contents of the study into effect and technical advice for the intermediate audit to come. It is recommended that port security specialists be dispatched from foreign countries to give technical guidance.

7-4 Concretization of Responsibility

45. It is found that sharing of roles between KPLP and KPPP and between PSO and PFSO is not clear in some ports. It should be clarified in PSC that the responsible person at each security level makes a judgment on security measures and that all information related to security incidents be conveyed to upper responsible persons.

7-5 Growth of Awareness

46. Port security incidents may have a serious impact on transportation and economic development in Indonesia. Therefore it is important that officials directly in charge of port security not only have full knowledge of port security incidents and measures but also make efforts to get various influential persons to understand the importance of port security.

47. Strict implementation of port security measures may give some inconvenience to related persons. It is recommended that security officials explain the necessity of port security measures and make efforts to acquire their understanding.

48. A port is a facility where many organizations are involved and some organizations have information on thieves and crime. Therefore it is important to maintain close relations with these organizations and exchange information frequently. It is advisable to make the most use of PSC.

49. Moreover it is important to grasp and analyze the port security incidents which occur in Indonesia to prepare effective security measures. It is recommended to make a unified report form and to establish a system to report security incidents to DGST as soon as possible. Sea and Coast Guard of DGST should summarize the information and make it public periodically.

7-6 Introduction of New Security Measures

50. It is recommended that DGST encourage shipping companies and operators to positively introduce new security equipment and system which are thought to be more effective for port security.

51. DGST is now developing AIS in major ports. AIS is originally devised for safe vessel navigation, but it can be applied to port security by using it with radar. It is recommended that AIS be placed in many foreign trade ports for vessel safety and port security.

52. Several cases were reported in which only valuable goods were stolen from a container. It is recommended that port operators adopt strict information control and DGST encourage moral improvement of persons involved in information handling.

7-7 Education and Training

53. It is indispensable that Port Administrator, PSO, PFSO, KPPP and SATPAM acquire knowledge on the ISPS Code and related port security measures respectively and can practically apply them to daily works in order to introduce correct port security measures.

54. PELINDO, being a state-owned enterprise, is recommended to have their own training center or PELINDO academy for effective training. ADPEL and personnel with security related duties in PELINDO ports should also hold their training in the center. BP3IP, the existing government training school responsible for training seafarers should incorporate an awareness program in maritime security and the ISPS Code.

55. It is indispensable for each port to conduct drills and exercises which are prescribed in the ISPS Code in order to rapidly and appropriately cope with actual security incidents. One problem on drills and exercises is that no evaluation on the implementation was conducted. It is recommended that a system which identifies points to be improved and reflects them in the existing security measures be established.

7-8 Development of Port Security Facilities and Equipment

56. The study team proposed the development plan of port security facilities and equipment for proper implementation of port security measures. It is advisable that DGST make efforts to realize the plan.

Contents

Table, Figure and Photo Contents

CHAPTER-1. INTRODUCTION

1. In response to the request of the Government of the Republic of Indonesia (hereinafter referred to as "GOI"), the Government of Japan (hereinafter referred as "GOJ") has decided to conduct "The Study on the Port Security Enhancement Program of Major Indonesian Public Ports in the Republic of Indonesia" (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

2. Based on the Scope of Work and the Minutes of Meetings agreed and signed by JICA and Directorate General of Sea Communication, Ministry of Communications (now Directorate General of Sea Transportation (hereinafter referred as "DGST"), Ministry of Transportation) of GOI on October 12, 2004 at Jakarta, the JICA study team started the Study in April 2005.

1-1 BACKGROUND OF THE STUDY

1-1-1 Threat of Terrorism

3. Since the 1980's, many large-scale terrorist attacks such as the Pan-Am airplane bombing over England, the Federal Building bombing in Oklahoma City in the United States, US Embassy bombings in Kenya and Tanzania have occurred. As for maritime terrorism incidents, an Italian luxury passenger liner was hijacked by the PLO in 1985 (Akile Rauro Hijack incident), commercial vessels were attacked by Indonesian GMA and others, and an armed US Navy vessel was attacked offshore of Yemen.

4. Under these circumstances, the heinous September 11 terrorist attacks in New York and Washington D.C.had a heavy impact on the world economy and society. As a result, people in the world recognized that security for transportation irrespective of passenger or cargo must be ensured. In particular, security for port facilities has not been generally as strict as at airport facilities, although ports are connection points for cargo transportation and passenger travel. In addition, port facilities and vessels are easily targeted and weapons and other materials can be imported and exported through international trade ports. Therefore strengthening security for international trade ports is an urgent issue.

1-1-2 Adoption of the Revised SOLAS Convention

5. Many governments in the world held meetings to study how to strengthen security measures against maritime terrorist attacks and considered that it would take many years to set up a new treaty. Then inter-governmental conference for the 5th Conference of contracting Governments to the International Convention for the Safety of Life at Sea (known as "SOLAS Convention") was held at the headquarters in London in 2002. Amendments to the 1974 SOLAS Convention aiming at enhancing maritime security on board ships and at ship/port interface areas were adopted.

6. The SOLAS Convention was adopted for the purpose of improvement of the safety of merchant ships in 1914, in response to the Titanic disaster in 1912, based on the recognition that the large loss of life in this accident was due to inadequate safety measures of the ship. The latest 1974 Convention has been updated and amended on numerous occasions.

7. In this amendment of the Convention, security measures for ships as well as development of a port facility security plan and designation of a port facility security officer are included as obligatory. It was decided that PFSP should include the designation of restricted areas of a port facility and access control to/ from a port facility.

8. All contracting countries have been obliged to further strengthen security systems on ships and international ports after the amendment came into force in July 2004.

1-1-3 Threat of Terrorism in Indonesia

9. In Indonesia, serious terrorism incidents have occurred in four successive years: the Bali Island Night Club bombing in 2002, Mariott Hotel bombing in Jakarta in 2003, explosions around the Australian Embassy in Jakarta in August 2004 and the Bali Island bombings in 2005. In addition, Indonesian government must deal with the independence movement in Aceh, Maluku and Irian Jaya and the conflicts between Christians and Islamites. It is thought that a south-east Asia Muslim-based terrorist group hides and operates in Indonesia. Indonesia is one of the countries where strict measures against terrorist attacks must be taken.

10. In addition, the Indonesian sea is notorious as a sea infested with many pirates. More than one-fourth of piracies in the world were reported there and the numbers have been drastically increasing (see Table 1-1-3-1). In the first half of the year 2004, as many as 50 pirate attacks were reported in the Indonesian sea out of 182 worldwide. It is strongly desired that security measures be strengthened.

Table 1-1-3-1 Piracy Incidents

	1998	1999	2000	2001	2002	2003
Indonesia	60	115	119	91	103	121
Malaysia	10	18	21	19	14	5
Straight of Malacca-Singapore	2	16	80	24	21	30
Others in South-east Asia	17	14	28	27	27	29
Area other than South-east Asia	113	137	221	174	205	260
Total in the world	202	300	469	335	370	445

Source:IMB

1-1-4 Enhancing security of International Trade Ports in Indonesia

11. Many shippers and shipping companies are worried about port security including pilferage in Indonesia. Enhancing security of international trade ports in Indonesia is indispensable for the development of the economy and society. If security measures for international trade ports in Indonesia are uncertain, the number of vessels calling ports in Indonesia which belong to major shipping companies will decrease. It will not only cause a paralysis of port and maritime shipping activities but also place fetters on the promotion of industries in Indonesia. Moreover the security issue in Indonesia is closely connected to world security. Indonesia is also a very important country for Japan from the viewpoint of trade relations and investment to Indonesia. Port security measures should be taken to ensure that the investment climate in Indonesia remains sound.

12. Indonesia has ratified the International Convention for the Safety of Life at Sea (SOLAS Convention) and is now making port facility security plans, constructing facilities, installing equipment for security, training security officers and so on. However, problems such as the shortage of facilities and equipment for security, the lumbering buildup of the organization due to lack of funds, and the insufficient education and training of security officers due to lack of know-how and training need to be overcome.

13. Member countries declared at G8, APEC and ASEAN meetings that they would strengthen measures against terrorism all over the world. These member countries have been charged with a mission to secure security in their own countries as well as to cooperate with related countries on security measures. In particular, at the Japan-ASEAN Transport Ministers' meeting it was concluded that maritime transport security was one of the four major issues. Japan decided to cooperate positively with ASEAN countries and to support anti-terrorism measures taken by each ASEAN country.

14. Under these conditions, Japan extended grant aids for the project entitled "Major Airport and Port Security Facilities Improvement Project in Indonesia" in 2003, where Japan prepared the basic plan and design to provide security equipment for major ports and airports. The project has completed. However, Indonesia still has the various problems mentioned above. Therefore the former Directorate General of Sea Communications (DGSC), Ministry of Communications requested that Japan conduct a study to build up the port administration/ operation organization, to enhance capability for making a port security plan, to propose education and training systems, and to make an equipment improvement plan, through negotiations with JICA Indonesia office.

1-2 OBJECTIVES OF THE STUDY

15. For ensuring effective security measures of major Indonesian public ports for international trade corresponding to the revised SOLAS Convention which was ratified in December 2002 and became effective on 1 July 2004, the Study Team proposed objectives of the study at the beginning of the study as follows:

1) To prepare port facility security plans based on the port facility security assessment of model ports;
2) To formulate the manual for preparing a port facility security plan in Indonesia after summarizing security plans of model ports;
3) To formulate the plan for facilities, equipment and personnel training necessary for the establishment of the security system and to recommend a funding plan for selected model ports;
4) To prepare and recommend a human resource development program including education and training based on a comprehensive analysis of governing laws and regulations; and
5) To recommend measures to strengthen the port security system in Indonesia through implementation of the above items and/or as complements.

The Study Team also proposed that the 12 ports requested by DGSC be model ports on the condition that one port facility security plan is made for a model port where no security plan has been prepared.

16. The above objectives were prepared considering the scope of work agreed upon DGSC and JICA in October 2002 when the Indonesian side seldom or never had taken port security measures. However, when the study was started in April 2005, 12 major public ports have already complied with the ISPS Code. Therefore the objectives of the study were amended at the first steering committee meeting as follows:

1) To conduct port facility security assessment (PFSA) and to prepare port facility security plans (PFSP) for the selected ports which have not complied with ISPS Code and

   To make a study on implementation of the ISPS Code for the ports for which Statements of Compliance have been issued;

2) To prepare the manuals of PFSA and PFSP based on the above study (the PFSA manual was added.);

3) To formulate the plan for facilities, equipment and personnel training necessary for the establishment of the security system and to recommend a funding plan for selected ports (the selected model ports were changed to the selected port.);

4) Same

5) Same

17. When carrying out the study, the Study Team has not employed a unilateral approach but has consulted closely with the Indonesian side. The study team made efforts to work with Indonesian officials of various organizations who were concerned with port security.

1-3 STUDY PORTS

18. As the result of discussions with the Indonesian side, 26 study ports were selected out of all major public ports for international trade which handle international trade cargo and international passengers. The 26 study ports are composed of the 25 strategic ports in Indonesia with the exception of Lhokseumawe which was heavily damaged by a large earthquake and Kendari and Cilacap which were recommended to be included as study ports in the Steering Committee meeting. The study ports are shown in Figure 1-3-1.

19. In the 26 study ports, 12 public ports have already complied with the ISPS Code, while the remaining 14 ports have not. As to the 12 ports, the Indonesian side requested the Study Team to make a study on implementation of the ISPS Code. In the remaining 14 ports, 4 ports are located in Maluku and Papua to which the Study Team is not allowed to visit. Therefore it was agreed by the Indonesian side and the Study Team that only PFSA would be conducted for these 4 ports based on data and information which delegated RSOs collected. The 4 ports are Ambon, Sorong, Biak and Jaya Pura. Then it was decided that PFSP would be formulated based on PFSA for 10 ports. Names of 10 ports are:

- PELINDO I Pekanbaru
- PELINDO III Cilacap, Benoa, Kupang, Banjarmasin
- PELINDO IV Samarinda, Balikpapan, Bitung, Kendari and Makassar

20. At the first Steering Committee meeting, the Indonesian side and the Study Team prioritized seven ports where urgent development plans should be formulated as soon as possible and that should be subject to yen loan or grant aids in 2005. Names of the prioritized ports are as follows:

- PELINDO I Belawan, Dumai
- PELINDO II Palembang
- PELINDO III Banjarmasin
- PELINDO IV Samarinda, Bitung, Makassar

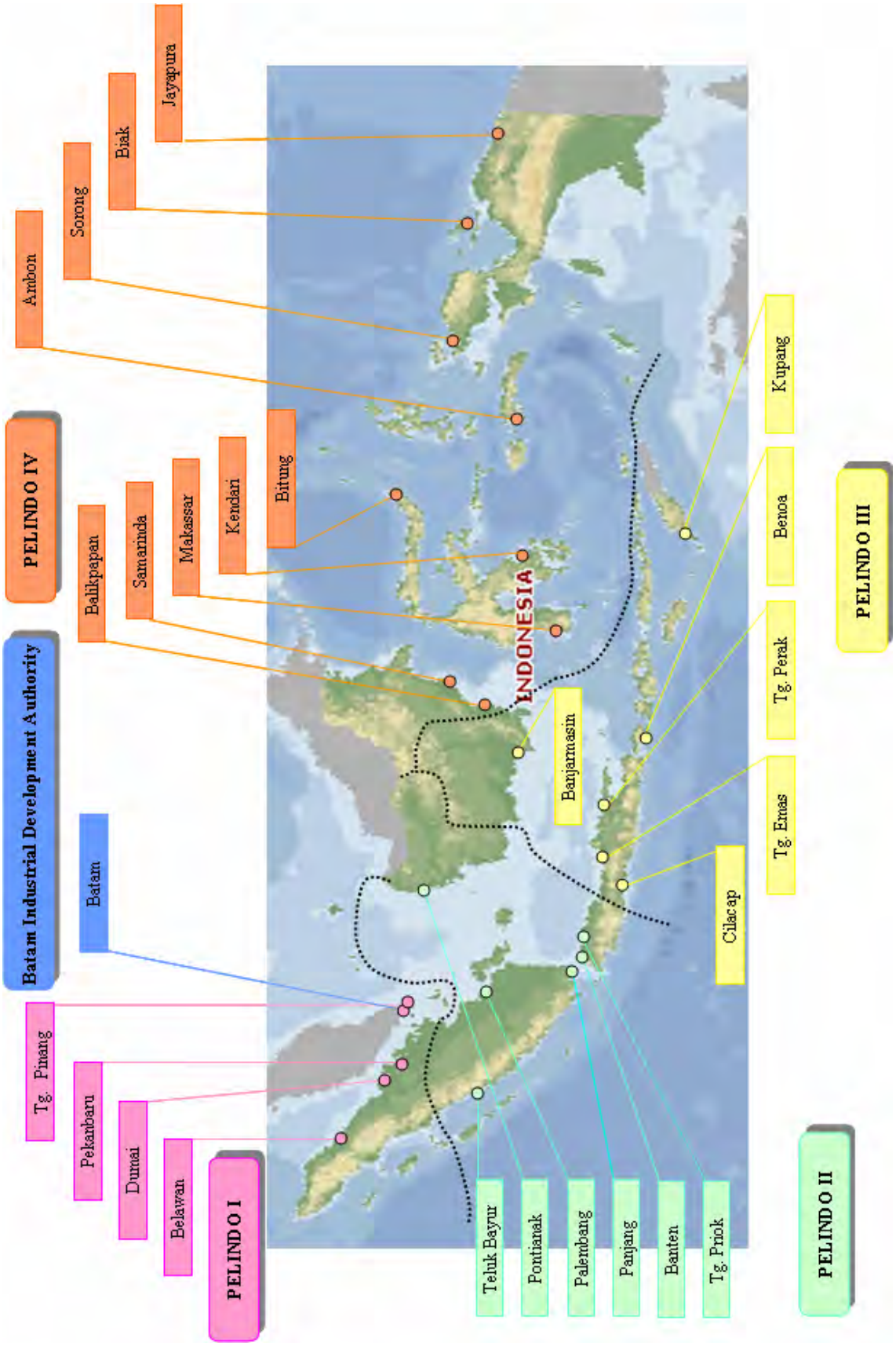


Figure 1-3-1 Study Ports

21. The 26 study ports, the selected ports for PFSA and PFSP, the prioritized ports for urgent development plans and the ports for which security development plans are formulated are shown in Table 1-3-1. Mark △ in Bitung means that Bitung Port complied with the ISPS Code during the study although it had not when the study started. Mark △ in Makassar means that Container Terminal and Multipurpose Terminal comply with the ISPS Code, while Passenger Terminal does not.

Table 1-3-1 Study Ports

	Port Management Body	Port	Province	Comply with ISPS Code	PFSA	PFSP	Urgent Security Measures	Development Plan
1	PELINDO I	Belawan	North Sumatra	○			○	○
2		Dumai	Riau	○			○	○
3		Pekanbaru	Riau		○	○		○
4		Tanjung Pinag	Riau	○				○
5	BDA	Batam	Riau	○				○
6	PELINDO II	Teruk Bayur	West Sumatra	○				○
7		Palembang	South Sumatra	○			○	○
8		Panjang	Lampung	○				○
9		Tanjung Priok	DKI Jakarta	○				○
10		Pontianak	West Kalimantan	○				○
11		Banten/Bojonegara	Banten	○				○
12	PELINDO III	Cilacap	West Java		○	○		○
13		Tanjung Emas	Central Java	○				○
14		Tanjung Perak	East Java	○				○
15		Benoa	Bali		○	○		○
16		Kupang	East Nusa Tenggara		○	○		○
17		Banjarmasin	South Kalimantan		○	○	○	○
18	PELINDO IV	Samarinda	East Kalimantan		○	○	○	○
19		Balikpapan	East Kalimantan		○	○		○
20		Bitung	North Sulawesi	△	○	○	○	○
21		Kendari	South Sulawesi		○	○		○
22		Makassar	South Sulawesi	△	○	○	○	○
23		Ambon	Maluku		○			
24		Sorong	Papua		○			
25		Biak	Papua		○			
26		Jayapura	Papua		○			

1-4 STUDY SCHEDULE

(1) First Works in Japan

22. The Study Team prepared the inception report which included scope of the study, basic policy of the study and methodology of the study.

(2) First Works in Indonesia

23. The Study Team submitted the inception report to the Indonesian side. The contents of the inception report were basically accepted at the first Steering Committee meeting and the 26 study ports, the ports for which PFSA and PFSP would be prepared, and the ports for which urgent development plans would be formulated were decided as mentioned in 1-3.

24. The Study Team carried out site surveys of 22 study ports with the exception of four ports in Maluku and Papua from the latter half of April to the first half of August. As to ports in Maluku and Papua, RSOs delegated by the Study Team carried out site surveys because the Study Team has been prohibited from visiting those areas.

25. The Study Team completed and submitted the study report on "Urgent Development Project for Port Security Enhancement Program of Major Indonesian Public Ports" to DGST on August 4. The major part of the report is found in the Appendix of this report.

26. The Study Team prepared a few copies of the draft PFSAs and PFSPs for Samarinda, Bitung and Banjarmasin ports which are separated volumes from the progress report (1) and submitted them to DGST because they must be handled as confidential.

27. Workshops were held at each PELINDO as follows. Many participants attended and discussions including question and answer periods were earnestly carried out. In the workshops the Study Team presented the security measures in Japan, outlines of draft PFSA and PFSP prepared by the Study Team and observation on implementation of ISPS Code in Indonesian public ports on the first day and had a training session on ISPS Code on the second day. In Surabaya and Bandung, the workshops were co-hosted by the project team for implementation of the security equipment in major airports and ports facilities and a training session on operation of monitoring system was also conducted.

- PELINDO III July 18-20 Surabaya
- PELINDO IV July 21-22 Manado
- PELINDO I July 25-26 Medan
- PELINDO II July 28-29 Bandung

28. The Study Team prepared the progress report (1) concerning the first study in the Indonesia and submitted it to the Indonesian side. The progress report (1) was basically approved at the Steering Committee meeting.

(3) Second Works in Japan

29. Second works in Japan were carried out during the period of first works in Indonesia. The results of the works were reflected to the study in the first works in Indonesia.

(4) Third Works in Japan

30. The Study Team prepared the interim report which contained the basic policy of port security improvement strategy and the outline of PFSA and PFSP manuals.

(5) Second Works in Indonesia

31. The Study Team submitted the interim report to the Indonesian side and the contents of the report were basically accepted.

32. Seminars were held in Jakarta and Bali. In Jakarta, the seminar was held in collaboration with APEC as the JICA/APEC Joint Seminar on Port Security. In the seminars, the Study Team and the JICA advisory team members presented Maritime Security Policy Development in the World, Port Security Policy and Measures in Japan, Enhancing Port Security by IT in Japan, Overview of the JICA Study and Grant Project on the Port Security Enhancement, and Progress and the Recommendation of the JICA Study. One hundred and seventy-eight (178) and one hundred and eighteen (118) participants attended in Jakarta and Bali, respectively.

- JICA/APEC Joint Seminar on Port Security Dec 7-8 Jakarta
- JICA-DGST Seminar on Port Security Dec 12 Bali

33. Workshops were held at each PELINDO as follows. Many participants attended and discussions including question and answer periods were earnestly carried out. In the workshops the Study Team presented outlines of draft PFSA and PFSP for ports which the Study Team did not cover at the first workshop, Port security improvement strategy, Port security facilities development standards, Enhancement program on exercise, drill and training, PFSA and PFSP manuals and action plan on port security. (Distributed materials and abstract of questions and answers are included in the Appendix.)

- PELINDO II January 17 Jakarta
- PELINDO I January 19 Batam
- PELINDO III January 23 Surabaya
- PELINDO II January 25 Makassar

34. The Study Team prepared the progress report (2) concerning the second study in the Indonesia and submitted it to the Indonesian side. The progress report (2) was basically approved at the Steering Committee meeting.

(6) Fourth Works in Japan

35. The Study Team prepared the draft final report which contained the whole study results.

(7) Third Works in Indonesia

36. The Study Team submitted the draft final report to the Indonesian side and the contents of the report were basically accepted.

37. Seminars were held in Jakarta and Bali. In the seminars, the Study Team presented the outline of the study and Mr. Asai, the JICA advisory team member introduced the cooperation between ASEAN region and Japan on developing a Regional Action Plan (RAP). One hundred and sixty-five (165) and one hundred and three (103) participants attended in Jakarta and Bali, respectively.

- JICA-DGST Seminar on Port Security June 19 Bali
- JICA-DGST Seminar on Port Security June 21 Jakarta

(8) Fifth Works in Japan

38. The Indonesian side informed the Study Team that there were no additional comments on the draft final report. The Study Team prepared the final report with minor modification.

(9) Study Flow

39. The study flow from the first works in Japan to the fifth works in Japan is shown in Figure 1-4-1.

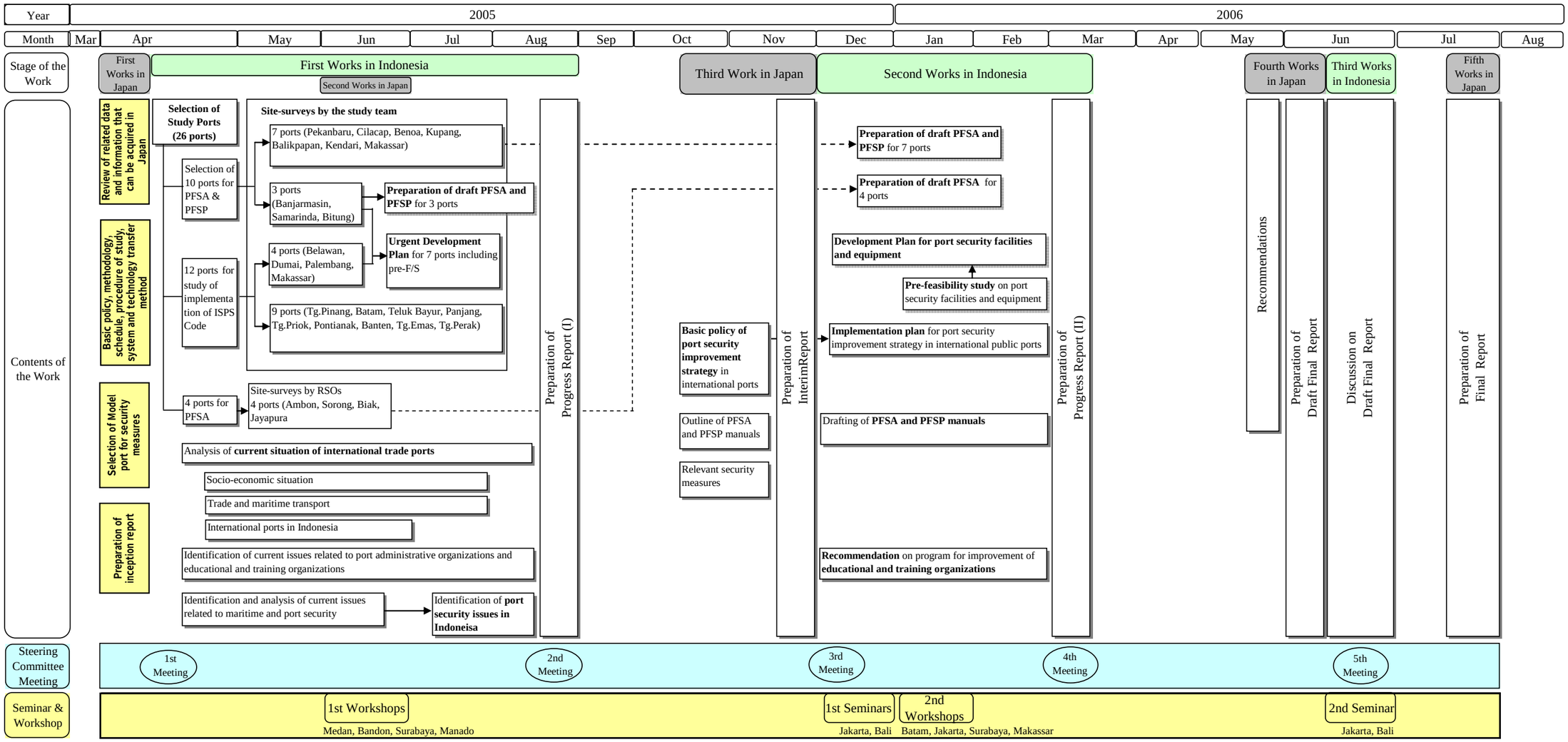


Figure 1-4-1 Study Flow

1-5 IMPLEMENTING ORGANIZATION OF THE STUDY

1-5-1 Supporting Teams and Secretary

40. The Indonesian side set up two teams which consist of Director Team and Implementing Team and Secretary to support the study. The members of the two teams and the secretary are shown in Table 1-5-1-1 to 1-5-1-3.

Table 1-5-1-1 Director Team

Name	Position
H. Hariogi	Director General of Sea Transportation
(Dr. Ir. Tjuk Sukardiman, MSi)*	
Capt. Sri Untung	Secretary of Directorate General of Sea Transportation
Drs. Jimmy AB. Nikijuluw	Director of Sea Traffic and Sea Transportation
Drs. Cholik Kirom	Director of Port & Dredging
(Ir. Djoko Pramono)*	
Capt. Bobby R. Mamahit	Director of Marine Safety
Yuri Gunadi	Director of Navigation
Ir. Soeharto	Director of Sea & Coast Guard

Note: ( )* means a former member.

Table 1-5-1-2 Implementing Team

	Name	Position
Head	Drs. Cholik Kirom	Head of Sub Directorate of Port Safety & Security, DGST
Vice Head	Ir. Kemal Heryandri	Head of Planning Division, DGST
Secretary	Untung	Directorate of Sea and Coast Guard, DGST
Member	Ir. Adolf R. Tambunan, MSc	Directorate of Sea Traffic and Sea Transportation
	Ir. Wijayanto	Directorate of Ports and Dredging
	A. Wahid	Directorate of Ports and Dredging
	Aries Wibowo	Directorate of Ports and Dredging
	Ir. Raymond IHAS	Directorate of Navigation
	Suryo	Directorate of Navigation
	Capt. Purnama	Directorate of Sea and Coast Guard
	Capt. Supardi	Directorate of Sea and Coast Guard
	Ir. Muklish Tohepaley	Directorate of Sea and Coast Guard
	Hendra Prasetiya Ganefo	Directorate of Sea and Coast Guard
	Rachmadijaja	Directorate of Sea and Coast Guard
	Drs. Eko Hadi Rumekso	Planning Division
	Rio Irawan, SE, MM	Planning Division
	Viva Indriyani Ayu, ST	Planning Division
	M. Masyhud, MT	Planning Division
	Rifanie Komara	Planning Division
	Nelson, SH	Law Davison
	Andi Ariyandi, S. Ip	Law Davison
	Ir. Adoellah Djabier, DESS	Training & Education
	Joni Turiska	Training & Education
	Ir. Iskarnanto, MBA	PT PELINDO I
	Bazaalulu Zebua, SE	PT PELINDO I
	Ir. Gunta Prabawa	PT PELINDO II
	Eric Gunawan, ST	PT PELINDO II
	Amik Suradji	PT PELINDO III
	Slamet Setyo Wahyono	PT PELINDO III
	Wagimin	PT PELINDO IV
	Albert Koswara	PT PELINDO IV

Table 1-5-1-3 Secretary

Name	Position
M. Widodo, ST	Planning Division
Yan Prastomo Ardi, ST	Planning Division
Rahayu Esti Yulianti	Planning Division

1-5-2 JICA Study Team

41. The JICA Study Team is composed of the experts with the corresponding responsibilities, as shown in Table 1-5-2-1.

Table 1-5-2-1 JICA Study Team

Expert	Assignment
Mr. Hisao OUCHI	Team Leader/Port Planning
Mr. Shunichi TSUDA	Sub-team Leader/Vulnerability Assessment
(Mr. Hiromi KADO)*	
Mr. Akihito HIURA	Sub-team Leader/Port Facility Security Assessment
Mr. Masayuki FUJIKI	Port Management and Administrative Assessment
(Mr. Kenji SASA)*	
Mr. Isao SAKAI	Port Security Operation
(Mr. Masaki ONO)*	
Mr. Masami TSUNEMATSU	Port Security Equipment
Mr. Kazuyuki YAMAGUCHI	Financial and Economic Analysis
Mr. Nobuyuki IINUMA	Port Facility Design
Mr. Kiyohito YAMAZAKI	Cost Estimation
Mr. Charles Fabian KHOO	Education and Training for Security Personnel
Mr. Shane REID	Coordination

Note: Experts attaching * mean former members.

1-6 COMPOSITION OF THE REPORT

42. Final Report of the Study consists of Summary Report, Main Report and Appendix to the Main Report.

- Summary Report
- Main Report
- Appendix

CHAPTER-2. SOCIOECONOMIC SITUATION IN INDONESIA

2-1 POPULATION

2-1-1 National Population

1. Population of Indonesia is characterized by the following two aspects; the size of its population and its uneven distribution among islands.

2. Total population of Indonesia in 1990 and 2000 was 179.4 million and 206.2 million, respectively. Population growth rate had decreased sharply since 1980, from 1.97 % annum during period of 1980-1990 to 1.49 % annum during the period 1995-2000. However, it increased slightly during the period of 2000-2003, registering a growth rate of 1.50 %. Table 2-1-1-1 shows population growth in Indonesia.

3. Population is projected to reach 232 million in 2010, up from 205.8 million in the year 2000 in spite of the decreasing growth rate. In the period of 1995-2000, the annual growth rate was 1.66 %. However, from 2000-2005 and from 2005-2010, the annual growth rate is projected to fall to 1.25% and 1.14% respectively. According to the projection by BAPPENAS and BPS, total population of Indonesia will reach 273,650,000 in 2025.

Table 2-1-1-1 Population Growth of Indonesia

Year	1985	1990	1995	2000	2003
Total Population	162,660,000	179,380,000	194,750,000	206,200,000	215,040,000
Population density (/km^2)	85	93	101	109	113
Growth rate (%)	1.97	1.97	1.70	1.49	1.50

Source: BPS Statistics

2-1-2 Regional Population Distribution

4. Although the population in Indonesia is increasing, the population is not equally distributed, either by island or by province. Indonesia's population is concentrated in Jawa Island. According to the 2000 Population Census and population data in 2003, Jawa Island was home to around 59% of population, although it represents only of 7% of the total area of Indonesia. From that total, more than 17% live in West Jawa, 15% live in Central Jawa and 17 % live in East Jawa. Meanwhile, Maluku, North Maluku and Papua which together comprise 24% of the total area of Indonesia, are inhabited by only 2% of the Indonesian population.

5. Population density in Jawa Island is very high, around 951 persons per square kilometer in 2000 and 997 persons per square kilometer in 2003. The most densely populated province in outer Jawa is Bali with 596 people per square kilometer. By contrast, population density of Papua which represents of 20% of the total Indonesia, and area was only 6 people per square kilometer.

Table 2-1-2-1 Population and Growth Rate by Region 1990-2000

Region	Area		Population and growth rate				
	km^2	%	1980	1990	%	2000	%
Jawa	127,499	6.6	91,270,000	107,581,000	1.7	121,293,000	1.2
Sumatra	482,393	25.1	28,017,000	36,507,000	2.7	43,269,000	1.7
Kalimantan	547,891	28.5	6,723,000	9,100,000	3.1	11,308,000	2.2
Sulawesi	191,800	10.0	10,409,000	12,521,000	1.9	14,883,000	1.7
Other Islands	572,987	29.8	11,072,000	13,672,000	2.1	15,091,000	1.0
Total	1,922,570	100.0	147,491,000	179,381,000	1.97	205,844,000	1.49

Source: BPS-Statistics

2-2 GDP AND ECONOMIC GROWTH

2-2-1 Gross Domestic Product (GDP)

6. Following robust economic growth that began in the early 1990's, the Indonesian economy suffered a steep 13.1% drop in 1998 during the Asian economic crisis. Economic growth recovered only in 2000 at a rate of 4.9%, after registering a marginal growth rate of 0.8% in 1999. For the year 2003, growth of the Indonesian economy showed a better performance than 2002. Based on GDP at 1993 constant prices, growth of the Indonesian economy in 2003 was 4.1%.

7. All of the 9 sectors of economy showed positive GDP growth in the year 2003, with the transportation and communication sector leading the way at 10.7% followed by electricity, gas and water supply sector at 6.8%, construction at 6.7%, financial, ownership & business service at 6.3%, trade-hotel and restaurant at 3.7%, mining and quarrying service at 0.5% and agriculture grew by 2.5%.

Table 2-2-1-1 GDP by Industry at 1993 Constant Price

Unit: billion rupiahs

Year	1999	2000	2001	2002	2003
Agriculture, Livestock, Forestry and Fisheries	64,985.3	66,208.9	67,318.5	68,669.7	70,374.4
Growth rate (%)	2.16	1.88	1.68	2.01	2.48
Mining & Quarrying	36,865.8	38,896.4	39,401.3	40,404.8	40,590.8
(%)	-1.62	5.51	1.30	2.55	0.46
Manufacturing	99,058.5	104,986.9	108,272.3	111,982.5	115,900.7
(%)	3.92	5.98	3.13	3.43	3.50
Electricity, Gas and Water Supply	6,112.9	6,574.8	7,111.9	7,538.4	8,052.2
(%)	8.27	7.56	8.17	6.00	6.82
Construction	22,035.6	23,278.7	24,308.2	25,488.4	27,196.2
(%)	-1.91	5.64	4.42	4.86	6.70
Trade, Hotels and Restaurants	60,093.7	63,498.3	65,824.6	69,333.3	70,891.3
(%)	-0.06	5.67	3.66	3.81	3.74
Transportation and Communication	26,772.1	29,072.1	31,338.9	33,855.1	37,475.5
(%)	-7.19	4.56	5.40	5.73	6.28
Financial and Business Services	37,184.0	38,051.5	39,245.4	40,080.1	41,459.9
(%)	1.94	2.33	3.14	2.13	3.44
Total	379,356.8	398,062.4	411,789.0	427,979.5	444,494.2
(%)	0.79	4.92	3.45	3.69	4.10

Source: BPS-Statistics

8. The shift of Indonesian economy from agriculture to manufacturing is reflected in the GDP. Since 1991 the manufacturing sector has been the major contributor to GDP. In the year 2003, the contribution of the manufacturing industry sector to GDP was 26.1%, while to

agricultural sector only contributed 15.8%. The next significant contributor to total GDP was trade, hotel and restaurant at 16.0%. The other 6 sectors contributed below 10%, the smallest contributor being the electricity, gas and water sector at 1.8%.

9. The Indonesian government's projection of real GDP growth is 7.6 % in 2009 or 6.6% on average from 2005-2009. The World Bank foresees economic growth of 6 % from 2006 to 2009.

10. In terms of expenditure of GDP at current prices, almost half of those expenditures were used for household consumption. In 2003, household consumption expenditure was around 1,238.9 trillion rupiahs or about 69.3% of total GDP. In addition, the proportion of foreign trade activities was also high with exports at 558.1 trillion rupiahs or 31.2% of total GDP and imports at 459.1 trillion rupiahs or 25.7% of total GDP. The use of GDP for governmental final consumption expenditure showed the smallest component, only 9.2% or 163.7 trillion rupiahs.

Table 2-2-1-2 GDP by Type of Expenditure at Current Price

Unit: billion rupiahs

Year	2000	2001	2002	2003
Household Consumption	850,819	972,938	1,120,164	1,238,892
General Government Consumption	90,780	113,416	132,219	163,701
Gross Domestic Fixed Capital Formation	275,881	314,066	326,165	352,361
Change in Stock	-72,236	-53,624	-73,876	-67,258
Export of Goods and Service	542,992	624,341	577,082	558,091
Import of Goods and Service	-423,318	-503,482	-471,188	-459,097
GDP	1,264,919	1,467,655	1,610,565	1,786,691

Source: BPS-Statistics

2-2-2 GDP Per Capita

11. At 1993 constant prices, growth rate of GDP per capita had fallen in 1998 and 1999 due to the economic and financial crisis. After that, growth rate rose to 3.4% in 2000 and GDP per capita was 1,930 thousand rupiahs.

2-2-3 Gross Domestic Regional Product (GRDP)

12. Among the 30 provinces in Indonesia, DKI Jakarta has the highest GRDP. The GRDP of DKI Jakarta at the year was 16.5% of total 30 provinces. The second and third ranked provinces were East Jawa Province and West Jawa Province, accounting for 14.5% and 13.9 % of total GDP respectively.

13. In general, the economic growth rate of the 30 provinces in 2002 was positive except for Maluku and Papua, and this was much better than that of the year before. The value of per capita GRDP depends on the value of GRDP and population of the area. Based on per capita GRDP at current prices, when oil and gas are included, East Kalimantan, DKI Jakarta and Riau rank top three in per capita GRDP, with 34.29 million rupiahs, 30.39 million rupiahs and 12.57 million rupiahs. However, without oil and gas, per capita GRDP of the East Kalimantan and Riau were only 14.23 million rupiahs and 5.55 million rupiahs. Thus, the role of oil and gas remained significant for both provinces. After excluding oil and gas, per capita GRDP the province of Riau was smaller than that of North Sumatra.

Table 2-2-3-1 GRDP at Current Market Prices by Province

Unit:million rupiahs

Province	1999	2000	2001	2002
Sumatra	**224,205,293**	**255,925,094**	**288,513,774**	**323,203,241**
Nanggroe Ache Darussalam	26,991,583	28,923,265	33,240,737	35,471,143
North Sumatra	61,957,561	67,569,899	77,803,074	86,741,281
West Sumatra	20,514,655	22,462,448	25,428,877	29,117,557
Riau	48,559,254	55,260,499	59,937,358	67,664,109
Jambi	7,949,157	9,380,650	11,141,085	13,128,767
South Sumatra	32,564,560	39,252,009	44,077,773	49,684,267
Bengkulu	4,044,354	4,539,983	5,179,189	5,915,649
Lampung	21,624,169	23,200,302	25,426,198	28,235,382
luan Bangka Belitung	-	5,336,039	6,279,483	7,245,086
Jawa	**578,106,359**	**707,732,524**	**809,715,096**	**927,436,722**
DKI Jakarta	164,309,040	189,075,401	219,852,797	254,735,428
West Jawa	149,969,396	174,915,258	193,176,426	214,300,479
Central Jawa	101,509,194	117,782,925	136,131,480	156,733,275
DI Jogyakarta	11,762,983	13,093,980	14,576,885	16,515,712
East Jawa	150,555,746	169,680,628	195,762,784	226,957,307
Banten	-	43,184,332	50,214,724	58,194,521
Bali	**14,530,977**	**16,509,986**	**18,975,167**	**22,062,905**
Kalimanatan	**96,415,347**	**120,011,332**	**136,311,672**	**144,762,649**
West Kalimantan	16,308,235	17,968,167	19,463,554	21,647,647
Central Kalimantan	9,539,828	10,859,485	12,318,241	13,804,818
South Kalimantan	14,700,105	16,170,221	18,287,740	20,527,304
East Kalimantan	55,867,179	75,013,459	86,242,137	88,782,880
Sulawesi	**44,400,314**	**52,703,605**	**60,949,381**	**69,193,213**
North Sulawesi	8,346,518	9,339,015	10,102,297	11,151,866
Central Sulawesi	7,256,524	8,240,293	9,992,169	11,202,547
South Sulawesi	24,064,893	27,772,137	32,102,390	36,550,293
Southeast Sulawesi	4,732,379	5,730,160	6,856,220	8,034,614
Gorontalo	-	1,622,000	1,896,305	2,253,893
Others	**34,664,161**	**43,425,398**	**51,090,962**	**52,920,619**
West Nusa Tenggara	8,281,594	11,569,977	14,140,551	15,749,954
East Nusa Tenggara	5,617,723	6,357,557	7,510,671	8,684,116
Maluku	2,516,063	2,729,582	2,954,380	3,405,503
North Maluku	-	1,865,627	1,929,802	1,986,345
Papua	18,248,781	20,902,655	24,555,558	23,094,701
Total	**992,322,451**	**1,196,307,939**	**1,365,556,052**	**1,539,579,349**

Source: BPS- Statistics

2-3 EMPLOYMENT

2-3-1 Working Population

14. Of the 100.3 million labor force in whole Indonesia in 2003, 60 million workers reside in Jawa Island and 20 million are in Sumatra.

Table 2-3-1-1 Labor Force and Employment Rate by Region in 2003

Unit: thousand persons

	Employment	%	Unemployment	%	Total
Sumatra	18,699	90.2	2,031	9.8	20,730
Jawa	53,972	90.2	5,889	9.8	59,861
Kalimantan	5,076	93.6	348	6.4	5,424
Sulawesi	5,651	87.6	801	12.4	6,452
Others	7,387	94.1	462	5.9	7,849
Total	90,785	90.5	9,531	9.5	100,316

Source: BPS-Statistics

2-3-2 Number of Employees by Sector

15. Number of employed in Indonesia is about 90.8 million in 2003, with 46.3% of the workforce being engaged in the Agriculture, Forestry and Fisheries sector. The second largest sector is Trade (wholesale and retail), Restaurant and Hotel sector with 18.6% of the total work force, followed by the Manufacturing Industry at 12.0%. In Jawa Island, the role of the Agricultural sector, manufacturing industry and trade sector in employment is more than that of in other islands. Based on employment statistics, manufacturing industry sector is concentrated in Jawa Island.

Table 2-3-2-1 Sectorial Employment by Region in 2003

Unit: thousand persons

Region	Sumatra	Jawa	Kalimantan	Sulawesi	Others	Total
Agriculture, Forestry and Fishery	10,987	20,236	2,798	3,492	4,488	42,001
Manufacturing Industry	1,072	8,624	361	230	640	10,927
Construction	664	2,787	173	214	270	4,108
Trade, Hotel and Restaurant	2,883	11,453	786	737	988	16,847
Transportation and Communication	787	3,450	233	254	253	4,977
Finance, Insurance and Real Estate	285	882	43	26	59	1,295
Public Service	1,848	6,049	549	673	627	9,746
Others (Mining and Quarry, Electricity)	173	491	133	26	61	884
Total	18,699	53,972	5,076	5,652	7,386	90,785

Source: BPS-Statistics

2-3-3 Unemployment Rate

16. Average unemployment ratio of Indonesia (9.5%) is very high, compared with neighboring countries such as Thailand (1.6%) and Malaysia (3.4%). The particular Sulawesi's unemployment rate exceeds 12%. It is estimated that annual national economic growth of over 7% is required to absorb the unemployed. Poverty reduction and an increase in employment opportunities are urgently needed. In the Medium Term Development Strategy, unemployment is expected to improve from 9.5% to 5.1% in 2009. The total labor force is projected to increase by 1.9% annually, while employment is projected to increase by 2.9% annually from 2004-2009.

2-3-4 Wage Level

17. In 1990, the average wages and salaries of hired agricultural employees was 907.9 thousand rupiahs per year and in 2000 increased to 5,132.0 thousand rupiahs. The average wages of hired production, operator and manual employees in 1990 was 1,480.0 thousand rupiahs per year, increasing to 8,498.3 thousand rupiahs in 2000. Indonesian workers who received the lowest wages were small scale farmers whose average wages in 2000 reached 4,139.0 thousand rupiahs per year.

Table 2-3-4-1 Average Wages and Salaries per Worker 1995-2000

Unit: thousand rupiahs

Worker Classification	1995	1998	1999	2000
Paid agricultural employee	3,393.3	3,527.2	4,829.3	5,132.0
Small scale farmers	1,626.8	1,736.2	4,103.7	4,139.0
Paid production, operator, manual employee	3,957.7	4,918.3	8,199.6	8,498.3
Unpaid production, operator, manual employee	2,167.7	2,717.7	4,370.1	4,567.1
Paid clerical, sales and service employee	6,313.6	6,436.5	9,704.0	10,053.7
Unpaid clerical, sales and service employee	2,633.4	3,058.3	6,063.9	6,251.2
Paid professional, technician, managerial and non-civilian employee	7,151.9	6,984.3	13,627.9	14,028.7
Unpaid professional, technician, managerial and non-civilian employee	6,043.4	6,353.0	9,152.1	9,273.5

Source: BPS-Statistics

2-4 CONSUMPTION

2-4-1 Consumer Price Index (CPI)

18. Consumer Price Index (CPI) is used to calculate of basic inflation. Public expenses are divided into 7 categories: foodstuffs, prepared food and beverage, housing, clothing, health, education and transportation & communication. General CPI based on 1996 price of each year are 279.6(2003), 262.3 (2002), 234.5(2001) and 210.3(2000). Based on the CPI in 2003, the prepared foods and beverage group index was the highest (317.5), while the housing group index was the lowest (249.3).

Table 2-4-1-1 Consumer Price Index 1998-2003

Year	1998	1999	2000	2001	2002	2003
General Index	*168.32*	*202.63*	*210.27*	*234.46*	*262.31*	*279.59*
Food	209.23	261.72	249.03	269.99	299.69	301.74
Prepared Food and Beverages	173.94	215.94	229.49	261.50	292.86	317.52
Housing	142.02	164.20	175.24	196.21	224.79	249.32
Clothing	191.70	229.98	245.27	267.79	280.28	292.44
Health	179.50	217.76	229.87	255.52	272.40	287.87
Education and Recreation	147.03	165.36	183.96	211.45	235.64	260.59
Transportation and Communication	145.14	169.43	182.78	208.14	245.23	262.54

Source: BPS-Statistics

2-4-2 Wholesale Price Index (WPI)

19. Wholesale Price Index (WPI) describes the change of price at the wholesale price level of the commodities sold in a country or region. Those commodities are the domestic products, export and import commodities as well. The commodities are grouped into 5 sectors, i.e, Agriculture, Mining &Quarrying, Industry, Import and Export.

20. The WPI of Mining & Quarrying has been increasing, while the other groups have fluctuated. Compared to 2002, WPI of 2003 has increased with the exception of Agriculture. The highest index increase is Mining & Quarrying at 6.8% and the lowest is Imports at 0.3%.

Table 2-4-2-1 Wholesale Price Index 1999-2003

Year	1999	2000	2001	2002	2003
General Index	*314*	*353*	*403*	*414*	*423*
Agriculture	410	459	567	614	614
Mining and Quarrying	214	236	275	307	328
Industry	268	278	309	339	354
Import	289	316	356	345	346
Export	366	461	521	497	505

Source: BPS-Statistics

2-5 INDUSTRY

21. There are five main sectors in Industry: Agriculture, Manufacturing, Mining, Electricity, Gas & Drinking Water and Construction.

2-5-1 Agriculture

22. Indonesia is well known as an agricultural country, as can be seen by the large area utilized for agriculture. In 2002, agricultural area in Indonesia comprised 46.9 million ha or 74.7% of total area.

23. There are two types of farming in Indonesia: one is family scale self-sustaining farming style and the other is industrialized large scale plantation style. Plantation style produces mass tropical products on a large scale farm and mainly exports to foreign countries. Main products are palm-oil and rubber, which are the main export commodities of Indonesia. In Sumatra, palm oil plantation has been expanding.

24. Indonesia has 10% of total area of tropical rain forest in the world. Tropical rain forest accounts for 58% of Indonesia land. Kalimantan, Papua and Sumatra, collectively contain more than 80 % of Indonesia's total rain forest resources. Kalimantan is the center of the tropical rain forest industry. In 1983, Indonesia stopped raw timber export and started processing of timber, plywood and pulps. Plywood has become the major export commodity after oil and gas.

25. Shrimp farming is also expanding and shrimp has become the second prominent commodity in the category of non-oil and gas export. Indonesia holds the top share in the import shrimp market in Japan. Shrimp farming ponds extend from Jawa island coast to the south Sulawesi coast.

2-5-2 Manufacturing

26. Manufacturing sector is a leading sector in the Indonesian economy. This sector has become the main contributor to GDP for the last ten years. 1n 2003 the share of the manufacturing sector in GDP was more than a quarter. Meanwhile, agriculture sector contributed only 16 %.

27. There are two categories in export manufacturing industry in Indonesia. One is natural resource processing industry and the other is labor intensive industry which is dependent on low wage labor. Plywood production is the dominant industry in natural resource processing while the textile industry is the typical labor intensive industry. Textile factories shifted to Indonesia from Korea, Taiwan, Hong Kong and so on due to rising labor costs in those countries in the second half of 1980.

28. The motor industry is also important. Along with the economic development and increase of the people in middle-income brackets, demand for vehicles has expanded rapidly. CKD (Complete Knock Down) system is adopted in joint management using foreign and domestic funds.

2-5-3 Mining

29. Mining sector has played an important role in Indonesia's economic recovery in 2003. This sector is expected to serve as an important source of national income, naturally led by exports of oil and gas. In 2003, the share of this sector in GDP was 9.1%.

30. A few years ago, government revenue from oil and gas declined sharply, because of declines world oil prices. During the last five years, oil production has fluctuated showing an average growth of -2.9%. Compared to 2002, oil production in 2003 increased by 3.9%, or from 474.9 million barrels to 456.3 million barrels. The same pattern applied to gas production for the last five years.

31. Indonesia is the world's largest export of LNG, of which 90% are bound for Japan. There are two LNG liquefaction plants in the country, Aron in Ache and Bontang in East Kalimanatan. New LNG development project Tnagguh in Papua is going to start operation in 2006.

32. Indonesia is rich in natural mining resources. Since colonial times, tin mines have been developed in large scale. In addition to tin, nickel, bauxite and copper are dominant export commodities. Main copper mine managed by Freeport in Papua is one of the world's major mines, and where 60% of productions are bound for Japan.

2-5-4 Electricity, Gas and Drinking Water

33. Most electricity in Indonesia is supplied by the State Electricity Company (PLN), while the rest is produced by private companies. Since PLN can not serve all regions in Indonesia, Non-PLN companies have emerged to meet the demand.

2-5-5 Construction

34. The construction sector generally represents a significant share of the total economic activity of a country, as it includes demands for materials, service and labor inputs.

35. The construction sector has strategic role in terms of man power absorption. The number of fixed workers employed by construction firms in 1999 was 152 thousand workers and rose to 257 thousand workers in 2003, an increase of 14.0% a year. Besides the fixed worker's absorption, the firms also employ many part-time workers, such as carpenters in wood work and stone specialist, diggers, painters, so on. Like in other years past, construction works continue to be concentrated in Jawa and Bali.

2-6 TRANSPORT

36. Transport sector is a vital sector of the economy and is estimated to make up 4.5% of GDP in 2003, up from 3.8% in 2000. National transportation system has an important role in supporting national development by facilitating all aspects of people's activities socially as well as economically. It promotes population mobility and flow of goods and services from one region to another. Therefore there is a need for continuous and heavy annual expenditure to keep pace with increasing demand and to maintain and rehabilitate existing infrastructure.

37. Although capacities of sub-sectors have been increasing to keep up with demand, roads and ports, in particular, suffer from serious overloading and congestion in/around urban centers. There is also serious congestion in some inter-urban corridors, e.g., along the north coast of West Jawa area.

2-6-1 Road Transport

38. One of the important infrastructures supporting economic activities is the road. Every economic activity largely depends on transportation, especially in road transportation. The development of road is intended to facilitate population mobility and distributive trade from one region to another region. The total length of roads in Indonesia in 2002 reached 368,400km. Of the total road length, 27,600km was under state responsibility, 48,900km under provincial responsibility, and the remaining 291,800km under regency responsibility. As of 2002, there are about 212,000km of asphalted-roads, accounting for 57.6% of total road length in Indonesia.

Table 2-6-1-1 Length of Road by Type of Surface

Unit: km

	1998	1999	2000	2001	2002	
Asphalted	168,072	203,374	203,214	212,935	211,998	57.6%
Non-Asphalted	155,390	136,210	136,590	132,173	131,061	35.6%
Others	31,901	16,367	16,147	16,674	25,283	6.9%
Total	355,363	355,951	355,951	361,782	368,342	100%

Source: BPS-Statistics

39. Indonesia also has a toll road network. In 1978, the government set up PT. Jasa Marga as the state-owned highway corporation to concentrate on the construction, operation and maintenance of toll roads. Since 1986, the toll road has been listed by the Investment Coordinating Board (BKPM) as a priority sector for private participation. More than 400km of toll road is already in operation, around 70% of which was constructed by BOT.

2-6-2 Railway Transport

40. The Directorate General of Land Transportation, Ministry of Transportation is responsible for policy matters. The state-owned railway company which changed its status to a limited liability company in June, 1999 and at the same time changed its name to PT. Kereta Api Indonesia (PT.KAI) is responsible for the operation and maintenance of the railway system.

41. Jawa has an extensive railway network, covering much of the island. The rail network consists of two main lines running east to west. The northern line follows the north coast corridor, connecting Jakarta with Surabaya. The southern line connects a string of large towns and provincial cities from Bandung, Yogyakarta, and Solo to Surabaya. Three routes running from north to south connect these two main lines forming a network.

42. From 1998 to 2002, there was generally decreasing pattern of production of railway freight transportation. It decreased 2.07 % annually. In Jawa the production of railway freight transportation decreased by 3.90 % annually and in Sumatra decreased by 1.46 % annually.

Table 2-6-2-1 Production of Railway Freight Transportation in Jawa and Sumatra

Unit: km-ton

Region	1998	1999	2000	2001	2002	Annual Increase
Jawa	1,230	1,237	1,226	1,085	990	-3.90%
Sumatra	3,733	3,798	3,783	3,774	3,460	-1.46%
Total	4,963	5,035	5,009	4,859	4,450	-2.07%

Source: BPS-Statistics

2-7 MEDIUM TERM DEVELOPMENT STRATEGY 2004-2009

43. Medium Term Development Strategy (2004-2009) outlines the key policy priorities and direction of the new government under three (3) agendas.

- To create safe and peaceful Indonesia
- To create justice and democratic Indonesia
- To create prosperous Indonesia

44. Three targets are presented to create safe and peaceful Indonesia.

- Resolving separatism and horizontal conflicts
- Combating conventional and transnational crime
- Fighting terrorism and improve national security

45. Four targets are presented to create justice and democratic Indonesia.

- To increase justice by the formation of fair, consequent and not-discriminated law system to protect human right
- To reinforce law with effort to enforce rule of law
- To improve government service to people
- To improve regional autonomy service to people

46. Five targets are presented to create prosperous Indonesia.

- To increase employment opportunities to achieve unemployment rate 5.1% in 2009.
- To reduce poverty rate to 8.1% in 2009
- To improve quality of human resources
- To improve natural resources management and to protect environment
- To accelerate infrastructure development

2-7-1 Industrial Development Policy

47. Economic globalization accompanied by rapid technology development has intensified international competition and rapid change in business circumstances. Domestic manufacturing industries have to be ready to compete with international products. The strategy for industrial development focuses on increasing competitiveness both domestic and international competitiveness.

48. Problems to be solved in order to increase international competitiveness of industrial sectors are as follows.

- High dependency on import of raw material, supporting material, fabrication

material and components.
- The connection between industrial sector and other economic sectors is weak.
- Export industrial products dominated more than 60% by limited industries located in Java Island.
- Capability of medium and small scale of manufacturers is still low.

49. Industrial sector medium term development policies are:

- To open more working fields in the industrial sectors
- To improve Indonesian exports
- To empower the Indonesian domestic market
- To play a significant role in the economy
- To improve technology development

2-7-2 Financial Sector Development Policy

50. The current government debt ratio of 55% of GDP is deemed still too high to provide a comfortable cushion against future external shocks. Therefore, a major goal is to continue the path towards fiscal sustainability with the objective of reducing the debt ratio to around 34% by 2009. In this regard, the government plans an overall budget deficit of 1% in 2005 with a gradual reduction thereafter. The deficit financing strategy will be a mixture of domestic and foreign borrowings (both program loans and commercial borrowings) and structured in a way that it minimizes debt servicing costs and does not crowd out the private sector through higher interest rates.

51. The target deficit of 1% for 2005 is relatively low by international standards and therefore provides some flexibility for a gradual approach to deficit elimination with the objective to balance the budget by 2009.

52. Priorities over the next five years will be to complete banking sector reforms, to improve intermediation functions and to put in place mechanisms to minimize the chances of another financial crisis of the magnitude Indonesia experienced in 1997 and 1998. In addition, it is crucial to diversify the financial sector as a source of funding for economic activities. Thus, the third priority over the next five years is to develop a comprehensive strategy for diversification of the non-bank financial sector.

2-7-3 Macro-Economic Framework

53. The medium term plan has set ambitious but attainable goals. The first objective is to reduce the open unemployment rate from 9.5% to 5.1% by 2009. The second goal is to cut the poverty rate in half to 8.1%. The economic strategic framework to support these goals is built around three themes. The first is to maintain macro-economic stability as the prerequisite for growth. The second is to create a healthy business climate recognizing that growth and jobs have to be created by the private sector. The third is to revitalize agriculture and village development, not only as a source of economic growth, but also recognizing that targeted interventions are necessary to increase the benefits from growth for the poor.

Table 2-7-3-1 Macro-Economic Framework

	2004	2005	2006	2007	2008	2009
Inflation rate, CPI (%)	6.4	7.0	5.5	5.0	4.0	3.0
Unemployment ratio (%)	9.7	9.5	8.9	7.9	6.6	5.1
Exchange rate (Rp/US$)	8,928	8,900	8,800	8,800	8,700	8,700
GDP growth rate	5.0	5.5	6.1	6.7	7.2	7.6
Agriculture	3.1	3.2	3.4	3.6	3.6	3.8
Manufacturing Industry	5.6	6.1	6.9	7.8	8.6	9.5
Non oil and gas	6.5	6.8	7.7	8.7	9.4	10.2
Others	5.2	5.8	6.3	6.9	7.4	7.6
Contribution to GDP growth						
Consumption	5.1	4.1	5.2	5.0	5.8	6.3
Private	5.1	4.3	4.5	4.8	5.0	5.3
Government	5.7	2.6	10.5	6.4	12.1	12.7
Investment	7.2	14.6	17.8	16.3	14.3	12.8
Export	9.3	5.7	6.0	6.4	7.4	10.1
Import	17.4	10.3	8.6	10.2	10.8	11.0
GDP per capita (2000 constant price, 1,000 rupiahs	7,626	7,946	8,333	8,791	9,317	9,914
State Finance						
Current account deficit/GDP (%)	-1.1	-0.7	-0.6	-0.3	0.0	0.3
Government Debt Stock/GDP (%)	53.9	48.0	43.9	39.5	35.4	31.8
Foreign Debt	25.6	21.6	19.3	16.7	14.4	12.6
Domestic Debt	28.6	26.3	24.6	22.8	21.0	19.2

Source: BPS-Statistics

54. World Bank estimates the impact of Ache's disaster to economic growth of Indonesia in 2005 is -0.4%. According to the CGI meeting, Indonesia government estimates the restoration cost of Ache is US$4.5 billion, of which US$ 1.3 billion is secured from grant aid of donor countries. It is necessary to secure the remaining US$3.3 billion urgently.

CHAPTER-3. TRADE AND MARITIME TRANSPORT

3-1 INTERNATIONAL TRADE STRUCTURE

3-1-1 Trend of International Trade Value

1. The growth of Indonesian international trade in the last 15 years is shown in Table 3-1-1-1. The table depicts a steady increase in the value of Indonesian exports from 1989 to 1997, namely, from US$22,158.9 millions in 1989 to US$53,443.6 millions in 1997. For subsequent two years, however, exports declined due to the economic and financial crisis. Then, in 2000 Indonesian exports recovered, registering a peak value of US$ 62,124.0 millions.

2. The increase in exports is due to the greater diversification of the Indonesian economy. Until the 1986, Indonesian exports were dominated by oil and gas, however, due to new deregulation policies in 1987, a surge in non-oil export commodities was seen. The contribution of non-oil & gas export commodities grew from 60.8% in 1989 to 77.6% in 2003. By contrast, share of oil & gas exports fell from 39.2 % in 1989 to 22.4% in 2003.

Table 3-1-1-1 Growth of Indonesian Foreign Trade 1989-2000

Unit: million US$

Year	Include Oil & Gas			Exclude Oil & Gas		
	Export	Import	Balance	Export	Import	Balance
1989	22,158.9	16,359.6	5,799.3	13,480.1	15,164.4	-1,684.3
1990	25,675.3	21,837.0	3,838.3	14,604.2	19,916.6	-5,312.4
1991	29,142.4	25,868.8	3,273.6	18,247.5	23,558.5	-5,311.0
1992	33,967.0	27,279.6	6,687.4	23,296.1	25,164.6	-1,868.5
1993	36,823.0	28,327.8	8,495.2	27,077.2	26,157.2	920.0
1994	40,053.4	31,983.5	8,069.9	30,359.8	29,616.1	743.7
1995	45,418.0	40,628.7	4,789.3	34,953.6	37,717.9	-2,764.3
1996	49,814.8	42,928.5	6,886.3	38,092.9	39,333.0	-1,240.1
1997	53,443.6	41,679.8	11,763.8	41,821.0	37,755.7	4,065.3
1998	48,847.6	27,336.9	21,510.7	40,975.5	24,683.2	16,292.3
1999	48,665.5	24,003.3	24,662.2	38,873.2	20,322.2	18,551.0
2000	62,124.0	33,514.8	28,609.2	47,757.4	27,495.3	20,262.1
2001	56,320.9	30,962.1	25,358.8	43,684.6	25,490.3	18,194.3
2002	57,158.8	31,288.9	25,869.9	45,046.1	24,763.1	20,283.0
2003	61,058.2	32,550.7	28,507.5	47,406.8	24,939.8	22,467.0

Source: BPS-Statistics

3. Non-oil & gas commodities are classified as primary commodities and non primary commodities. The primary commodities consist of the agriculture sector and mining sector. The non-primary commodities consist of products of the manufacturing sector. Rubber, tea, tobacco, shrimp and coffee are the most dominant primary commodities of the agriculture sector. Primary commodities of mining sector excluding oil & gas are copper and tin. Garment, textile and plywood are the primary commodities of the manufacturing sector.

4. During the period from 1989 to 2003, the value of Indonesian imports grew at an average rate of 6.74% annually, from US$16,539.6 million in 1989 to US$ 32,550.7 million in 2003. Non-oil & gas imports grew on average by 5.34% and its share declined from 92.69% to 76.62%.

5. Using broad economic categories, raw materials are still the main import commodity, representing 72.98% of total imports from 1989 to 2003, followed by capital goods (20.86%) and consumer goods (6.16%). Table 3-1-1-2 shows Indonesian foreign trade during this period.

Table 3-1-1-2 Growth of Indonesian Foreign Trade 1999-2003

Unit: million US$

	1999	2000	2001	2002	2003
Export					
Oil & Gas	9,792.2	14,366.6	12,636.3	12,112.7	13,642.6
Crude Petrolium	4,517.3	6,090.1	5,714.7	5,227.6	5,621.0
Petrolium Products	918.1	1,651.6	1,189.4	1,307.4	1,547.6
Gas	4,356.8	6,624.9	5,732.2	5,577.7	6,474.0
Non Oil & Gas	38,873.3	47,757.4	43,684.6	45,046.1	47,380.4
Agricultural Products	2,901.5	2,709.1	2,438.5	2,568.3	2,558.4
Industrial Products	33,332.4	42,003.0	37,671.1	38,729.6	40,548.2
Mining and Others	2,639.4	3,045.3	3,575.0	2,748.2	4,273.8
Total	48,665.5	62,124.0	56,320.9	57,158.8	61,023.0
Import					
Consumer Goods	2,486.3	2,718.7	2,251.2	2,650.5	2,833.8
Raw Materials	18,475.0	26,018.7	23,879.4	24,227.5	25,764.3
Capital Goods	3,060.0	4,777.4	4,831.5	4,410.9	3,792.2
Total	24,021.3	33,514.8	30,962.1	31,288.9	32,390.3

Source: BPS-Statistics

6. Table 3-1-1-3 and 3-1-1-4 show the historical trend of export and import value by major ports. Exports were mostly loaded by ports of Jawa Island, which contributed more than 80% of the total Indonesian export value in 2003. Tanjung Priok port handles almost 30% of the total export value of Indonesia.

Table 3-1-1-3 Export Value by Major Ports 1989-2003

Unit: million US$

	Belawan	Tanjung Priok	Tanjung Perak	Tanjung Emas	Ujung Pandang	Banjar-masin	Bontang	Others	Total
1996	2,749.9	14,082.6	3,706.1	1,098.7	379.5	780.6	2,617.0	24,400.4	49,814.8
1997	2,985.5	15,461.0	3,876.2	1,479.3	337.8	831.8	2,859.7	25,612.8	53,443.6
1998	2,393.0	15,170.0	4,497.2	1,452.9	426.5	586.1	2,293.3	22,028.6	48,847.6
1999	2,277.0	13,718.1	4,259.9	1,653.1	383.9	662.0	2,950.7	22,760.7	48,665.4
2000	1,962.9	18,817.2	5,419.0	1,794.4	337.6	615.5	5,226.8	27,950.6	62,124.0
2001	1,896.6	17,567.5	5,507.7	1,641.1	378.9	605.8	5,455.1	23,268.2	56,320.9
2002	2,434.0	17,582.6	4,689.2	1,640.8	502.4	637.1	4,551.6	25,121.1	57,158.8
2003	2,217.1	17,999.5	5,282.4	1,768.3	332.7	703.3	5,448.0	27,306.9	61,058.2

Source: BPS-Statistics

7. Import also mostly unloaded by ports of Jawa Island, which contributed more than 60% of the total Indonesian import value in 2003. Tanjung Priok port handles almost 45% of total import value of Indonesia.

Table 3-1-1-4 Import Value by Major Ports 1996-2003

Unit: million US$

	Belawan	Tanjung Priok	Tanjung Perak	Tanjung Emas	Ujung Pandang	Balik-papan	Others	Total
1989	517.7	8,394.2	1,848.3	352.3	89.1	210.9	4,947.1	16,359.6
1990	629.3	12,008.0	2,250.6	604.2	88.0	393.9	5,863.0	21,837.0
1991	534.4	14,247.8	2,906.6	714.1	92.0	413.9	6,960.0	25,868.8
1992	826.5	14,115.5	3,530.2	602.7	96.9	343.2	7,764.6	27,279.6
1993	824.2	15,339.7	3,162.1	676.5	153.5	295.7	7,876.1	28,327.8
1994	863.3	18,714.1	3,355.5	769.2	183.2	476.4	7,621.8	31,983.5
1995	881.7	23,313.6	4,859.0	955.7	164.2	548.0	9,906.5	40,628.7
1996	941.4	22,524.5	5,354.3	1,095.2	239.9	797.5	11,975.7	42,928.5
1997	897.6	19,118.5	6,164.0	1,290.6	404.2	842.4	12,962.5	41,679.8
1998	366.6	14,379.6	2,857.0	902.1	209.5	458.6	8,163.5	27,336.9
1999	618.9	9,076.3	2,907.1	805.3	92.1	615.4	9,888.2	24,003.3
2000	647.1	15,637.2	3,511.1	916.3	102.2	747.3	11,953.6	33,514.8
2001	662.0	14,653.4	3,279.7	878.8	92.3	1,217.4	10,178.5	30,962.1
2002	621.3	14,763.7	3,433.5	735.0	8.0	1,404.2	10,323.2	31,288.9
2003	584.0	14,668.4	3,710.1	778.6	82.5	1,835.5	10,891.6	32,550.7

Source: BPS-Statistics

3-1-2 Trade Partners

8. The major trading partners of Indonesia in 2003 were Japan, the United States, Singapore, Republic of Korea, China, Taiwan and Germany. Indonesia's trade with Japan recorded US$ 17,831.8 million or 22.3% of the total trade of Indonesia. The next largest trade partner was the Unite States at US$ 10,068.5 million, followed by Singapore at US$ 9,554.8 million, the Republic Korea at US$ 4,851.7 million, and China at US$ 6,760.0 million.

9. The success of Indonesia's international trade can be measured by its surplus with trade partners. In 2003, the export surplus to Japan amounted to US$ 9,375.2 million, while the surplus amounted to US$ 4,678.9 million in the case of the United States and US$ 1,356.0 million in the case of Taiwan. However, Indonesia recorded a deficit in its trade with Saudi Arabia, Nigeria and Kuwait due to the import of crude oil.

10. Japan is the major destination country of Indonesia's crude oil and its products exports. In 2003, the share of export crude oil to Japan reached 33.4%. Plywood, copper ore and shrimp are also mainly exported to Japan. From Japan, machinery is still the prominent commodity. Export share to Korea and China are 20.1% and 12.9% respectively.

Table 3-1-2-1 Indonesia's Major Trade Partner Countries 2002-2003

Unit: million US$

	2002			2003			Change (%)	
	Export	Import	Balance	Export	Import	Balance	Export	Import
Asia								
Japan	12,045.1	4,409.3	7,635.8	13,603.5	4,228.3	9,375.2	12.94	-4.10
Korea	4,107.2	1,646.8	2,460.4	4,323.8	1,527.9	2,795.9	5.27	-7.22
China	2,902.9	2,427.4	475.5	3,802.5	2,957.5	845.0	30.99	21.84
Taiwan	2,067.5	1,010.4	1,057.1	2,233.1	877.1	1,356.0	8.01	-13.19
Singapore	5,349.1	4,099.6	1,249.5	5,399.7	4,155.1	1,244.6	0.95	1.35
Malaysia	2,029.9	1,037.4	992.5	2,363.9	1,138.2	1,225.7	16.45	9.72
Oceania								
Australia	1,924.4	1,587.2	337.2	1,791.6	1,648.4	143.2	-6.90	3.86
New Zealand	150.1	155.7	-5.6	156.1	153.7	2.4	4.00	-1.28
America								
United States	7,558.6	2,639.9	4,918.7	7,373.7	2,694.8	4,678.9	-2.45	2.08
Canada	378.0	411.9	-33.9	382.1	321.8	60.3	1.08	-21.87
Europe								
United Kingdom	1,252.4	656.2	596.2	1,135.8	463.7	672.1	-9.31	-29.34
Netherlands	1,618.4	352.2	1,266.2	1,401.5	369.6	1,031.9	-13.40	4.94
France	648.9	406.3	242.6	652.8	453.2	199.6	0.60	11.54
Germany	1,269.9	1,224.3	45.6	1,416.8	1,181.2	235.6	11.57	-3.52
Italy	719.8	401.7	318.1	843.9	323.7	520.2	17.24	-19.42

Source: BPS-Statistics

3-1-3 Export and Import Volume

11. Though total Indonesia's import volume had recovered from the economic crisis in 1998 of 51,000,000 tons, since then, it stagnated between 62,000,000 tons and 72,000,000 tons last five years. Import volume of Kalimantan region and Jawa has been increasing, but other's has been stagnating.

12. Indonesia's import volume in 2003 was 69,671,100 tons, a drop of 3,016,000 tons (4.1%) compared with previous year. This was caused by the decrease of import through Tanjung Priok(8.16%), Tanjung Perak (3.13%) and Belawan (14.78%). Tanjung Priok, however, is still handles the most imports at 26.17% of the total. Next major port was Tanjung Perak with a share of 12.92% followed by Balikpapan at 8.98%, Belawan at 2.78%, Tanjung Emas at 1.71% and Makassar at 0.55%, respectively. Table 3-1-3-1 shows import cargo volume of major ports and Figure 3-1-3-1 shows import cargo volume by region.

13. According to the data of export volume by port, the biggest export volume was loaded through Kalimantan ports with 122.5 million tons in 2003. Kalimantan is very rich for oil & gas resources. The second was Sumatra with 60.2 million tons and Java is third with 29.1 million tons. In last ten years, total Indonesia's export volume also has been stagnating in the range between 210 million tons and 270 million tons including economic crisis time. Export volume of Kalimantan has been increasing, but other's has been stagnating. Table 3-1-3-2 shows export cargo volume of major ports and Figure 3-1-3-2 shows export cargo volume by region.

Table 3-1-3-1 Import Cargo Volume of Major Ports 1999-2003

Unit: thosand ton

	1999	2000	2001	2002	2003
Sumatera	11,571.5	11,022.5	9,706.4	11,605.4	9,510.4
Belawan	2,288.2	2,158.6	2,348.1	2,270.4	1,934.9
Dumai	589.8	500.0	586.1	923.0	800.8
Others	8,693.5	8,363.9	6,772.2	8,412.0	6,774.7
Jawa	44,966.3	51,216.1	48,859.1	53,651.8	52,379.9
Tanjung Priok	14,335.2	18,943.6	17,884.2	19,864.1	18,243.8
Tanjung Emas	1,372.8	988.5	1,248.0	1,029.6	1,190.1
Tanjung Perak	7,587.9	8,746.0	7,845.7	9,296.5	9,005.4
Cilacap	8,497.0	9,148.8	10,217.1	10,422.0	11,060.3
Others	13,173.4	13,389.2	11,664.1	13,039.6	12,880.3
Bali & Nusa Tenggara	408.1	119.3	90.3	194.7	137.6
Benoa	40.4	20.7	2.1	30.0	6.1
Others	367.7	98.6	88.2	164.7	131.5
Kalimantan	3,822.2	3,409.7	5,457.4	6,503.0	6,805.6
Pontianak	245.7	192.5	127.9	163.7	158.4
Bajarmasin	118.4	217.3	195.8	125.1	78.2
Balikpapan	3,073.1	2,684.3	4,749.4	5,889.5	6,261.8
Samarinda	186.1	110.1	219.4	154.0	147.9
Others	198.9	205.5	164.9	170.7	159.3
Sulawesi	805.3	986.4	860.9	342.7	548.5
Makassar	288.9	503.2	517.3	56.5	383.0
Bitung	65.0	60.5	0.2	73.4	66.0
Others	451.4	422.7	343.4	212.8	99.5
Maluku & Papua	486.3	477.2	490.3	389.5	289.1
Ambon	33	3.3	0.4	29.1	0.7
Sorong	12.9	17.7	32.7	17.4	3
Others	440.4	456.2	457.2	343	285.4
Total	62,059.7	67,231.2	65,464.4	72,687.1	69,671.1

Source: BPS- Statistics

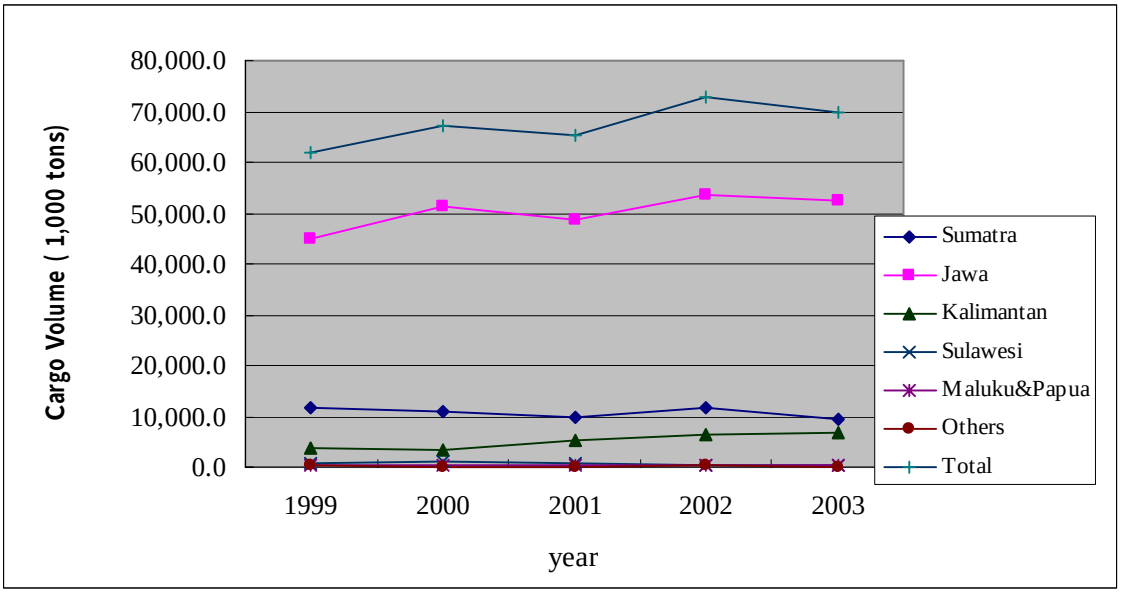


Figure 3-1-3-1 Import Cargo Volume by Region

Table 3-1-3-2 Export Cargo Volume of Major Ports 1999-2003

Unit: thousand ton

	1999	2000	2001	2002	2003
Sumatera	115,264.7	99,992.4	132,694.2	79,687.6	60,177.4
Belawan	4,441.3	4,149.2	4,467.9	5,581.5	4,440.8
Pekanbaru	63.8	3.3	21.9	34.7	16.8
Teluk Bayur	3,680.1	2,757.5	2,526.4	2,126.1	1,164.0
Palembang	87.2	78.0	85.9	0.1	13.5
Panjang	2,159.4	2,556.1	1,153.0	1,982.6	2,696.4
Tanjung Pinang	1,123.8	1,023.4	1,078.6	1,469.1	1,200.9
Others	109,699.6	94,819.8	127,147.7	72,637.0	54,535.7
Jawa	30,261.0	30,157.6	29,463.7	30,937.1	29,124.8
Tanjung Priok	15,275.4	15,607.3	15,398.8	17,954.4	15,623.9
Tanjung Emas	1,126.4	1,259.1	1,291.4	1,205.1	1,615.0
Tanjung Perak	4,609.8	5,695.2	6,287.1	6,150.7	5,590.5
Cilacap	1,431.5	1,383.6	1,850.3	1,564.1	1,163.9
Others	7,817.9	6,212.4	4,636.1	4,062.8	5,131.5
Bali & Nusa Tenggara	150.4	1,000.1	964.7	1,047.5	895.9
Benoa	15.0	8.9	7.6	5.0	4.1
Kupang	0.1	2.5	3.3	3.6	0.0
Others	135.4	991.2	957.1	1,042.5	891.8
Kalimantan	82,618.2	87,440.7	98,530.7	100,449.0	122,501.5
Pontianak	733.1	731.1	779.7	954.3	671.6
Bajarmasin	9,904.7	9,722.2	11,380.8	12,523.8	15,976.6
Balikpapan	7,500.9	7,821.1	10,730.2	9,477.3	10,591.7
Samarinda	5,118.0	4,513.9	6,104.0	7,860.5	10,872.2
Others	59,361.5	64,652.4	69,536.0	69,633.1	84,389.4
Sulawesi	2,094.4	2,760.0	3,414.2	2,043.2	2,125.1
Makassar	681.1	848.9	1,335.3	882.5	448.7
Bitung	199.6	355.1	35.6	159.4	406.4
Others	1,213.7	1,556.0	2,043.3	1,001.3	1,270.0
Maluku & Papua	4,577.3	3,752.0	7,389.1	9,105.7	4,742.2
Ambon	85.3	-	-	32.6	157.3
Sorong	96.6	229.4	116.9	90.9	68.0
Others	4,395.4	3,522.6	7,272.2	8,982.2	4,516.9
Total	234,966.0	225,102.8	272,456.6	223,270.1	219,566.9

Source: BPS

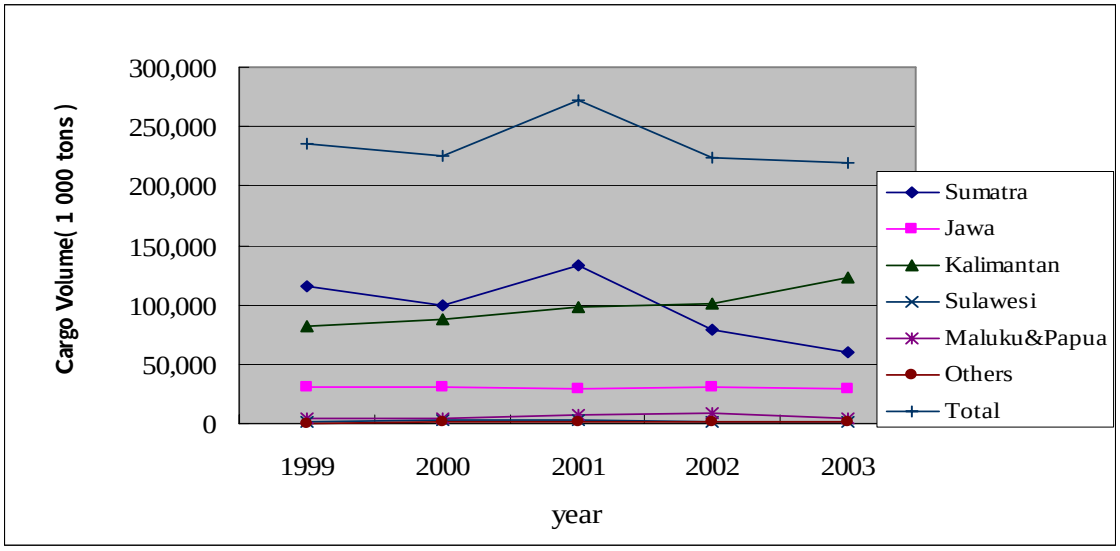


Figure 3-1-3-2 Export Cargo Volume by Region

3-2 MARITIME TRANSPORT NETWORK

3-2-1 Movement of International Cargo Shipping Network Centering on Indonesia

(1) World Maritime transport

14. These days, not only container vessels but also other ships such as dry bulk carriers, crude oil tankers and natural gas carriers have been increasing in size and speed. Accordingly, ports all over the world need more efficient operation.

15. Container movement in the world is steadily growing and the importance of southeast & northeast Asia is also growing. This trend will continue due to the increase of trade with China.

Table 3-2-1-1 Container Movement in 2003

Unit: thousand TEU

From/To	North America	East Asia	Europe	N&S America	Middle East	South Asia	Africa	Oceania	Total
North America	1,704	10.630	2,595	2,196	396	522	257	272	18,571
East Asia	10,238	27,607	7,730	1,653	2,622	1,056	986	1,882	53,774
Europe	3,360	6.209	6,853	749	1,495	710	1,376	391	21,144
N&S America	1,981	1,432	1,238	782	282	116	163	161	6,155
Middle East	379	3,697	714	315	244	191	86	86	5,713
South Asia	454	468	1.017	156	454	335	104	103	3,092
Africa	205	1,646	773	147	116	77	365	67	3,398
Oceania	250	2,085	225	156	103	85	59	414	3,377
Total	18,571	53,774	21,144	6,155	5,713	3,092	3,398	3,377	115,223

Sounce: JICA Study Team

16. To ensure smooth and efficient handling of the ever increasing volume of container cargoes as well as to minimize the port charge/handling cost and to improve service to customers, the computerized operation system is introduced at major container terminals.

17. Container handling volumes at the top 30 major ports in the world are shown in Table 3-2-1-2. In many container-handling ports including Hong Kong, Singapore and Algeciras, 70-90% of their container volume is transshipment cargo and consequently a huge amount of containers are recorded.

18. Container carriers have continuously merged to form new alliances. Since about 1998, container carriers have been working together or on a joint-operation basis to minimize management cost and to provide good service to shippers and consignees.

19. Total container fleet capacity is increasing year by year and the size of container vessels is also becoming larger.

Table 3-2-1-2 Container Volume at Top 30 Ports (2003)

Unit: TEU

Ranking	Ports	Container Volume	Country	Ranking	Ports	Container Volume	Country
1	Hong Kong	20,449,000	China	16	Tanjung Pelepas	3,487,320	Malaysia
2	Singapore	18,100,000	Singapore	17	Tokyo	3,313,647	Japan
3	Shanghai	11,280,000	China	18	Bremen/Bremerhaven	3,189,853	Germany
4	Shenzhen	10,614,900	China	19	Laem Chabang	3,181,050	Thailand
5	Busan	10,407,809	Korea	20	Gioia Tauro	3,148,662	Italy
6	Kaohsiung	8,840,000	Taiwan	21	Tianjin	3,015,000	China
7	Los Angeles	7,178,940	USA	22	Ningbo	2,772,000	China
8	Rotterdam	7,106,779	Netherlands	23	Guangzhou	2,761,700	China
9	Hamburg	6,138,000	Germany	24	Tanjung Priok	2,757,513	Indonesia
10	Antwerp	5,445,436	Belgium	25	Manila	2,552,187	Philippines
11	Dubai	5,151,958	UAE	26	Algeciras	2,515,908	Spain
12	Port Klang	4,840,000	Malaysia	27	Yokohama	2,504,628	Japan
13	Long Beach	4,658,124	USA	28	Felixstowe	2,500,000	UK
14	Qingdao	4,239,000	China	29	Xiamen	2,331,000	China
15	New York/New Jersey	4,067,812	USA	30	Jawaharlal Nehru	2,268,989	India

Source: Containerisation International Yearbook 2005

Table 3-2-1-3 Container Fleet Capacity

Items/Year	Vessel	Capacity(TEU)	Average size (TEU)
1996	1,902	2,812,200	1,479
1997	2,100	3,218,000	1,532
1998	2,327	3,715,300	1,597
1999	2,527	4,160,900	1,647
2000	2,603	4,389,800	1,686
2001	2,740	4,812,300	1,756
2002	2,895	5,403,900	1,867
2003	3,038	5,968,300	1,965

Source: Clarkson Research 2003

20. Dry bulk cargo transport also has experienced rapid growth. Total dry bulk cargo volume is more than 2,000 million tons. Major commodities of dry bulk cargo are coal, iron ore and grain and coal including coking coal which collectively account for nearly 30% of the total. While larger dry bulk carriers are increasing in number, smaller ones are decreasing.

21. In terms of world primary energy consumption, the top-ranking commodity is oil, which accounts for more than half (53%) of the total. Overall oil and natural gas consumption is rising modestly and it is estimated that liquid bulk cargo transport volume will increase.

(2) Indonesia Maritime Transport

22. Although larger and faster vessels are the latest trend in the world, vessels registered in Indonesia which are still operative are aged and small. As to tankers, most have a capacity of less than 1,500 TEUs. New container vessels have been constructed these days but more than half vessels were built more than 20 years ago. More than 70% of bulk carriers are less than 10,000 GRT and 60% are over 25 years of age. General cargo vessels and tankers have the same characteristics as container vessels and dry bulk cargo carriers.

23. On the other hand, it is difficult for large vessels to enter service in Indonesia because there are many river ports of which water depth is shallow and few large wharves even in big ports.

24. As trade with Asian countries increases, direct container routes from Indonesian ports to other Asian ports also increases. Accordingly, demand for small container vessels is becoming larger due to the before-mentioned constraints.

25. In Indonesia, foreign shipping companies can participate in domestic trade in joint ventures with Indonesian companies. In addition, Indonesian shipping companies can use foreign flag ships when domestic flag vessel is not available on the condition that 50% of the crews must be Indonesians when time charter vessel is used beyond 6 months.

3-2-2 Existing Cargo Shipping Network on Intra-Asia Routes

26. Trade volume between Indonesia and other Asian countries accounts for 78.5% of the total in 2003. Many cargo shipping routes are spread out in Asia. As to the container liner, 34 routes did business as of November 2004. Routes departing from/arriving at Jakarta (Tg. Priok) number 28, followed by Surabaya (Tg. Perak) (15 routes). Singapore is the main destination (25 routes), followed by Hong Kong (10 routes).

27. Calling ports of each route are shown in Table 3-2-2-1.

28. Coal is transported from various production areas to Tg. Priok or Tg. Perak, and then transshipped and exported by bulk carriers. Main destination is Malaysia. Palm oil and oil are carried by tankers. Main destination of palm oil is Singapore and the Philippines. Small vessels are used to export to Philippines. Oil is mainly exported to Malaysia.

29. As to break-bulk cargo, rice and sugar are imported from Vietnam and Thailand respectively, and cocoa and coffee are exported. Machinery including vehicles as well as plywood are imported and exported by container or as break-bulk cargo.

3-2-3 Existing Cargo Shipping Network on Long Distance Routes to North America/Europe

30. No direct container route is inaugurated to North America. Containers from/to North America are transshipped at Singapore, Hong Kong or other major ports.

31. Two direct container routes to Europe are established as of November 2004. Calling ports of two routes are shown in Table 3-2-3-1. In addition many cargoes are moved to Singapore, transshipped there and then transported to European countries.

32. Two direct container routes to Australia are established as of November 2004. Calling ports of two routes are shown in Table 3-2-3-2.

Table 3-2-2-1 Container Routes to/from Indonesian Ports (Intra-Asia)

Route NO.	SERVICE	PORT	Calling Ports: Dili	Surabaya	Semaran	Meraku	Jakarta	Palembang	Tg. Pelapas	Giwandan	Singapore	Port Klan	Belawan	Penang	Bangkok	Laem Chabang	Bintul	Manila	Panjang	Benete Bay	Hong kong	Shekou	Shanghai	Quingdao	Yantian	Xiangang	Inchon	Kaohsiung	Taichung	Keelung	Pusan	Kwangyang	Hakata	Moji	Kobe	Osaka	Yokkaichi	Nagoya	Omaezaki	Shimizu	Yokohama	Kawasaki	Tokyo
1~5	ACL Singapore/Indonesia Service	(A) SNG-JAK-SNG						○			○																																
		(B) SNG-SUR-SNG		○							○																																
		(D) SNG-PLB-SNG						○			○																																
		(F) SNG-JAK-CIW-PNJ-SNG					○			○	○								○																								
		(G) SNG-PKL-BLW-PKL-SNG									○	○	○																														
6	Admiral(Arya Int'l) Conventional Service	YOK-,NAG,KOB-JAK,SUR (2-3 sailings a month)		○			○						○																					○			○			○			
7	Admiral(Arya Int'l) PCTC Service	YOK,NAG-JAK					○																														○			○			
8~12	APL Singapore/Indonesia Service	(JKT) SNG-JAK-SNG					○				○																																
		(JK2) SNG-JAK-PNJ-SNG					○				○								○																								
		(SU1) SNG-SUR-SNG		○							○																																
		(SM2) SNG-SEM-SNG			○						○																																
		(BLA) SNG-BLW-PEN-SNG									○		○	○																													
13	Cheng Lie(Chuwa)/ CMA-CGM(Ben)/ Yang Ming CN-1 Service	QIN-SHG-HKG-MAN South-JAK-SUR-MAN-HKG-QIN		○			○											○			○			○	○																	
14	COSCO China/Southest Asia Service	SHG-XIN-YAN-QIN-SNG-PKL-JAK-SUR-HKG-SHG		○			○				○	○									○			○	○	○	○															
15	Crocodile Line(Senwa)/ New Guinea Line(Senwa)	YOK,NAG,KOB,MOJ-JAK,SUR,BBA,DIL Japan cargo T/S at	○	○			○				○									○														○	○		○			○		
16	Djakarta L.(ECL)/Karana(ECL) Indonesia Service	YOK,NAG,KOB-JAK,SUR (3-4 sailings a month)		○			○																												○			○			○		
17	Dongnama	(JIX) OSK,YOK-BUS-MAN-SNG-JAK					○				○							○												○						○					○		
18	Dongnama/Hanjin/Heung-A/ Sinokor Korea Malacca Strait Service(MSS)	INC-KWN-BUS-KEE-HKG-SNG-PKL-BLW-PEN-SNG-MAN-INC									○	○	○	○				○			○						○			○	○	○										
19	Dongnama/Hanjin/Heung-A/ Sinokor Round the Asia Service(RTA)	INC-BUS-KEE-HKG-JAK-SUR-SNG-HKG-INC		○			○				○										○						○			○	○											
20	Evergreen Taiwan - Philippines - Indonesia Service	KAO-HKG-SUR-JAK-TNP-BIN-TAI-KAO-MAN-JAK-SEM-SUR-KAO		○	○		○		○								○	○			○							○	○													
21	Gesuri(Toko) Indonesia Conventional Service	YOK,KOB-JAK,SUR (2-3 sailingsa month)		○			○																											○						○		
22	Hanjin JIX Service [Slot Charterer:Dongnama, Heung-A(San Ei), PIL,Sinokor]	OSK-TOK-BUS-MAN-SNG-JAK-MAN-BUS-KWN-OSK					○				○							○												○	○				○						○
23	Hyundai/KMTC/Sinokor Korea-Indonesia Service 1	INC-KWN-BUS-HKG-SNG-JAK-HKG-KAO-INC					○				○										○						○	○			○	○										
24	Hyundai/KMTC/Sinokor Korea-Indonesia Service 2	ULS-BUS-HKG-SNG-JAK-SUR-HKG-ULS		○			○				○										○									○												
25	KL Pineapple Service	TOK-YOK-SHZ-OMA-MAN-JAK-MAN-TOK					○											○																				○	○	○		○
26	KL ASECO Service	BGK-LCB-SNG-JAK-SNG-PKL[North]-PKL[West]-SNG-LCB-					○				○	○			○	○																									
27	TSK Pegasus Service(PGS) [Slot Charterer : Hyundai,Interasia]	OSK-SHZ-TOK-NAG-YKK-KOB-KEE-MAN-SNG-PKL-JAK-SNG-MAN-OSK					○				○	○						○												○					○	○	○	○	○		○		○
28	TSK Southern Cross Service(SCS) [Slot Charterer: Hyundai,InterasiaSPIC(United)]	SHZ-KWS-TOK-YOK-OMA-NAG-KOB-LCB-SNG-JAK-SNG-LCB-KEE-SHZ					○				○					○														○					○			○	○	○	○	○
29	TSK Asia Pendulum Express-String 1	SNG-BGK-LCB-SNG-JAK-PEN-PKL-SNG					○				○	○		○	○	○																									
30	TSK Asia Pendulum Express-String 2	JAK-SNG-PKL-LCB-SNG-PKL-JAK					○				○	○				○																									
31	TSK Singapore Surabaya Service	SNG-SEM-SUR-SNG		○	○						○																															
32	Wan Hai Japan/China/Indonesia Service(JCI)	TOK-YOK-SHG-HKG-SHK-MAN-SUR-JAK-KAO-HKG-SHK-HKG-TOK		○			○											○			○	○	○					○											○		○
33	Wan Hai Taiwan/Philippines, Indonesia Service(TPI)	JAK-MRK-SEM-SUR-TAI-KAO-HKG-MAN South-MAN North-JAK		○	○	○	○											○			○							○	○													
34	Yang Ming Pan Asia Service(PAS) [Slot Charterer:Cheng Lie(Chuwa)]	MOJ-HAK-BUS-KWN-KEE-TAI-KAO-HKG-SNG-JAK-SUR-HKG-KAO-TAI-MOJ		○			○				○										○							○	○	○	○	○	○	○							

Table 3-2-3-1 Container Routes to/from Indonesian Ports (To Europe)

Route NO.	SERVICE	PORT	Calling Ports												
			Southampton	Le Havre	Zeebrugge	Rotterdam	Hamburg	Cagliari	Malta	Damietta	Jeddah	Colombo	Port Klan	Singapore	Jakarta
1	CMA-CGM(Ben)/China Shipping/Norasia(Wallem) Sunda Express	JAK-SNG-PKL-MTA-LHV-ROT-HMB-ZEE-DMT-JED-JAK		○	○	○	○		○	○	○		○	○	○
2	Hapag/MISC/ NYK/OOCL/ PONL Loop E	JAK-SNG-PKL-COL-JED-CGL-HMB-ROT-STN-CGL-JED-JEB-COL-JAK	○			○	○	○			○	○	○	○	○

Source: JICA Study Team

Table 3-2-3-2 Container Routes to/from Indonesian Ports (To Oceania)

Route NO.	SERVICE	PORT	Calling Ports														
			Busan	Chofu	Kobe	Nagoya	Yokohama	Jayapura	Lae	Port Moresby	Townsville	Gladstone	Port Klan	Singapore	Jakarta	Fremantle	Melbourne	Adelaide
9	Kyowa/MOL/NYK	BUS-CHO-KOB-NAG-YOK-JYA-LAE-PMB-TOW-GLD	○	○	○	○	○	○	○	○	○	○	○					
22	MISC/MOL/OOCL/PIL Trress Loop	PKL-SNG-JAK-FRM-MEL-ADL-FRM-PKL											○	○	○	○	○	○

Source: JICA Study Team

3-2-4 Current Situation of International Passenger Transport

33. There are two kinds of international passengers in Indonesia. One is those who travel on routes between Indonesian ports which face the Malacca Strait and Singapore or Malaysia. About 2 million passengers embark and disembark in each year.

34. Another is international tourists who travel by cruise vessels. Benoa is the typical port for cruise vessels. One to four thousand tourists embark and disembark per year.

35. International passengers of major ports are shown in Table 3-2-4-1.

Table 3-2-4-1 International Passengers in Indonesia

Name of port		1999	2000	2001	2002	2003	2004
Belawan	Disembarkation		97,595	135,832	119,187	78,684	
	Embarkation		113,708	108,690	97,323	74,599	
Dumai	Disembarkation		151,370	143,392	209,604	125,054	147,003
	Embarkation		141,178	177,368	188,928	180,337	148,373
Batam (Batam Center)	Disembarkation						1,311,772
	Embarkation						1,273,851
Batam (Sekupang Terminal)	Disembarkation			562,761	538,645	494,331	495,874
	Embarkation			573,992	565,427	507,119	224,747
Benoa	Disembarkation	4,340	3,569	1,320	2,943		
	Embarkation	4,332	3,569	1,320	2,943		

3-3 CURRENT AND FUTURE PROSPECTS OF CARGO VOLUMES, NUMBER OF PASSENGERS AND SHIP CALLS IN MAJOR FOREIGN TRADE PORTS IN INDONESIA

3-3-1 Cargo Volumes by Items and Packing Types

(1) Belawan port

36. Domestic and foreign trade commodity at Belawan port from 2000-2004 are shown in Table 3-3-1-1 and 3-3-1-2 respectively.

Table 3-3-1-1 Belawan Port Foreign Trade Volume 2000-2004

Unit: ton

	2000	2001	2002	2003	2004
Export Cargo					
Palm oil	1,608,916	2,128,308	2,602,450	2,890,164	3,380,845
Palm cake	611,856	644,570	500,249	494,840	595,385
Plywood	126,856	2,988	131,720	136,852	91,458
Rubber	57,919	120,095	30,319	92,468	98,500
Paper			1	47,474	62,161
Vegetable	36,384	36,958	118,839	23,151	4,994
Timber	49,055	23,836		20,393	6,858
Molasses		11,000	35,359	18,500	57,549
Fish	15,496	43,438	20,911	17,913	4,756
Industrial material	23,720	5,432	79,374	13,838	46,706
Others	299,842	171,278	145,998	72,700	110,226
Total	2,830,044	3,187,903	3,665,220	3,828,293	4,459,438
Import Cargo					
Fertilizer	213,490	325,254	216,753	445,270	427,623
Fertilizer (bag)	209,789	182,595	307,198	251,157	171,673
Livestock	91,313	113,597	93,149	143,631	48,702
Maize	55,458	55,756	145,052	134,205	103,476
Steel product	220,831	123,535	118,873	106,416	104,550
Rice	109,265	97,928	119,729	62,739	2,662
Sugar	195,374	300,482	219,952	52,826	6,030
Salt	152,903	105,654	128,779	43,040	
Soda ash	14,731	38,695	37,953	39,427	23,186
Industrial material	29,905	44,679	61,219	35,647	52,197
Others	240,573	232,262	373,114	235,447	189,129
Total	1,533,632	1,620,437	1,821,771	1,549,805	1,129,228

Source: Belawan Port

37. Belawan port is the most dominant port in Sumatra. Export volume has been increasing steadily, registering average growth of 12.1% annually since 2000. Palm oil is the major export commodity, with its share of the total export volume increasing from 56.9% in 2000 to 75.8% in 2004.

38. On the other hand, import volume has stagnated since 2002. However, import volume of fertilizer has been increasing in relation to the increase in Palm oil production. Share of fertilizer in total imports rose from 27.6% in 2000 to 53.1% in 2004.

Table 3-3-1-2 Belawan Port Domestic Trade Volume 2000-2004

Unit: ton

	2000	2001	2002	2003	2004
Outbound Cargo					
Palm oil	269,920	423,275	361,410	394,470	348,516
Steel product	25,672	21,429	46,768	46,778	65,089
Fertilizer (bag)	22,062	22,475	21,072	42,615	81,400
Chemical material	616	3,637	15,976	15,928	10,691
Gum	9,923	9,635	13,044	15,097	2,868
Paper	753	2,399	5	12,154	1,559
Plywood	13,044	17,573	23,685	11,506	623
Coconut oil	269,920	2,537		10,981	
Timber	8,611	2,204	8,761	7,098	1,493
Banguan	10,045	3,186	2,152	6,515	
Others	11,553	168,093	122,529	29,532	26,245
Total	642,119	676,443	615,402	592,674	538,484
Inbound Cargo					
Petrolium	2,217,476	2,433,619	2,607,894	2,869,469	2,860,325
Cement (bulk)	1,036,504	1,112,009	1,047,147	1,146,583	1,115,677
Palm oil	460,036	645,630	814,690	845,515	1,113,260
Cement (bag)	306,044	327,933	418,645	358,558	444,014
Fertilizer (bag)	117,768	87,198	127,963	257,773	273,272
Lumber	133,179	137,883	175,997	209,255	235,021
Palm oil seed	128,716	189,502	221,397	206,553	233,524
Salt	3,296	1,569	2,190	136,447	101,092
Fertilizer (bulk)	288,884	307,738	307,544	118,844	154,068
Steel product	90,686	77,321	101,378	115,731	87,242
Others	740,425	600,668	480,470	508,718	867,994
Total	5,523,014	5,921,070	6,305,315	6,773,446	7,485,489

Source: Belawan Port

39. Agro-related commodities dominate the domestic market, with oil palm occupy in a 60% share of the total volume. Total domestic loading cargo volume has stagnated since 2000. On the other hand, total unloading cargo volume has been grown 7.9% on average in the last five years. Petroleum and cement are the main commodities with average shares of 40% and 23% in last five years respectively.

(2) Tg. Priok port

40. Both international trade cargo volume and domestic cargo volume decreased when the economic crisis occurred in 1998. Since then, both have been increasing steadily, although exports cargo volume has been stagnated since 2000.

Table 3-3-1-3 Tg. Priok Port Cargo Handling Volume Throughput 1996-2002

Unit: ton

	1996	1997	1998	1999	2000	2001	2002
International Trade							
Export	6,847,220	7,177,126	11,926,299	13,499,273	13,144,711	13,381,286	13,416,052
Import	17,302,693	19,113,402	12,264,579	15,403,368	17,963,684	20,474,026	21,996,112
Total	24,149,913	26,290,528	24,190,878	28,902,641	31,108,395	33,855,312	35,412,164
Domestic Trade							
Export	3,880,976	3,617,288	2,976,396	3,166,075	4,241,469	4,339,334	5,227,419
Import	5,183,364	5,353,272	3,736,236	4,265,880	6,503,499	4,117,747	5,977,019
Total	9,064,340	8,970,560	6,712,632	7,431,955	10,744,968	8,457,081	11,204,438
Oil Discharge	7,021,669	7,314,424	7,439,257	7,101,655	8,109,458	8,462,246	8,146,324
Total	40,235,922	42,575,512	38,342,767	43,436,251	49,962,821	50,774,639	54,762,926

Source: Tg. Priok Port

(3) Tg. Perak port

41. Table 3-3-1-4 shows cargo handling throughput at Tg. Perak port. Total cargo volume fell by 15 % in 2003 after increasing steadily from 1999 to 2002. The ratio of international trade cargo volume to domestic cargo volume is roughly 40: 60.

Table 3-3-1-4 Tg. Perak Port Cargo Handling Volume Throughput 1999-2004

Unit: ton

	1998	1999	2000	2001	2002	2003
International Trade						
Export	5,404,100	4,609,800	5,695,200	6,287,100	6,150,700	5,590,500
Import	4,106,900	7,587,900	8,746,000	7,845,700	9,296,500	9,005,400
Total	9,511,000	12,197,700	14,441,200	14,132,800	15,447,200	14,595,900
Domestic Trade						
Export	3,401,137	2,939,263	2,602,858	2,587,184	3,722,257	2,246,185
Import	5,571,680	6,090,357	5,652,109	6,271,379	6,968,848	5,345,051
Total	8,972,817	9,029,620	8,254,967	8,858,563	10,691,105	7,591,236
Total	18,483,817	21,227,320	22,696,167	22,991,363	26,138,305	22,187,136

Source: Tg.Perak Port, BPS

(4) Makassar port

42. Table 3-3-1-5 shows cargo handling throughput at Makassar port. Total cargo volume has been increasing at an annual growth rate of 11.5%. International trade volume decreased 13.6% in 2002 compared with previous year and but has been increasing since. Domestic trade cargo has been increasing steadily with an annual average growth rate of 5.4%. The ratio of international trade cargo to domestic cargo is roughly 25: 75.

Table 3-3-1-5 Makassar Port Cargo Handling Volume Throughput 1999-2004

Unit: ton

	1999	2000	2001	2002	2003	2004
International Trade						
Export	669,431	923,687	1,510,363	1,028,516	1,138,219	1,241,077
Import	488,691	628,688	451,746	620,797	637,017	708,689
Total	1,158,122	1,552,375	1,962,109	1,649,313	1,775,236	1,949,766
Domestic Trade						
Export	1,106,932	1,600,108	1,704,505	2,107,810	2,487,163	2,711,308
Import	2,955,544	3,200,552	3,073,474	3,665,427	4,016,075	4,303,801
Total	4,062,476	4,800,660	4,777,979	5,773,237	6,503,238	7,015,109
Total	5,220,598	6,353,035	6,740,088	7,422,550	8,278,474	8,964,875

Source: Makassar Port

43. Table 3-3-1-6 shows container cargo handling throughput at Makassar port. Container cargo volume has been increasing steadily. Domestic containers account for 95% of the total volume.

Table 3-3-1-6 Container Cargo Handling Volume at Makassar Port

Unit: TEU

	1999	2000	2001	2002	2003	2004
International Trade						
Export	8,792	10,682	10,167	7,671	8,604	9,783
Import	178	41	1,035	2,318	1,536	1,957
Total	8,970	10,723	11,202	9,989	10,140	11,740
Domestic Trade	119,917	154,228	166,214	197,496	222,014	238,104
Total	128,887	164,951	177,416	207,485	232,154	249,844
Total (ton)	*1,191,914*	*2,513,916*	*1,612,565*	*2,369,213*	*2,940,535*	*3,036,786*

Source: Makassar Port

3-3-2 Number of Passengers

(1) Belawan port

44. Table 3-3-2-1 shows passenger traffic volume at Belawan port. Passenger volumes were stagnated in 2001 and 2002.

Table 3-3-2-1 Passenger Traffic Volume 2000 -2003

	2000	2001	2002	2003
Passenger	910,229	842,104	716,662	1,046,818

Source: DGST

(2) Tg. Priok port

45. Table 3-3-2-2 shows passenger traffic volume at Tg. Priok port. Passenger volume has been increasing.

Table 3-3-2-2 Passenger Traffic Volume 2000 -2004

	2000	2001	2002	2003	2004
Passenger	1,545,528	1,676,812	2,036,171	2,277,486	2,518,802

Source: DGST

(3) Tg. Perak port

46. Table 3-3-2-3 shows passenger traffic volume throughput at Tg. Perak port. Passenger volumes have been stagnated.

Table 3-3-2-3 Passenger Traffic Volume 1999 -2004

	1999	2000	2001	2002	2003	2004
Passenger	1,701,340	1,792,508	1,740,180	1,328,360	1,143,746	987,384

Source: Tg. Perak Port

(4) Makassa port

47. Table 3-3-2-4 shows passenger traffic volume at Makassar port. Passenger volumes have been stagnated.

Table 3-3-2-4 Passenger Traffic Volume 1999 -2004

	1999	2000	2001	2002	2003	2004
Passenger	1,336,615	1,257,293	1,183,204	1,190,509	865,527	1,181,594

Source: Makassar Port, DGST

3-3-3 Ships Calls and Size of Ships

(1) Belawan port

48. Table 3-3-3-1 shows vessel traffic throughput at Belawan port. In general, size of foreign trade vessels and domestic trade vessels has been enlarging annually, while the Indonesian flag vessels have been decreasing.

Table 3-3-3-1 Vessel Traffic Throughput of Belawan Port

	2000	2001	2002	2003	2004
International Trade					
Foreign Vessel					
Call	2,514	2,659	2,145	1,902	1,434
GRT	10,314,303	10,628,759	9,053,720	9,607,342	6,167,883
Ave. GRT/Call	4,103	3,997	4,221	5,051	4,301
National Vessel					
Call	871	935	836	796	586
GRT	428,690	632,458	469,442	490,897	457,076
Ave. GRT/Call	492	676	562	617	780
Domestic Trade					
Foreign Vessel					
Call	501	472	282	232	234
GRT	2,489,710	2,473,584	1,822,796	1,725,529	1,934,623
Ave. GRT/Call	4,969	5,241	6,464	7,438	8,268
National Vessel					
Call	2,066	2,403	2,540	2,861	2,441
GRT	7,499,542	8,242,531	8,143,263	8,401,374	5,903,210
Ave. GRT/Call	3,630	3,430	3,206	2,937	2,418

Source: Belawan Port

(2) Tg. Priok port

49. Table 3-3-3-2 shows vessel traffic throughput at Tg. Priok port. The size of foreign trade vessels is increasing, while that of domestic trade vessel is decreasing.

Table 3-3-3-2 Vessel Traffic Throughput of Tg. Priok Port

	1998	1999	2000	2001	2002	2003
International Trade						
Call	4,001	4,949	2,423	2,141	1,963	1,973
GRT	16,966,701	24,604,394	28,743,418	26,472,298	26,786,645	26,297,928
Ave. GRT/Call	4,241	4,972	11,863	12,364	13,646	13,329
Domestic Trade						
Call	10,284	9,543	13,246	14,227	13,661	14,574
GRT	36,509,803	31,210,200	32,993,756	39,992,798	38,396,566	38,760,789
Ave. GRT/Call	3,550	3,270	2,491	2,811	2,811	2,660
Total						
Call	14,285	14,492	15,669	16,368	15,624	16,547
GRT	53,476,504	55,814,594	61,737,174	66,465,096	65,183,211	65,058,717

Source: Tg. Priok Port

(3) Tg. Perak port

50. Table 3-3-3-3 shows vessel traffic throughput at Tg. Perak port. The size of international tramper vessels has been increasing, while the size of liner vessel and domestic vessel has remained the same.

Table 3-3-3-3 Vessel Traffic Throughput of Tg. Perak Port

	1998	1999	2000	2001	2002	2003
International Trade						
Liner						
Call	2,487	2,693	2,586	2,659	2,870	2,379
GRT	22,413,812	36,984,155	36,742,170	35,698,021	38,864,313	32,655,910
Ave. GRT/Call	13,435	13,733	14,208	13,425	13,542	13,727
Tramper						
Call	2,049	1,976	2,531	2,704	2,036	2,278
GRT	16,088,332	16,412,011	20,842,333	24,219,813	19,886,323	24,233,040
Ave. GRT/Call	7,852	8,306	8,235	8,957	9,767	10,638
Total						
Call	4,536	4,669	5,117	5,363	4,906	4,657
GRT	49,502,144	53,376,920	57,584,503	59,917,834	58,750,636	56,888,950
Domestic Trade						
Call	9,312	9,864	11,038	11,496	10,363	10,536
GRT	23,879,819	25,376,920	28,139,113	28,772,158	33,604,418	31,440,085
Ave. GRT/Call	2,564	2,573	2,549	2,503	3,243	2,984

Source: Tg. Perak Port

(4) Makassar port

51. Table 3-3-3-4 shows vessel traffic throughput at Makassar port. There is no conspicuous change in the size of international or domestic vessels.

Table 3-3-3-4 Vessel Traffic Throughput of Makassar Port

	1998	1999	2000	2001	2002	2003
International Trade						
Call	297	355	407	367	309	289
GRT	1,177,182	1,482,466	1,183,070	1,423,596	1,094,837	-
Ave. GRT/Call	3,964	4,176	2,907	3,849	3,543	-
Domestic Trade						
Call	4,555	4,843	4,929	5,403	5,080	4,702
GRT	5,733,271	6,451,212	6,121,237	7,986,597	6,807,596	-
Ave. GRT/Call	1,259	1,332	1,242	1,478	1,340	-
Total						
Call	4,852	5,198	5,336	5,770	5,389	4,991
GRT	6,910,453	7,933,678	7,304,307	9,410,193	7,902,433	-

Source: Makassar Port

3-3-4 Forecast of Future Cargo in International Trade

(1) Belawan port

52. Figure 3-3-4-1 shows correlation between total foreign trade cargo handling volume of Belawan port and National GDP (at 1993 constant prices) from 2000 to 2004. There is a moderate correlation between total cargo volume and national GDP.

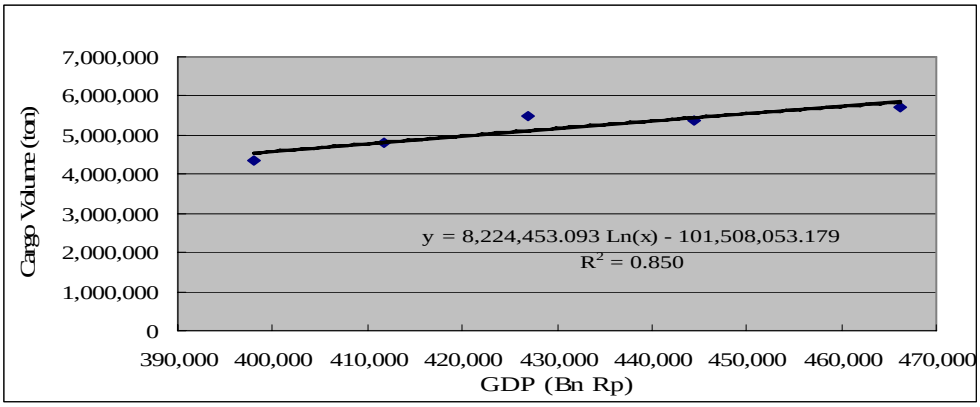


Figure 3-3-4-1 Correlation between Foreign Trade Cargo Volume at Belawan Port and National GDP

53. To project the future cargo volume, the Study Team adopts the GDP growth rate forecasted by the World Bank which is 6% per annum from 2006 to 2009. The Study Team projects the annual average growth rate will slow down to 5% from 2010 until 2020. Table 3-3-4-1 shows GDP projection value at 1993 constant price until 2020 and Table3-3-4-2 and Figure 3-3-4-2 shows result of foreign trade cargo volume projection at Belawan port.

Table 3-3-4-1 GDP Projection at 1993 Constant Prices

Year	GDP (Bn Rupia)	Growth Rate (%)
1998	376,375	
1999	379,352	
2000	398,017	
2001	411,752	
2002	426,943	
2003	444,453	
2004	466,231	4.9
2005	491,408	5.4
2006	520,892	6.0
2007	552,146	6.0
2008	585,274	6.0
2009	620,391	6.0
2010	651,410	5.0
2015	831,383	5.0
2020	1,061,079	5.0

Source: World Bank, Study Team

Table 3-3-4-2 Belawan Port Foreign Trade Cargo Volume Projection

Year	Cargo Volume (ton)
2010	8,600,000
2015	10,600,000
2020	12,600,000

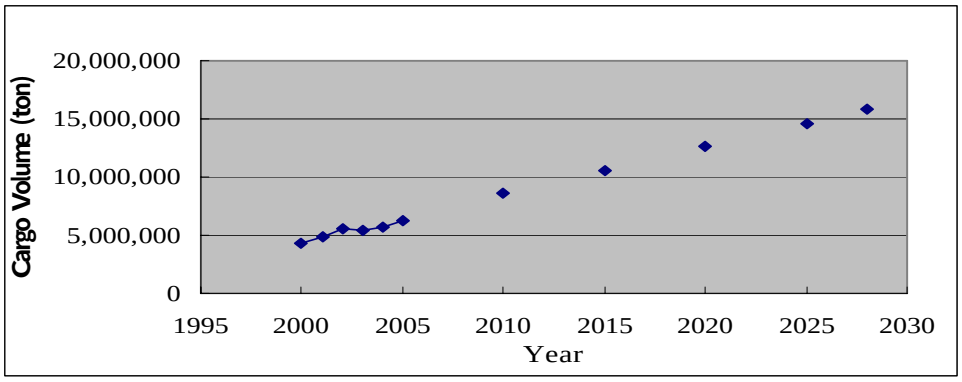


Figure 3-3-4-2 Foreign Trade Cargo Volume Projection at Belawan Port

(2) Tg. Priok port

54. Same calculation method used to project future cargo at Belawan port was adopted to project future cargo volume of Tg. Priok port. Figure 3-3-4-3 shows correlation between total foreign trade cargo handling volume of Tg. Priok port and National GDP (at 1993 constant prices) from 1998 to 2002. There is a moderate correlation between total cargo volume and national GDP.

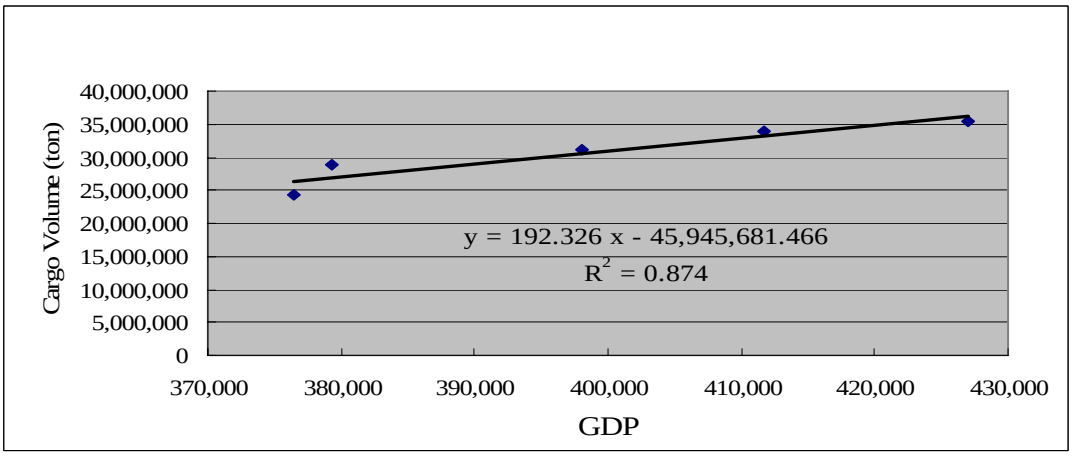


Figure 3-3-4-3 Correlation between Foreign Trade Cargo Volume
at Tg. Priok Port and National GDP

55. Table 3-3-4-3 and Figure 3-3-4-4 shows projection volume of Tg. Priok port's cargo handling.

Table 3-3-4-3 Foreign Trade Cargo Volume Projection at Tg. Priok Port

Year	Cargo Volume (ton)
2010	79,300,000
2015	114,000,000
2020	158,100,000

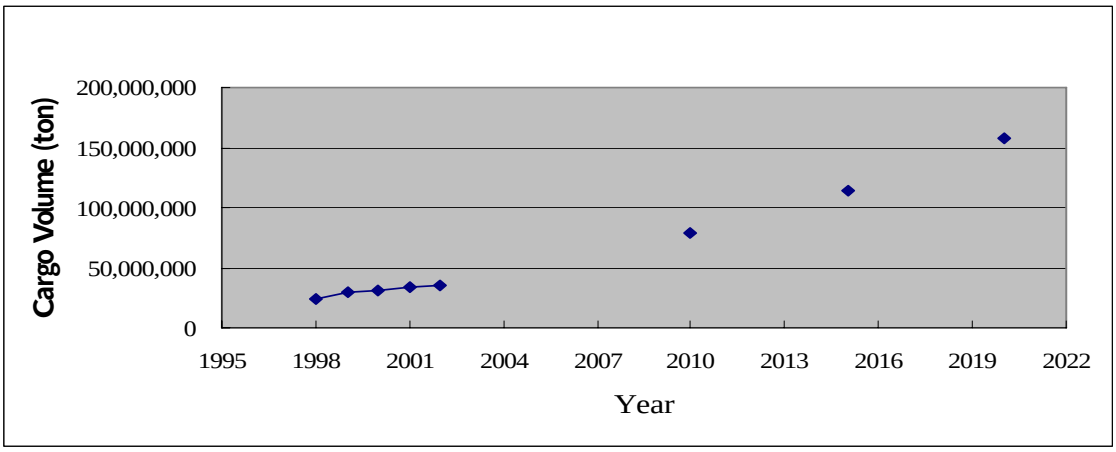


Figure 3-3-4-4 Foreign Trade Cargo Volume Projection at Tg. Priok Port

(3) Tg. Perak port

56. Same calculation method used to forecast future cargo volume of Belawan port was adopted for Tg. Perak port. Figure 3-3-4-5 shows correlation between total foreign trade cargo handling volume of Tg. Perak port and National GDP (at 1993 constant prices) from 1998 to 2002. There is a moderate correlation between total cargo volume and national GDP.

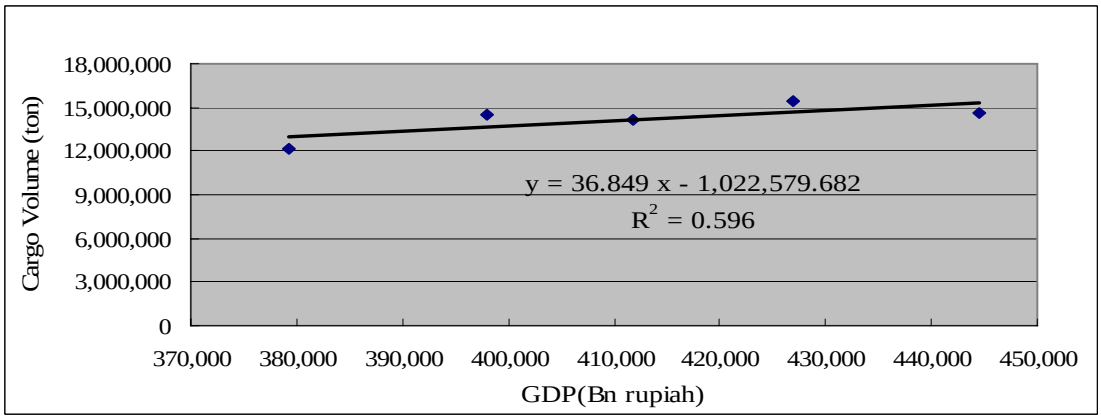


Figure 3-3-4-5 Correlation between Foreign Trade Cargo Volume
at Tg. Perak Port and National GDP

57. Table 3-3-4-4 and Figure 3-3-4-6 shows the forecast of cargo handling volume at Tg. Perak port.

Table 3-3-4-4 Tg. Perak Port Foreign Trade Cargo Volume Projection

Year	Cargo Volume (ton)
2010	23,000,000
2015	29,600,000
2020	38,100,000

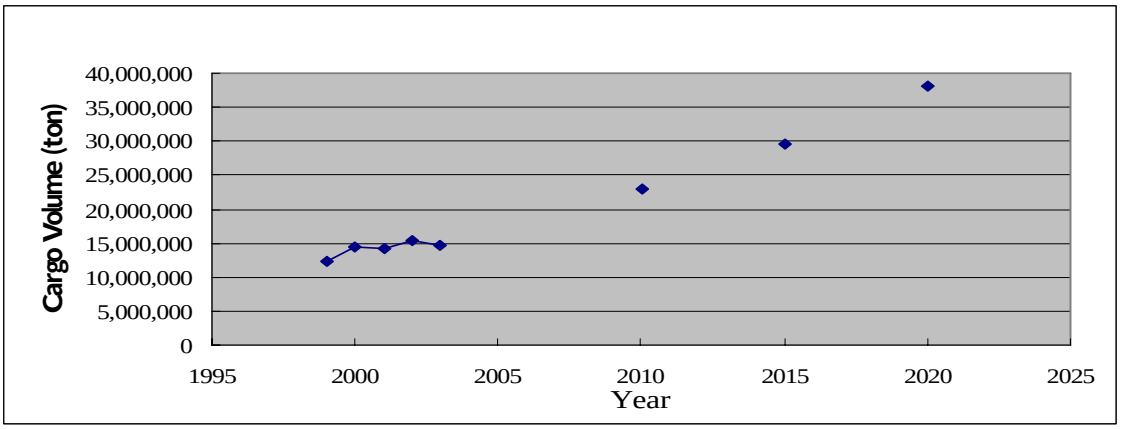


Figure 3-3-4-6 Foreign Trade Cargo Volume Projection at Tg. Perak Port

(4) Makassar port

58. Same calculation method used in the case of Belawan port was adopted to project future cargo volume of Makassar port. Figure 3-3-4-7 shows correlation between total foreign trade cargo handling volume of Makassar port and National GDP (at 1993 constant prices) from 1998 to 2002. There is a moderate correlation between total cargo volume and national GDP.

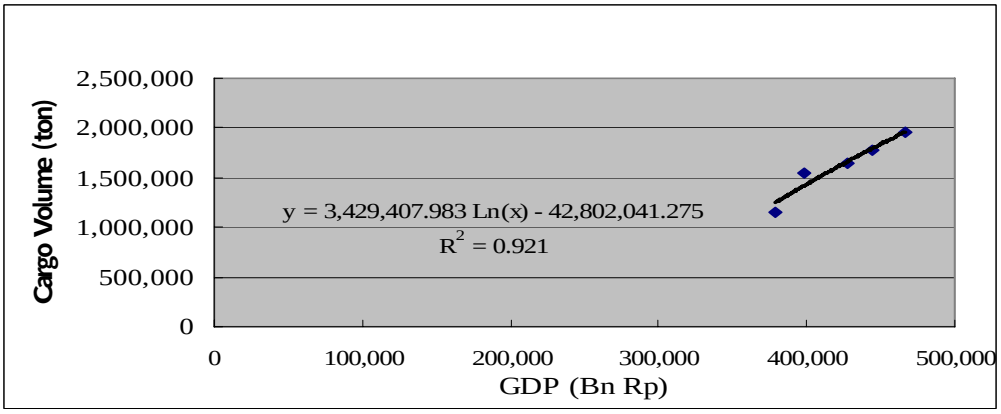


Figure 3-3-4-7 Correlation between Foreign Trade Cargo Volume
at Makassar Port and National GDP

59. Table 3-3-4-5 and Figure 3-3-4-8 shows the cargo handling volume forecast at Makassar port.

Table 3-3-4-5 Makassar Port Foreign Trade Cargo Handling Volume Projection

Year	Cargo Volume (ton)
2010	3,100,000
2015	3,900,000
2020	4,800,000

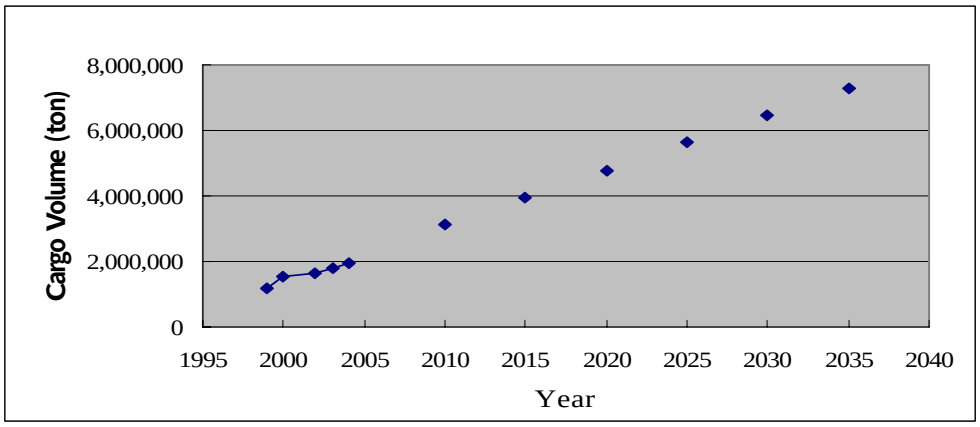


Figure 3-3-4-8 Foreign Trade Cargo Volume Projection at Makassar Port

CHAPTER-4. INTERNATIONAL PORTS IN INDONESIA

4-1 PORT HIERARCHY

4-1-1 Port Hierarchy in Indonesia

1. Indonesia is an archipelago of over 17,000 islands stretching 5,000km from east to west and 2,000km north to south. Maritime transport is a basic transport means supporting socio-economic development in Indonesia.

2. Shipping Law legislated in 1992 shows the basic policies of ports as well as maritime transport. It also indicates that port capacity should be enhanced to cope with the increasing future demand caused by growth in the hinterland and that private sector participation should be introduced to create a healthy competitive environment, increase the efficiency of port operations and to reduce the government's financial burden. In August 2002, the national port system became effective by Ministerial decree (KM53/2001).

3. The national port system serves as the basis of construction, utilization, development and operation plans of all water ports in Indonesia. Objectives of the national port system are as follows:

- To build a port infrastructure network in a integrated and harmonious manner, under which each port competes with but does not disturb other ports;
- To create efficient sea transportation
- To provide adequate port services according to demand
- To establish reliable and effective port organizations in order to support national and regional development

4. The national port system was decided considering the following items:

- Geographical area
- National transportation system
- Economic growth
- Domestic and international sea transportation service
- Preservation of environment
- Navigation safety and
- National criteria

5. Under the national port system, ports shall administrate navigation safety, customs, immigration, quarantine and safety. They shall also carry out operations for vessels, cargo and passengers and supporting operations such as leasing warehouses, land and others.

6. The concept of port hierarchy under the national port system is shown in Table 4-1-1-1. There are two kinds of ports in Indonesia: general port for public use and special port for private company use. General Port composed of ports providing for maritime transport, lake & river ports and ferry ports.

Table 4-1-1-1 Port Hierarchy in Indonesia

	General Port	Special Port
Ports providing for maritime transport	･International Hub Port (Primary trunk port) ･International Port (Secondary trunk port) ･National Port (Tertiary trunk port) ･Regional Port (Primary feeder port) ･Local Port (Secondary feeder port)	･National/International Special Port ･Regional Special Port ･Local Special Port
Lake & River Ports	(Non classification)	
Ferry Ports	･Port for inter Province and County ･Port for inter Regency/City ･Port for inside Regency/City	

Source: DGST

7. The criteria used in port hierarchy are shown in Table 4-1-1-2.

Table 4-1-1-2 Criteria Used in Port Hierarchy

	International hub port	**International port**	**National port**	**Regional port**	**Local port**
Role(A)	An international hub port serving trashipment of national and international containers	A national container distribution and international container tranport center	A national container feeder port	A feeder port of international hub, international or national port	A feeder port of international hub, international, national or regional port
Role(B)	A mother port serving doemstic and international container transport of 2,500,000TEUs/year, or another equivalent transport	A transhipment port of passengers and container transport	A transhipment port of domestic general cargo and passengers	A transhipment port of cargo and passengers from/to a main or feeder port	A passenger port in remote, isolated, border or limited areas only supported by sea transportation
Role(C)	A domestic and international container trashipment port ranging from 3,000,000-3,500,000 TEUs/year of another equivalent transport	Container transport of 1,500,000 TEUs/year or another equivalent transport	A port to serve domestic container transport in Indonesia	A port to serve inter kabupaten/city sea transport within a province	A sea port to support community's life, to have multi-function and to load/unload basic necessity goods
Distance from the sea lane	About 500miles from international shipping lanes	About 500miles from international shipping lanes	About 50 mile from domestic shipping lanes	About 25 miles from interisland shipping lanes	A port having regular sea transportation route
Minimum water depth	-12m LWS	-9m LWS	-7m LWS	-4m LWS	-1.5m LWS
Port facilities	Container terminal with a minimum length of 350m, 4 cranes and container yard of 15ha	Container terminal with a minimum length of 250m, 2 cranes and container yard of 10 ha	A multi-purpose wharf with a minimum length of 150m, mobile crane with a capcity of 50 tons	A wharf with a minimum length of 70m	Berth facilities
Distance from another port	500-1,000 miles from another international hub port	200-500 miles from another international port	500-1,500 miles from another national port	20-50 miles from another regional port	5-20 miles from another local port

Source: DGST

8. There are 725 general ports in total in Indonesia, of which two are international hub ports and 18 are international ports. The number of ports in each province by type is shown in Table 4-1-1-3.

Table 4-1-1-3 Provincial Breakdown of Indonesian Ports

Island	Province	International hub Port	International Port	National Port	Regional Port	Local port	Total
Sumatra	Aceh	0	0	10	4	3	17
	North Sumatra	0	1	13	10	30	54
	Riau	0	1	44	4	20	69
	West Sumatra	0	1	3	5	3	12
	Jambi	0	0	4	4	6	14
	Bengkulu	0	0	1	2	1	4
Babel	Babel	0	0	6	8	0	14
Sumatra	South Smatra	0	1	1	2	0	4
	Lampung	0	1	2	11	5	19
Jawa	West Jawa	0	1	1	7	1	10
	Banten	0	1	2	2	2	7
	Jakarta Capital	1	0	5	1	0	7
	Middle Jawa	0	2	1	6	3	12
	East Jawa	1	0	11	7	7	26
Bali	Bali	0	1	3	3	4	11
	NTB	0	0	6	5	5	16
	NTT	0	1	9	12	21	43
Kalimantan	West Kalimantan	0	1	8	1	1	11
	Middle Kalimantan	0	0	6	5	1	12
	South Kalimantan	0	2	5	2	0	9
	East Kalimantan	0	1	14	3	1	19
Sulawesi	North Sulawesi	0	1	9	1	18	29
	Gorontalo	0	0	3	1	9	13
	Middle Sulawesi	0	0	12	6	9	27
	South Sulawesi	0	1	15	6	21	43
	East Sulawesi	0	0	6	3	25	34
Maluku	North Maluku	0	0	3	10	9	22
	Maluku	0	0	15	7	26	48
Papua	Papua	0	1	27	1	90	119
Total		2	18	245	139	321	725

Source: DGST

9. The study ports are selected mainly from the 25 Strategic Ports in Indonesia. However, criteria for selecting the 25 Strategic Ports have not been established.

10. Port hierarchy of the 26 study ports is shown in Table 4-1-1-4.

Table 4-1-1-4 Port Hierarchy of Study Ports

Port Hierarchy	The number of ports in Indonesia	26 Study Ports
・International Hub Port (Primary trunk port)	2	Tanjung Priok, Tanjung Perak: (2 ports)
・International Port (Secondary trunk port)	18	Belawan, Dumai, Teluk Bayur, Palembang, Panjang, Pontianak, Banten, Tanjung Emas, Cilacap, Benoa, Kupang, Banjarmasin, Balikpapan, Bitung, Makassar, Sorong: (15 ports)
・National Port (Tertiary trunk port)	245	Pekanbaru, Tanjung Pinag, Batam, Kendari, Samarinda, Ambon, Biak, Jayapura: (9 ports)
・Regional Port (Primary feeder port)	139	
・Local Port (Secondary feeder port)	321	

Source: DGST

4-1-2 Port Facilities of International Ports

11. The existing port facilities of the study ports are shown in Table 4-1-2-1.

Table 4-1-2-1 Existing Port Facilities of the Study Ports

Island	Province	Port	Hierarchy	Access channel L(km), W (m) , D(m)	Basin A(ha), D(m)	Container berth L(m), D(m)	Other berth L(m), D(m)	Passenger terminal	Remarks
Sumatra	North Sumatra	Belawan	International	L(13.5), W(100), D(10)	A(4,287.500), D(10)	L(500), D(11)	L(2,508), D(6-10)	OL(265)	National Containerherth :L(350), D(11)
	Riau	Dumai	International	L(55), W(255-1,700), D(15-17)	A(64,060,200), D(10)		L(998), D(2-10)	OL(80)	
Batam	Riau	Batu Ampar	National	L(200), W(80), D(7)	A(2), D(10-12)		L(250), D(10-12)		Container (in Order Berth)
	Riau	BatamCenter	National		A(14),D(6)			OL(68)	
	Riau	Sekupang	National		A(13), D(6-13)			OL(120)	
Bintan	Riau	Tg. Pinang	National	L(3.9), W(50), D(3.5-4)	A(1,350,000), D(4)			OL(30)	
Sumatra		Pekanbaru	National	L(96). W(60), D(4)	A(1,200,000), D(7)				
	West sumatra	Teluk Bayur	International	D(11.5)	A(3,089,000), D(9)	L(222), D(10.5)	L(1,343), D(10.5)		
	South Sumatra	Palembang	International	L(108), W(100-300), D(7)	A(600,000), D(12)	L(370) . D(9.2)	L(755), D(3.5-7)		
	Lampung	Panjang	International	L(28), W(800), D(20)	A(30,000), D(20)	L(401). D(13)	L(1,740), D(5-14)		
Jawa	Banten	Banten	International	D(18-24)	A(57,200), D(15)	L(472). D(6-15)	L(668.5). D(7-15)		Container (L(202.5),D(15)
	Jakarta Capital	Tg. Priok	Int'l hub	L(2), W(200), D(14)	A(424), D(5-12)		L(7,137), D(5.5-12)	OL(600)	Container (in Order Berth)
	Sentral Jawa	Tg. Emas	International	L(30), W(150), D(10)	A(925,000), D(10)	L(495), D(10)	L(650), D(7)	OL(325)	
		Cilacap	International	L(15.2), W(250), D(6-12)	A(180), D(7)		L(742.5), D(3-11)		
	East Jaws	Tg. Perak	Int'l hub	L(44.5), W(100), D(10)	A(16,340), D(9-12)	L(420), D(9)	L(7,850). D(2-9.2)	OL(2,500)	
Bali	Bali	Benoa	International	L(3.5), W(150), D(10)	A(444,300), D(9)	L(206), D(6)	L(150), D(9)	OL(290)	
	NTT	Tenau (Kupang)	International	L(20), W(500), D(15)	A(230,000), D(15)		L(510), D(4.5-19)	OL(100)	Container (in Order Berth)
Kalimantan	West Kalimantan	Pontianak	International	L(18), W(80), D(4.5)	A(348,000), D(9)	L(205), D(5.5)	L(482), D(5.5)	OL(125)	Container (in Order Berth)
	South Kalimantan	Banjarmasin	International	L(14), W(100), D(5)	A(30,000), D(12)	L(200). D(9)	L(240), D(9)	OL(70)	Coal Berth L(140), D(9)
	East Kalimantan	Balikpapan	International	L(12), W(150), D(27)	A(2,620,000), D(30)	L(194), D(9)	L(160), D(10-13)	OL(135)	
		Santarinda	National	L(60), W(60-80), D(6-18)	A(200,000), D(18)		L(855), D(5.5)	OL.(80)	
Sulawesi	North Sulawesi	Bitung	International	L(9), W(600), D(12)	A(43,200), 0(12)	L(130), D(10)	L(607), D(6-11)		Container (in Order Berth)
	South Sulawesi	Makassar	International	L(25), W(150), D(16)	A(15,200,000), D(16)	L(850), D(12)	L(1,950), D(3-9)	OL(130)	
	S/E Sulawesi	Kendari	National	L(2.16), W(150-400), D(30)	A(375.000), D(20)		L(220), D(6-9)	OL(50)	Container (in Order Berth)
Maluku	Maluku	Ambon	National	L(15), W(1000), D(10)	A(63.200), D(12)		L(406), D(12)	OL(170)	
Papua	Papua	Sorong	International	L(3.5), W(926), D(20)	A(110,000), D(20)		L(140), D(11)	OL(140)	Container (in Order Berth)
		Jayapura	National	L(1.62), W(500), 0(234)	A(50.000). D(30)		L(197), D(8-11)		Container (in Order Berth)
		Biak	National	L(1.5), W(360), D(16)	A(60,000), D(16)		L(262), D(12)		Container (in Order Berth)

Source: Indonesian Ports Directory 2005, Ports of the World 2003, OCDI data, PELINDO I-IV Home Page

4-2 PORT MANAGEMENT SYSTEM AND PORT ACTIVITIES

12. In 1964, the Government of Indonesia established the Port Authority as government agency of the Directorate General of Sea Communications (DGSC) responsible for implementing safety control of ships and cargo in ports and providing port service and port operation at certain large ports. In 1969, the Government of Indonesia restructured the organization and established Port Administration Offices to manage commercial public ports and Port Offices to manage non commercial ports.

13. In 1983, the Government of Indonesia reorganized 9 state owned port enterprises into 4 Public Port Corporations in order to more efficiently handle passenger and cargo flows.

14. In 1991, four Public Port Corporations were changed into PT PELINDO I to IV which have limited company status. Shipping Law No.21 which came into effect in 1992 grants PT PELINDOs authority to manage and operate commercial public ports.

15. In 1992, public ports which were not under the responsibility of PT PELINDO were still managed by the Government through the Port Office which fell under the jurisdiction of a regional office of DGSC. However, 1n 1993, the regional offices of DGSC were abolished and restructured into Kanpel (the regional office of the Ministry of Communications).

16. In 1996, PT PELINDOs as the state owned limited company fell under the jurisdiction of the Ministry of State Owned Enterprises because the Ministry has authority to control all state owned companies and the Ministry is the only share holder of PT PELINDOs on behalf of the Republic of Indonesia.

17. In 2001, the Government expanded the roles of regional and local governments in port affairs by issuing Government Regulation No.69 of 2001.

18. In 2005, DGSC was changed to the Directorate General of Sea Transportation (DGST) while MOC was changed to MOT.

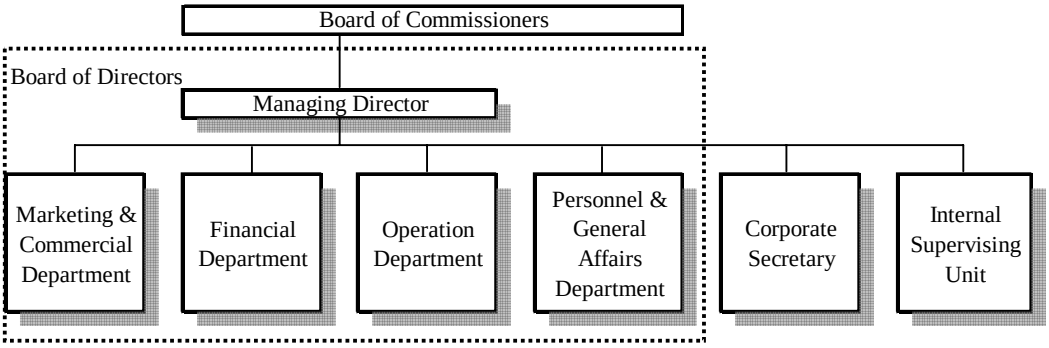
(1) PT PELINDO

19. Purposes of PT PELINDO are to execute and support the Government's program and policies in the field of economy and national development. PT PELINDO is expected to be financially self-sufficient by providing port related services.

20. PT PELINDO provides the following facilities, equipment and services:

- Port anchorage and basin for ships
- Quays and wharves for mooring, loading/unloading of cargo and animals and embarking/disembarking of passengers
- Warehouses and storage yard
- Cargo handling equipment
- Land for buildings, industry and other activities which are related with sea transportation
- Pilotage and tugboat services
- Supply service of electricity and fresh water and waste treatment
- Terminal service including cargo distribution
- Consulting service, education and training which is related with port activities
- Other services which can contribute to the company's objectives

21. The Organization chart of PT PELINDO head office is shown in Figure 4-2-1. Head office is managed by the Board of Commissioners and Managing Director. Board of Directors, Corporate Secretary and Head of Internal Supervision Unit support the Managing Director. There are four departments: Marketing and Operation, Financial, Technical and Personnel & General Affairs.



Source: PT PELINDO

Figure 4-2-1 Organization of PT PELINDO Head Office

22. Marketing & Commercial Department is responsible for:

- Formulating regulations on marketing development, business improvement, service and guarantee
- Developing marketing, business, service and commercial quality guarantee
- Maintaining the highest condition of commerce management
- Implementing company business
- Developing and maintaining commercial quality management system
- Improving commercial quality system

23. Financial Department is responsible for:

- Formulating regulations on financial development plan
- Coordinating financial development of branches/units
- Maintaining the highest condition of finance management
- Implementing business activity
- Developing and maintaining financial quality management system
- Keeping financial quality guarantee system
- Improving financial quality management system

24. Operation Department is responsible for:

- Preparing regulations for policies of technical planning, construction, equipment, and information system
- Coordinate implementation of technical planning, construction, equipment, and information system
- Maintaining the highest management of technical fields
- Developing and maintaining technical quality system
- Improve technical quality management system
- Reforming quality system for the technical management field

25. Personnel & General Affairs Department is responsible for:

- Preparing regulations on development of human resources and organizations
- Developing functional organization
- Maintaining the highest management of personnel and general affairs
- Coordinating implementation of business and company activities
- Developing and maintaining quality management system
- Implementing quality guarantee management system
- Improving quality management system of personnel and general affairs

26. Each PT PELINDO has Port Branches: PT PELINDO I; 5, PT PELINDO II; 12, PT PELINDO III; 19 and PT PELINDO IV; 20. Names of Port Branches are shown in Figure 4-2-2.

PT PELINDO I	
Belawan Port Branch	Tembilahan Port Branch
UTPK Branch	TB Karimun Port Branch
Sibolga Port Branch	Bengkalis Port Branch
TBAsahan Branch	Selat Panjang Port Branch
Gunung Sitoli Port Branch	Rengat Port Branch
Dumai Port Branch	Lhokseumawe port Branch
Tg. Pinag Port Branch	Malahayati Port Branch
Pekanbaru Port Branch	Kuala Langsa Port Branch

PT PELINDO II	
Tg.Priok Port Branch	Banten Port Branch
Panjang Port Branch	Jambi Port Branch
Palembang Port Branch	Sunda Kelapa Port
Teluk Bayur Port Branch	Bengkulu Port Branch
Pontianak Port Branch	Pangkal Balam Port Branch
Cirebon Port Branch	Tg. Pandan Port

PT PELINDO III	
Tg. Perak Port Branch	Kotabaru Port Branch
Banjarmasin Port Branch	Sampit Port Branch
Tg. Emas Port Branch	Kumai Port Branch
TPKS Semaran Port	Lembar Port Branch
Tg. Intan Port Branch	Bima Port Branch
Gresik Port Branch	Pisau Port Branch
Probolinggo Port Branch	Tegal Port Branch
Banyuwangi Port Branch	Bewang Port Branch
Benoa Port Branch	Maumare Port Branch
Kupang Port Branch	

PT PELINDO IV	
Makassar Port Branch	Kendari Potr Branch
Balikpapan Port Branch	Parepare Port Branch
Samarinda Port Branch	Biak Port Branch
Bitung Potr Branch	Nunukan Port Branch
Ambon Port Branch	Mnaokwari Port Branch
Sorong Port Branch	Merauke Port Branch
Jayapura Port Branch	Fakfak Port Branch
Tarakan Port Branch	Gorontalo Port Branch
Pantoloan Port Branch	UPK Bontang dan
Temate Port Branch	UPK Sangatta Port

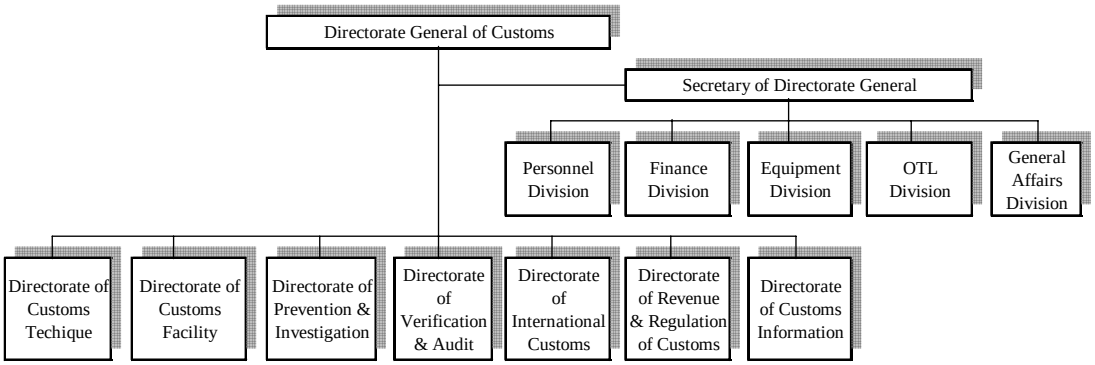
Source: PT PELINDO

Figure 4-2-2 Port Branches of PT PELINDO

4-3 SYSTEMS AND STRUCTURE OF RELATED ORGANIZATIONS

27. The port related government organization includes Port Police, Water Police (KPPP), Customs, Immigration and Quarantine. Port Police and Water Police belong to Police Republic Indonesia. Customs and Immigration are under the jurisdiction of the Ministry of Finance and the Ministry of Justice and Human Rights respectively.

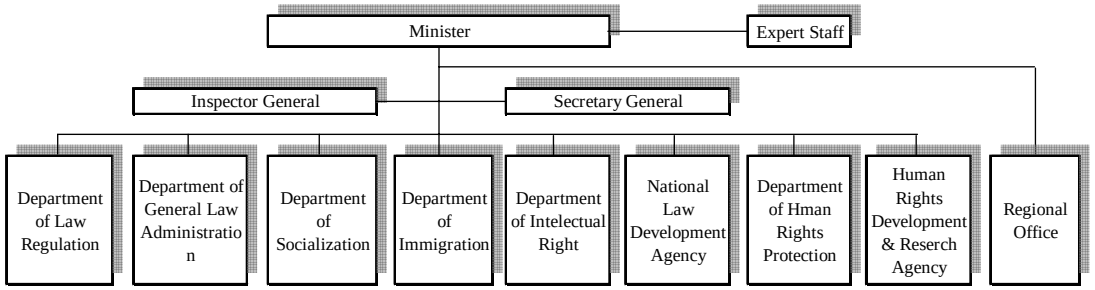
28. Directorate General of Customs which is under the Ministry of Finance is responsible for customs. The organization chart of Directorate General of Customs is shown in Figure 4-3-1.



Source: Ministry of Finance

Figure 4-3-1 Organization of the Ministry of Finance

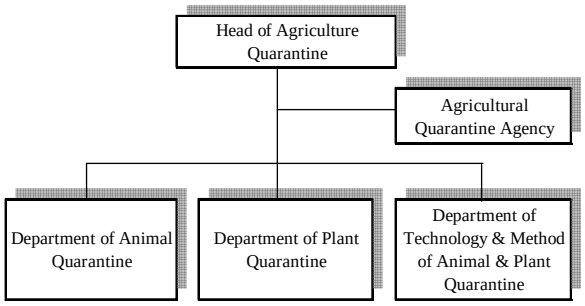
29. The organization chart of the Ministry of Justice and Human Rights is shown in Figure 4-3-2.



Source: Ministry of Justice and Human Right

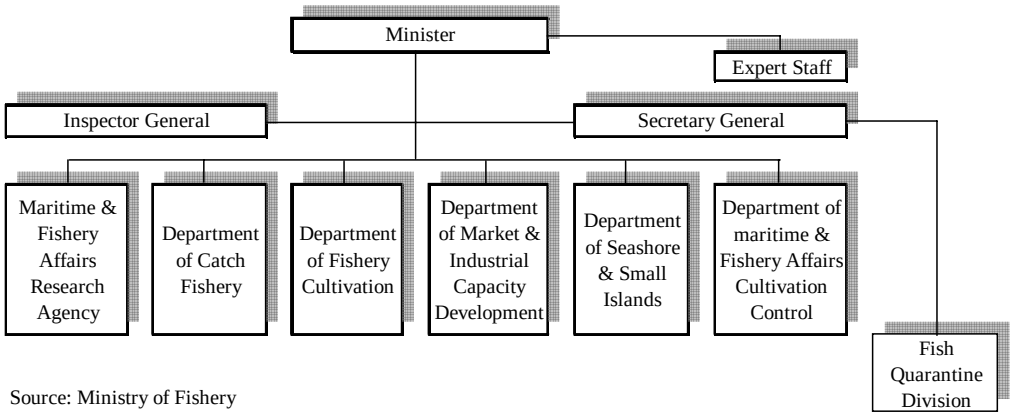
Figure 4-3-2 Organization of the Ministry of Justice and Human Rights

30. There are three kinds of quarantines: animal quarantine, plant quarantine and fish quarantine. Animal and plant quarantine are under the jurisdiction of the Agriculture Quarantine Agency, the Ministry of Agriculture. The organization chart of the Agriculture Quarantine Agency is shown in Figure 4-3-3. Fish quarantine is under the jurisdiction of the Ministry of Fishery. The organization chart of the Ministry of Fishery is shown in Figure 4-3-4.



Source: Ministry of Agriculture

Figure 4-3-3 Organization of the Agriculture Quarantine Agency



Source: Ministry of Fishery

Figure 4-3-4 Organization of the Ministry of Fishery

4-4 PROCEDURES AT A PORT

(1) Export and Import Procedures

31. The procedure done by a shipper (or a consignee) and a shipping company in Indonesia are as follows, when a shipper exports and a consignee imports cargo.

1) In case of export
   - A shipper first books a ship by sending a shipping instruction to a shipping company. (In some cases, a shipper consults a shipping company regarding shipping schedules and fares.)
   - The shipping company prepares the Cargo Booking List, Mate's Receipt and Bill of Lading (B/L).
     * Mate's Receipt is an internal document which is sent from a shipping company office to a ship. Although it is basically the same as the B/L, actual condition of cargo (i.e., whether it is damaged etc.) is indicated.
   - After shipping arrangements are finalized, the shipper passes customs by preparing the PEB (cargo information for export), Packing List and Invoice packing list.
   - Then the shipper arranges a truck or trailer for carrying the cargo to the port, and warehouse if necessary.
   - Cargo is transported to the port and loaded onto the ship.
   - The shipping company takes the B/L to the shipper (the shipper sends the B/L to a consignee.) and sends the Manifest to a branch office of the shipping company at the destination point.

2) In case of import
   - The branch office of a shipping company receives shipping documents such as copy of the B/L, cargo manifest and stowage plan.
   - The shipping company informs the consignee of the shipping schedule including arrival time and arrival terminal.
   - The consignee prepares documents for customs clearance, after receiving information on schedule of the ship. The documents include the Bill of Lading, PIB (cargo information for import), Packing List and Invoice Packing List.
   - The consignee passes customs by paying import duty.
   - The shipping company takes the Delivery Order to the consignee and receives the B/L.
   - The consignee pays freight fare to the shipping company.

- The consignee arranges a truck or trailer to carry cargo to the destination.
- After the consignee pays terminal fares such as fees for storage, cargo handling and others to the terminal operator, he/she takes possession of the cargo.

32. A shipping company is responsible for cargo from the time cargo is loaded onto a ship until the time it is unloaded. On the other hand, the terminal operator is basically responsible for cargo that is in the terminal. For example, if cargo is missing or damaged in a port terminal, the terminal operator bears the responsibility. In the case of general cargo and bulk cargo, however, such incidents are rare since they are too heavy to steal and of relatively little value.

(2) Ship call permission

33. When a ship calls a port in Indonesia, a shipping company has to receive permission from the Headquarters of DGST. If a ship calls without permission, it is not allowed to leave a port. This is applied to all ships and all ports in Indonesia.

34. In order to obtain permission, a shipping company prepares and submits a Permission letter with ship data including ship particulars, crew list, ISSC (International Ship Security Certificate), cargo to be unloaded and port call history to the Ocean Going Division of DGST.

35. In case of a liner vessel, the procedure can be simple and inexpensive: monthly reports during latest three months are submitted together with a request for permission to call.

CHAPTER-5. SECURITY MEASURES IN THE WORLD

5-1 MARITIME AND PORT SECURITY IN JAPAN

5-1-1 Establishment of Airport and Seaport Border Crisis Management Team

1. At international airports and seaports, various organizations are involved in border control and crisis management, and there are many central government agencies with jurisdiction over these on-site organizations. In order to effectively conduct border control and crisis management, the government must always respond in a consistent fashion so that the relevant organizations can fulfill their respective duties while ensuring solid "horizontal cooperation" between the different organizations. To achieve this, an "Airport and Seaport Border Crisis Management Team" was established in the Cabinet Secretariat by a Prime Ministerial Decision in January, 2004. The Crisis Management Councilor is in charge of the affairs of this Team, which is comprised of Counselors (i.e. Chiefs of the relevant supervising Divisions of the relevant government agencies), and the airport and seaport Crisis Management Officers described below.

2. When it is recognized, due to the situation, that border control must be tightened at international airports and seaports, the Border Crisis Management Team shall monitor coordination and provide any necessary advice regarding matters like information notification, security alerts and inspections at the site, and shall fulfill any other necessary duties relating to crisis management at international airports and seaports. The team shall request the participation of the Cabinet Intelligence and Research Office, the Ministry of Economy, Trade and Industry, and any other relevant and necessary governmental agencies, and shall constantly exchange information concerning the situation relating to border control.

5-1-2 Port Management Crisis Officers

3. Various organizations are involved in border control and crisis management, and it is important to strengthen horizontal cooperation between organizations at the same level. To achieve this, Crisis Management Officers are posted at five key ports (Port of Tokyo, Port of Yokohama, Port of Nagoya, Port of Osaka and Port of Kobe), and Coast Guard Officers are appointed with jurisdiction over each port.

4. Port Crisis Management Officers provide the necessary coordination for crisis management at their port, for example, monitoring and providing any necessary advice on cooperation regarding improvement of matters like information notification, security alerts and inspections. More specifically, they perform the following tasks:

- The Officer works to communicate necessary information and share relevant information by convening an emergency meeting of representatives from the port manager, police, customs, immigration, regional development bureau and district transport bureau.
- The Officer checks the compliance situation regarding security alerts, surveillance, inspection and other tasks conducted by the relevant organizations, and provides any necessary advice regarding coordination and cooperation to achieve improvement.

- The Officer reports to the Border Crisis Management Team regarding matters such as policies to achieve improvement at the site.
- In the unlikely event that trouble occurs, the Officer shall coordinate between the organizations involved in the response, and shall report to the Border Crisis Management Team on matters such as the response situation.

5. During ordinary times, the Officer shall:

- Maintain close contact by, for example, having periodic meetings with relevant organizations, actively exchanging information and providing any necessary advice,
- Secure means of contact with the relevant organizations which are always usable, and create and maintain a contact network for emergencies,
- Report any necessary matters, periodically and when necessary, to the Border Crisis Management Team, and
- Participate in deliberation and coordination in the Port Security Committee (described below), and cooperate through actions such as providing any necessary advice.

6. In addition to the five key ports where Port Crisis Management Officers are posted, a Port Crisis Management Supervision Officer shall be designated, from the police or coast guard office with jurisdiction, at each of the other 118 international ports in Japan, and shall have the same duties as a Crisis Management Officer.

5-1-3 Port Security Committee

7. In addition to law enforcement and public order organizations like the police, coast guard, immigration and customs, and regional organizations of the national government such as regional development bureaus and district transport bureaus, port security also intimately involves a variety of private sector operators, groups and organizations like port managers, shippers and warehouse operators. In order to truly strengthen the border control and crisis management system at ports, it is crucial for these various relevant parties to take necessary measures by maintaining close contact and coordinating their activities together. To achieve this, it was decided to establish Port Security Committees at the 123 international ports where Port Crisis Management Officers and Port Crisis Management Supervision Officers are posted.

8. Each Port Security Committee is comprised of representatives from the following organizations:

- Port manager,
- Police department with jurisdiction over the port,
- Coast guard office with jurisdiction over the port,
- Customs with jurisdiction over the port,
- Regional immigration bureau (branch office) with jurisdiction over the port,
- Regional development bureau with jurisdiction over the port,
- District transport bureau with jurisdiction over the port, and
- Other national or regional organizations with jurisdiction over the pertinent port, relevant bureaus of regional public bodies where the port is located, private sector operators related to the pertinent port, or other relevant groups or organizations which the Committee deems to be necessary.

9. In order to improve security and strengthen entry/exit control, the Committee shall:

- Coordinate and cooperate in consolidating and managing facilities and equipment for inspection and surveillance,
- Coordinate and cooperate in matters such as monitoring and patrolling,
- Cooperate in studying measures which should be taken in response to problems such as illegal entry and exit,
- Study measures to tighten security and entry/exit control,
- Consolidate a contact coordination system for emergencies,
- Deliberate and coordinate on any other necessary matters relating to security and entry/exit control measures to be taken cooperatively, such as conducting joint drills.

5-1-4 Enforcement of Domestic Laws

10. The "Law to Ensure Security of International Navigating Ships and International Port Facilities (Short title: Law for the Security of Ships and Port Facilities)" was enacted on April 7, 2004 to comply with the amended SOLAS Treaty, and it came into full force on July 1, 2004.

11. International port facilities where security measures are mandatory are as indicated in Table 5-1-4-1. Managers of these facilities (or other similar personnel) must draft "Port Facility Security Plan" and "Water Area Security Plan" as the operating provisions (implementation manual) for self-security, and these must be approved by the national government. Even at international port facilities and international water area facilities where implementation is not mandatory, the facility manager can voluntarily draft provisions equivalent to Port Facility Security Plan or Water Area Security Plan, and obtain the approval of the Minister of Land, Infrastructure and Transport.

Table 5-1-4-1 International Port Facilities where Security Measures Are Mandatory

International port facilities	Criteria for mandatory compliance	Number of facilities, Number of security provisions
International pier facilities (Quays and other facilities provided for use by international navigation ships [Note 1)])	Quays and other facilities at key ports, used by at least 1 passenger ship per year, and at least 12 cargo ships (or similar ships) per year (Key international pier facilities)	Number of facilities: Approx. 1,500 Number of provisions: Approx. 800[Note 2)]
International waterfront facilities (Berths and other facilities provided for use by international navigation ships [Note 1)])	International waterfront facilities of ports with key international pier facilities	Number of provisions: Approx. 110 (Port units)

Note 1) Passenger ships engaged in international navigation, and cargo ships of gross tonnage at least 500 tons etc.
Note 2) Multiple international pier facilities can be established as a single pier security provision.

5-1-5 Security Measures at Ports

12. At international port facilities, the measures taken shall include: establishing restricted area and access control, surveillance inside and outside the facility, and control of freight loaded onto ships (see Fig. 5-1-5-2). Among these measures, the most important are access control (checks at the entry/exit gate) and surveillance of border area of the restricted area

because previously in Japan it had been comparatively easy for ordinary people to approach port facilities.

1) Main security measures at international port facilities

Person who implements measures: Manager of international port facility, or posted person (port manager, public port corporation, private-sector company, etc.)

- Establishment and management of restricted area
  Checking the necessity of entry by persons and vehicles entering the restricted area
- Surveillance inside and outside the international pier facility
  Surveillance and patrolling of the restricted area border and the area inside the restricted area using surveillance cameras etc.
- Control of freight loaded onto international navigation ships
  Inspection of freight and passenger luggage loaded onto international navigation ships

2) Security measures at international water facilities

Person who implements measures: Manager of international water facility (port manager)

- Establishment and management of restricted area
  Establish a restricted area for front side berths of international pier facilities, and warn ships and other traffic which improperly enter the control zone.
- Surveillance of international water facilities
  Patrolling of international water facilities by security ships etc. (When security level is 2 or higher)

13. The basic policy concerning response to terrorists is to deter by detection and alert and to minimize the damage by informing ships and persons in the port restricted area. Based on the Port Facility Security Assessment (PFSA) carried out by the central government (Designated Authority: Ministry of Land, Infrastructure and Transport (MLIT)), the Port Facility Security Plan (PFSP) is formulated by port management bodies and approved by MLIT.

14. In PFSPs, security measures at each security level including establishment of the restricted area and the restricted water area and installation of port security facilities and equipment are described. In Japan the restricted area is generally as limited in size as possible in order to secure port security more effectively. The restricted water area is set out as follows.

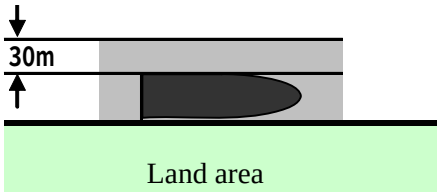


Figure 5-1-5-1 Water Restricted Area

15. As to installation of the port security facilities and equipment, there are two categories: category A is for international berths for container, dangerous goods and passenger and category B is for berths other than the before mentioned. Port security facilities and equipment of the category A berth have the following specifications.

Table 5-1-5-1Specifications of Security Facilities and Equipment

Fence	Height: over 2400mm Outrigger 30deg and over 450mm in length Net fence 3.2mm in diameter and 53mm mesh
Monitoring	In priceiple, monitor the restricted area and boundry by CCTV cameras Alert a suspicious person and if he/she does not go away, call the police
Lighting system	Secure illuminance so that watching or monitoring by CCTV may be enabled

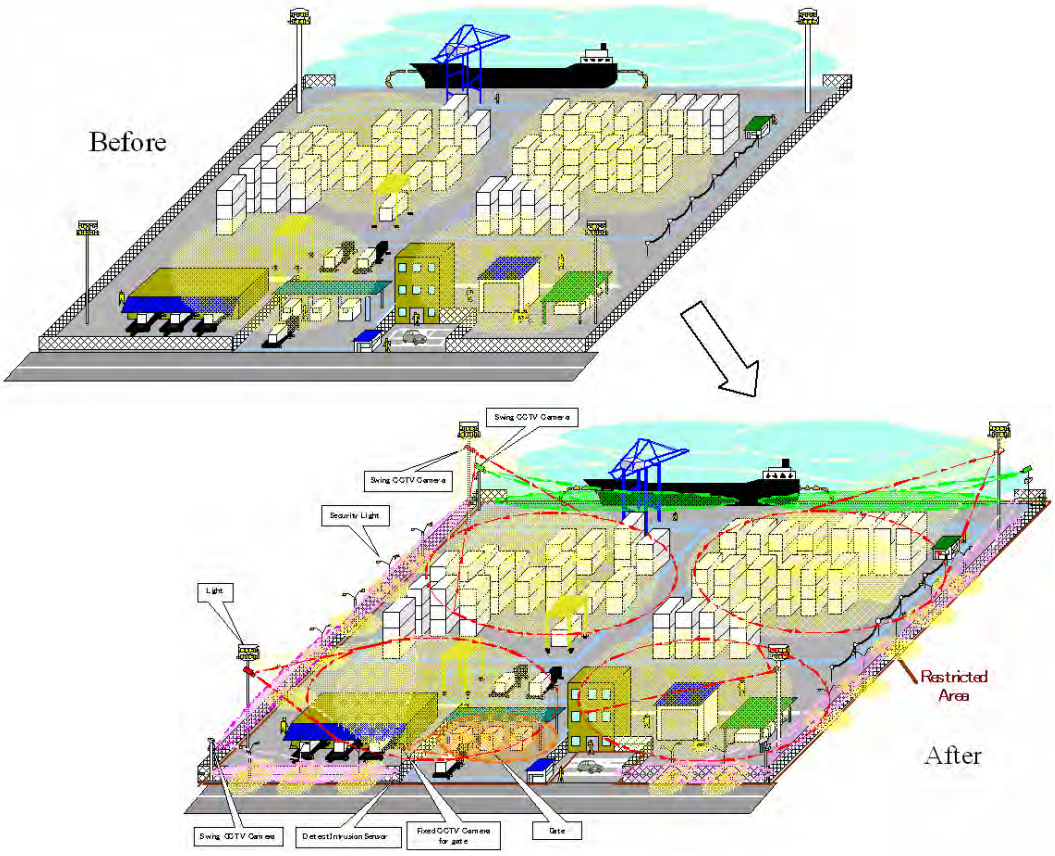


Figure 5-1-5-2 Security Measures

5-2 MARITIME AND PORT SECURITY IN SINGAPORE

16. The Maritime Port Authority's Maritime Security Department (MSD) is responsible for maintaining and enhancing shipping and port security in Singapore. It works closely with government security agencies to assess/review risks and implement appropriate security measures. After September 11, Singapore actively looked at measures to guard against security threats and implemented the following port security measures.

5-2-1 Port Security Measures

(1) Measures Implemented

17. Sensitive areas such as waters around chemical and offshore oil terminals declared as prohibited areas. Vessels/craft are not allowed entering, anchoring, mooring or transiting these prohibited areas without MPA's approval. Diversion routes were created for ferries, trade craft

and pleasure craft entering/leaving port away from sensitive installations (Naval Base, Petrochemical terminals.

18. Security at sea entry checkpoints is tightened against undesired persons, dangerous weapons. Ships' crew/passengers from vessels at anchorages and offshore terminals are allowed only to land at designated landing points where Custom, Immigration and Quarantine facilities are deployed. All personnel are subjected to "face-to-face" checks by the Immigration and Checkpoint Agents.

19. Arrival ships anchor at the designated immigration anchorages. ICA conducts crew checks. Security checks are conducted for all passengers and luggage by use of X-ray machines, and walk-through/metal detectors that are implemented at cruise and ferry terminals. MPA is the Designated Authority to ensure and enforce implementation of the ISPS Code which came into effect on 1 July, 2004.

20. MSD administers implementation of ISPS Code, which among others includes:

- Verification of compliance by Singapore-registered ships and port facilities,
- Taking control measures for noncompliance
- Responding to security alerts
- Conduct of drills and exercises.

(2) Additional Initiatives

21. MSD implements initiatives on maritime security measures beyond the ISPS Code. For example: Small ships/harbour craft exempted from ISPS Code are also viewed as security risks to the bigger ships and the port facilities.

22. Such small ships are required to complete and implement Ship Self-Security Assessment checklist prior to entry into port. Harbour craft are required to comply with Harbour Craft Security Code.

(3) MPA Port Operations Control Center

23. MPA Singapore is responsible for safe navigation of ships within Singapore's port waters and the Singapore Strait. It closely monitors vessel movements in these waters through two Port Operations Control Centers (POCCs).

24. The two POCCs are located at Tanjong Pagar Complex (POCC1) and PSA Vista (POCC2). POCC1 monitors vessel traffic in the eastern part of Singaporean port waters. POCC2 is responsible for traffic in the western sector and in the Singapore Strait. Both centers employ state-of-the-art Vessel Traffic Information System (VTIS) and serve as full back-up for each other.

25. Vessel Traffic Information System (VTIS) is a multi-radar tracking system used to track and monitor shipping traffic in the Singapore Strait and port waters. It can monitor up to 5,000 vessels in real time. Each POCC monitor different sectors of port waters and Singapore Strait, contributing to navigation safety.

26. STRAITREP (1) is IMO-approved Mandatory Ship Reporting System for Malacca and Singapore Straits which is jointly implemented by Indonesia, Malaysia and Singapore. All ships of 300 GT and upwards and all passenger vessels navigating in the Straits are to report to the coastal state Vessel Traffic Service (VTS) authorities, i.e. MPA's Port Operations Control Centre 2 for the Singapore Strait.

27. As to STRAITREP (2), upon vessel reporting in (HBL-East or off Tg Piai (off South -west of Johor-West) VTIS starts tracking the vessel. Passage of vessel into Singapore port will be monitored continuously by the VTIS operators. Operators provide traffic/navigational information to assist ships' safe navigation. Where navigation hazard exists such as navigational buoys out of position, a radio navigational warning broadcast would be made to warn all ships.

(4) Automatic Identification Systems (AIS)

28. MPA Singapore has set up AIS transponder base stations to enable its control centers to automatically receive ships' identities and positions transmitted from transponders carried onboard. These base stations cover the Singapore Strait and port waters.

5-3 MARITIME AND PORT SECURITY IN THAILAND

5-3-1 Implementation of the ISPS Code in Thailand

29. National authority responsible for port facility security is Marine Department, Ministry of Transportation. Marine Department has recognized no RSO. Central government does not provide ISPS training. New legislation on ISPS implementation came into force on January 2005. National security committee is established.

30. There are 94 ISPS compliant port facilities in 13 ports. Regarding commercial ports, port operators formulated PFSP at the following ports.

5-3-2 Port Security Measure in Bangkok Port

31. Bangkok Port is a river port which is located on the left side of the Chao Phraya River Klongtoey District, Bangkok. The approach to the port is made through the bar channel, which is 18km long, 150m wide in the reaches, 250m wide in the bend and -8.5m deep.

Table 5-3-2-1 Facilities in Bangkok Port

Name of Facility	Length (m)	Number of Berth (Facility)	Size of Vessel (m)		Capacity
			Length	Draught	
East Quay (container)	1,582	8	172.26 91.46	-8.23 -4.75	7 1
West Quay (conventional)	1,660	10	172.26	-8.23	10
Klongtoey Dolphin	1400	36	172.26	-8.23	7
Bamg Hua Sua Dolphin	1520	25	172.26	-8.23	8
Mooring Buoy at Sathupradit	1580	5	137.19 91.46	-7.62 -7.00	4 1

Table 5-3-2-2 Cargo Volume in Bangkok Port

Unit: thousand tons

	1999	2000	2001	2002	2003
Import Cargo	5,621	16,111	5,919	6,186	6,735
Export Cargo	7,224	7,134	7,440	7,779	7,891

32. The port security measures in Bangkok port is as follows:

- There are 44 ISPS compliant port facilities in Bangkok Port.
- Dolphin and Buoy in the river port are also compliant with the ISPS Code.
- Customs boundary is fenced off by fence of 2.4m in height with top guard.
- Regarding port to ship interface, restricted area is partitioned by a wall of warehouses, and security gates are installed among warehouses.
- There are two main gates of the customs boundary where security guards conduct access control.
- No CCTV camera is installed in Bangkok commercial port.
- Security guards receive security information by telephone and VHF 24 hours a day in the security control center.
- Security documents are strictly controlled as confidential documents.
- When international passenger vessel calls they install a provisional restricted area, with movable fence and wall of passenger terminal building. They have not informed IMO of this facility.

5-3-3 Port Security Measures in Laem Chabang Port

33. Laem Chabang Port is a major deep-sea port accommodating post-panamax vessels for international transportation. It is located 110km from Bangkok and is able to accommodate huge international passenger liners managed by Star Cruise. Port authority of Thailand takes charge of the overall administration while the operation belongs to the private sectors. 9 berths out of 11 (A0-A5, B1-B5) at basin 1 were leased out to the private sector. Remaining two berths have not been opened. 7 berths at basin 2 comprise 6 container terminals (C1-C3, D1-D3) and 1 Passenger Berth C0.

Table 5-3-3-1 Laem Chabang Port

Name of Facility	Length (m)	Number of Berth	Size of Vessel		Capacity
			DWT	Draught(m)	
Coastal Berth (A0)	550	1	1,000	-10	2
Passenger Berth (A1)	365	1	70,000	-14	1
Multi-Purpose Berth (A2)	400	1	50,000	-14	1
Multi-Purpose Berth (A3)	350	1	30,000	-14	1
Agri-Bulk Berth (A4)	250	1	40,000	-14	1
Agri-Bulk Berth (A5)	450	1	70,000	-14	1
Container Berth (B1-B4)*	300	4	50,000	-14	4
Container Berth (B5)	400	1	50,000	-14	1
Passenger Berth (C0)	400	1	70,000	-16	1
Container Berth (C3)	500	1	80,000	-16	1

Note: * Berth each of 300 meters in length

Table 5-3-3-2 Cargo Volume in Laem Chabang Port

Unit: thousand tons

	1999	2000	2001	2002	2003
Import Cargo	5,122	6,042	6,825	8,558	9,660
Export Cargo	11,345	12,918	14,472	16,930	19,074

34. The port security measures in Laem Chabang port is as follows;

- There are 11 ISPS compliant port facilities in Laem Chabang Port.
- Customs boundary is fenced off by fence of 2.4m in height with top guard.
- Regarding port to ship interface, restricted area is partitioned by fence with top

guard and access control is strictly conducted by terminal operator.
- There are three main gates operated by the customs where security guards conduct access control.
- CCTV cameras are installed in ISPS compliant berths.
- Security documents are strictly controlled as confidential documents.
- There is a fishing village near the Laem Chabang Port which is expected to be relocated due to security reasons.

5-3-4 Issues on Port Facility Security in Thailand

35. Security personnel of the Ministry of Transportation (national authority responsible for port facility security) and Port Authority of Thailand have knowledge on the SOLAS Convention and the ISPS Code. They have little experience in ISPS implementation and knowledge about security levels. Good cooperation with relevant organizations is also necessary.

5-4 MARITIME AND PORT SECURITY IN MALAYSIA

5-4-1 Implementation of the ISPS Code in Malaysia

36. Malaysia consists of the Central, Southern, Northern and Eastern Peninsula regions and Borneo. Main ports of each region are Port Klang in the Central, Johor port in the South, Penang port in the North, Kuantan port in the East and Binturu port in Borneo.

37. Malaysian Marine Department administrates marine activities and is the Designated Authority (DA) for port security. Each port facility has PFSO and PASO (Port Area Security Officer) who oversee all port security. Port Klang has one PASO and four PFSOs (stationed at North Port, West Port, Power plant and Cruise terminal).

38. A total of 23 ports have received the certificate of ISPS code compliance with PASP (Port Area Security Plan). There are 82 facilities including 5 FPSO (floating, production, supply and offloading) in compliance with the ISPS code.

39. Marine security consultants carry out security assessment and develop the security plan. There are 8 approved consultants. Among the eight consultants, six specialize in ship and port facilities, one in ships only and remaining in port facilities only.

40. RSO audits documents and ships for the purpose of ISSC (International Ship Security Certificate) issuance on behalf of the Marine Department Peninsula Malaysia (DA). There are 7 approved RSO.

41. ISPS committee composed of national security agencies sets the port security level.

5-4-2 Port Facility Security Measures

42. Current Issues on port facility security measures are as follows.

1) Monitor and Patrol
   - Encroachment of local fishermen into the traditional fishing area which is inside the port facility area
   - Effectiveness of water patrolling within Designated Port Security Area (DPSA: anchorages) is in question as the DPSA is too wide and distant from land and

has experienced security breach

2) Asset Capacity
   - Some of the port facilities are incapable of providing water crafts for patrolling due to financial and human resource constraint and entirely rely on government-assist crafts
   - Government crafts are not dedicated to security patrol of the port facilities and only assist occasionally

43. The following measures are planned in the years to come.

- To ensure all port facilities conform to IMO Self-Assessment and submit to DA
- For the purpose of endorsement of the Statement of Compliance of Port Facility, the IMO Self-Assessment by port facilities shall be mandatory
- DA auditors upon evaluating the Self-Assessment questionnaires will embark on the verification process to the identified port facilities at random
- To conduct training for duly authorized officers
  a) PASO who is not security personnel but is responsible for evaluating the security needs of the port area
  b) PSCO who is not trained in maritime security inspection

5-4-3 Training Program

44. Marine Department Peninsular Malaysia is responsible for training. Curriculum of training and present issues is as follows.

1) Curriculum
   - IMO model course 3.21 Port Facility Security Officer (2003 Edition)
   - IMO model course 3.20 Company Security Officer (2003 Edition)
   - IMO model course 3.19 Ship Security Officer (2003 Edition)
   - National Security Administration
   - National Legislation

2) Issues
   - Only PFSO/SSO courses conducted by the approved training institutions are certified by the DG of Marine Department
   - PFSO/SSO courses conducted by approved maritime security consultants are certified by their respective organization and certificates issued are recognized
   - Courses conducted and certificates issued directly by Classification Societies are not recognized.
   - SSO courses conducted by training institutions in countries that have signed a Memorandum of Understanding with Malaysia and approved by their respective Administrations are recognized (for foreign crew engaged on Malaysian flag vessels).
   - CSO courses are not mandatory.

5-5 CURRENT SITUATION OF INTERNATIONAL COOPERATION

5-5-1 Port Security Discussed at G8 Summit

45. At the G8 Summit Meeting held from June 6 to 8 (2004) at Sea Island in the US, transportation security measures were discussed as one aspect of counter-terrorism, and it was

agreed that the G8 countries would work together to enhance port security as part of the "Secure and Facilitated International Travel Initiative (SAFTI)".

46. More specifically, it was decided to promote two projects: (1) Drafting a port security checklist (i.e. the G8 countries will jointly prepare a procedure for self-assessment, by each country, of their own port security implementation status, and a checklist for achieving that), and (2) Supporting developing countries (i.e. the G8 will provide coordinated support to improve security capabilities of developing countries).

47. In response to this, many of the leaders made statements praising progress in port security cooperation.

5-5-2 Necessity of International Cooperation on Port Security

48. Port security, as mandated by the amended SOLAS Convention, is designed not so much to ensure safety at one's own port, but to protect ports and other facilities at the export destinations of calling ships and cargo.

49. It is only when each country implements security measures above a certain level that we can ensure the security of the entire international sea transport network. In that sense, protecting the ports and other facilities of the G8 countries cannot be achieved simply by enhancing security at G8 ports; it is necessary to improve security measures at the ports of all our trading partners, including developing countries.

50. The issue which will arise after the Convention comes into effect is the limitations of the amended SOLAS Convention. At present, there does not exist a framework for internationally checking the port security implementation status of each country.

51. In the Convention, authority for port facility security planning is entrusted to the signatory national governments, and it is not mandatory for each country to report plan content to the IMO.

52. Even worse, there is no system, and no specific standards, for assessing plans and security implementation. (Furthermore, authorization of security plans for ships is entrusted to the "flag nation", although checking can be done by other countries at the waterfront via port state control).

53. The US Coast Guard assess the security measures of foreign ports, based on the "Maritime Transportation Security Act of 2002", and if the proper measures are not taken, despite advisement to make improvements, the US can deny entry to US ports to a ship with freight loaded at a non-compliant port, although there are limitations even on the assessment capabilities of the US.

54. It will be easier to confirm the implementation status internationally if a common yardstick is used when each nation party to the Convention assesses implementation of security measures at their own ports. This is the background behind why, in the future, the G8 countries will jointly draft a port security checklist, and propose this to the IMO as a standard self-assessment procedure.

55. When the Convention came into effect on July 1, 2004, this simply marked the end of the first round of dealing with port security issues. After July 1, we entered the implementation and verification stage where the focus is on how to make the Convention function effectively.

56. This begins with assessment of the security measures of foreign ports by the US, and discussion of the checklist within the G8, and includes determining how to verify the Convention effectiveness within a global framework, and as one part of that, how to support ports and other facilities whose security is inadequate.

CHAPTER-6. PORT SECURITY MEASURES IN INDONESIA

6-1 GENERAL

1. The International Convention for the Safety of Life at Sea was revised and the ISPS Code was ratified by 122 Contracting Governments in December 2002. The Contracting Governments were obligated to enhance security measures in cooperation with all ports and vessels in the world. Indonesian government also ratified the SOLAS Convention and decided to comply with the ISPS Code.

2. The government nominated DGSC, Ministry of Communications (now DGST, Ministry of Transportation) as the designated authority by laying down Ministerial Decree (KM33:2003 and KM3:2004).

3. Director General of DGST instructed ADPEL/KAMPEL in a letter dated March 19, 2004 that ADPEL/KAMPEL shall make the port facility security assessment (PFSA) and that port management bodies including PELINDO shall prepare the port facility security plan (PFSP) and shall implement it. In addition, the letter indicated that the port security officer (PSO) who is responsible for security in a whole port and manages the port facility security officers (PFSOs) designated for each port facility shall be designated and that the port security committee (PSC) shall be established for each international public port to exchange information and make decisions on security measures.

4. The recognized security organization (RSO) is authorized to carry out the port facility security assessment (PFSA) and to prepare and evaluate the port facility security plan (PFSP). At present, there are 25 RSOs in Indonesia, a number which some criticize as being too large. Some RSOs are also criticized for having insufficient knowledge and experience.

6-2 CURRENT ISSUES RELATED TO MARITIME AND PORT SECURITY IN INDONESIA

6-2-1 Piracy

5. Piracy is defined in article 101 of the 1982 United Nation Convention on the Law of the Sea (UNCLOS):

Article 101
Definition of Piracy consists of any of the following acts:

a) any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:
   i. on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;
   ii. against a ship, aircraft, persons or property in a place outside the jurisdiction of any State;
b) any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft;
c) any act of inciting or of intentionally facilitating an act described in subparagraph (a) or (b).

Figure 6-2-1-1 Malacca Straights

6. Indonesia continued to record the highest number of attacks with 79 reported incidents in 2005. Although there is a drop from 94 attacks in 2004, Indonesia still accounts for nearly 30% of the worldwide incidents of piracy and armed robbery against ships.

7. In the Malacca Straits, after the tsunami there were no incidents reported for approximately 2 months. Thereafter attacks resumed. Ships are advised to avoid anchoring along the Indonesia coast of the straits unless required for urgent operational reasons. Waters off North Sumatra, Aceh coast, and off Belawan are particularly risky. Pirates heavily armed with guns are known to have fired at vessels to stop them. Recent attacks showed that pirates were attacking vessels further out in the open sea and closer to/in Malaysian waters. Further south in the straits, pirates armed with machetes/knives and small arms normally attack vessels that do not maintain any anti piracy watch. In the Singapore Straits, pirates have attacked ships underway.

8. Harbour and anchorage attacks are most common in Indonesian waters and consist of the opportunistic boarding of a ship while it is berthed or at anchor in or near a harbour. Out of 72 attacks, 51 are of this nature. These attacks generally take place at night between 0100 and 0600 hours. The criminals board a ship, steal what they can immediately lay their hands on and escape without the knowledge of the crew. There is also evidence of selective opening of containers with high value cargo implying prior knowledge of the cargo manifest. It may be that the criminal previously had access to the ship, or worked as a contractor before or perhaps received information from someone from the port facility.

9. Those preying on ships are becoming better armed and organized. They sometimes have satellite phones and can eavesdrop on the communications of vessels they are targeting. Automatic assault rifles are commonly carried and fired. Rocket-propelled grenades and hand grenades were reportedly brandished in several attacks in 2005. Assaults are becoming more violent. The hijacking of vessels - mainly slow-moving tugs, barges and small tankers with low

freeboards that are relatively easy to board while underway - and the kidnapping of their officers and crew for ransom, are on the rise.

10. The impact of piracy, besides the killing of innocent lives, aggravates the economic and financial damages to countries as well as the international shipping industry. Fraud, stolen cargoes, delayed trips, and increased insurance premiums are all consequences of piracy and have a direct economic impact on ships / organization concerned.

11. The launch of the Trilateral Coordinated Patrol, which involves the navies of Malaysia, Indonesia and Singapore patrolling in a coordinated fashion in their respective territorial waters in mid-2004 did not have any significant reduction in the total number of incidents of piracy for that year. The Trilateral Coordinated Patrol is said to be insufficient to reduce piracy as there is a lack of provision for "hot-pursuit" into each country's territorial waters.

12. Indonesia, Malaysia, Singapore and the other seven members of ASEAN have agreed with six other Asian countries – China, Japan, South Korea, India, Sri Lanka and Bangladesh to cooperate in combating piracy. Last November in Tokyo, they concluded a Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia, known by its initials ReCAAP.

13. Singapore, Japan, Laos and Cambodia became the first four states to formally adhere to the agreement. They did so on 28 April. Once six more of the participating states sign, the ReCAAP, which is a Japanese initiative, will enter force and a new Information Sharing Centre will be set up in Singapore run by an executive director with a staff of up to a dozen from member countries. The centre will facilitate rapid communication and information exchanges between the member countries. It is also designed to improve the quality of statistics and reports on piracy and armed robbery against ships in the region.

6-2-2 Armed Robbery

14. Armed robbery is a serious offence in Indonesia. The KPPP police is responsible for law and order in and around the port area. In the year 2003 there were a total of 18 other related criminal offenses in the port. None of these has been classified as armed robbery.

15. All port administration bodies are to submit a consolidated Port Security Report each year to DGST. The report will indicate the number and type of security related incidents. However most ports do not comply in submitting the report as required.

6-2-3 Cases of Theft in Ports

16. In 2003 there were 10 cases of theft in the port. Of these, 1 case was reported in Tanjung Perak, 1 in Tanjung Priok and 8 cases reported in the Guard and Rescue Command and Control Centre. In 2004, 2 cases were reported in Tanjung Intan, Cilacap, 1 in Teluk Bayur and 2 in Makassar. These offenses are characterized by unauthorized entry into the ports in an attempt to commit theft.

6-3 ORGANIZATION AND ITS FUNCTION

6-3-1 DGST

17. DGST was nominated as the designated authority.

18. The following items are prescribed in the Ministerial Decrees (KM33:2003 and KM3: 2004).

- International Convention for the Safety of Life at Sea (SOLAS), 1974/ ISPS Code in Indonesia is effective in July 1, 2004.
- The following policies to implement International Convention for the Safety of Life at Sea (SOLAS), 1974/ ISPS Code were decided by DGST.
- The DGST is responsible for supervising implementation of the Decree.

19. The DGST is composed of five Bureaus: Sea Traffic and Sea Transportation Bureau, Port and Dredging Bureau, Marine Safety and Seafarers Bureau, Navigation Bureau and Guard and Rescue Bureau) and Secretary. Four Divisions: Planning Division, Financial Division, Legal Division and Personnel Division belong to the Secretary. The organization chart of DGST is shown in Figure 6-3-1-1.

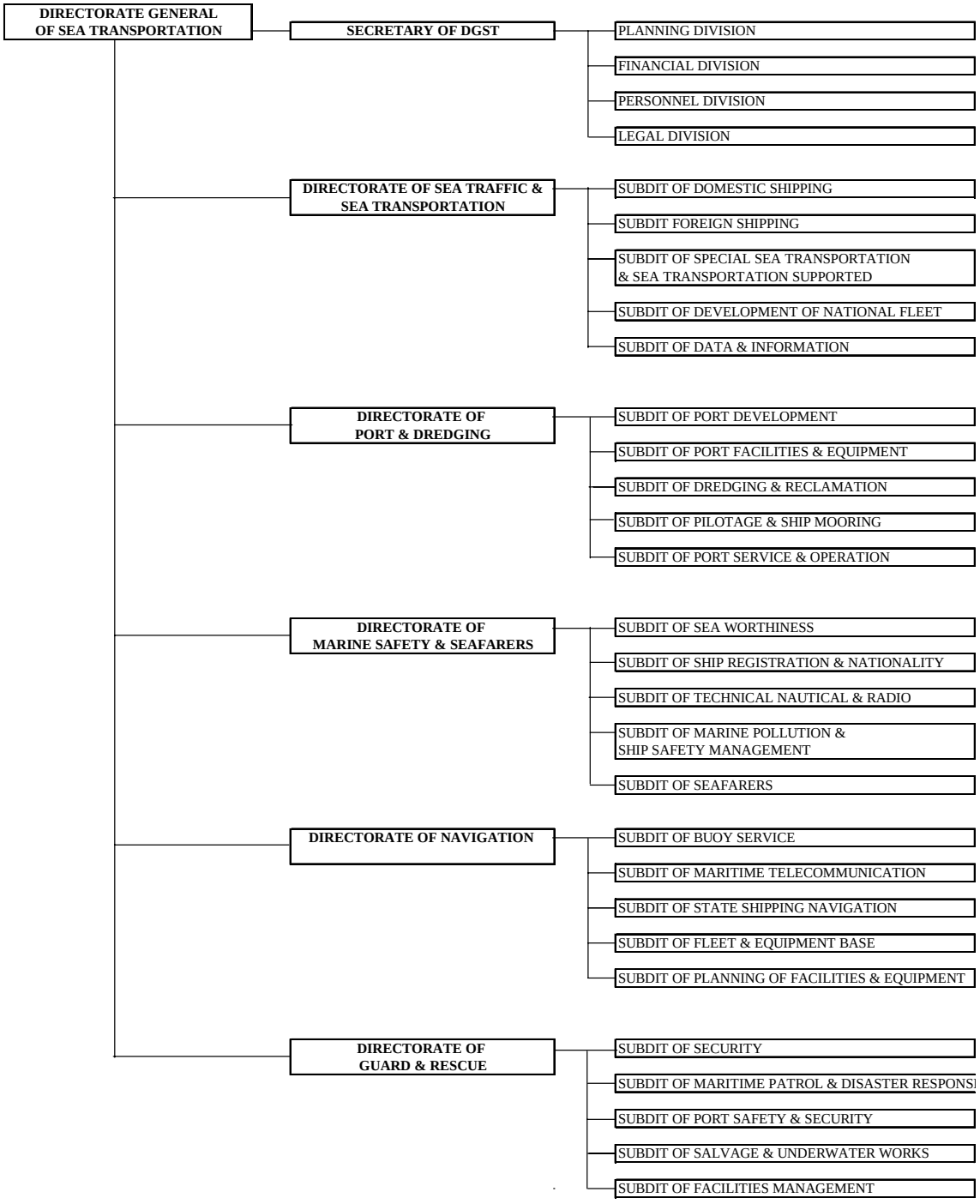
20. The Guard and Rescue Bureau is directly in charge of port security measures. The Planning Division coordinates the issues among Marine Safety and Seafarers Bureau, Port and Dredging Bureau in charge of facility improvement and so on. The Planning Division is also a contact point for technical cooperation including development studies and training, and financial assistance such as loan and grant which is related to DGST and relevant organizations including PELINDO.

21. The Guard and Rescue Bureau is composed of five divisions: Security Division, Marine Patrol and Disaster Response Division, Port Safety and Security Division, Salvage and Underwater Work Division and Facilities Division. The Guard and Rescue Bureau assumes the responsibilities over formulating policies, extending technical supports and making evaluation in the field of security measures, patrol, accident and pollution prevention, port state control, underwater works and guard and rescue equipment.

22. The Port Safety and Security Division consists of two sections: Ship Security in Port Section and Ship/Port Security and Ship Accident Section. These two sections have the following responsibilities.

- Ship Security in Port Section shall prepare regulations and procedures, extend technical support and make evaluations in the field of trade ports and ship navigation, port state control, loading/unloading of cargo and dangerous goods storage.
- Ship/Port Security and Ship Accident Section shall prepare regulations and procedures, extend technical support and make evaluations in the field of ship accident including its investigation, as well as security, operation and fire prevention in a port.

23. Affairs concerning the ISPS Code are implemented in a cross-sectional manner. Until July 1, 2004, Task Force had been created to intensively prepare for the ISPS Code. Task force headed by the Director of the Guard and Rescue Bureau was composed of 45 members from many divisions including that of other Bureaus in DGST. After July 1, 2004, Task Force was dissolved and the ISPS Code Team was created. At present, ISPS Code Team composed of six members from the Guard and Rescue Bureau works on ISPS Code affairs.



Source: DGST

Figure 6-3-1-1 Organization Chart of DGST

6-3-2 Port Administration Office and Port Office (ADPEL/KANPEL)

24. There are two categories for the port administration. The Port Administration Office (ADPEL) and the Port Office (KANPEL). ADPEL administrates ports in major provinces while KANPEL administrates ports in smaller provinces. Both offices are a technical unit which reports to the Director General of Sea Communications. The Port Administration Office is led by the Head of Port Administrator while the Port Office is led by the Head of Port Office. Each office has the following classes of ports under their management.

1) Port Administration Office
   - Main Class Port Administration Office
   - 1st Class Port Administration Office
   - 2nd Class Port Administration Office
   - 3rd Class Port Administration Office
   - 4th Class Port Administration Office
   - 5th Class Port Administration Office

2) The Port Office
   - 1st Class Port Office
   - 2nd Class Port Office
   - 3rd Class Port Office
   - 4th Class Port Office
   - 5th Class Port Office

25. Both the Port Administration Office and Port Office have similar roles and functions as stipulated in Minister of Communication Decree KM No.62 and 63 respectively. The difference between the function of the Port Administration Office and the Port Office is minimal except KANPEL has 2 additional functions. Their main functions are as follows:

- To control traffic and sea transportation activities that cover ship, passenger, cargo, animals, container traffic and tariff determination;
- To control sea transportation support activities and loading/unloading personnel development;
- To supervise ship seaworthiness and to give Sailing License;
- To prevent pollution and fire in the port water area and in the harbor;
- To conduct security precautions, orderliness and regulation reinforcement and to investigate criminal act on a voyage in port and harbor waters for smooth port operation.
- To administer port safety facilities and equipment and orderliness of navigation channels and anchorages, to administer port facilities development and also to supervise port operational work.
- To administer nautical, technical, radio and pollution prevention equipment, to supervise ship renovation and shipbuilding, and also to prepare verification of ship safety management and to issue certificate on nationality and ship mortgage;
- To prove ship's legal status, to take ship's measurement, to issue seaman document, and to give certificate for ship crew and sea working contract.
- To conduct general affairs.
- To arrange operational plans for port services*
- To provide port service and pilotage for ships and anchoring service*

*Functions by KANPEL

26. Only Batam Port has the Port Office while other ports have Port Administration Offices. Port Administration Offices and Port Office of the 26 study ports are shown in Table 6-3-2-1.

Table 6-3-2-1 Class of Port Administration Office or Port Office

Name of Port	Class of Port Administration Office or Port Office	Name of Port	Class of Port Administration Office or Port Office
Belawan	Main	Tg.Perak	Main
Dumai	II	Benoa	II
Pekanbaru	III	Kupang	III
Tanjung Pinang	II	Banjarmasin	II
Batam	I*	Samarinda	II
Teluk Bayur	II	Balikpapan	II
Palembang	II	Bitung	I
Panjang	I	Kendari	II
Tg. Priok	Main	Makassar	Main
Pontianak	II	Ambon	I
Banten/Bojonegara	II	Sorong	I
Cilacap	II	Biak	IV
Tg.Emas	I	Jayapura	II

Note: * stands for Port Office
Source: DGST

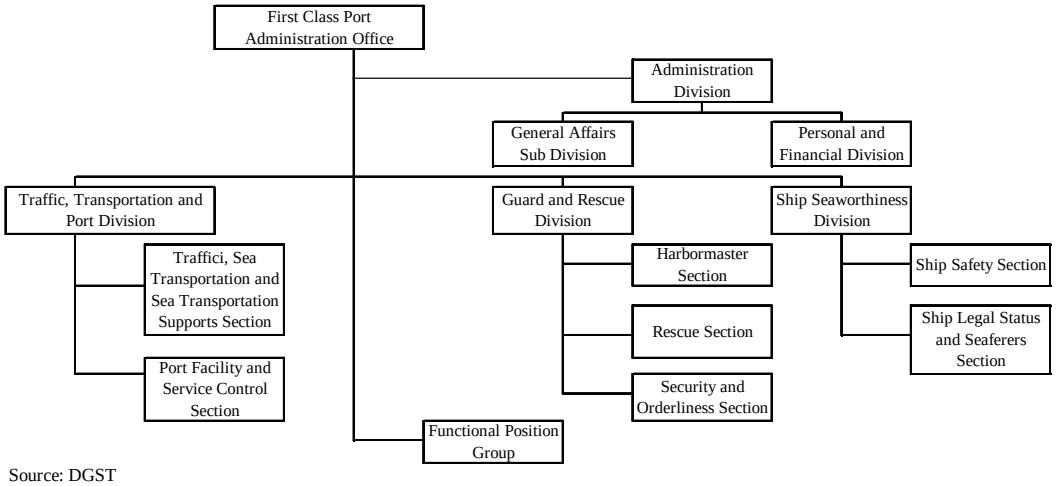
27. Port Security Officer (PSO) is nominated from the Port Administration Office or Port Office. In the Port Administration Office, PSO is the head of Guard and Rescue Division (KPLP).

28. The Port Administration Office has 3 to 4 Divisions or Sections. Main and 1st Class Port Administration Offices consist of four Divisions: Administration Division, Port and Traffic Division, Guard and Rescue Division and Ship Safety Division.

29. The security functions are provided by the following division:

- Port Administration Office /Guard and Rescue Division /Security and Order Section
- Port Office /Harbormaster Division /Port Security and Patrol Section

30. Figure 6-3-2-1 shows the organizational structure of the 1st Class Port Administration Offices.



Source: DGST

Figure 6-3-2-1 Organizational Structure of 1st Class Port Administration Offices

6-3-3 KPLP

31. The KPLP is one of the units in the Port Administration Office or Port Office. In Main and 1st Class Port Administration Offices, the Guard and Rescue Division represents KPLP, while in 2nd and 3rd Class Offices KPLP is represented by the Guard and Rescue Section.

32. The Guard and Rescue Division assumes the responsibilities for implementing port state control and navigation control, giving clearance permission, investigating ship accidents, conducting search and rescue on waters, preventing pollution, inspecting ship structure, salvage activities and underwater work, taking security measures and also enforcing orders and laws on navigation and crimes in port and harbor waters.

33. As to port security measures, Guard and Rescue Division administrates the port area including the water area.

34. The Guard and Rescue Division consists of three Sections: Harbormaster Section, Rescue Section and Security and Order Section. Security and Order Section is directly in charge of port security and it shall take security measures, investigate crimes in port and harbor waters and enforce orders and laws on navigation and crimes in port and harbor waters.

6-3-4 PELINDO

35. In 1983 the government of Indonesia liquidated eight national harbor companies which managed several ports. In 1992 these public companies changed status to limited companies and were divided into four companies; Pelabuhan Indonesia (PELINDO) I, II, III, and IV. The four companies are limited-liability and profit-making companies. They commercially manage 111 major public ports around the country.

36. The main ports administered by the four PELINDOs are shown below.

Table 6-3-4-1 Main Ports Administered by the Four PELINDOs

Port Corporation	Coverage (Provinces)	Port Administered
PELINDO Ⅰ	Aceh , North Sumatra, Riau	Belawan, Dumai, Pekanbaru, Tanjung Pinang, Lhokseumae
PEUNDO Ⅱ	West Sumatra, Jambi, South Smatra, Bengkulu, Lampung, Jakarta	Teluk Bayur, Palembang, Panjang, Tanjung Priok, Pontianak, Banten/Bojonegara
PELINDO Ⅲ	Central Kalimantan, South Kalimantan, West Nusa Tenggara, East Nusa Tenggara, (Previously East Timor)	Tanjung Intan(Cilacap), Tanjung Emas, Tanjung Perak, Benoa, Tenau(Kupang), Banjarmasin
PELINDO Ⅳ	Sulawesi , Maluku, Papua	Samarinda, Balikpapan, Bitung, Kendari, Makassar, Ambon, Sorong, Biak, Jayapura

Source: DGST

37. PELINDOs perform activities in the following business fields.

- Anchorages and channels for ships
- Pilotage and tugboat services
- Quays and other mooring facilities, and equipment for loading & unloading of cargo or animals.
- Land for buildings and yard, and buildings related to sea transportation.
- Provision of electricity, fresh water and waste spillway.
- Terminal Service and cargo including animal collection and distribution service.

- Consulting Service, education and training related to ports.
- Others

38. PELINDO also plays an important role in port security measures and bears most of the costs for security measures in a port. The port facility security officers (PFSOs) of public ports are nominated from PELINDO.

6-3-5 Port Security Committee

39. The Director General of DGST instructed Port Administration Office in a letter dated March 19, 2004 to create the Port Security Committee.

40. The port administration is obligated to form the Port Security Committee to oversee maritime security duties. The Port Administrator is the chairman who appoints a Port Security Officer from the Guard and Rescue Unit as the main coordinator in the port with regards to security.

41. Port Security Committee has the following functions:

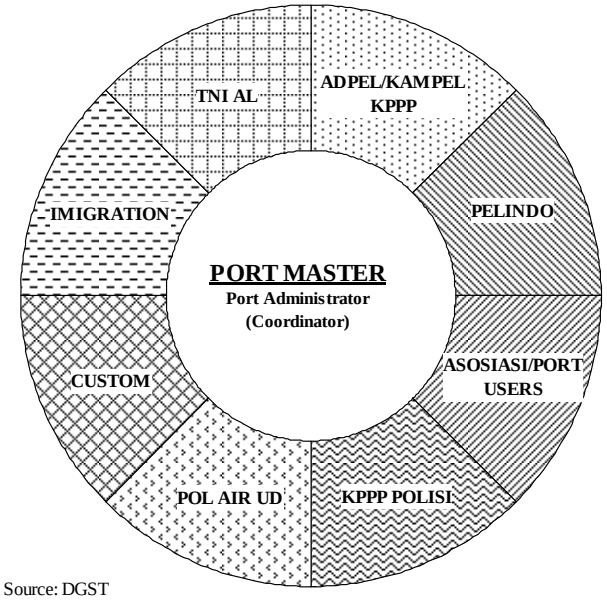
- To make working plans for communication and port security intelligence.
- To identify threats and unsafe area against port security.
- To arrange procedures and port security system to decrease the threats.
- To coordinate and direct the Port Security Committee meeting
- To coordinate and direct on technical affairs, procedures and port security operation.
- To arrange communication procedures in normal and emergency situations
- To arrange reporting procedures and to evaluate security threats to determine the security level of a port.
- To make an inventory of all ports security threat and to identify possible threats.
- To coordinate and give technical direction to Port Management bodies (PT. PELINDOs).
- To set out the layout of land boundaries, waters boundaries, port equipment and infrastructure.
- To specify area, port security facilities and equipment which are necessary to counter security threats.
- To designate the restricted area and port security facilities and equipment in it.
- To specify physical port security facilities and equipment such as fence, light, detector and alarm, surveillance and communication devices.
- To formulate port security policy and systems and port security procedures implemented by security guards.

42. Members of the Port Security Committee are as follows:

1) Coordinator; Head of Port Administration Office or Port Office
2) Coordinating Manager; Head of KPLP
3) Members
   - Representatives of government agencies such as Customs, Immigration and Quarantine which perform port related services
   - Representatives of government agencies such as Coast Radio Station and Navigation Aids Office which perform navigation safety tasks.
   - Representatives of security agencies such as KPPP and Navy which control bomb, drug and terrorists.

- Representatives of private agencies such as PT. PELINDO, shipping companies and Associations which perform port activities.
- Representatives of private agencies which support port activities such as industries in a port
- Representatives of other agencies whose service is related to the port security.

43. PSC members may consist of the following agencies:



Source: DGST

Figure 6-3-5-1 Structure of PSC Members

44. Officials of the Guard and Rescue Division (Section) of Port Administration Office are requested to arrange the PSC meeting and support PSC. The specific tasks are as follows:

1) Support to PSC meeting
   - To arrange normal and emergency communication procedures in a port
   - To arrange reporting procedures, evaluate information on security threat and decide port security level
   - To inventory port security threats and identify the possibility of port security threats

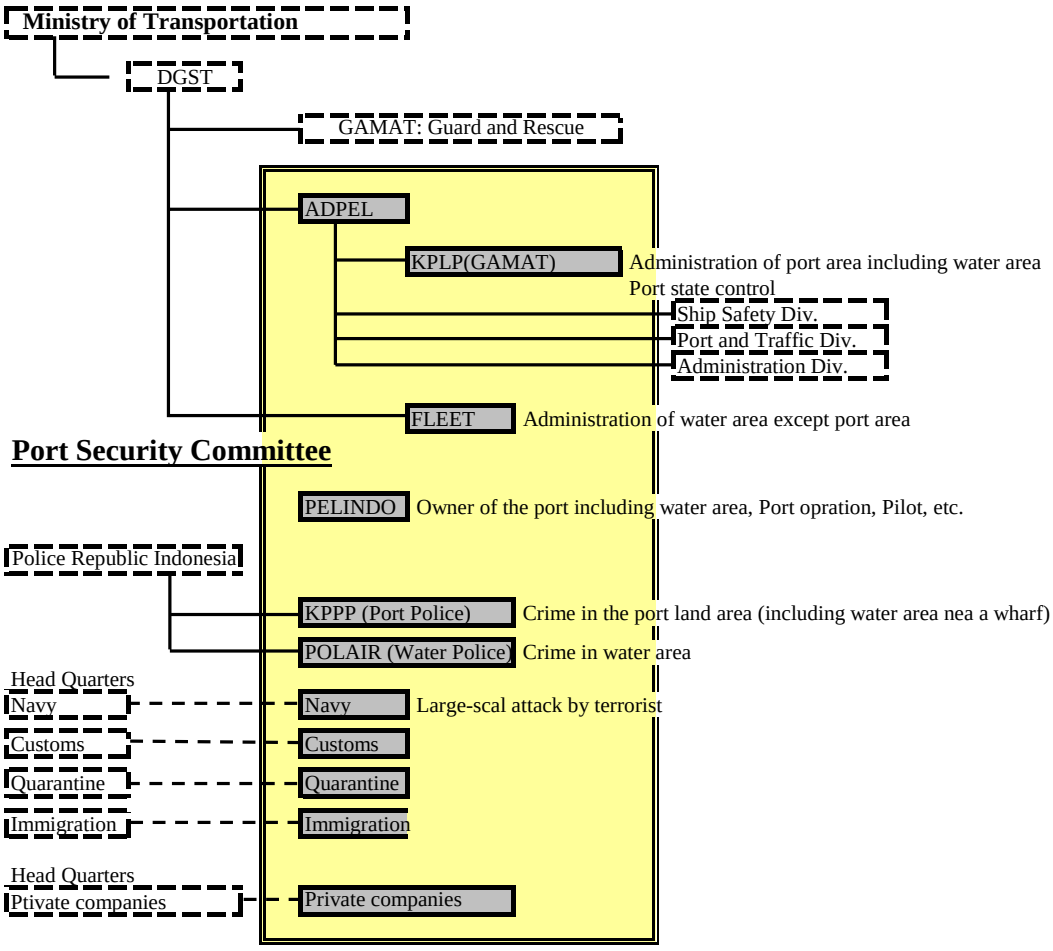
2) Coordination with PT. PELINDO
   - To confirm locations of port equipment and facilities on land and water.
   - To identify assets and infrastructure which should be protected from security threats
   - To establish the restricted area
   - To identify the present physical conditions of equipment and facilities such as fence, light, detectors, and alarm, surveillance and communication devices
   - To formulate port security policy, systems and procedures

45. The conceptual diagram of the PSC is shown in Figure 6-3-5-2. The members of PSC in a major port are shown in the following table as an example.

Table 6-3-5-1 Example of PSC Members

Member of PSC	Number	Member of PSC	Number
Regional Police	1	Search and Rescue Office	1
KPPP	1	Ocean Fishery Port Office	1
Navy	1	PELINDO	2
Custom	1	Container Company	1
Immigration	1	Petrorium Company	1
Navigation District	1	Shipowner Association	1
Port Health Office	1	Forwaders Association	1
Animal Quarantine	1	Cargo Handling Association	1
Plant Quarantine	1	Polictical Organization	1
Fish Quarantine	1	Private Company	5

Source: ADPEL



Source: JICA Study Team

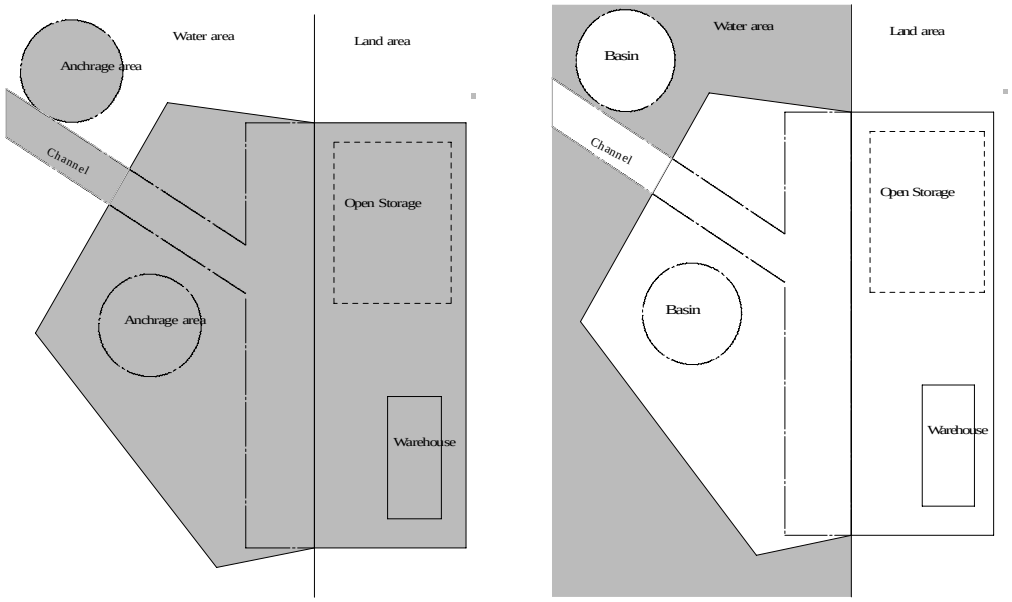
Figure 6-3-5-2 Conceptual Diagram of PSC

46. Legal system with regards to Port Security is as follows;

- Customs Office - smuggling
- Immigration –stowaways
- Port Health/Quarantine –for violation of quarantine law
- KPPP Polisi –enforcement of law and order in port area
- KPLP –PSO and safety of navigation and communications
- TNI_AL –maritime security issues
- POLAIR –water police
- PELINDO –state-owned enterprise
- ASOSIASI / Port User –interest in the port concern
- Fishery –against illegal fishing

47. Each organization's shared responsibilities are shown in the following figures.

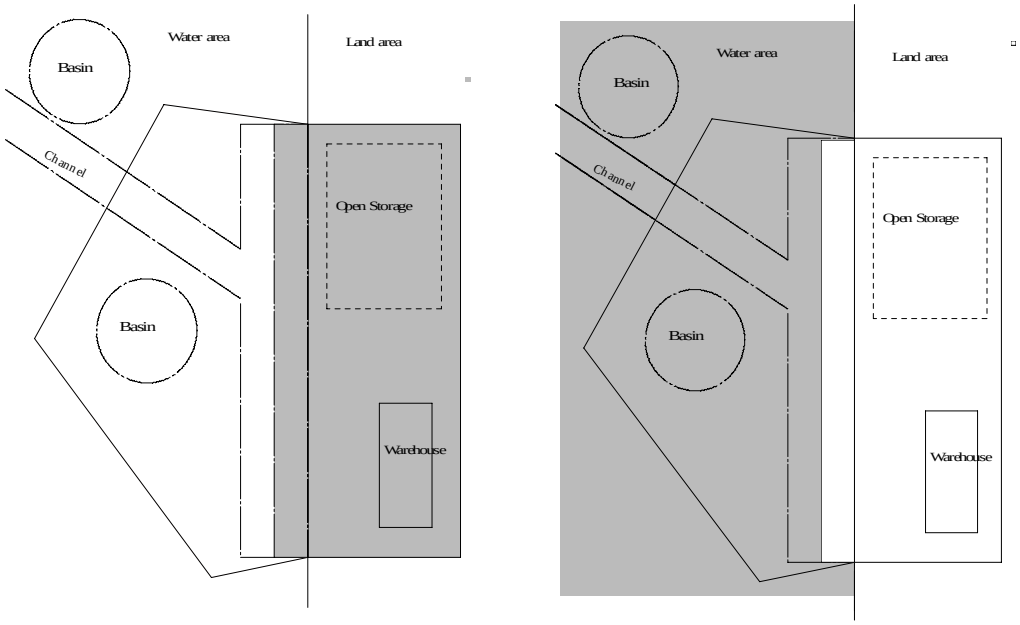
1) KPLP which belongs to ADPEL is responsible for security of port area including water area as an administrator and it holds jurisdiction over water area patrol in a port. PELINDO also has the same responsibility as an owner and operator of the port.
2) FLEET is responsible for administration of water area without port area.



Port area (PELINDO) (KPLP) Water area without port area (FLEET)

Figure 6-3-5-3 Responsible Area of each Organization (1)

3) KPLP is responsible for crime-fighting in the land area of the port.
4) POLAIR is responsible for crime-fighting on water area.



Land area of the Port (KPPP: crime) Water area (POLAIR: crime)

Figure 6-3-5-4 Responsible Area of each Organization (2)

6-3-6 RSO (Recognized Security Organization)

48. In Indonesia, 26 RSOs in which two specialize only in ship security were registered as of August 2005. This number of RSOs is sometimes criticized as being too large given their work volume and that their capabilities or performances widely vary. In fact, only about half of the RSOs have assignments for port security. However, RSOs play fundamental roles in formulating port facility security assessments (PFSAs) and port facility security plans (PFSPs).

49. An RSO is requested to have special skills and knowledge on security, shipping and port operation and to be an Indonesian incorporated company or jointly run company. It has also at least: one security expert, one ship and port expert, one intelligence expert and one risk management expert.

50. In order to become an RSO, applicants have to submit application form and necessary documents to DGST. After examining applications, DGST informs applicants of approval or denial. A denied applicant can apply again after fulfilling requirements.

51. The RSOs which have experience in formulating PFSA and PFSP for major public ports in Indonesia are as follows.

- BUREAU VERITAS
- PT. NEW HORISON INFORMATIKA
- PT. GAPURA PRIMA SEJAHTERA
- PT. SURVEYOR INDONESIA
- SUCOFIENDO
- BINA SENA BAHARI SEWTUSA

52. PT. SURVEYOR INDONESIA has the most experience among these RSOs. CARSURIN (RSO) has a lot of experiences in formulating PFSA and PFSP for private companies.

6-4 PROCEDURE FOR FORMULATING PFSA AND PFSP

53. The basic procedure for formulating PFSA and PFSP in Indonesia is shown in Figure 6-4-1.

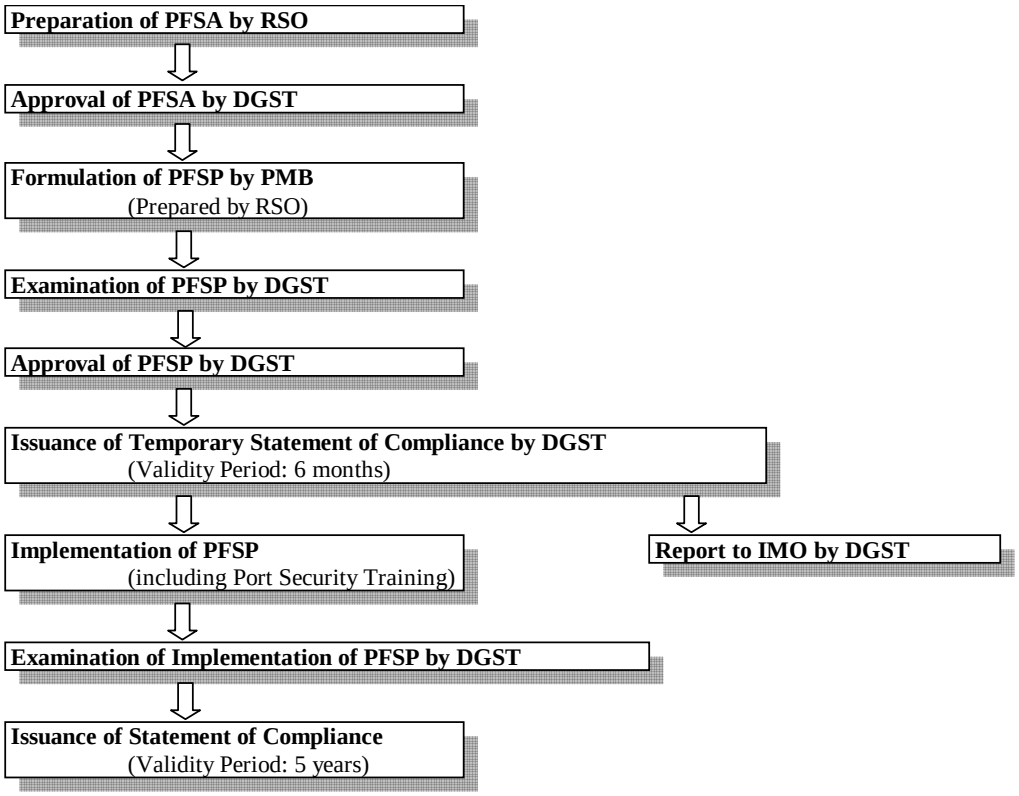


Figure 6-3-6-1 Procedure Chart

54. At first the RSO prepares a draft PFSA for a public port facility owned by PELINDO and PELINDO bears the cost. Before submitting it to DGST, a meeting which PSO, PFSO and other members of PSC as well as persons of the RSO in charge attend is held to discuss the draft PFSA and to revise if necessary. Then the draft PFSA is submitted to DGST.

55. DGST holds a meeting to examine the draft PFSA. The attendees of the meeting are Heads of all Divisions in the Guard and Rescue Bureau and members of the ISPS-Code Team as well as the PFSO and the PSO of the said port. The draft PFSA is revised if necessary. Then DGST approves the PFSA.

56. The RSO formulates a draft PFSP for PELINDO, the owner of the port facility, who also bears the cost. The subsequent procedures are the same as those of PFSA.

57. When approving the PFSP, DGST issues the temporary Statement of Compliance of which validity period is limited to 6 months. During this period, PELINDO implements the PFSP together with relevant organizations and DGST examines implementation of the PFSP. Then DGST issues the Statement of Compliance of which validity period is 5 years if no problem is found.

58. DGST informs IMO that the said port facility complies with the ISPS Code after issuing the temporary Statement of Compliance.

6-4-1 Present Situation

(1) Security Measures of Public Ports

59. DGST has played a central role in overseeing the implementation of the ISPS Code since it was nominated as the Designated Authority on August, 2003.

60. The policies which have been issued in relation to the ISPS Code in Indonesia include:

1) Publishing of Sea Communications Ministry decree KM.33/2003 dated August 2003 regarding the effectiveness of amendment SOLAS 74.
2) Publishing of Sea Communications Ministry decree KM.3/2004 regarding the appointment of DGST as the Designated Authority for Implementation of the ISPS Code.
3) DGST decree No.KL93/I/3-04 dated February 12, 2004 regarding recognized security organization (RSO).
4) DGST decree No.KL.93/2/1-04 dated May 14, 2004 about Implementation of ISPS Code responsible.
5) Circular letter of DGST:
   - Circular letter - No.UM-48/6/16 - 04 dated March 19th 2004 regarding the establishment of Port Security Committee.
   - Circular letter - No. KL.933/3/7/DV-04 dated June 30th 2004 regarding the implementation of DoS arrangement and controlling entry / exit person, vehicle in port.
   - Circular letter - UM-933/3/20/DV-04 dated July 9th 2004 regarding the implementation of the pre-arrival notification of ship security and Port State Control arrangement.
   - Maritime court of DGST No.327/phbl-04 dated December 24th 2004 regarding the use of frequency 156.675 (channel 73).
   - Circular letter No.KL.933/7/8/DV-04 dated September 27th 2004 regarding the port facility and ship verification.
   - Circular letter No. KL.933/1/12/DV-05 dated January 4th 2004 regarding the verification follow up result of implementation ISPS Code onboard.
   - Circular letter No.KL.933/2/1/DV-05 dated April 7th 2004 regarding maintenance and enhancement of port security implementation in the port / port facility for obtaining the SoCPF.

61. The current status of ISPS Code implementation in Indonesia as of February 2006 is as follows:

- Two hundreds and seven (207) port facilities receive permanent SoCPF, of which 27 are public port facilities, 180 are special port facilities.
- The 27 public port facilities which have complied with the requirements of the ISPS Code are located in 22 ports shown in Table 6-3-1-1.

Table 6-4-1-1 Public Ports which Have Complied with the Requirements of the ISPS Code

	No.	Public Port	Name of Facility
PELINDO I	1	Belawan	Belawan Container Terminal Unit Terminal Peti Kemas
			Belawan Mult Purpose Terminal
	2	Sabang	Pelabuhan Bebas Sabang
	3	Tanjung Balai Karimun	Pelabuhan Tanjung Balai Karimun
			STS Pelabuhan Tanjung Balai Karinum
	4	Dumai	PT (Persero) Pelabuhan Indonesia I Cabang Dumai
	5	Tanjung Pinang	Pelabuhan Sri Bintan Pura Tanjung Pinang
	6	Pekanbaru	PT (Persero) Pelabuhan Indonesia I Cabang Pekanbaru
BDA	7	Batam	Otorita Pengembangan Daerah Industri Pulau Batam Pelabuhan Batu Ampar Pulau Batam
		Batam	Pelabuhan Umum Penumpang Internasional Batam Center
PELINDO II	8	Bengkulu	PT (Persero) Pelabuhan Indonesia II Cabang Bengkulu
	9	Jambi	PT (Persero) Pelabuhan Indonesia II Cabang Jambi
	10	Teluk Bayur	PT (Persero) Pelabuhan Indonesia II Cabang Teluk Bayur
	11	Panjang	PT (Persero) Pelabuhan Indonesia II Cabang Panjang
	12	Palembang	PT (Persero) Pelabuhan Indonesia II Cabang Palembang
	13	Banten	PT (Persero) Pelabuhan Indonesia II Cabang Banten
	14	Tanjung Pandan	PT (Persero) Pelabuhan Indonesia II Cabang Tanjung Pandan
	15	Cirebon	PT (Persero) Pelabuhan Indonesia II Cabang Cirebon
	16	Semarang	Dermaga Samudera & Terminal Penumpang Internasional
	17	Pontianak	PT (Persero) Pelabuhan Indonesia II Cabang Pontianak
	18	Tanjung Priok	PT Dok & Perkapalan Kodja Bahari
		Tanjung Priok	PT (Persero) Pelabuhan Indonesia II Cabang Tanjung Priok
	19	Pangkal Balam	PT (Persero) Pelabuhan Indonesia II Cabang Pangkal Balam
PELINDO III	20	Tanjung Perak	Jamrud Pelindo III Tanjung Perak
		Tanjung Perak	Gapura Nusantara Pelindo III Tanjung Perak
		Tanjung Perak	PT Terminal Petikemas Surabaya
	21	Cilacap	PT (Persero) Pelabuhan Indonesia III Cabang Tanjung Intan Cilacap
PELINDO IV	22	Makassar	PT (Persero) Pelabuhan Indonesia IV Cabang Makassar

Source: DGST

62. Four hundreds and thirty two (432) ships obtain permanent ISSC as of February 2006.

(2) Security Measures of Private Company

63. A company which handles chemical products and has many storage tanks as well as wharves for unloading is located at the eastern edge of Tg.Priok Port. The company took the necessary measures in quite a short period of time (3-4 months) just before July 1st 2004 when the ISPS Code became effective. It strengthened the wall and fence and installed 6 CCTV cameras.

64. The company faces the port water area to the north, another company and private houses to the east and south, and other port wharves to the west. On the east side, two-storied private houses stand near the border line of the company. Therefore the company built a barrier which consists of wall, fence and Y-type barbed wire from underneath and is more than 3 meters high or the blindfold of the same height. For the other part of the border line, the barriers have been improved or reconstructed and they are more than 2.4m high. The barrier on the border between the company and the other one was reconstructed. Before reconstruction, double barriers (the outer is wire fence and the inner is block wall.) were placed and pipes are installed between the two barriers. Security personnel could not check the condition of pipes from inside. Then these two barriers were removed and a new firm concrete wall with Y-shape barbed wire on top was built on the border line.

Photo 6-4-1-1 High Fence on the Border with Private Houses

65. Six CCTV cameras automatically scan the entire area of the company. Video is also recorded over periods of successive 20 days. Video is monitored in the office during office hours and at the security official post all day.

66. The company employs about 30 security personnel. (The total number of employees is about 90.) Most of the security personnel are permanent employees but some have been dispatched on a contract basis. In addition, two personnel are from the Army. Security personnel stay at the security post and patrol periodically 24 hours a day.

67. The security personnel in charge received training on the ISPS Code and security measures in 2004. In turn, they shared their knowledge obtained through the training with the other security personnel.

68. As to PFSP, the company had experienced trouble with loss of property such as fire extinguisher and extraction of chemical products. Therefore, the company had previously formulated its own security plan. When the company needed to make PFSP, it requested a consultant working under PELINDO to amend the original plan for PFSP.

69. Water area patrol is to be carried out by KPLP which has 2 patrol boats and the company is requested to bear a part of the operation cost.

6-5 PATROL OF WATER AREA

6-5-1 General

70. KPLP belonging to ADPEL and KAMPEL patrols water area in a port for ship safety and security. ADPEL and KAMPEL have a total of 159 patrol boats to patrol waters. These patrol boats are classified into five classes by size. Each operational area, main specifications, main jobs and functions and accessories are shown in Table 6-5-1-1. Class-I patrol boat is operated in all Indonesian waters and equipped with a full range of equipment. Class-II is operated in limited Indonesian waters and not equipped with pollution prevention equipment. Class-III is operated in port waters and its relevant area, and Class-IV is operated in port waters working area and not equipped with fire extinguisher. Lastly, Class-V is operated in only the port basin and has no equipment for sea search and rescue (Sea SAR).

Table 6-5-1-1 Guard and Rescue Ship Main Specifications Based on Assigned and Activities

DESCRIPTION	CLASS-SHIP					
	I-A	I-B	II	III	IV	V
Operational Area	All Indonesian Waters	All Indonesian Waters	Limited Indonesian Waters	Port Waters Interest Area	Port Waters Working Area	Harbormaster/Port Basin
Cruising Range (Nautical Miles(NM))	≥4,000	≥2,000	≥600	≥300	≥150	≤50
Length (Meter (M))	≧70	60 - 70	35 - 60	20 - 35	10 - 20	≦10
Width (M)	≥9	7 - 9	6 - 7	5 - 6	3 - 5	≤3
Height (M)	≥5	4 - 5	3 - 4	2 - 3	1 - 2	≤10
Speed (Knot)	15 - 20	15 - 20	15 - 25	20 - 25	25 - 30	25 - 30
Ship Crew (Persons)	+55	+50	+20	+16	+10	+5
Main Jobs and Function	Law enforcement, Pollution prevention, Disaster prevention and Fire prevention	Law enforcement, Pollution prevention, Disaster prevention and Fire prevention	Law enforcement, Disaster prevention and Fire prevention	Law enforcement, Disaster prevention and Fire prevention	Law enforcement and Disaster prevention	Law enforcement
Equipment Needed	Pollution prevention, Sea SAR equipment, Fire extinguisher, Weapon, Heliport	Pollution prevention, Sea SAR equipment, Fire extinguisher, Weapon, Heliport	Sea SAR equipment, Fire extinguisher, Weapon	Sea SAR equipment, Fire extinguisher, Weapon	Sea SAR equipment, Weapon	Weapon

Note: 1) Ship Crew based on Director General of Sea Communication Degree No.81/1/6-85, April 1, 1985 will be adjusted again in the form of Director General of Sea Communication Decree.

71. Among all patrol boats, lower class boats have larger numbers. Class-V boats account for 48%, Class-IV 26% and Class-III 17%, with these three classes collectively occupying more than 90%. (See Table-6-5-1-2)

Table 6-5-1-2 Patrol Boats by each Class (as of December 2005)

Class	Number of Ships
I	4
II	9
III	27 (1)
IV	42 (3)
V	77 (5)
Total	159 (9)

Note: Numbers in parenthesis stand for patrol boats which are to be scrapped or repaired and are included in the ship count. If budget for repair is accepted, a ship is repaired, but if not, it is scrapped.

Source: DGST

72. As to construction year of a patrol boat, many were built around 1980 and around 25 years have passed. There is no clear definition on the life expectancy of a ship and it largely varies according to the degree of maintenance. However, average life expectancy of a ship is said to range from 15 to 35 years and many patrol boats in Indonesia are standing on their last legs. Therefore many of them have low engine and hull performance. Proper repair or reconstruction is required to conduct effective sea patrol.

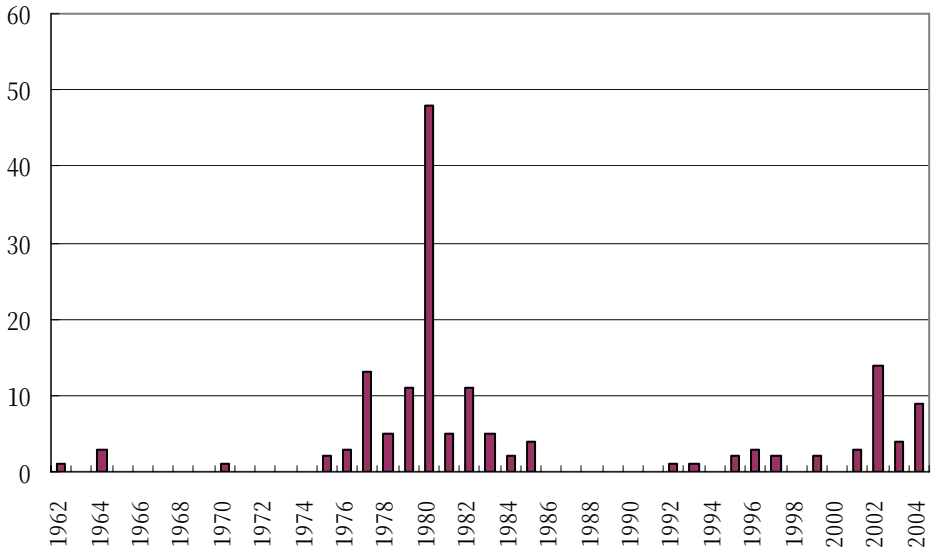


Figure 6-5-1-1 Number of Ships by Construction Year

73. As to ship length, data on 114 ships are contained in the table below. About 70% are small patrol boats of which length is less than 15 meters. (See Figure 6-4-1-2)

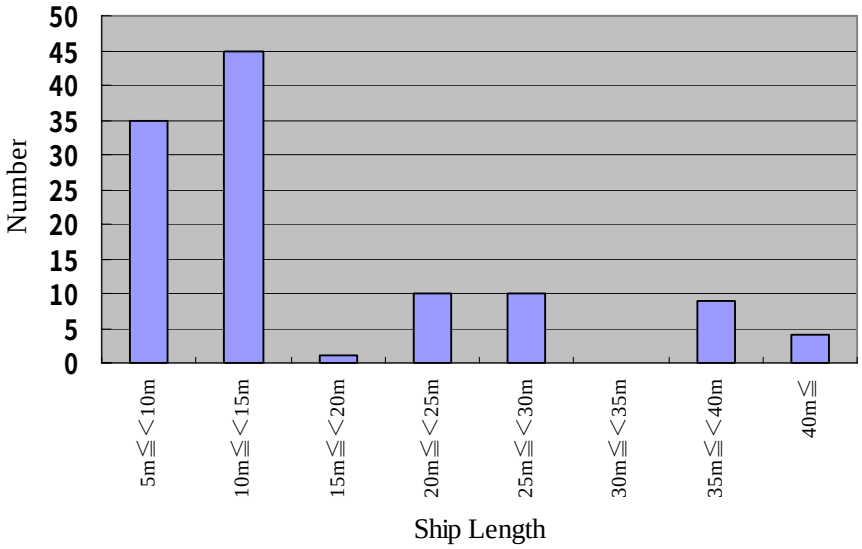


Figure 6-5-1-2 Ship Number by Ship Length

74. At present Indonesia has no standard for stationing patrol boats. DGST says that patrol boats have been stationed considering the size of the patrol area in each office and patrol frequency and activities. High-rank ADPEL/KAMPEL does not always have a high grade patrol boat. It is said that the finance authority does not want to establish a standard for stationing patrol boats because the authority perceives the standard as pressure when allocating budget.

75. According to the JICA study on maritime safety plan concerning search and rescue prepared in 1989, 164 patrol boats should be stationed at 45 major ports in Indonesia. The target year is 2005. However not all the required patrol boats have been stationed yet. For these ports, patrol boats should be stationed not only for conventional general patrol works but also for security patrol works based on the ISPS Code (PFSP).

76. Another big issue is the shortage of fuel for patrol boats. Some ports have enough fuel to patrol every day, but it is said that other ports have limited fuel and can operate only once a month. Actually, DGST says that budget for fuel for the following running hours a year is allocated (See Table below). Since an aged engine has low mileage and operation hours of a ship is shorter than running hours, a patrol boat may be operated only on limited days in some ports. Having enough fuel is a prerequisite to repair or reconstruct aged or damaged patrol boats.

Table 6-5-1-3 Budget for Fuel by Patrol Boat Class

Class	Running Hours
I	2,000hrs/y
II	1,500hrs/y
III	900hrs/y
IV & V	600hrs/y

6-5-2 Water Patrol in Study Ports

77. Patrol boats of each study port are shown in Table 6-5-2-1.

78. The present number of patrol boats is not sufficient. Among the 26 study ports, 5 ports (Pekanbaru, Batam, Banten, Kupang and Biak) have only one patrol boat and 1 port (Kendari: It is said that one boat sank.) has none. At least two patrol boats are needed in a port because it is necessary for a boat to have a down period for periodical inspection and repair.

79. The aging issue is just as valid for patrol boats of the 26 study ports. Ages of nearly 80 percent of the patrol boats deployed at the 26 ports exceed 20 years and renewal is needed for them. For example, it is said that 9 Class II patrol boats of which ages all exceed 20 years are not operative. As to aged Class IV and V patrol boats, only three are operative but of which maximum speed is 5 knots. These aged patrol boats should be renewed or at least rehabilitated for effective patrol.

80. On the assumption that normal speed of a small sized patrol boat is 25-30 knots but a 20% reduction in engine performance reduces the speed to 20 knots, it takes 5.6 hours for a round trip of 100 km. If the speed of a patrol boat is 10 knots, it takes more than 10 hours. Therefore a small sized patrol boat manages to patrol 100km-long channel once a day to ensure safety and security of the channel by searching dangerous or suspicious predictors.

81. In case that cargo handling is conducted at an anchorage situated at a river mouth which is far from the main port, it is advisable to establish a base for patrol boats near the anchorage in order that the patrol boat can patrol the anchorage at any time. The base near the river mouth is also of help for deterring a ship which can be a threat from entering a river channel from the sea by monitoring the river mouth area.

82. Moreover, as to the port which owns required patrol boats, it is necessary to establish a new standard on fuel requirement for security patrol according to the ISPS Code in addition to the budgetary fuel requirement for ordinary patrol. It also may be necessary that aged patrol boats with a low performance be scrapped and that operation rates of the few patrol boats be raised under these severe budgetary restrictions.

83. In Indonesia, KPLP under ADPEL which is one of the government organizations has jurisdiction over water area management including patrol. (Refer to Minister of Communications Degree, No. KM 62 in 2002 regarding Organization and Working System of the Port Administration Office and Minister of Communications Degree, No. KM 63 in 2002 regarding Organization and Working System of the Port Office.) Therefore KPLP has been making efforts to increase its budget for port security. However, KPLP has not succeeded because the Indonesian government is now on tight budget. Ways to cope with this matter are described in Chapter 11.

Table 6-5-2-1 Existing Guard and Rescue Boats in 26 Study Ports in Indonesia

	Port Operation Body	ADPEL Class	Province	Name of Port	Class of Guard & Rescue Boats												Total	
					I	II	III			IV			V					
					SCGB	SCGB	SCGB	PAO	Sub Total	SCGB	PAO	Sub Total	SCGB	PAO	Sub Total			
1	PELINDO I	Utama	North Sumatra	Belawan	0 (1)	0 (2)	0	1	1	0	2	2 (2)	0	2	2 (3)		5	(8)
2		I	Riau	Dumai	0	0	0	0	0	0	0	0 (1)	0	5 [1]	5 (1)		5	(2)
3		III	Riau	Pekanbaru	0	0	0	0	0 (1)	0	0	0	0	1	1 (1)		1	(2)
4		II	Riau	Tanjung Pinang	0	0	0	0	0 (1)	0	2	2 (1)	0	3 [2]	3 (1)		5	(3)
5	BIDA	I (KANPEL)	Riau	Batam	0	0	0	1	1	0	0	0	0	0	0		1	
6	PELINDO II	I	West Sumatra	Teluk Bayur	0	0 (1)	0	0	0 (1)	0	1	1 (1)	0	3	3 (1)		4	(4)
7		I	South Sumatra	Palembang	0	0 (1)	0	1	1	0	2	2 (2)	0	1	1 (1)		4	(4)
8		I	Lampung	Panjang	0	0	0	1	1 (1)	0	0	0 (1)	0	1	1 (1)		2	(3)
9		Utama	DKI Jakarta	Tanjung Priok	1 (2)	9 (3)	0	1	1	0	3	3 (3)	0	2	2 (3)		16	(11)
10		I	West Kalimantan	Pontianak	0	0	0	3	3 (1)	0	0	0 (1)	0	2	2 (1)		5	(3)
11		I	Banten	Banten	0	0	0	1	1	0	0	0	0	0	0		1	
12	PELINDO III	II	West Java	Cilacap	0	0 (1)	0	0	0	0	1	1 (2)	0	2	2 (1)		3	(4)
13		I	Central Java	Tanjung Emas	0	0	0	1	1 (1)	0	1	1 (1)	0	1	1 (1)		3	(3)
14		Utama	East Java	Tanjung Perak	1 (2)	0 (3)	2	0	2	0	4	4 (2)	0	2	2 (3)		9	(10)
15		I	Bali	Benoa	0	0 (1)	0	2	2 (1)	0	0	0	0	1	1 (1)		3	(3)
16		III	East Nusa Tenggara	Kupang	0	0 (1)	0	0	0 (1)	0	0	0	0	1	1 (1)		1	(3)
17		I	South Kalimantan	Banjarmasin	0	0	0	0	0 (1)	0	2	2 (1)	0	0	0 (1)		2	(3)
18	PELINDO IV	II	East Kalimantan	Samarinda	0	0	0	1	1 (1)	0	1	1 (1)	0	0	0 (1)		2	(3)
19		I	East Kalimantan	Balikpapan	0	0 (1)	0	0	0	0	2	2 (2)	0	1	1 (3)		3	(6)
20		I	North Sulawesi	Bitung	1 (1)	0 (1)	0	0	0	0	2	2 (2)	0	2	2 (3)		5	(7)
21		II	South Sulawesi	Kendari	0	0	0	0	0 (1)	0	0	0	0	0	0 (1)		0	(2)
22		Utama	South Sulawesi	Makassar	0 (2)	0 (1)	0	1	1	0	2 [2]	2 (3)	0	4 [1]	4 (3)		7	(9)
23		I	Maluku	Ambon	0 (1)	0 (1)	2	0	2	0	0	0 (2)	0	3	3 (3)		5	(7)
24		I	Papua	Sorong	0	0	0	1	1 (1)	0	0	0 (1)	0	1	1 (1)		2	(3)
25		III	Papua	Biak	0	0	0	1	1 (1)	0	0	0	0	0	0 (1)		1	(2)
26		II	Papua	Jayapura	0 (1)	0 (1)	0	0	0	0	1	1 (2)	0	1	1 (3)		2	(7)
Total					3 (10)	9 (18)	4	16	20 (13)	0	26 [2]	26 (31)	0	39 [4]	39 (40)		97	(112)

Note) 1. SCGB: Sea & Coast Guard Base, PAO: Port Administration Office
2. [ ]: Number of boats to be repaired or scrapped
3. ( ): Ideal number of boats to be deployed in SCGB/PAO based on the JICA Study on Maritime Safety Plan Concerning Search and Rescue (February 1989)
Source: DGST

Table 6-5-2-2 Number of Existing Guard and Rescue Boats by Age in 26 Study Ports of Indonesia

	Port Operation Body	ADPEL Class	Province	Name of Port	Class of Guard & Rescue Boats																				Total			
					I				II				III				IV				V							
					>30	30-20	20-10	10<	>30	30-20	20-10	10<	>30	30-20	20-10	10<	>30	30-20	20-10	10<	>30	30-20	20-10	10<	>30	30-20	20-10	10<
1	PELINDO I	Utama	North Sumatra	Belawan								1						1				2				3		2
2		I	Riau	Dumai																	2	3(1)			2	3(1)		
3		III	Riau	Pekanbaru																		1				1		
4		II	Riau	Tanjung Pinang														1	1			3(2)				4(2)	1	
5	BIDA	I (KANWIL)	Riau	Batam								1																1
6	PELINDO II	I	West Sumatra	Teluk Bayur														1				3				4		
7		I	South Sumatra	Palembang								1						2				1				3		1
8		I	Lampung	Panjang								1										1				1		1
9		Utama	DKI Jakarta	Tanjung Priok			1			9				1				2		1		2				14		2
10		I	West Kalimantan	Pontianak										2	1							2			2	3		
11		I	Banten	Banten								1																1
12	PELINDO III	II	West Java	Cilacap														1				1			1			
13		I	Central Java	Tanjung Emas								1						1				1				2		1
14		Utama	East Java	Tanjung Perak				1				1		1				2		2		2				5		4
15		I	Bali	Benoa								1		1								1				2		1
16		III	East Nusa Tenggara	Kupang																		1				1		
17		I	South Kalimantan	Banjarmasin														1	1							1	1	
18	PELINDO IV	II	East Kalimantan	Samarinda										1				1								2		
19		I	East Kalimantan	Balikpapan														1		1		1				2		1
20		I	North Sulawesi	Bitung				1										1	1			2				3	1	1
21		II	South Sulawesi	Kendari																								
22		Utama	South Sulawesi	Makassar										1				2(2)			1	3(1)			1	6(3)		
23		I	Maluku	Ambon										2								3				5		
24		I	Papua	Sorong										1											1	1		1
25		III	Papua	Biak								1														2		1
26		II	Papua	Jayapura														1				1			2	2		
	Total							3		9		9	2	9				18(2)	3	5	3	34(4)			2	70(6)	3	19

Note) 1. Age of boat >30: More than 30 years, 30 - 20: More than 20 years & less than 30 years, 20 - 10: More than 10 years & less than 20 years, 10<: Less than 10 years
2. ( ): Number of boats to be repaired or scrapped
Source: DGST

6-6 AUTOMATIC IDENTIFICATION SYSTEM (AIS)

6-6-1 General

84. AIS is an equipment to enhance the safety and efficiency of navigation and the protection of the marine environment by preventing collision and is fitted on a ship. It automatically and continuously exchanges data such as ship's own data (name, identification number, category, etc. of a ship) and navigation information (position, course and speed of a ship) between ships and between a ship and a Vessel Traffic Service (VTS) station.

85. Revision of the SOLAS Convention on this matter had been discussed and new Chapter V which prescribed that ships fulfilling certain conditions were obligated to fit with AIS in a phased manner in July 2002 or later was adopted at Maritime Safety Committee in December 2000.

86. The following figure shows the idea of AIS system.

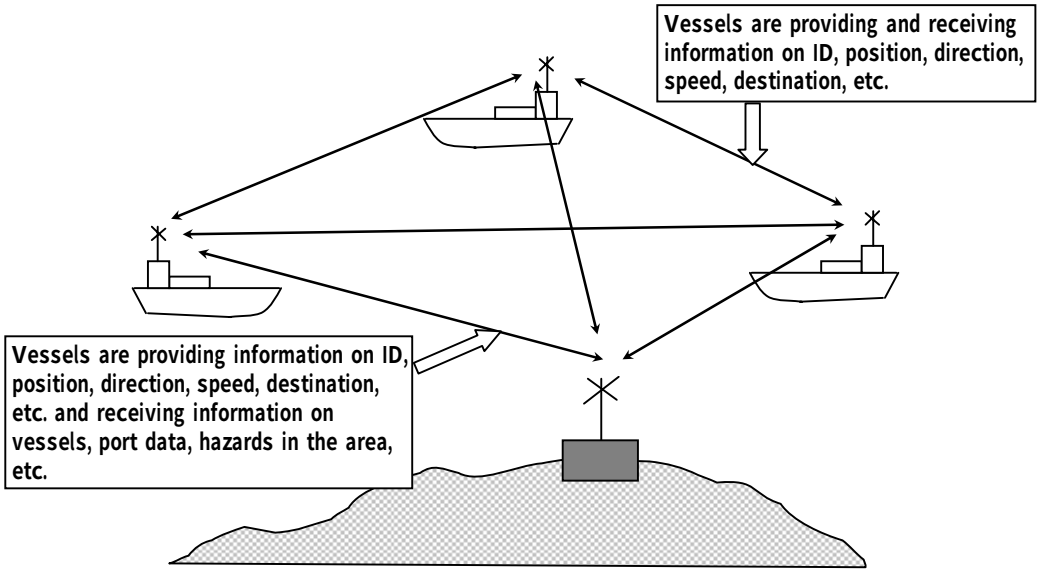


Figure 6-6-1-1 Idea of AIS System

87. However, after the terrorist attacks in the US in 11 September 2001, IMO decided the early introduction of AIS at the inter-governmental convention for the 5th conference of contracting governments in December 2002, as the result of cumulative anti-terrorism studies in maritime field.

88. The main points of the new Chapter V are as follows:

All ships of 300 gross tonnage and upwards engaged on international voyages and cargo ships of 500 gross tonnage and upwards not engaged on international voyages and passenger ships irrespective of size shall be fitted with an automatic identification system (AIS), as follows:

1) ships constructed on or after 1 July 2002;

2) ships engaged in international voyages constructed before 1 July 2002:
   2.1 in the case of passenger ships, not later than 1 July 2003;
   2.2 in the case of tankers, not later than the first survey for safety equipment on or after 1 July 2003;

2.3 in the case of ships, other than passenger ships and tankers, of 50,000 gross tonnage and upwards, not later than 1 July 2004;
2.4 in the case of ships, other than passenger ships and tankers, of 3,000 gross tonnage and upwards but less than 50,000 gross tonnage, not later than 1 July 2005;
2.5 in the case of ships, other than passenger ships and tankers, of 3,000 gross tonnage and upwards but less than 10,000 gross tonnage, not later than 1 July 2006;
2.6 in the case of ships, other than passenger ships and tankers, of 300 gross tonnage and upwards but less than 3,000 gross tonnage, not later htan 1 July 2007; and

3) ships not engaged on international voyages constructed before 1 July 2002, not later than 1 July 2008;
4) the Administration may exempt ships from the application of the requirements of this paragraph when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraph 2) and 3);
5) AIS shall:
5.1 provide automatically to appropriately equipped shore stations, other ships and aircraft information, including the ship's identity, type, position, course, speed, navigational status and other safety-related information;
5.2 receive automatically such information from similarly fitted ships;
5.3 monitor and track ships; and
5.4 exchange data with shore-based facilities

89. The AIS information transmitted by a ship is of three different types:

1) fixed of static information, which is entered into the AIS installation and need only be changed if the ship changes its name or undergoes a major conversion from one ship type to another;
2) dynamic information, which, apart from 'Navigational status' information, is automatically updated from the ship sensors connected to AIS; and
3) voyage-related information, which might need to be manually entered and updated during the voyage.

90. Details of the information described above are given in the following table.

Table 6-6-1-1 Data Sent by Ship

Information	Remarks
Static	
MMSI (Maritime Mobile Service Identity)	Set on installation
Call sign and name	Set on installation
IMO Number	Set on installation
Length and beam	Set on installation
Type of ship	Select from preinstalled list
Location of position-fixing antenna	Set on installation
Dynamic	
Ship's position with accuracy indication and integrity status	Automatically updated
Position Time stamp in UTC	Automatically updated
Course over ground (COG)	Automatically updated
Speed over ground (SOG)	Automatically updated
Heading	Automatically updated
Navigation status	Manually entered
Rate of turn (ROT)	Automatically updated
Voyage-related	
Ship's draught	Manually entered
Harzardous cargo (type)	Manually entered
Destination and estimated time of arrival	Manually entered
Route plan (waypoints)	Manually entered
Short safety-related messages	
	Free format

91. If cursor is put on an other vessel in AIS display, the information related the vessel is displayed outside of a map in the screen.

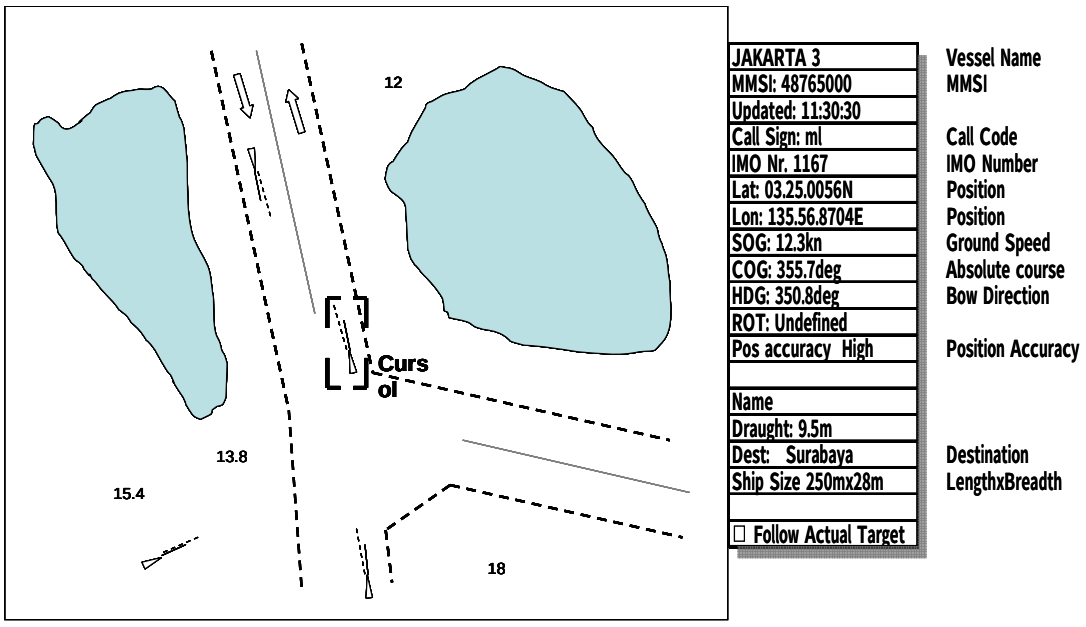


Figure 6-6-1-2 Example of AIS Information Display

92. AIS is a useful equipment for safety navigation but is not always good at every thing. A ship fitting with AIS should always be aware that other ships, in particular leisure craft, fishing boats and warships, and some coastal shore stations might not be fitted with AIS. Therefore users of AIS always have to bear in mind that information provided by AIS may not be giving a complete or correct 'picture' of shipping traffic in their vicinity.

6-6-2 AIS in Indonesia

93. Indonesia also decided to introduce AIS and issued Transportation Minister Decree No.KM33 (14 August 2003) and Transportation Minister Decree Mo. KM3 (23 January 2004) including this matter.

94. DGST has developed Vessel Traffic Management System (VTMS) which consists of AIS, radar, VHF and CCTV. At present, VTMSs are built at five ports: Jakarta, Belawan, Semarang, Surabaya and Makassar on a trial bases although CCTV is installed only at Jakarta and Surabaya. These VTMSs do not transmit information now, but it is planned that they will transmit navigation safety information. According to the VTMS development plan, the station which has AIS, radar, VHF and CCTV will be constructed at 18 major ports and the sub-station which has AIS and VHF at 27 ports.

95. Three AIS base stations are connected with DGST Headquarters by internet and will be connected dually by VSAT (satellite communication).

96. AIS which was created from the idea of collision prevention is basically an equipment for safety navigation. A ship fitting with AIS can navigate more safely by obtaining information (mentioned in item 1 above) of other vessels fitting AIS. In addition, VTS stations on land can grasp movement of vessels navigating along coast by obtaining information transmitted from vessels and can provide various kinds of information for navigating vessels.

97. Moreover AIS can be utilized for maritime security because it can monitor movement of target vessels. Combination of AIS and radar enables wide area search for a suspicious terrorist vessel.

98. In case that information such as ID of a suspicious terrorist vessel is obtained, such a vessel can be easily identified. Even in the case that ID of the vessel is not proved or that the vessel may not fit AIS, this system has a merit. Security personnel can easily check ships transmitting AIS information for a short period of time and then can focus on ways to check other vessels.

99. On the other hand, if terrorist purchases AIS system, they can easily find a target vessel. Because AIS system is not so expensive, terrorists can purchase the system. Attention must be paid on this matter.

100. In Indonesia, VTS stations on land are built at Belawan, Jakarta, Semarang, Surabaya and Makassar. The information obtained at these stations is conveyed to the headquarters of DGST through internet and DGST officials in the headquarters can brows these information. It is recommended from the viewpoint of reinforcement of security measures that AIS stations be further constructed in other ports in Indonesia.

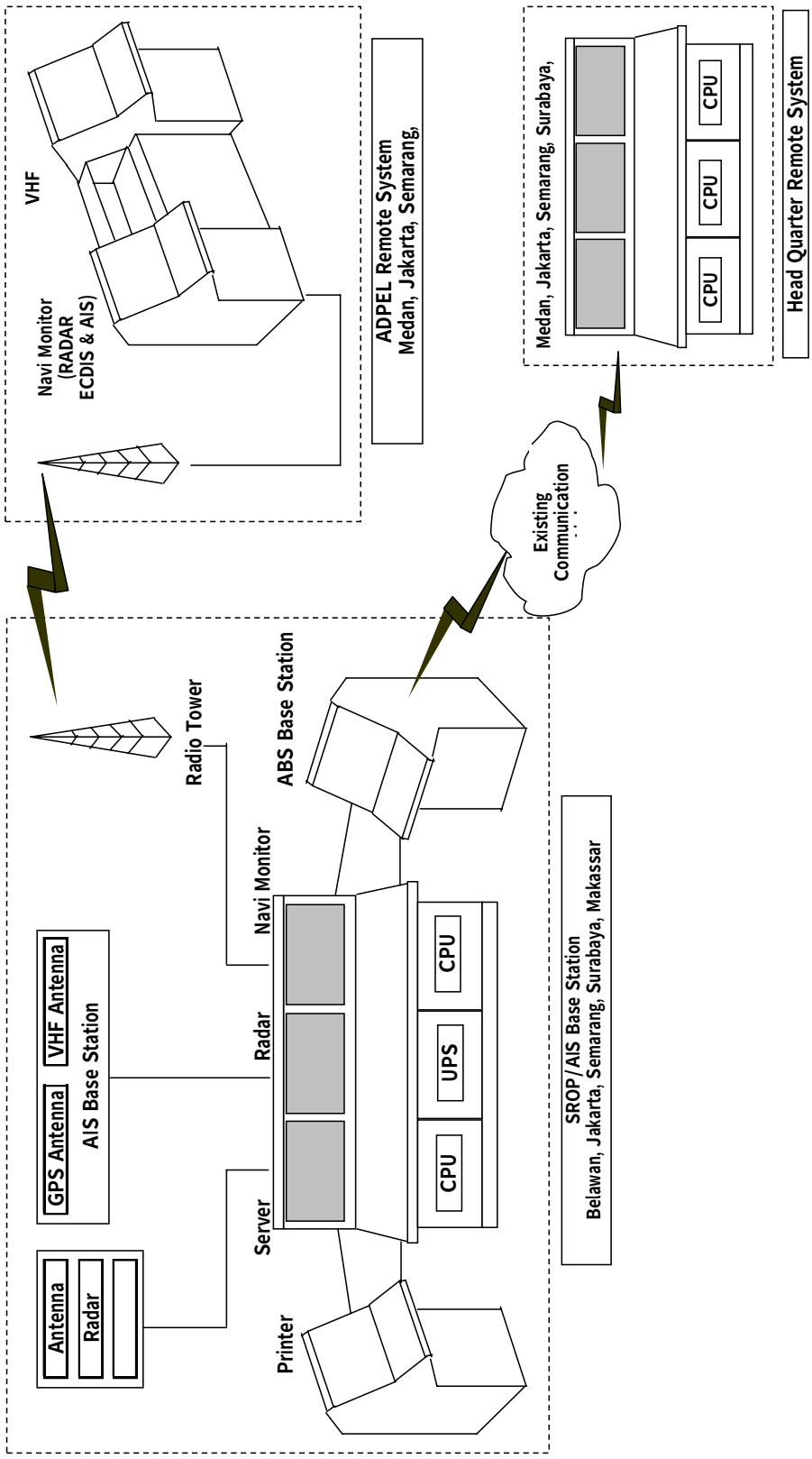


Figure 6-6-2-1 AIS Base Station Configuration System

CHAPTER-7. EDUCATIONAL AND TRAINING ORGANIZATIONS IN INDONESIA

7-1 CURRENT ISSUES OF EDUCATIONAL AND TRAINING ORGANIZATIONS

7-1-1 Objectives of Study

1. One of the objectives of this study is to identify and analyze the training needs for port facility security personnel and those with security related duties based on the requirements of the ISPS Code Part A/18 and Part B/18. Although the objective of the study is strictly on port facility security, the study also looks at the job functions of government security organizations such as the Port Security Committee (PSC), KPLP, KPPP, Immigration and Customs officers that have a role to play in ensuring a safe and secure port. The current security training curriculum of existing institutions/agencies such as Education and Training Agency, PELINDO, RSO, Port Security Committee and Sea and Coast Guard Unit (DGST) are also considered in the study.

7-2 INSTITUTION/AGENCY THAT CONDUCTS ISPS CODE TRAINING

7-2-1 Education and Training Agency

2. The Education & Training Agency (ETA) comes under the Ministry of Transportation. ETA is responsible for 6 other training centres of which Maritime Education and Training Centre and STIP Jakarta (Maritime Higher Education and Training Institute) conduct IMO Model ISPS courses for the Maritime Industry.

3. The STIP Jakarta only provides Company Security Officer (CSO) and Ship Security Officer (SSO) Courses, although related and has indirect relevance to port security is hence not included as part of this study's findings.

4. The Maritime Education and Training Centre has 7 training institutions in Indonesia that provide education courses; refresher and upgrading training to experienced seafarers. One of such training institutions is BP3IP located in Jakarta.

BP3IP

- Has incorporated an overview of ISPS Code to its existing curriculum and is deemed as an introductory or awareness module.
- Is the only institution that provides Port Facility Security Officer (PFSO) Courses as a separate training program in addition to the deck and engineering courses for seafarers. The PFSO course is open to external applicants but a PFSO course has yet to be conducted because there is no demand from the public, as the port facilities send their staff to attend the PFSO courses at Pertamina METC.

7-2-2 PELINDO

5. Indonesian Port Corporation (IPC) or PELINDO is a company under the Ministry of State Owned Enterprise (SOE) or BUMN. Functionally she also reports to the Ministry of

Finance and Directorate General of Sea Transportation (DGST). PELINDO is responsible to the stock holders and is managed by a commissioner. There are 4 general managers each overseeing the corporations known as PELINDO I, II, III and IV, organized under geographically delineated regions. According to BUMN Master Plan for 2002-2006, plan is underway to merge the PELINDOs into PELINDO WEST (PELINDO I & II) and PELINDO EAST (PELINDO III & IV).

6. PELINDO II has an education and training centre known as Balai Pendidikan dan Latihan (BPL). BPL is a technical unit (UPT) in PELINDO II responsible for human resource education. Founded in the year 1976 for dockworkers by the name of Indonesia Port Workers Training Centre, this institute is now known as Institute and Training and is often recognized also as a Port Training Centre. Most of PELINDO training is conducted either in hotels or at the service provider premises. Each PELINDO headquarters has a Director of Human Resource (SDM). He has a sub-directorate at branch offices responsible for personnel, administration, training and development. PELINDO does not have an in-house trainer per se.

7. PELINDOs do not conduct in-house security related courses such as the PFSO Courses. Newly appointed PFSOs are sent to private training institutions to attend the PFSO Course. Newly contracted security personnel (SATPAM) are briefed on the job by their respective security supervisors who have received similar such briefings. The PFSO supervises SATPAM and occasionally conducts briefing as part of their training.

7-2-3 Recognized Security Organization (RSO)

8. The Designated Authority (DA) has appointed a total of 26 Recognized Security Organizations with 2 new applications pending approval. After which application for RSO status will be closed. From the findings, it is found that:

1) Less the 50% of the appointed RSOs are actively providing consultancy services in conducting port facility security assessments and development of the port facility security plans.
2) Most RSOs do not focus solely on providing training for PFSO or any security related courses as these courses are requested on an ad-hoc basis.
3) RSOs coordinate such ad-hoc courses and arrange for trainers from the Directorate of Sea and Coast Guard, DGST and/or from external consultants. RSOs sometimes participate in conducting a module or two. The certificates issued are normally co-signed by the RSO and DGST.

7-2-4 Port Security Committee (PSC)

9. The Port Security Committee (PSC) is chaired by the Port Administrator (ADPEL). The committee members consist of the Port Security Officer and the various stake holders such as PELINDO, PFSO, KPLP, KPPP, Customs, Immigration, the Navy, Private Port Users etc. PSC members come from diverse agencies and most hold management positions. PSCs do not have training institutions as each member will have received their training from their respective organization. Most of the committee members require greater knowledge of the ISPS Code and rely upon the PSO for advice in regards to port security.

7-2-5 Pertamina Maritime Education & Training Centre (METC)

10. METC provides education and training services to Pertamina seafarers. In addition, it has contracted outside consultants to conduct PFSO courses for State-owned port facilities

(Pertamina staff) as well as to the non-State owned ports. METC has thus far trained more than 692 PFSOs since 2003 to March 2005 of which 95% are mainly applicants from non state-owned facilities. Pertamina METC solely issues certification for those who have completed the PFSO Training in Pertamina METC.

7-2-6 ST Education & Training Pte Ltd (STET)

11. Located in Singapore, STET has been conducting PFSO/ CSO/ SSO courses, ship and port consultancies for both commercial (local and international markets) and international organizations; the latter of which are under international and national ambits such as the IMO, ILO and MPA as well as DGST.

7-3 GENERAL FINDINGS AND ANALYSIS

12. Many inter-agencies are involved in port security. As such, there is tendency for the roles and responsibilities of these multi-agencies to overlap. The following observation can be made:

- Each port may consist of 3 to 8 port facilities, with some ports having villages co-existing in their midst.
- It is common to see mobile peddlers and mini stalls set up to cater to the daily needs of the port work force outside international or domestic passenger terminals. Culturally and from traditional practices, these peddlers had customarily been allowed unrestricted access in and out of the port perimeter without the need for pass exchange.
- Some of these “unauthorized visitors” are fishermen living and operating in the vicinity of the port for years. Notably, their livelihood is dependent on fish from the sea as well as sales of food or products in the port; these practices began long before the ISPS Code was implemented.

13. The introduction of the ISPS Code has led to some confusion concerning the roles and responsibilities of each enforcement agency. Agencies such as Kesatuan Palaksana Pengamanan Pelabuhan (KPPP), Kesatuan Pengamanan Laut dan Pantai (KPLP), and POLAIR (water police) will need to understand their roles with regards to the ISPS Code on the one hand, and that of facilitating the economic lifelines of the local populace on the other.

14. Preliminary findings indicate that there is a need for education and training with regards to security functions. A categorical breakdown of the findings with the recommended course of action that the relevant authority should undertake will be included.

7-3-1 Port Administrator (ADPEL) and the Port Security Committee (PSC)

15. The Port Administrator is responsible for the safety and security of all seaborne vessels that enter and leave the port.

- For security, he is assisted by the Port Security Officer.
- He is also the chairman of the Port Security Committee.

16. In respect of the findings above, and with the knowledge of the ISPS Code requirements as being port facility biased and that for the Code of Practice for Port Security, it is deemed that the situation in Indonesia is more akin to the latter. To further complement the

effectiveness of the port administrator in leading the PSC, it is proposed that all Port Administrators should:

- Have a clear understanding of both the ISPS Code requirements and have an awareness of the concepts advocated in the Code of Practice (COP).
- Benefit from both these courses to enable the PSC Chairman to acquire a clearer understanding of the responsibilities and functions of the PSO / PFSO, thereby better able to make better informed decision with regards to port security should the need arise.
- Establish the communications requirements with clear lines in the chain of command. These are key areas that need to be instituted.

7-3-2 Port Security Officer (PSO)

17. The Port Security Officer is a Head of Port Security Section of the Guard and Rescue Field that has been assigned to help in security and orderliness in the port working area. He:

- Is a member of the port security committee that oversees the port facility security
- Has the responsibility to implement the port security measures in support of the Port Security Section.

18. Through most of the interviews with the PSO, it was observed that they have vague knowledge of the ISPS Code. In some ports, the PSO is charged with the responsibility to exchange DoS with the ship – in such situations, PSO will need to be as conversant as the trained PFSO in areas of the ISPS Code.

7-3-3 Kesatuan Palaksana Pengamanan Pelabuhan (KPPP)

19. KPPP is a sub-section of the Police Resort (POLRESTA).

1) KPPP's main responsibility is to investigate any criminal act and arrest criminals in the port working area including the port facility.
2) KPPP is also tasked for the security and protection of port facility.
3) However, in some port facilities, KPPP police posts are located in the berth area. In general KPPP staffs
   - Require greater understanding of the ISPS Code and also about the role of PFSO with regards to port facility
   - Perform guard duty similar to KPLP or SATPAM albeit with role that is slightly dissimilar as they are legally empowered under the Police Act. Through interview with an officer from Tanjung Perak, it was found that KPPP also needs training with regards to the ISPS Code so that they can complement and contribute towards the security of the port and port facility.

7-3-4 Port Facility Security Officer (PFSO)

20. All PFSO's have attended the PFSO Courses conducted by DGST and the RSO. However, it is observed that most PFSOs require more training on the content of their PFSP and the application of DoS. The appointed PFSOs will need to be conversant with the PFSP. There is therefore a need for the Ports and Port Facilities to conduct Drills and Exercises to familiarize their PFSOs with their duties and the related procedures. These should be incorporated into their Security Training Plan.

7-3-5 Satuan Petugas Keamanan, (SATPAM)

21. The term Satpam stands for Satuan Petugas Keamanan, roughly translated as Association of Security Officers. These are commonly applied to the in-house security personnel employed by PELINDO. Satpam have had some significant training in guard duties, a strength in RI that has been observed. The training programs are run by foundations connected to the Indonesian military forces. Satpam are licensed by the local government. While the white uniform is most common, Satpam staff also wears navy blue, khaki green or brown shirts, depending on the licensing organization. The role of Satpam staff is primarily to perform guard and patrol duties in the port facilities. While generic land guard duties are evidently observed to be demonstrated, the maritime related requirements will need to be further ascertained for Satpam to demonstrate their ability in this domain as having the training necessary to fulfill Part B/18.2 of the ISPS Code. It was gathered through interview that most SATPAM staff received short briefing by the PFSO or PSO. As Satpam is under the jurisdiction of the PFSO and PELINDO, the latter may want to conduct a drill / exercise to "certify" their ability. This "certification system" would be an added advantage to the Administration's quest for a safe and secure port.

7-3-6 Personnel Working in the Port Area

22. These are personnel defined in the ISPS Code B/18.3 as all port facility personnel, including the operations, administration and management. One key area that receptionist and administration personnel should be trained is in the area of handling bomb threat calls.

> *ISPS Code Part B/18.3 All other port facility personnel should have knowledge of and be familiar with relevant provisions of the PFSP, in some or all of the following, as appropriate:*
>
> *.1 the meaning and the consequential requirements of the different security levels;*
>
> *.2 recognition and detection of weapons, dangerous substances and devices;*
>
> *.3 recognition of characteristics and behavioral patterns of persons who are likely to threaten the security; and*
>
> *.4 techniques used to circumvent security measures.*

CHAPTER-8. SECURITY MEASURES OF PORTS FOR WHICH STATEMENT OF COMPLIANCE HAVE BEEN ISSUED

8-1 PORT OF BELAWAN

8-1-1 Outline of Belawan Port

1. Belawan Port is one of the four major ports in Indonesia and as the major port in PELINDO I plays an important role in Sumatra Island. It is a hub port for cargo and passengers as well. Its container handling volume and export of agro industries is substantial. It is located at latitude 03°47'00" north and longitude 98°41'00" east, 26km from Medan, the capital of North Sumatra Province, and has a hinterland not only in North Sumatra area but also in other areas around Riau and Ache. It also faces the Malacca Straits and has close relations with Singapore and Malaysia. Enhancement of security measures is urgently required.

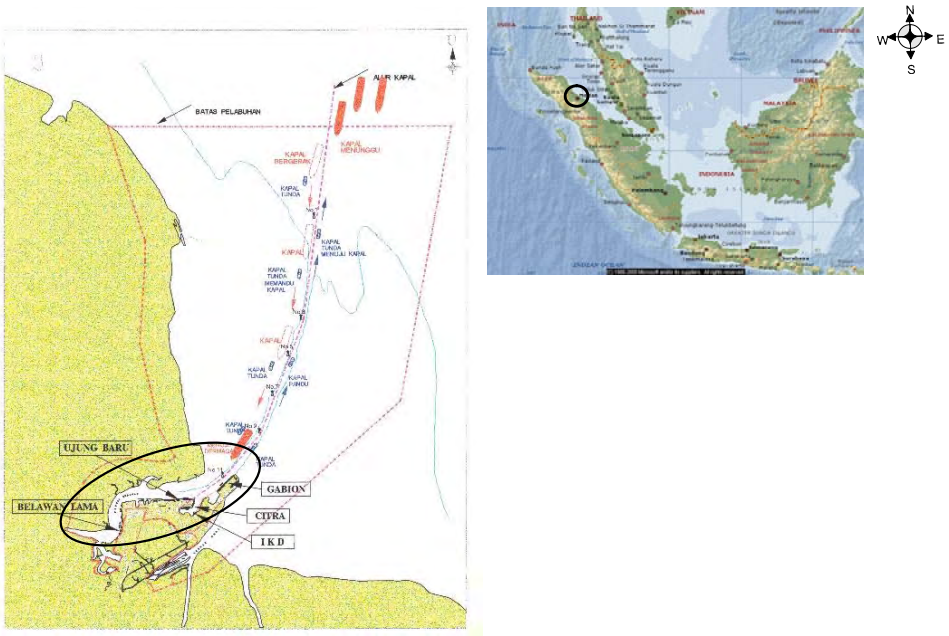


Figure 8-1-1-1 Location of Belawan Port

8-1-2 Layout Plan of the Port

2. Layout plans of the berths at Belawan Port are shown in Figure 8-1-2-1 to 8-1-2-3. Two major terminals are located in Belawan Port. One is a conventional terminal (Ujung Baru terminal) for bulk cargo. Total length is 1,195m (Liquid bulk; 650m, Dry bulk; 380m, General cargo; 165m) and water depth is -9m. The other is a container terminal, which is located on the east side of the conventional terminal. The terminal is divided into a local terminal and overseas terminal by fence. Total length is 500m and water depth is -10m. A trunk road leads to each terminal with a toll gate. A railroad is laid down for transporting palm oil. East end of the conventional terminal connects to the international passenger terminal where liner service is available to/ from Port of Kelang, Penang and Singapore. Total length is 350m.

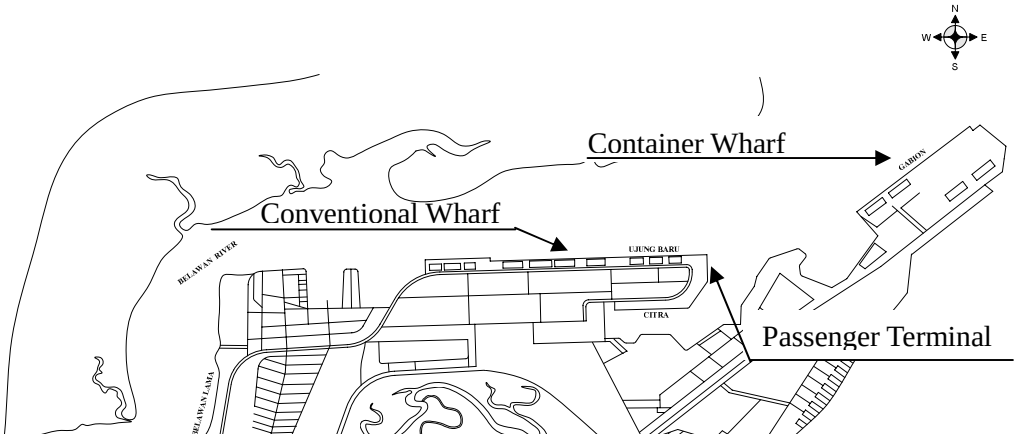


Figure 8-1-2-1 Layout Plan of Belawan Port

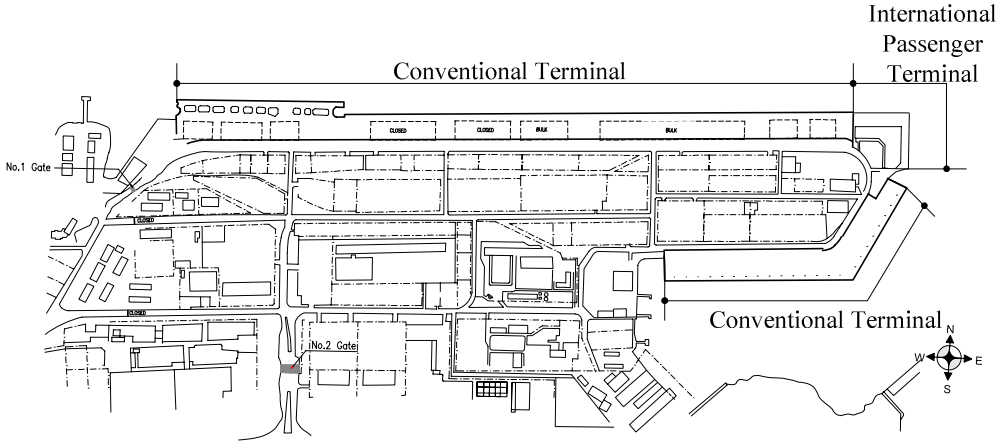


Figure 8-1-2-2 Layout Plan of Conventional Terminal

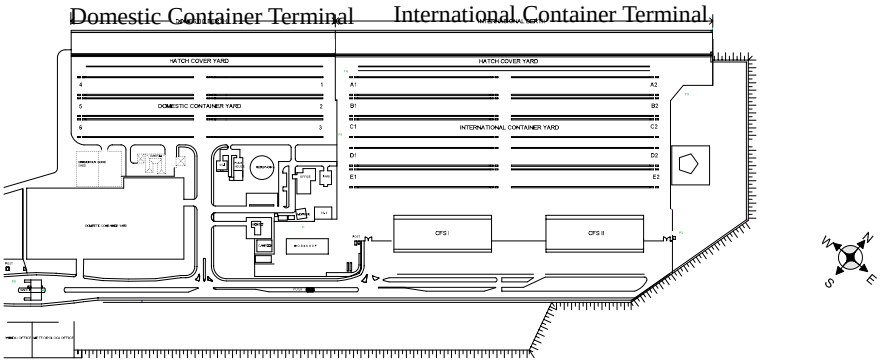


Figure 8-1-2-3 Layout Plan of Container Berth

8-1-3 Cargo Volume and Number of Passenger

3. Cargo handling volume, container cargo handling volume, number of ship calls, and number of passengers in Belawan Port from 2000 to 2004 are as follows :

Table 8-1-3-1 Number of Ship Calls at Belawan Port

Year		2000	2001	2002	2003	2004
International Shipping	Call	3,385	3,594	2,981	2,698	2,020
	GRT	10,742,993	11,261,217	9,523,162	10,098,239	6,624,959
Domestic Shipping	Call	2,567	2,875	2,822	3,093	2,675
	GRT	9,989,252	10,716,115	9,966,059	10,126,903	7,837,833
Total	Call	5,952	6,469	5,803	5,791	4,695
	GRT	20,732,245	21,977,332	19,489,221	20,225,142	14,462,792

Source: PELINDO I Belawan Port

Table 8-1-3-2 Volume of Handling Cargo at Belawan Port

Unit: ton

Year	2000	2001	2002	2003	2004
Import	1,533,722	1,620,437	1,821,771	1,549,805	1,197,823
Export	2,830,044	3,187,903	3,665,220	3,828,293	4,530,070
Inter Island Unload	5,523,014	5,921,070	6,305,315	6,773,446	7,490,302
Inter Island Load	642,119	676,443	615,402	592,674	599,651
Total	10,528,899	11,405,853	12,407,708	12,744,218	13,817,846

Source: PELINDO Belawan Port

Table 8-1-3-3 Statistics of Container Terminal at Belawan Port

Year			2000	2001	2002	2003	2004
International Shipping	Ship call		604	498	402	400	395
	Unloading	TEU	97,793	105,074	110,024	111,557	127,307
		ton	644,104	599,112	677,648	695,926	1,044,021
	Loading	TEU	110,015	116,179	123,330	125,244	146,724
		ton	1,244,318	14,141,546	1,351,428	1,407,572	1,871,593
Domestic Shipping	Ship call		429	495	482	475	393
	Unloading	TEU	50,497	73,802	87,889	104,813	126,600
	Loading	TEU	39,233	63,746	81,458	84,941	119,156
Total		Call	1,033	993	884	875	788
		TEU	297,538	358,801	402,701	426,555	519,787

Source: PELINDO I Belawan Port

Table 8-1-3-4 Number of Passengers at Belawan Port

Unit: persons

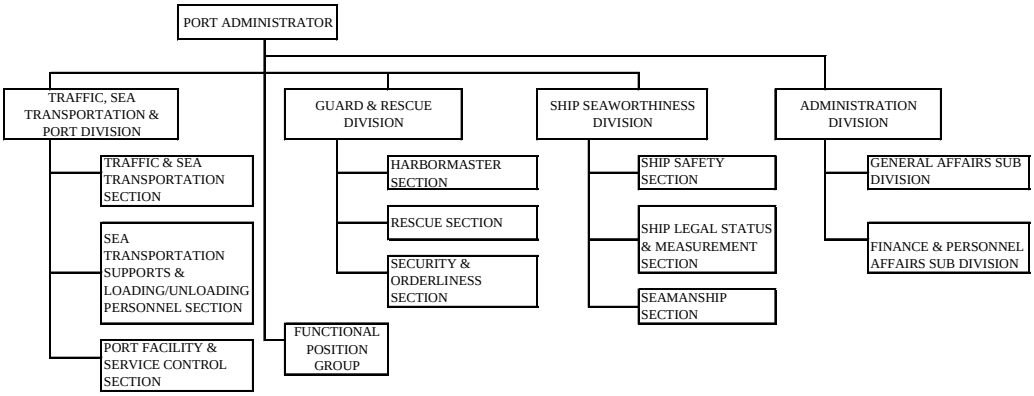
Year		2000	2001	2002	2003	2004
International	Debarkation	97,595	135,832	119,187	78,684	70,888
	Embarkation	113,708	122,815	108,690	97,323	74,599
Domestic	Debarkation	308,095	318,633	230,979	149,347	76,701
	Embarkation	390,831	358,118	258,006	155,126	82,471
Total	Debarkation	405,690	454,465	350,166	228,031	147,589
	Embarkation	504,539	480,933	366,696	252,449	157,070

Source: PELINDO Belawan Port

8-1-4 Port Management System

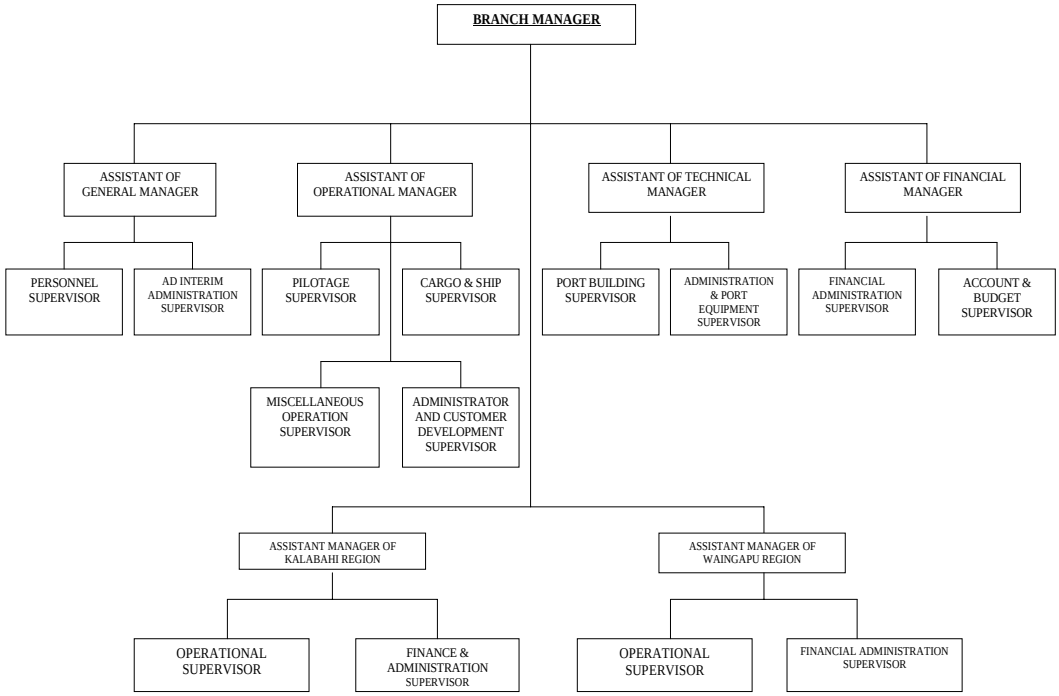
4. Organization chart of ADPEL Belawan Branch and PELINDO I Belawan Branch is shown in Figure 8-1-4-1 and 8-1-4-2. Belawan Branch of PELINDO I has four divisions (General, Operation, Technical, Finance) under the Branch Manager. General Division is responsible for personnel and administrative affairs, Operation Division handles pilotage,

cargo, ship and customer affairs, Technical Division is responsible for port construction and port maintenance, and Finance Division handles the budget and account. There are two regional branches (Kalabahi region and Waingapu region) under the Branch Manager. One PFSO and eight deputy PFSOs are appointed for the conventional terminal, and another PFSO and four deputy PFSOs are appointed for the container terminal. Both belong to the Operational Division.



Source: ADPEL in Belawan Port

Figure 8-1-4-1 Organization Chart of ADPEL in Belawan Port



Source PELINDO I Belawan Branch

Figure 8-1-4-2 Organization Chart of PELINDO I Belawan Branch

5. There is a Port Security Committee in Belawan Port, whose chair person is an administrator from ADPEL Belawan Branch. Port Security Committee is comprised of members from ADPEL Belawan Branch, PELINDO Belawan Branch, KPLP, private companies and so on. Jobs and responsibilities are:

- To establish a communication network on port facility security information and decide transinformation items.
- To identify threats and unsafe areas in the port
- To arrange port security procedures and system

6. The responsibilities of the Port Security Officer (head of KPLP at Belawan) and two Port Facility Security Officers (one is the head of operational service for Multipurpose terminal, the other is the operation manager for UTPK) who are the most important members of the Port Security Committee are as follows.

1) Port Security Officer's duties and responsibilities
   - To coordinate with related security elements in Belawan Port
   - To coordinate communication, security and safety measures with SSO, CSO and PFSO
   - To make inspection in ship, company and port facility
   - To record and report all the events related with security in the port
   - To control ship/port meeting point or ship to ship activity.
2) Port Facility Security Officer's duties and responsibilities
   - To implement the port security plan
   - To conduct a security check of port facility at regular intervals and take appropriate security measures
   - To recommend improvements to the PFSP
   - To increase awareness of PFSO
   - To make sure personnel who are responsible for port facility security have been adequately trained
   - To submit report to PSC or Port Security Officer
   - To record and document all the events that threaten port facility security
   - To coordinate with related SSO and CSO
   - To make sure that all responsible personnel are qualified for port facility security
   - To make sure that all security equipment is operated, tested and maintained well
   - To assist Ship Security Officer in identifying suspicious persons/objects at the request of a ship.

3) Committee Members:
   - Belawan Main Administration Management office
   - Ditpoliair Poldasu
   - KPPP Belawan
   - Belawan Custom Office Type A
   - Belawan Immigration Office
   - Disnav Kls I Belawan
   - Port Health Office
   - Belawan Animal Quarantine Office
   - Belawan Fish Quarantine Office
   - Medan SAR Office
   - Belawan Ocean Fisheries Port Office
   - PELINDO I Belawan Branch
   - PELINDO I UTPK Unit
   - PT Pertamina UPMS I
   - Guiding Service of PT PELINDO I Belawan Branch
   - DPD INSA North Sumatra

- OPW GAFEKSI/INFA North Sumatra
- ASDECI North Sumatra
- DPC. Belawan Port Regional Transportation Organization
- DUKS PT PLN
- Pumping and Mounding Tank Association
- DUKS PT Semen Andalas Indonesia
- DUKS PT Waruna Nusa Sentana

8-1-5 Present Situation of Port Facility Security Measures

7. A main road runs in front of the conventional terminal which is partitioned off by a fence along the road. There is no CCTV camera. There are ten gates in the conventional terminal. At two gates access control is conducted, but no boom is installed at the gates. Another main road runs to the container terminal which is separated from the conventional terminal. There is a main gate at the end of the main road. Neither boom nor CCTV camera has been installed in the terminal. KPLP and KPPP officials strictly control the area 24 hours a day.

8. PELINDO I Belawan Branch issues three kinds of ID cards for officers and related personnel who enter the port. One is yellow which allows access to an area outside of the restricted area, next is green which allows access to the restricted area except the limited area near the wharf face line. The last is red which allows access to all areas including the restricted area and vessels.

8-1-6 Issues on Implementation of Port Facility Security Measures

9. Issues on implementation of port facility security measures are shown below:

1) Conventional terminal
   - No boom for stopping vehicles is installed at any gate and persons enter the port area without any check.
   - Some security guards who conduct access control and patrol the port area have no communication device.
   - Three kinds of ID with photo are issued by PELINDO I Belawan Branch but confirmation of ID has not been conducted at the gates or in the restricted area by KPLP or KPPP.
   - Public address system is not functional.

2) Container terminal
   - Net fence with top guard is installed on the border between the container terminal and neighboring marina and the concrete wall is erected just outside the fence. The problem is that there is little clearance between the net fence and concrete wall and the height of the net fence is not enough, making it is easy for a person to enter the port over the concrete wall and net fence.
   - Domestic container terminal abuts on the international container terminals which are separated by a mobile fence. However, access control is insufficient due to fence damage.

3) International passenger terminal
   - Access gate of the international passenger terminal is closed except for terminal operation time. There is no area for passengers to stay.
   - There is an X-ray scanner for passenger luggage which is owned by Customs. Customs should not share the X-ray detector because Customs use it for

inspecting immigrants' belongings. No check by metal detector and X-ray scanner for baggage and explosives is conducted by PELINDO I Belawan Branch. PELINDO I should install an X-ray scanner and metal detectors.

8-1-7 Recommendation on Port Security

10. Recommendations for PELINDO I Belawan Port are as follows.

1) Security equipment should be provided or installed:
   - Repair of gates at the Conventional terminal is necessary. The gate should be equipped with a boom for stopping cars.
   - X-ray inspection device and handheld metal detector for Passenger terminal
   - Gate type metal detector and mirror for Passenger terminal
   - Communication device should be given to all personnel who patrol in the terminal.
   - CCTV camera, lighting and P.A. system are necessary for International passenger terminal and International container terminal.
   - New fence should be installed at the south end of the Passenger terminal instead of mobile fence.

2) Access control
   - Access control at the conventional terminal, for example Photo ID check at the gate, should be conducted more strictly.
   - Patrol in the conventional terminal should be conducted strictly.
   - Fishermen should be prohibited from entering the Passenger terminal.

8-2 PORT OF DUMAI

8-2-1 Outline of Dumai Port

11. Dumai Port is one of the biggest ports under the jurisdiction of PELINDO I. It is located in Central Sumatra at latitude 01°41'14" south and longitude 101°27'42" east. Dumai Port is a good natural port facing the Rupat Island which is a natural breakwater. It is also at a strategic location close to the Malacca Strait. Since Dumai Port was built in 1957, it has been developed rapidly from a small fishermen's village into a big port. Location of Dumai Port is shown in Figure 8-2-1-1.

12. The public facilities which handle international cargo are a multi-purpose wharf and general cargo wharf. Crude palm oil accounts for most of the international cargo. Both wharves handle international and domestic cargo.

13. Projects to increase port capacity including the extension project of the multi-purpose wharf are being carried out because both wharves are approaching their capacity limits.

14. In addition, Dumai port has a passenger terminal for international and domestic passengers. International passenger ships enter service between Dumai port and Malacca, Port Dikson and Port Klang in Malaysia. Moreover private wharves operated by petroleum and gas companies are found in Dumai port

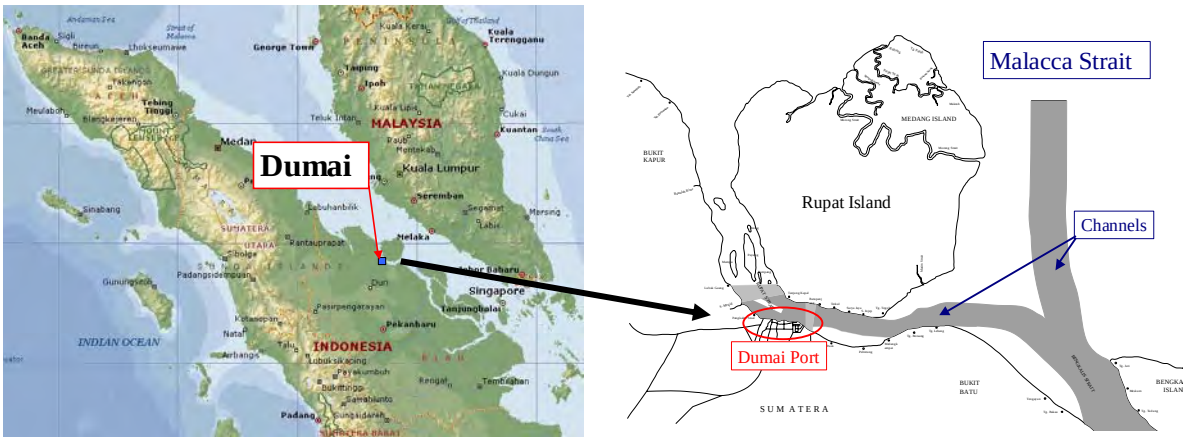


Figure 8-2-1-1 Location of Dumai Port

8-2-2 Layout Plan of the Port

15. Overview of the Dumai port and layouts of the multi-purpose wharf, general cargo wharf and passenger wharf are shown from Figure 8-2-2-1 to 8-2-2-3.

16. From the west side, the multi-purpose wharf, general cargo wharf and passenger wharf are located one by one. These three wharves are fenced off. Both the multi-purpose wharf and general cargo wharf, which are reinforced concrete piers, handle international and domestic cargo. The passenger wharf has two pontoons. The manufacturing plants of crude palm oil are located in the port area between the multi-purpose wharf and general cargo wharf. A main road runs in the east-west direction in close vicinity to the port area.

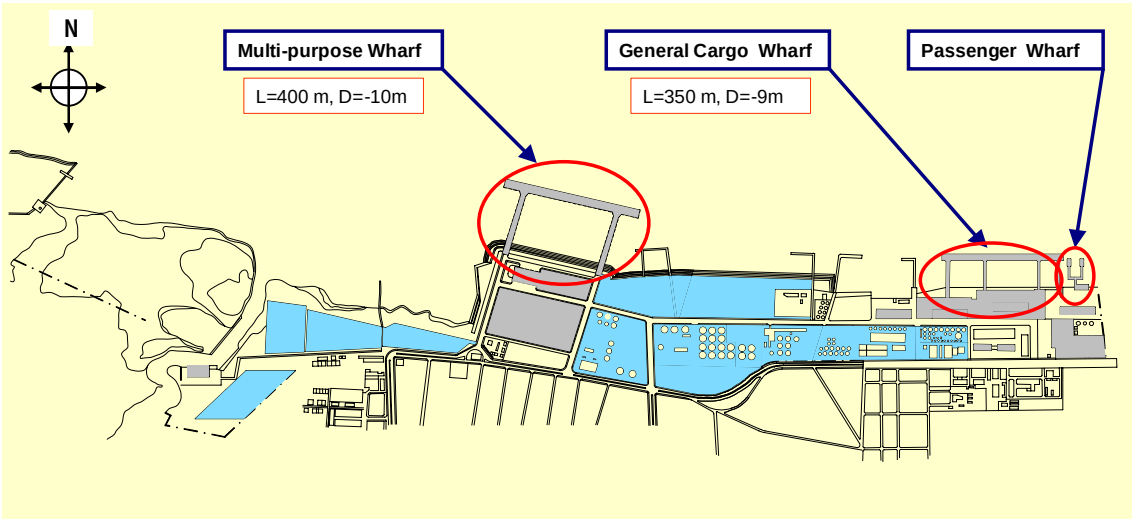


Figure 8-2-2-1 Overview of Dumai Port

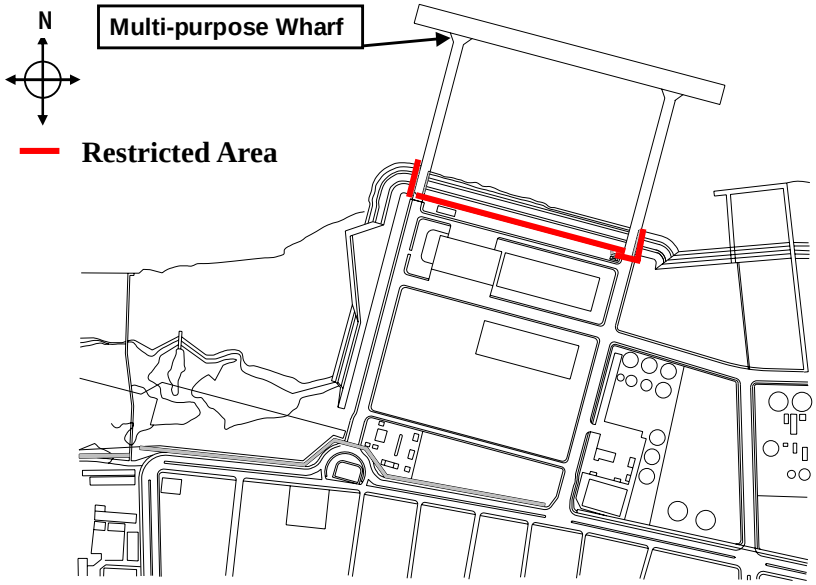


Figure 8-2-2-2 Layout of Multi-Purpose Wharf

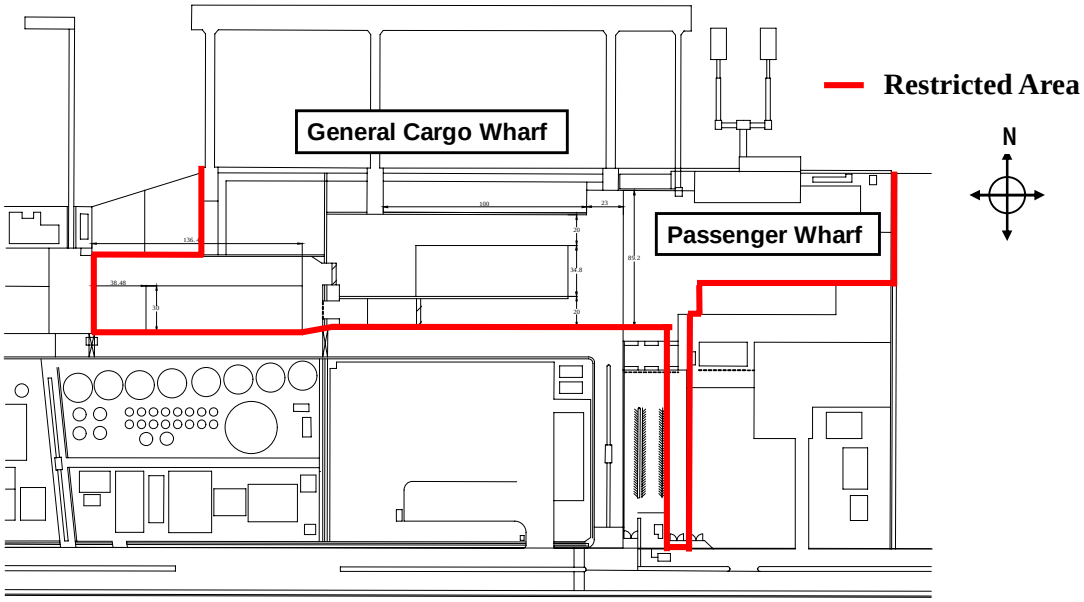


Figure 8-2-2-3 Layout of General Cargo Wharf and Passenger Wharf

8-2-3 Cargo Volume and Number of Passengers

17. Cargo volume and number of passengers in Dumai port are shown in Table 8-2-3-1and 8-2-3-2. Crude palm oil and its by-product account for most of the international cargo. Oil and gas are handled in private wharves. International passenger ships enter service between Dumai port and Malacca, Port Dikson and Port Klang 4 times a day.

Table 8-2-3-1 International Cargo Volume

Unit: ton

	Trade Type	2000	2001	2002	2003	2004
Non Oil & Gas Commodity	Export	2,393,399	2,756,918	3,144,644	3,858,016	4,130,476
	Import	329,957	278,678	365,133	387,907	387,398
	Sub-total	2,723,356	3,035,596	3,509,777	4,245,923	4,517,874
Oil & Gas Commodity	Export	16,868,385	17,168,144	14,916,352	13,163,728	12,500,980
	Import	0	44,038	10,939	33,795	99,339
	Sub-total	16,868,385	17,212,182	14,927,291	13,197,523	12,600,319
Total		19,591,741	20,247,778	18,437,068	17,443,446	17,118,193

Source: PELINDO I Dumai Port

Table 8-2-3-2 International Passengers

		2000	2001	2002	2003	2004
International Passenger	Embarkation	141,178	177,368	188,928	180,337	148,373
	Disembarkation	151,370	143,392	209,604	125,054	147,003
	Total	292,548	320,760	398,532	305,391	295,376

Source: PELINDO I Dumai Port

8-2-4 Port Management System

18. Organization charts of Dumai Port Administrator Office (ADPEL Dumai) and PELINDO I Dumai Branch are shown in Figure 8-2-4-1 and Figure 8-2-4-2 respectively. PSO is a head of guard & rescue division of ADPEL Dumai and PFSO is a head of ship & cargo service division of PELINDO I Dumai Branch. Port security committee, which consists of related organizations such as ADPEL, PELINDO, KPPP and Customs, is established

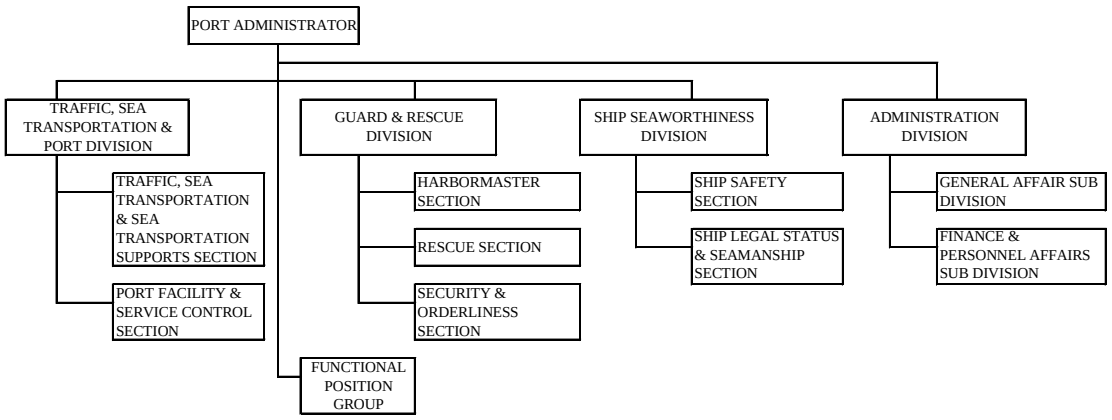


Figure 8-2-4-1 Organizational Structure of Dumai Port Administrator Office

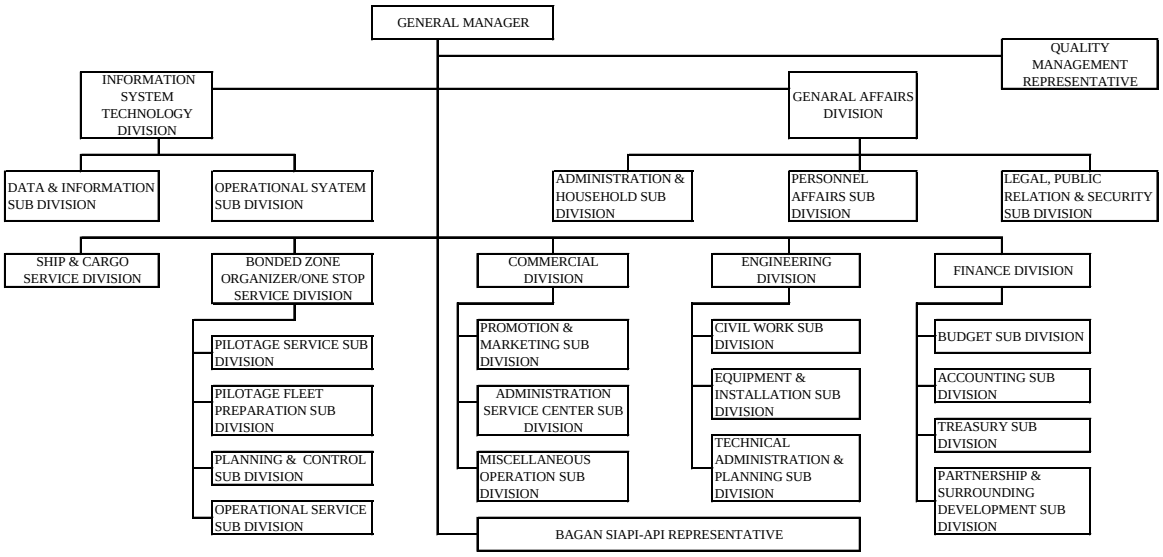


Figure 8-2-4-2 Organizational Structure of PELINDO I Dumai Branch

8-2-5 Present Situation of Port Facility Security Measure

19. The multi-purpose wharf, general cargo wharf and passenger wharf are fenced off. At the multi-purpose wharf and general cargo wharf, double gate system which is composed of entrance gate of the port (outer gate) and one of the restricted area (inner gate) is adopted as access control. Security check is conducted only at the outer gate. Though ID card is issued, security guards do not check it at the gate. Public can enter the restricted area without any inhibition. Though international and domestic cargoes are handled at both wharves, international and domestic area is not divided off.

20. At the passenger wharf, fence surrounding the restricted area is under construction. At the gate of the passenger wharf, a boom is installed and security check of vehicles is conducted. Security guards check the baggage of passenger by metal detector at the old passenger terminal. Passengers go to the new passenger terminal through the old one. New passenger terminal has been built recently, but no X-ray inspection device for baggage, walk-through type metal detectors, CCTV cameras for monitoring inside of the terminal etc. are installed there.

8-2-6 Issues on Implementation of Port Facility Security Measures

21. Issues on implementation of port facility security measures at Dumai Port are as follows:

- At the multi-purpose wharf and general cargo wharf, some part of the fence is not installed or top guard of the fence inclines in the wrong direction (slopes to the inside).
- Double gate system is adopted as access control in both wharves. At the outer gate, security check is conducted. However, the inner gates of both wharves have no gate door and check is not conducted. Public can enter the restricted area without any inhibition.
- No X-ray scanner for baggage, walk-through type metal detector, CCTV cameras for monitoring inside of the terminal, etc. are installed at the new passenger terminal.

8-2-7 Recommendations on Port Security

22. Recommendations on port security are shown below:

- It is proposed that a fence surrounding the restricted area and gate be installed at the multi-purpose wharf and general cargo wharf and top guard be installed appropriately.
- It is also proposed that an X-ray inspection device for baggage, walk-through type metal detector, CCTV cameras for monitoring inside of the terminal be installed in the new passenger terminal.
- Access control should be conducted strictly at the multi-purpose wharf and general cargo wharf.

8-3 PORT OF TANJUNG PINANG

8-3-1 Outline of Tanjung Pinang Port

23. Port of Tanjung Pinang is located on Bintan Island, and comprised of Sri Bintan Pura Port, Sri Payung Batu VI Port and Sei Kolak Kijang Port. It provides pilot service to Tanjung Uban Port, Port of Batam and Port of Sambu. Figure 8-3-1-1 shows the location of Tanjung Pinang Port.

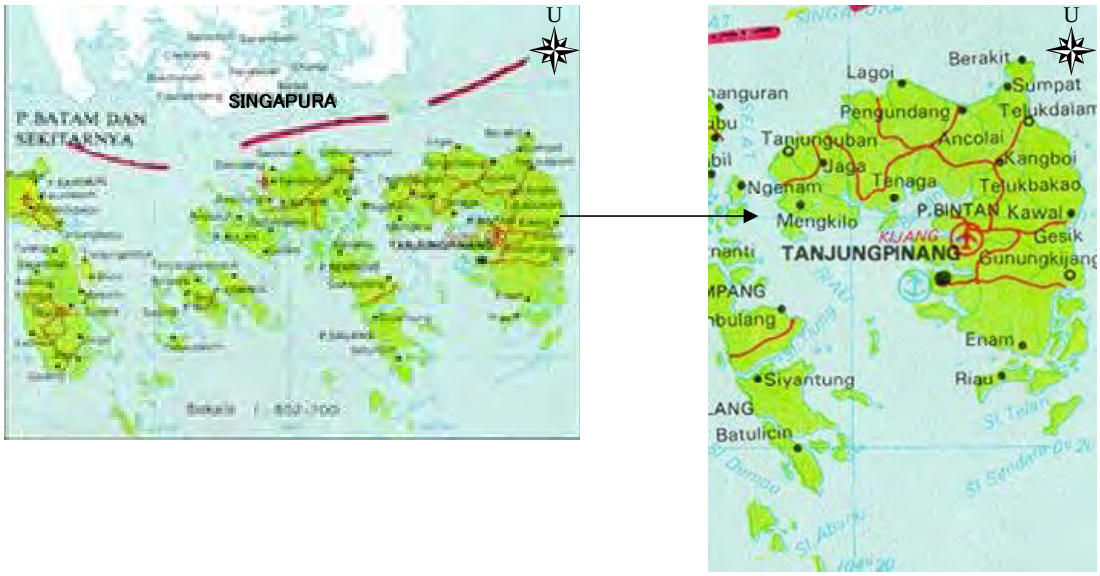


Figure 8-3-1-1 Location of Sri Bintan Pura Port

24. Among them, Sri Bintan Pura Port is a special port for domestic and international passenger ships, especially fast ferry, and the international passenger terminal area is separated from the domestic area.

25. Photo 8-3-1-1 shows the pontoon for international passenger ships.

Photo 8-3-1-1 Pontoon for International Ferry at Sri Bintan Pura Port

Source: Study Team

8-3-2 Layout Plan of the Port

26. The existing layout of Sri Bintan Pura Port are shown in Figure 8-3-2-1 and 8-3-2-2, respectively.

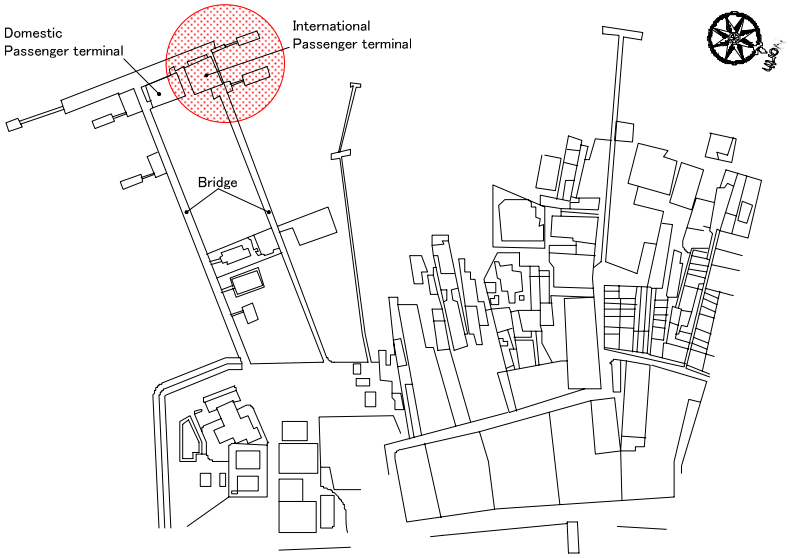


Figure 8-3-2-1 Layout of Sri Bintan Pura Port

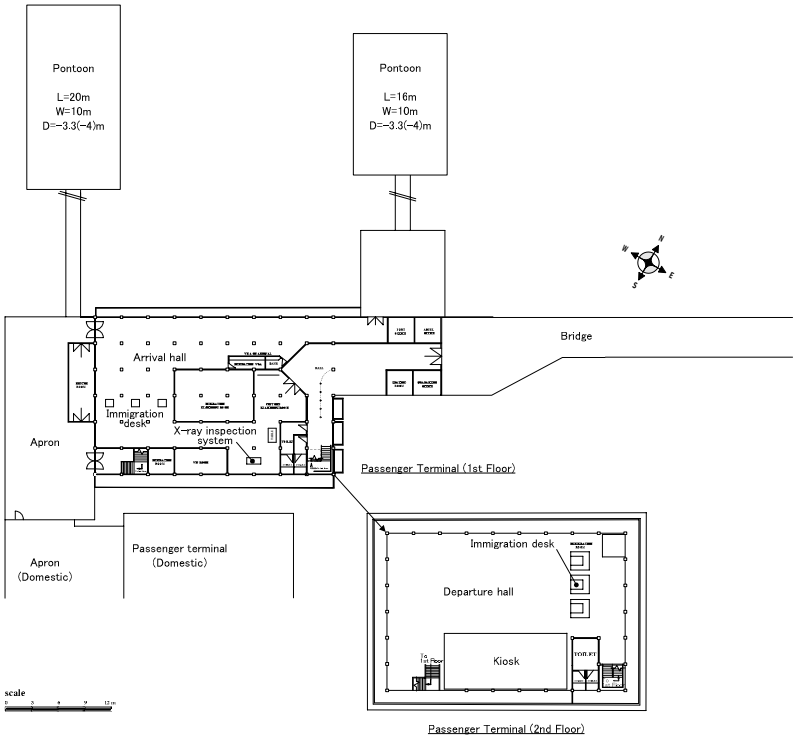


Figure 8-3-2-2 Layout Plan (International Passenger Terminal)

8-3-3 Cargo Volume and Number of Ship Calls

27. The number of international ship calls to/from Singapore and Malaysia reaches 30-40 per day on average, while domestic ship calls to/from Batam, Dumai, Pekanbaru and so on reach on average 50-60 per day. Ship calls at Sri Bintan Pura are shown in Table 8-3-3-1.

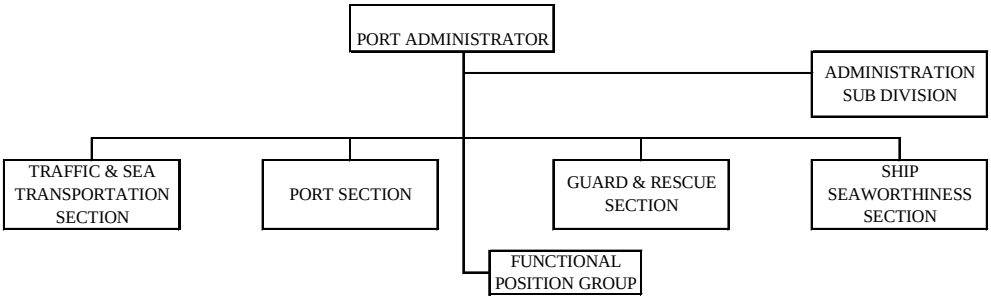
Table 8-3-3-1 Ship Calls at Sri Bintan Pura Port

	2001	2002	2003	2004
International	7,222	9,026	8,809	8,363
Domestic	21,671	15,914	17.378	19,045
Total	28,893	24,940	26,187	27,408

Source: PELINDO I Tanjung Pinang Port

8-3-4 Port Management System

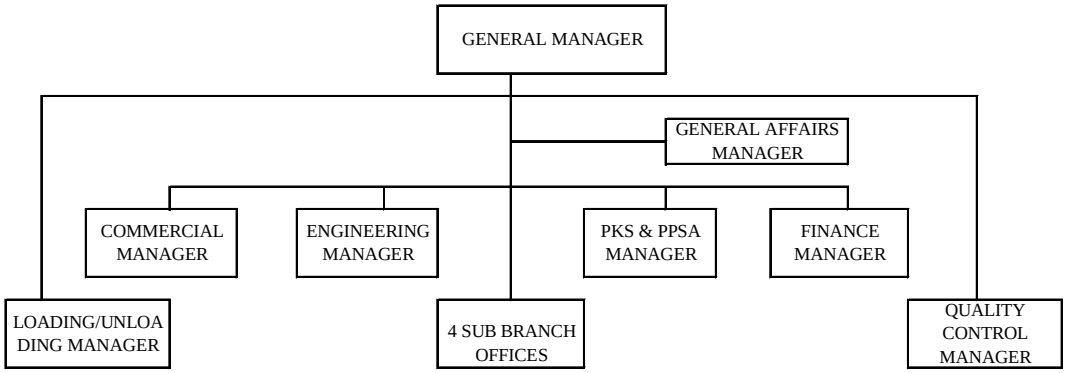
28. Organizational Structure of ADPEL, Tanjung Pinang Port is as follows.



Source: ADPEL

Figure 8-3-4-1 Organization Structure of Tanjung Pinang Port Administrator Office

29. There are approximately 55 staffs working in PELINDO I Tanjung Pinang Port.



Source: PELINDO 1 Tanjung Pinang Port

Figure 8-3-4-2 Organization Chart of Tanjung Pinang Port, PELINDO I

8-3-5 Present Situation of Port Facility Security Measures

30. Present situation of port facility security measures at Tanjung Pinang Port is as follows:

1) The access management situation at the gate is as follows:
   a) Personnel
   - Access control is conducted at one gate for the international passenger terminal.
   - Photo ID card is issued to port administration personnel, operator/stevedoring company personnel, CIQ, the police and any other administrative personnel, and the customs agency personnel. However, PELINDO and KPLP officials seldom check these IDs.
   - Photo ID card is issued to shipping personnel and shipping agency personnel as well; their personal identification is checked at random.
   - Tug pilots, lines men and visitors are asked to show photo ID cards and their belongings are checked by hand-held metal detector.
   - Seamen are identified by passport, and passengers are identified by passport and boarding pass. The procedure is done by Immigration.
   - As for persons other than the above mentioned, their belongings are checked by hand-held metal detector.

   b) Vehicle
   - Passenger terminal is on the pier above the sea. There is an access road for passengers only between the land and passenger terminal.

   c) Cargo
   - Cargo handling activity is not conducted at this terminal, which is designated for passenger. Passenger's baggage is checked by X-ray inspection system, only during debarkation by customs.

2) The situation of patrol is as follows:
   - KPLP has a plan to patrol an apron area.
   - PELINDO patrols the passenger terminal building.
   - KPLP seldom patrol by patrol boat.

8-3-6 Issues on Implementation of Port Facility Security Measures

31. Issues on implementation of port facility security measures at Tanjung Pinang Port are as follows:

- Identification checks are rarely carried out though photo ID card is issued to personnel concerned by PELINDO.
- There is no X-ray inspection system for checking passenger's baggage on the embarkation side.

8-3-7 Recommendations on Port Security

32. Recommendations on port security at Tanjung Pinang port are shown below:

- The gate and fence to divide international passengers from domestic ones should be improved because the height is not sufficient and the size of mesh is too wide. A lock for the gate is also required.
- In a part of the terminal, lighting is not sufficient for monitoring during the night. Some lighting apparatus is out of order due to the lack of maintenance. The lighting system should be repaired and improved.
- ID card checks should be strictly carried out to prevent suspicious persons from coming into the terminal.
- In the embarkation procedure, passenger's baggage should be checked by an X-ray inspection system, and their belongings should be checked by walk-through metal detector and hand-held metal detector.
- In the case that passengers for embarkation and debarkation intersect in the hall of the terminal, both passengers should be separated by barriers. Additional security guards should also be deployed to avoid mixture.
- During operations, the water area around the terminal should be monitored from the second floor of the terminal.
- The terminal is closed at night. Therefore, before starting operation, patrol should be conducted to ensure that neither suspicious persons nor unusual objects are present in and around the restricted area.
- In an emergency, a warning against suspicious persons and an evacuation direction for ships, passengers, etc, should be given immediately by using PA system.
- Telephone and fax machine should be installed in the passenger terminal as a way of communication between security guard and security guard's office, administration office or a PFSO. It is recommended that security guard should carry a communication device.

8-4 PORT OF BATAM

8-4-1 Outline of Batam Port

33. Batam Island faces the main ship route that connects between the Middle East and Far East, while Singapore is on the opposite side of the ship route. It takes less than one hour by ferry boat from Singapore to Batam Island. Therefore, the main industry at Batam Island is tourism and there are several international and domestic passenger terminals.

34. Ports at Batam Island are listed in Table 8-4-1-1. The international public ports which already have PFSA and PFSP are Batu Ampar Port, Batam Center International Passenger Terminal and Sekupang International Passenger Terminal.

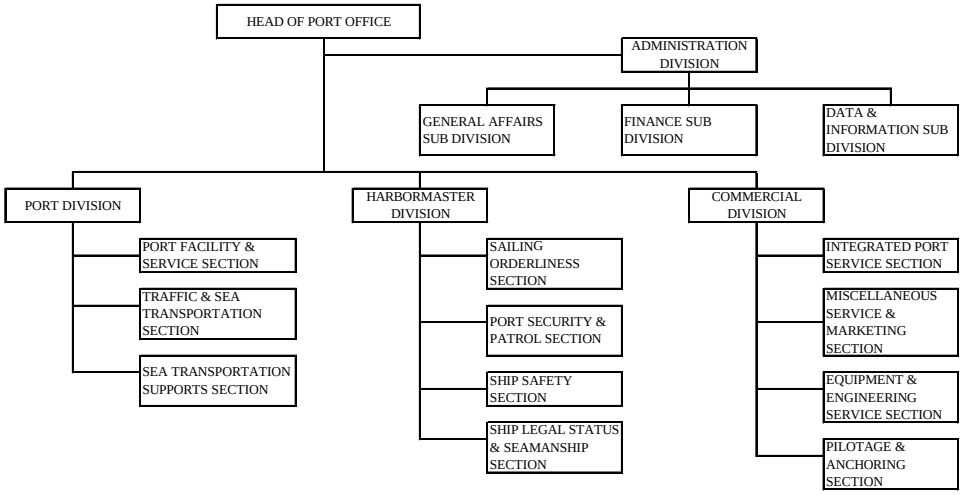
Table 8-4-1-1 Ports at Batam Island

Port	Terminal	Owner	PFSA&PFSP
Batu Ampar	General cargo and container	Public	O
Batam Center	International passenger	Public	O
Sekupang	International passenger	Public	O
	Domestic passenger		-
	Domestic cargo		-
Water front City	International passenger	Private	O
Nongsa	International passenger	Private	O
Kabil	General cargo	Public	-
	Pertamina	Private	*
Telaga Punggur	Domestic passenger	Private	-
	Ro-Ro	Private	*

Note: * means it is necessary to confirm.
Source: Batam Port Authority

Figure 8-4-1-1 Location of Batam Port

35. Public port facilities in the Batam Port are owned and operated by Batam Port Authority. Port Division is responsible for the port operation.



Source: KAMPEL

Figure 8-4-1-2 Organization of Batam Port Authority

8-4-2 Batu Ampar Port

(1) Outline of Batu Ampar Port

36. Batu Ampar is a main seaport of Batam Island with an existing container handling capacity of 70,000 TEUs and general cargo handling capacity of 3 million tons per year. International cargo is handled at a 250m-long consecutive wharf with a depth of 10-12m (see Photo 8-4-2-1). Batam Port Authority has a plan to increase container handling capacity to 900,000 TEUs in Phase I, and ultimately 2million TEUs and also provide general cargo handling capacity of 5 million tons.

Photo 8-4-2-1 International Berth at Batu Ampar Port

Source: Study Team

37. The existing layout of Batu Ampar Port is shown in Figure 8-4-2-1 and 8-4-2-2.

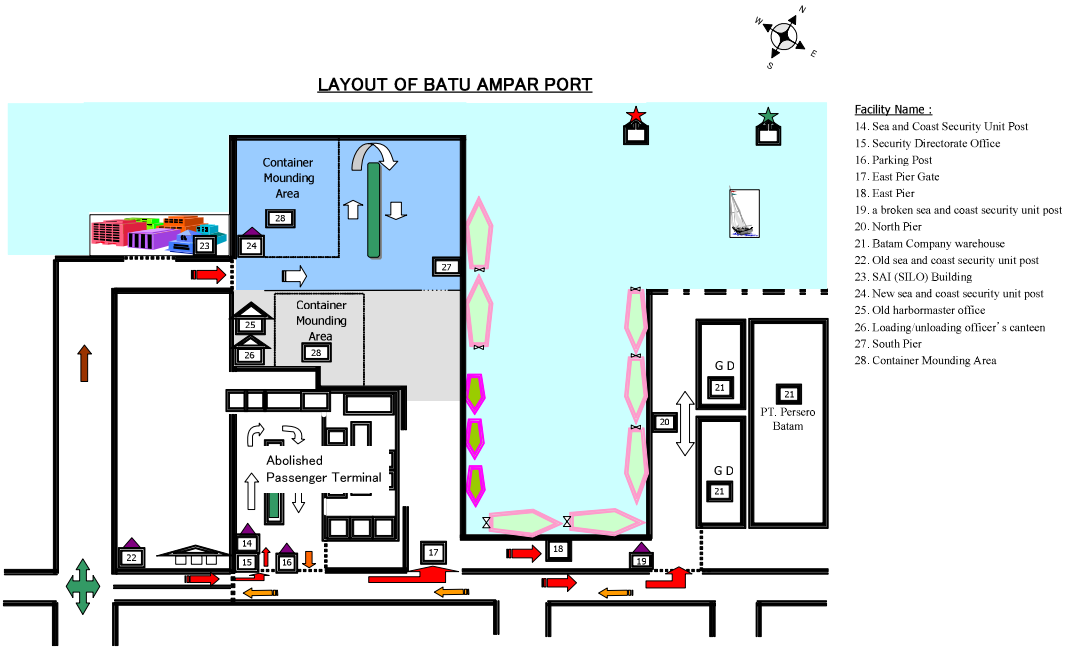


Figure 8-4-2-1 Layout of Batu Ampar Port

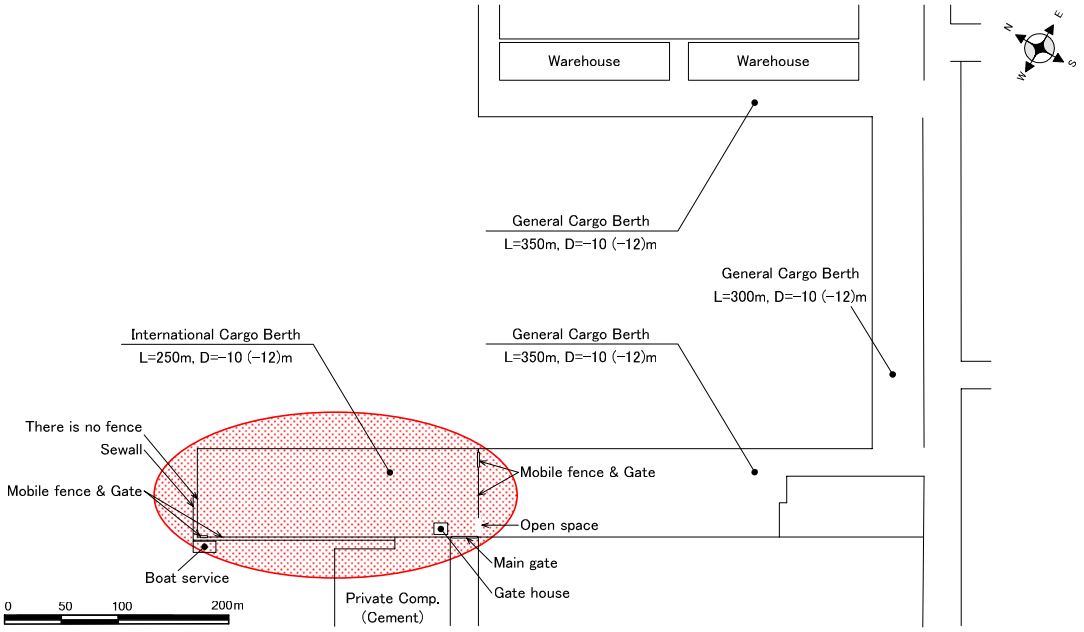


Figure 8-4-2-2 Layout Plan

38. The cargo handling volume and ship calls at Batu Ampar Port are shown in Table 8-4-2-1 and Table 8-4-2-2, respectively. Though ship calls have decreased gradually in recent years, the cargo handling volume has tended to increase slightly.

Table 8-4-2-1 Cargo Handling Volume at Batu Ampar Port

Unit: ton

Year	2001	2002	2003	2004
General Cargo				
Export	415,735	312,096	693,307	602,561
Import	837,342	833,816	1,146,807	1,117,293
In-coming (domestic)	298,172	244,870	499,367	241,828
Out-going (domestic)	1,029,202	908,475	1,095,195	1,067,070
Total	2,580,451	2,299,257	3,434,676	3,028,752

Source: Batam Port Authority

Table 8-4-2-2 Ship Calls at Batu Ampar Port

Year	2001	2002	2003	2004
International Cargo Vessel	7,246	7,177	6,649	5,493
Domestic Cargo Vessel	5,076	4,465	4,428	4,354
Total	12,322	11,642	11,077	9,847

Source: Batam Port Authority

(2) Port Facility Security Measures

39. Present situation of port facility security measures at Batu Ampar Port is as follows:

- Consecutive wharf is divided into international and domestic wharf by using mobile fence and gate. Containers are also used as a mobile fence at a part of its boundary. However, access control is not conducted in front of guard box.

40. Issues on implementation of port facility security measures at Batu Ampar Port are as follows:

- Mobile fences and a gate are installed on the boundary with the domestic terminal neighboring to the south. However there is no mobile fence in front of the guard box. Vehicles and persons usually pass this no-fence part and security guards conduct access control.
- No guard is deployed at the gate located in the middle of the mobile fences and access control is not conducted.
- The west and north sides of the international cargo wharf are covered by revetment. No over-hanging barrier is placed at the edge of the north revetment.
- Clear zone is not kept around the fence which is installed between the wharf and the private cement corporation area neighboring to the west.
- Lighting system is poorly maintained.

41. Recommendations on port security are shown below:

- Mobile fence and a gate should be installed in front of the guard box. Over-hanging physical barrier should be installed at the edge of revetment.
- ID card should be strictly checked to prevent suspicious persons from entering the wharf.
- Gates should be locked when no security guard is present.
- The water area including a channel and an anchorage should be monitored and patrolled. Patrol by patrol boat is preferable.
- Clear zone should be kept around the fence.
- In a part of the terminal, lighting is insufficient for monitoring during the night. The lighting system should be repaired and improved in such places.

8-4-3 Batam Center Terminal

(1) Outline of Batam Center Terminal

42. Batam Center is a designated terminal for international passenger ships, and it has two pontoons with a depth of 6m. The terminal building has an approximate area of 4,000 m^2. The function of the international passenger terminal shifted from Batu Ampar to Batam Center in 2003. Photo 8-4-3-1 shows a pontoon and a trestle connecting to the pontoon.

Photo 8-4-3-1 Pontoon for Passenger Ship at Batam Center Terminal

Source: Study Team

43. The existing layout of Batam Center Terminal is shown in Figure 8-4-3-1.

44. Table 8-4-3-1 shows the number of passengers using this terminal in 2004. They come and go mainly from/to Singapore.

Table 8-4-3-1 Number of Passenger through Batam Center Terminal in 2004

Month	Arrival	Departure	Total
January	106,225	103,777	210,002
February	68,530	96,449	164,979
March	97,213	97,845	195,058
April	94,304	97,612	191,916
May	103,323	105,853	209,176
June	104,529	112,934	217,463
July	115,386	117,197	232,583
August	108,277	112,470	220,747
September	103,588	107,663	211,251
October	106,624	107,647	214,271
November	127,891	113,720	241,611
December	137,961	138,605	276,566
Total	1,273,851	1,311,772	2,585,623

Source: Batam Port Authority

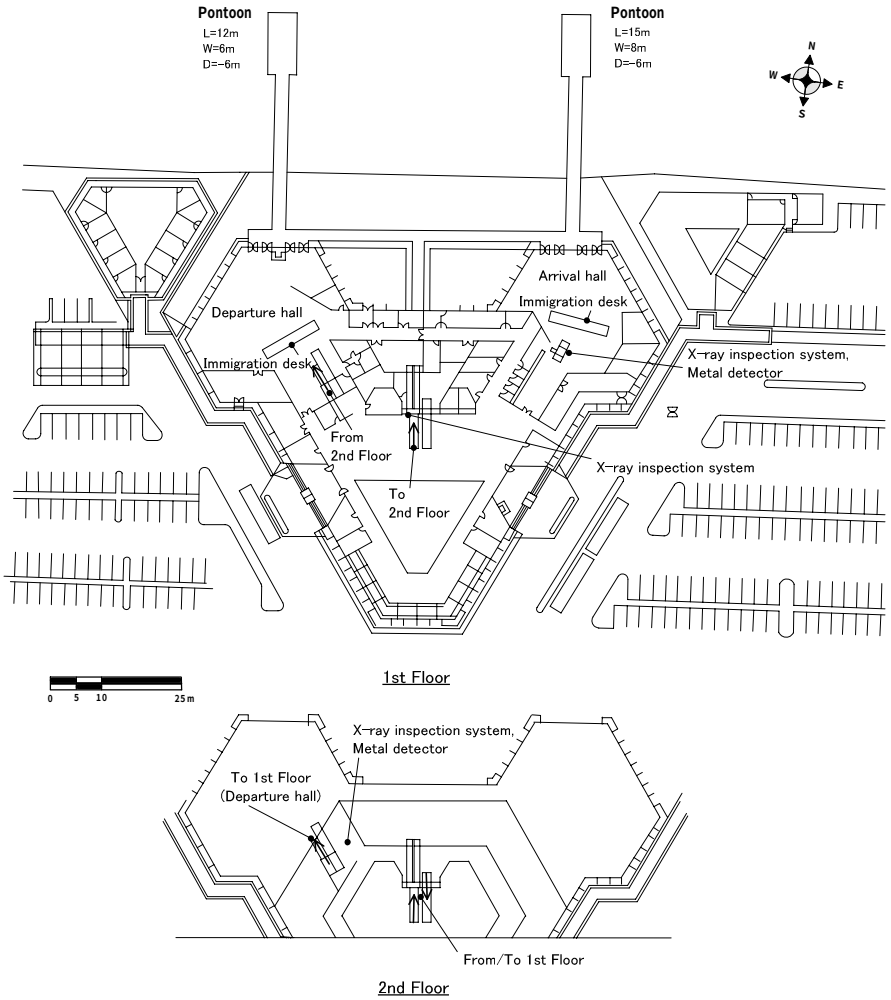


Figure 8-4-3-1 Layout Plan (Passenger Terminal)

45. The owner of Batam Center is the Batam Port Authority. However, it is operated by PT. Synergy Tharada, a private company.

(2) Port Facility Security Measures

46. Present situation of port facility security measures at Batam Center Terminal is as follows:

- The entrance for embarkation is separated from that for debarkation, but passengers intersect each other at the passage. In addition, check- in baggage is piled at this passage.
- Security check is conducted for in-coming/out-going passengers and their belongings by X-ray inspection device, walk-through metal detector and hand-held metal detector. Check-in baggage is checked by X-ray inspection device.
- The terminal including the terminal building is monitored and patrolled by security guards.
- A PFSO is an official of the operating company.

47. Issues on implementation of port facility security measures at Batam Center Terminal are as follows:

- There is a fence on the boundary between the terminal building and a shop neighboring to the east and a gate between the fence and the shop. Due to the lack of height of the fence, it is possible to climb over the fence or to exchange baggage. The height of the gate is also low and therefore a person can easily enter the terminal building.
- The entrance for embarkation is separated from that for debarkation, but passengers intersect each other at the passage. In addition, checked baggage is piled at the passage.

48. Recommendations on the port security are shown below:

- The height of the fence on the border with the shop should be increased and a top guard should be added. The gate at the shop should also be improved in a similar manner. The edge of the fence to the sea should have an over-hanging barrier.
- When it is foreseen that passengers will intersect at the passage, operators should have embarking passengers wait in a departure hall until all debarking passengers have cleared the passage. In such a case standing security guards should be increased in number.
- Checked baggage should not be left at the passage. Security guard should carefully monitor checked baggage.
- Some part of the terminal is dark during the night due to the signboard at the revetment on the waterside line. Lighting system should be improved.

8-4-4 Sekupang Terminal

(1) Outline of Sekupang Terminal

49. Sekupang is composed of an international passenger terminal, domestic passenger terminal and domestic cargo terminal. Only the international passenger terminal has complied with ISPS.

50. The international passenger terminal has two pontoons with a depth of 6-13m. The area of the existing terminal is approximately 2,500 m^2. The renewal of the terminal building has

just begun and will be completed in 2006. Photo 8-4-4-1 shows a pontoon and a trestle connecting to the pontoon.

Photo 8-4-4-1 Pontoon for International Passenger Ship at Sekupang Terminal

Source: Study Team

51. The existing layout of Sekupang Terminal is shown in Figure 8-4-4-1.

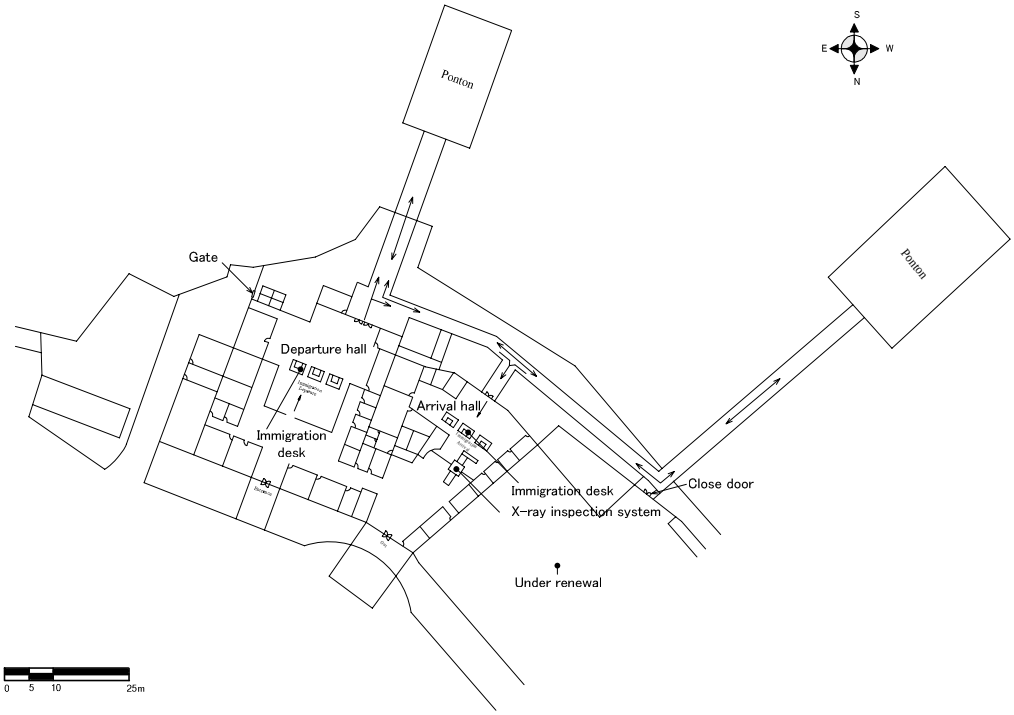


Figure 8-4-4-1 Layout Plan (Passenger Terminal)

52. The number of passengers and the ship calls at Sekupang terminal are shown in Table 8-4-4-1 and Table 8-4-4-2, respectively. Both have been decreasing in recent years. International ship calls reach an average of 25 per day in 2005, with Singapore as the trunk-route.

Table 8-4-4-1 Number of Passenger through Sekupang Terminal

Year	2001	2002	2003	2004
International				
Debarkation	562,761	538,645	494,331	495,874
Embarkation	573,992	565,427	507,119	224,747
Domestic				
Debarkation	1,020,977	763,238	782,850	758,194
Embarkation	889,429	662,485	602,362	567,266
Total	3,047,159	2,529,795	2,386,662	2,046,081

Source: Batam Port Authority

Table 8-4-4-2 Ship Calls at Sekupang Terminal

Year	2001	2002	2003	2004
International Cargo Vessel	13,378	13,224	11,081	9,054
Domestic Cargo Vessel	12,149	11,065	10,352	10,318
Total	25,527	24,289	21,433	19,372

Source: Batam Port Authority

53. Sekupang Terminal is owned by Batam Port Authority and operated by a private company based on a contract with Batam Port Authority.

(2) Port Facility Security Measures

54. Present situation of port facility security measures at Sekupang Terminal is as follows:

- As the terminal is under renewal, the PFSP will be changed in accordance with the progress of renewal works.
- The entrance for embarkation is separated from the one for debarkation, but passengers sometimes intersect each other at the passage.
- Security check is conducted only for in-coming passengers and their belongings by X-ray inspection device.
- In the terminal building and piers, security guards monitor by standing at appropriate positions and patrolling.
- Patrol by patrol boat is not conducted.

55. Issues on implementation of port facility security measures at Sekupang Terminal are as follows:

- It is dark during the night at the landside area of access bridges for pontoons.
- The door placed at the east side of the international passenger terminal which is usually used by seamen is not locked.
- There is no X-ray inspection device that checks baggage of embarking passengers.

56. Recommendations on Port Security are as follows:

- The over-hanging fence should be installed near the door at the east side of the international passenger terminal to deter intruders.
- In case that it is expected that passengers intersect at the passage, operators should have embarking passengers wait in a departure hall until all debarking passengers pass the passage. In such a case standing security guards should be increased in number.

- The gate should be locked when security guards are not present.
- Embarking passengers and their belongings should be checked by X-ray inspection device. (When the site survey was carried out, the Study Team heard that X-ray inspection equipment would be installed in August 2005.)
- In a part of the terminal, the lighting is not sufficient for monitoring during the night. The lighting system should be repaired and improved.
- During operations, the water area around the terminal should be monitored.
- The terminal is closed at night. Therefore, before starting operation in the morning patrol should be conducted to ensure that no suspicious persons or unusual objects are present in and around the restricted area.

8-5 PORT OF TELUK BAYUR

8-5-1 Outline of Teluk Bayur Port

57. Teluk Bayur Port is located at Bayur Bay (Padang City) on the West Coast of Sumatra at latitude 01°00'04" south and 100°21'00" east. As the primary port on the West Coast of Sumatra, Teluk Bayur Port serves the major commodities from its hinterland area such as coal, cement, crude oil, fertilizer, rubber, crude palm oil, etc. Location of Teluk Bayur Port is shown in Figure 8-5-1-1.

58. The port basin connected with a channel has an area of 30.89 ha with depth between 9-12 meters. The maximum current speed at high tide water is about 0.4-0.5 knots and its main direction is 330 degrees. Sometimes the current speed increases up to 2-3 knots.

59. The public facilities which handle international cargo are container wharf and general cargo wharf. Both facilities handle international and domestic cargo.

60. Since the port area has become congested recently, a port expansion project is planned at the east side of Bayur Bay with a target year of 2030 in order to cope with the increasing demand.

Figure 8-5-1-1 Location of Teluk Bayur Port

8-5-2 Layout Plan of the Port

61. Overview of Teluk Bayur Port is shown in Figure 8-5-2-1. Port facilities include a container wharf, general cargo wharf, crude palm oil (CPO) wharf, cement wharf and coal wharf. The port area is fenced off. The main road runs in the direction of east-west in close vicinity to the port area.

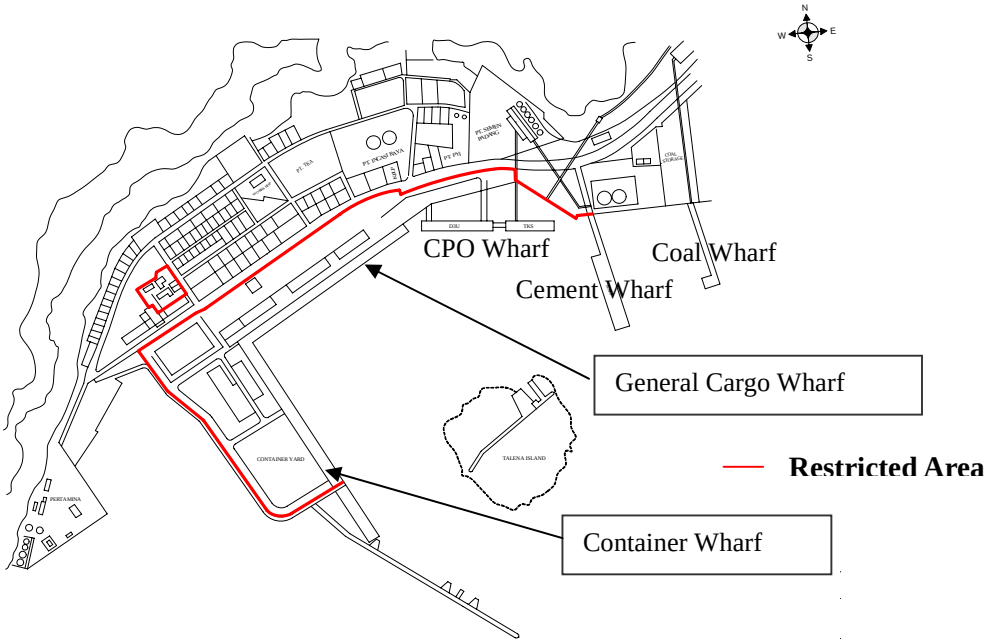


Figure 8-5-2-1 Overview of Teluk Bayur Port

8-5-3 Cargo Volume and Number of Ship Calls

62. Cargo volume and number of ship calls at Teluk Bayur port are shown in Table 8-5-3-1 and 8-5-3-2. Main exported commodities are crude palm oil, cement, clinker, coal and rubber, while main imported commodities are fertilizer and gypsum.

Table 8-5-3-1 International Cargo Volume

Unit: ton

Year	2001	2002	2003	2004
Import	224,449	338,955	311,429	327,628
Export	2,067,532	2,574,174	2,027,033	2,622,757
Total	2,291,981	2,913,129	2,338,462	2,950,385

Source: Teluk Bayur Branch

Table 8-5-3-2 Number of International Ship Calls

Year	2001	2002	2003	2004
International Ship Calls	366	322	237	299

Source: Teluk Bayur Branch

8-5-4 Port Management System

63. Organization charts of Teluk Bayur Port Administrator Office (ADPEL Teluk Bayur) and PELINDO II Teluk Bayur Branch are shown in Figure 8-5-4-1 and 8-5-4-2, respectively. PSO is a head of guard & rescue division of ADPEL Teluk Bayur and PFSO is a head of

planning & control division of PELINDO II Teluk Bayur Branch. Port security committee, which consists of related organizations such as ADPEL, PELINDO, KPPP and Customs has been established.

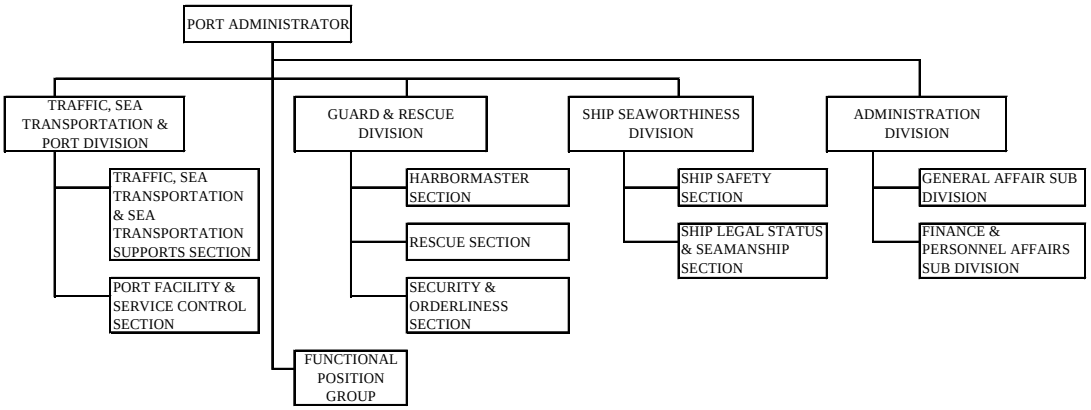


Figure 8-5-4-1 Organizational Structure of Teluk Bayur Port Administrator Office

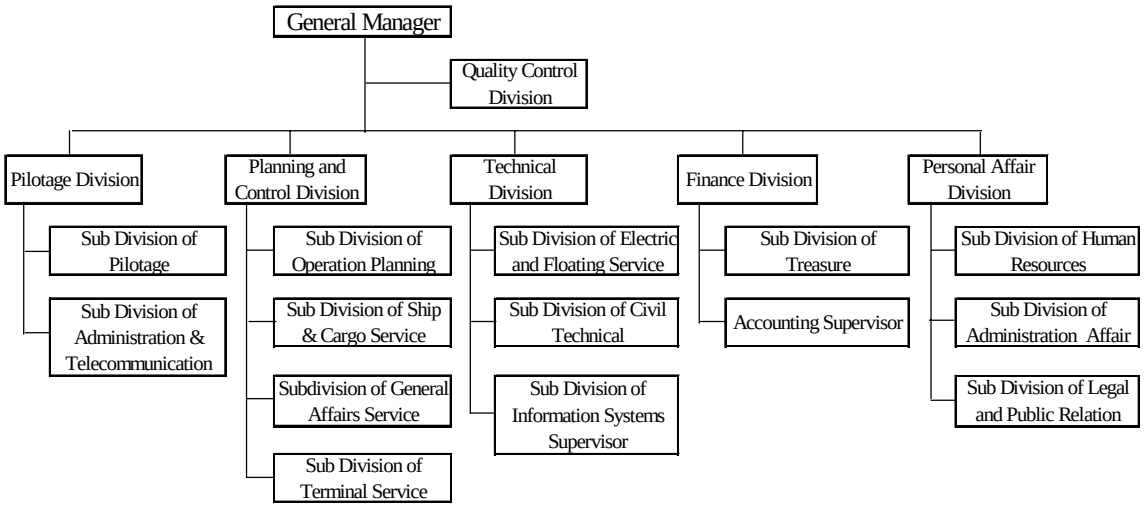


Figure 8-5-4-2 Organizational Structure of PELINDO II Teluk Bayur Branch

8-5-5 Present Situation of Port Facility Security Measures

64. Present situation of port facility security measures is described below:

- There are six gates in the restricted area of the port. Among them, four gates are closed and opened if needed for operation. Access control is conducted at the other two gates by four security guards from KPLP, PELINDO II and KPPP respectively around the clock. Security bar is installed at these two gates.
- Security guards check ID cards for government official, operator, and users such as forwarder and ID stickers for truck and ship stores car.
- The existing restricted area includes both the international and domestic cargo handling areas. The fence structure along the restricted area is in good condition except for the broken top guard at some parts and the hole in the fence at container wharf. However, there are tall trees and bushes beside some parts of the fence.
- Since international wharves handle international and domestic cargo, a mobile fence is set up in the cargo handling area when an international ship calls.

However, no security personnel are stationed at the berthing area during cargo operations.
- There is no CCTV camera monitoring system in the container wharf area.
- The gate leading to the unused oil jetty is always left unlocked.
- The water area including the wharf side and anchorage is patrolled once a day.

8-5-6 Issues on Implementation of Port Facility Security Measures

65. Issues on implementation of port facility security measures are shown below:

- The top guard at some parts of the fence along the restricted area is broken and there is a hole in the fence at the container wharf. In addition, there are tall trees and bushes beside some parts of the fence.
- Since international wharves handle international and domestic cargo, a mobile fence is set up in the cargo handling area when an international ship calls. However, no security personnel are stationed at the berthing area during cargo operations.
- There is no CCTV camera monitoring system in the container wharf area.
- The gate leading to the unused jetty area is always left unlocked.

8-5-7 Recommendations on Port Security

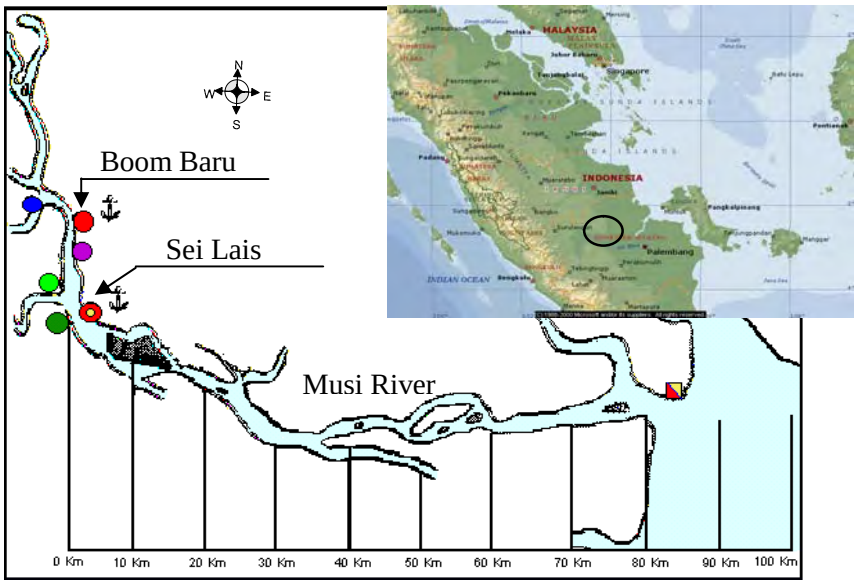
66. Recommendations on port security are as follows:

- The CCTV camera monitoring system should be installed in the container wharf area.
- The broken top guard at some parts and the hole in the fence at the container wharf should be repaired.
- The tall trees and bushes beside the fence should be cut in order to allow security personnel to have a better view in the day and at night.
- Security personnel should be stationed at the berthing area during cargo operations when a mobile fence is set up in the cargo handling area for an international ship.
- The water area should be patrolled more frequently.

8-6 PORT OF PALEMBANG

8-6-1 Outline of Palembang Port

67. Palembang Port is a large port located on the Musi River, the largest river running from the western mountains area through the central low land to the east coast in south Sumatra. The port plays an important role in the social economic activities of south Sumatra. It has served the regional economy since 1924 at the present location. Now there are many private factories of the petroleum, fertilizer, and plywood industries operating at the wharves along the Musi River. Within Palembang Port, Boom Baru and Sei Lais are public ports owned by PELINDO II. Lais Port is 8 km downstream from Boom Baru Port and handles domestic cargo. Boom Baru Port has conventional, container and (domestic) passenger terminals lined in a row. The container terminal of Boom Baru is equipped with a quay side crane to handle international containers. Security facilities and equipment is insufficient and improvement is urgently required. Palembang port has a long channel and patrolling the water area is one of the major concerns.



Source: PELINDO II Palembang Branch

Figure 8-6-1-1 Location Map of Palembang Port

8-6-2 Layout Plan and the Restricted Area

68. The layout plan of Palembang Port (Boom Baru) is shown in Figure 8-6-2-1. Container terminal for international trade, which has a total length of 366m and water depth of -9m, is located at the east side while the domestic passenger terminal is on the west side. The conventional terminal, total length 370m and water depth of -6 to -7m, is located between the container terminal and passenger terminal. There is a crude palm oil plant near the container terminal. Terminal for the palm oil is next to the container terminal on the east side. There is a main road from Palembang city but no railway to the terminal.

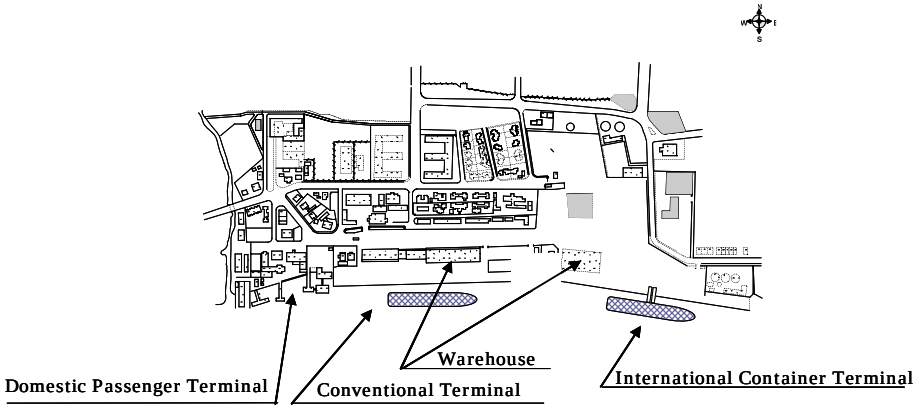


Figure 8-6-2-1 Layout Plan

8-6-3 Cargo Handling Volume

69. Number of vessels and cargo handling volume from 2000 to 2004 are shown in the following tables.

Table 8-6-3-1 Number of Vessel Call

Year			2000	2001	2002	2003	2004
International Shipping	liners	Call	355	347	236	258	196
		GRT	1,199,382	1,036,746	1,412,942	976,979	991,175
	Trampers	Call	473	501	411	501	661
		GRT	1,897,309	2,327,057	1,591,357	2,092,674	3,230,161
Subtotal		Call	828	848	647	759	857
		GRT	3,096,691	3,363,803	3,004,299	3,069,653	4,221,336
Demestic Shipping		Call	3,150	2,857	2,919	2,937	3,015
		GRT	8,752,641	7,499,904	8,147,774	8,195,336	7,389,012
Total		Call	3,978	3,705	3,566	3,696	3,872
		GRT	11,849,332	10,863,707	11,152,073	11,264,989	11,610,348

Source: Palembang Port Branch

Table 8-6-3-2 Cargo Volume from 2000 to 2004

Unit: ton

Year		2000	2001	2002	2003	2004
International	Import	328,980	282,211	329,218	197,525	141,344
	Export	1,194,815	1,371,558	1,292,315	1,232,884	1,551,303
Sub-total		1,523,795	1,653,769	1,621,533	1,430,409	1,692,647
Domestic	Unloading	1,416,521	1,424,816	1,966,192	2,272,585	2,742,638
	Loading	7,983,123	7,544,639	7,068,802	7,317,171	6,573,651
Sub-total		9,399,644	8,969,455	9,034,994	9,589,756	9,316,289
Total		10,923,439	10,623,224	10,656,527	11,020,165	11,008,936
Container		493,000	461,008	523,200	605,789	706,191
(TEU)		*45,946*	*43,176*	*46,737*	*54,091*	*58,612*

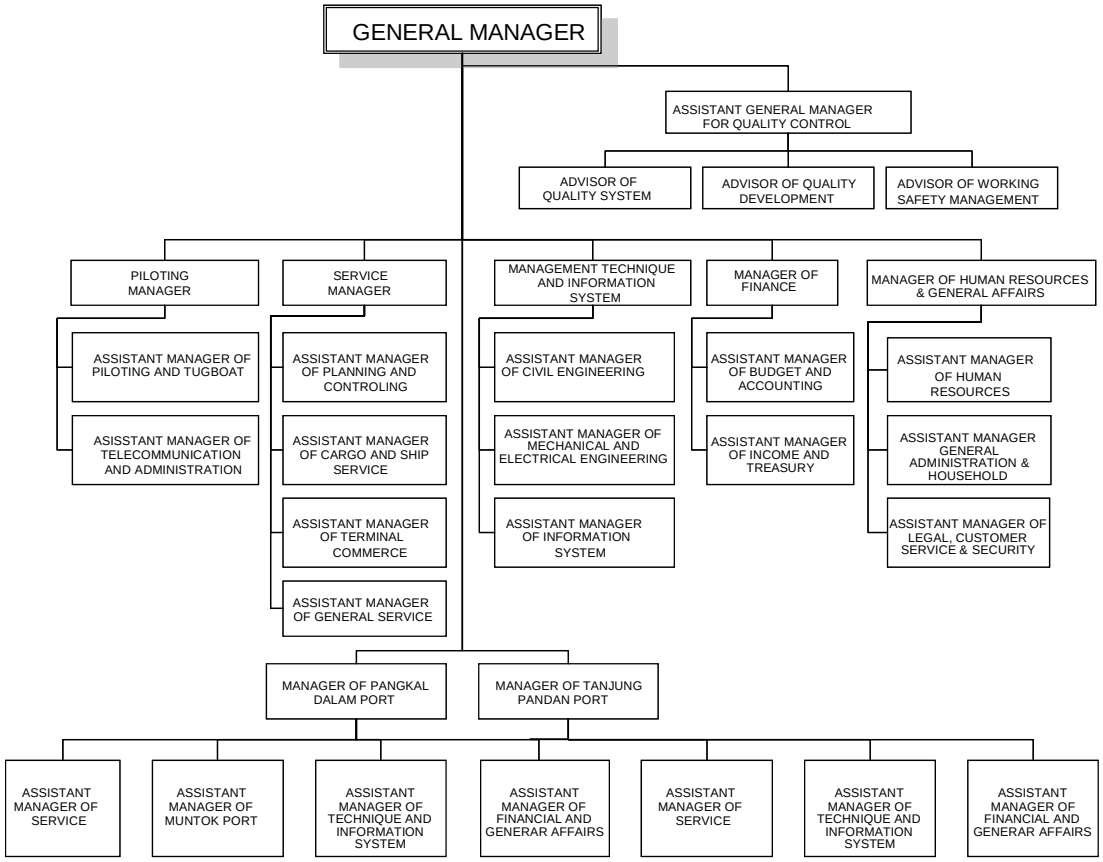
Source: PELINDOII Palembang Branch

8-6-4 Port Management System

70. PELINDO II Palembang Branch has five divisions (General, Piloting, Service, Technical, Finance) under the General Manager. General division is responsible for personnel and general administrative affairs; Piloting division is responsible for Piloting tug boat and telecommunications. Service division is responsible for Planning and Controlling, Cargo and Ship and Terminal commerce. Technical Division is responsible for port construction and port maintenance. There are two regional branches (Pangal Dalam Port and Tanjung Pandan Port) under General Manager. Organization chart of Palembang Branch is shown in Figure 8-6-4-1. A PFSO of the conventional and container terminals, a deputy PFSO and five security personnel are assigned. Security organization chart of PELINDO II regarding Palembang port is shown in Figure 8-6-4-3.

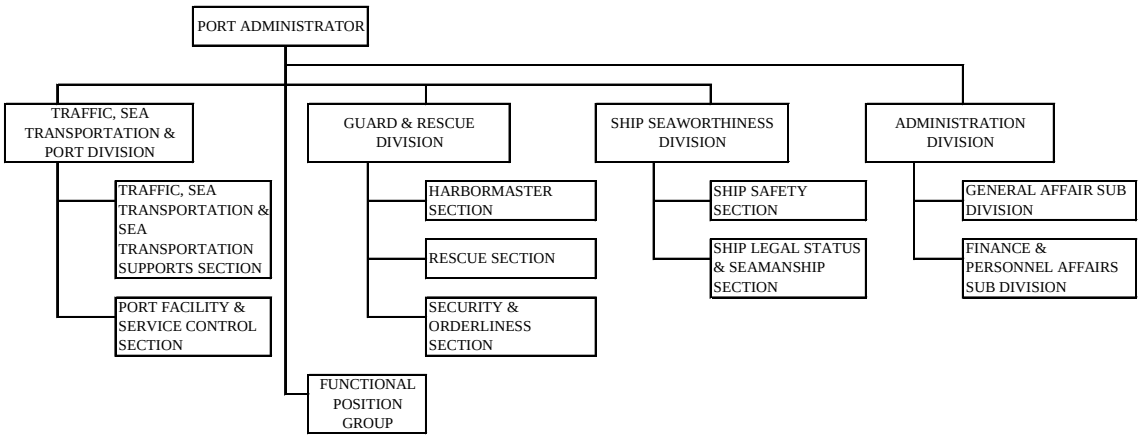
71. Organization chart of Palembang Port Administrator Office is shown in Figure 8-6-4-2.

72. There is Port Security Committee in Palembang Port, whose chair person is the Port Administrator of ADPEL Palembang Branch. Port Security Committee consists of members from ADPEL including KPLP, PELINDO II Palembang Branch, private company and so on.



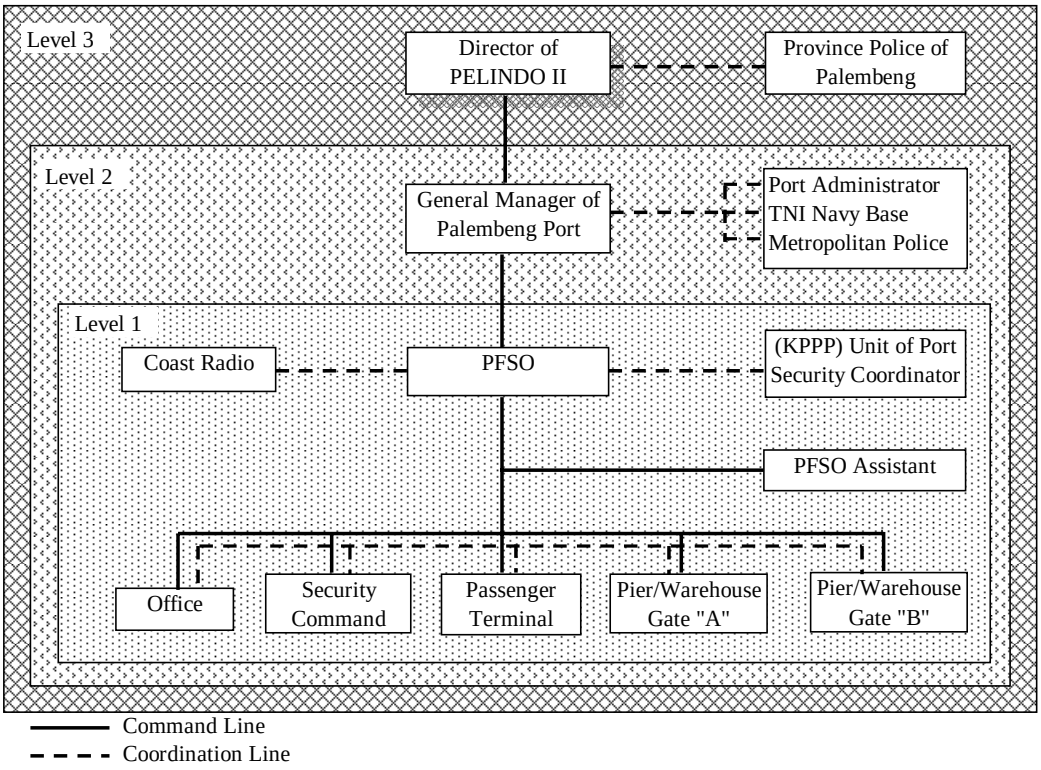
Source: PELINDO II Palembang Branch

Figure 8-6-4-1 Organization chart of Palembang Branch



Source: Palembang Port Administrator Office

Figure 8-6-4-2 Organization Chart of Palembang Port Administrator Office



Source: PELINDO II Palembang Branch

Figure 8-6-4-3 Security Organization of PELINDO II Regarding Palembang Port

8-6-5 Present Situation of Port Facility Security Measures

73. Present situation of port facility security measures based on the site survey is shown below:

- There are flags which indicate the security level at the port office and warehouse.
- There are four gates for Palembang port. One is for the container terminal, two for the conventional terminal and another for the passenger terminal. The fence is in good condition except the portion which partitions off the west end of terminal.
- Security guards and KPLP conduct control at the gate but no ID l is checked.
- Security guard and KPLP conduct tight access control at the Container terminal gate 24 hours a day.
- Patrol boats can be used for patrol at security level 2. The boats are used for not only security purpose but also safety and transportation.
- Palembang Port issues stickers for entering vehicles.
- Security guards patrol the gate and terminal periodically.

8-6-6 Issues on Implementation of Port Facility Security Measures

74. Issues on implementation of port facility security measures are shown below:

- Fence near the gate of the conventional terminal is low and aged.
- Clearance gap between the gate/fence and ground surface is about 20cm in the container terminal and conventional terminal.

- Fence which partitions off the west end of the terminal is not high enough.
- Although the gates of two terminals have a boom for stopping vehicles, the booms are always up (are not used).
- Some security guards who conduct access control and patrol the port area have no radio communication device.
- ID has not been checked at gates.
- Many unauthorized vehicles park in the restricted area.

8-6-7 Recommendation on Port Facility Security

75. Recommendation on port facility security for Palembang Port is as follows.

1) Security equipment
   - Repair of the gate at the container terminal is necessary. The gate should be installed with a boom for car stopping.
   - Handy metal detectors and mirrors for the conventional terminal and the container terminal are necessary.
   - A communication device should be given to all security guards who patrol in the terminal.
   - CCTV camera, lighting and Public Address system are necessary for Palembang Port.

2) Access control
   - Access control at the conventional terminal and container terminal, for example Photo ID check at the gate, should be conducted more strictly.
   - Patrol in the conventional terminal should be conducted strictly.
   - Fishermen should not be permitted in the conventional terminal

8-7 PORT OF PANJANG

8-7-1 Outline of Panjang Port

76. Located in the province of Lumpung, Port of Panjang is one of the main ports in South Sumatra. This port has a container terminal and facilities for liquid bulk, dry bulk and break bulk cargo, and is one of the best ports on the Sunda straits international sea lane passage.

77. The port is connected with the hinterland by access road, which transports and distributes mining product and agricultural goods.

Figure 8-7-1-1 Location of Panjang Port

8-7-2 Layout Plan of the Port

78. The existing layout of Panjang Port is shown in Figure 8-7-2-1.

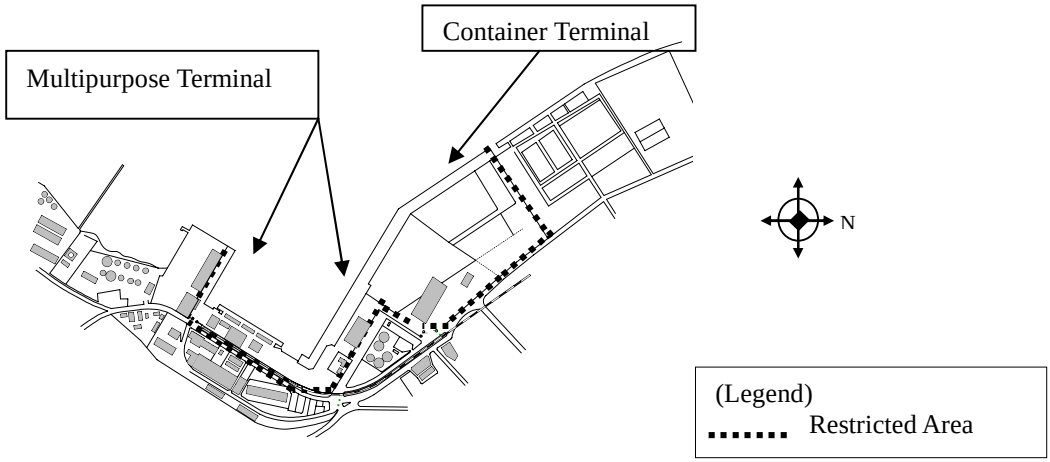


Figure 8-7-2-1 Existing Layout at Panjang Port

8-7-3 Cargo Volume and Number of Ship Calls

79. Cargo handling volume and ship calls at Panjang port are shown in Table 8-7-3-1. Ship calls have fluctuated in recent years though general cargo handling volumes have steadily increased.

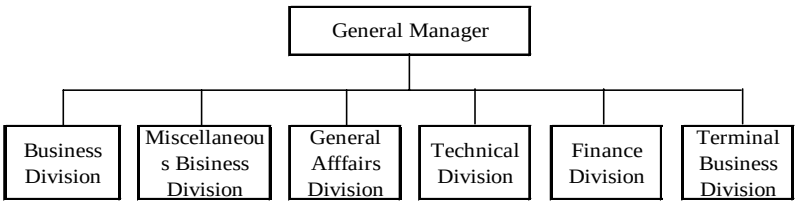
Table 8-7-3-1 Ship Calls at Panjang Port

Description	2002	2003	2004
International Ship Call	681	551	556
Domestic Ship Call	1,829	1,781	1,873
Total Ship call	2,510	2,332	2,429
International Cargo Flow(ton)	3,479,604	3,604,621	4,727,475
Domestic Cargo Flow(ton)	7,914,780	7,944,021	7,861,326
Total Cargo Flow (ton)	11,394,384	11,548.642	12,588,801
Container Flow(TEUs)(Domestic)	76,134	71,248	85,130

Source: PELINDO II Port of Panjang

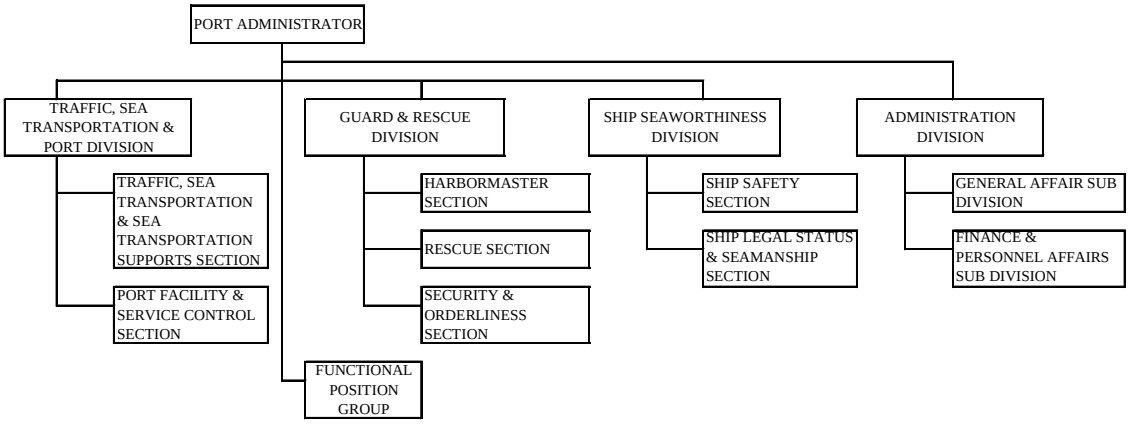
8-7-4 Port Management System

80. Panjang Port is managed and operated by PELINDO II itself. Figure 8-7-4-1 shows the organization of PELINDO II Panjang Port. ADPEL administers the port area. Figure 8-7-4-2 shows the organization of ADPEL Panjang Port. Port security committee, which consists of related organizations such as ADPEL, PELINDO, KPPP and Customs, has been established.



Source: PELINDO II

Figure 8-7-4-1 Organization of PELINDO II Panjang Port



Source: ADPEL Panjang Port

Figure 8-7-4-2 Organization of ADPEL Panjang Port

8-7-5 Present Situation of Port Facility Security Measures

81. Present situation of port facility security measures at Panjang port are as follows:

- PELINDO II has designated two areas where security measures are required. One is a restricted area of which boundary is called the first line. The other is an outer area surrounding the restricted area of which boundary is called the second line. Double-gate access control system is adopted in the port. Main gate at which the entrance fee is collected from vehicles and visitors is located on the second line. The gate of each terminal is located on the first line.
- The restricted area is enclosed by a fence or wall with a height of over 2m. ID cards, visitor cards and sticker of vehicles are checked and visitors are questioned when they pay the entrance fee at the gates. When the team conducted the site survey on access control, 5-6 security guards implemented the access control at the gate. However, when the teams passed through in front of the gate after the site survey was finished, they found that there was only one security guard at the gate.
- There are some breakages in the mobile fences that divide the terminal area.

8-7-6 Issues on Implementation of Port Facility Security Measures

82. Issues on implementation of port security measures on Panjang port are as follows:

- Damage to the fence at the wharf was observed.
- Fishing boats were observed near the international vessel mooring wharf.

8-7-7 Recommendations on Port Security

83. Recommendations on port security are shown below:

- Improvement or renewal of the fence which is low standard.
- Ensure the surveillance on the water area and wharf side, for example, by increased patrol boats and security guards.
- Installation of CCTV system to ensure surveillance in the restricted area at all times.

8-8 PORT OF TANJUNG PRIOK

8-8-1 Outline of Tanjung Priok Port

84. Tanjung Priok port is the largest port in Indonesia which accommodates many ocean going vessels and supports the nation's economy. It may become an international hub port and coastal feeder port as well. Because Indonesia is an archipelago, the role of ports is very important. Various industries located throughout Indonesia are depending on ports.

85. Tanjung Priok Port was originally constructed from 1877 to 1883. The port was expanded in 1912 to accommodate the increasing cargo volumes and ship calls.

86. Since the ISPS Code came into force on July 1 2004, the first stage of port security facility and equipment development on land side has been ongoing at Tanjung Priok Port.

Figure 8-8-1-1 Location Map of Tanjung Priok Port

8-8-2 Layout Plan of the Port

87. A layout plan of Tanjung Priok Port, considering facilities under PELINDO II, JICT and KOJA, is shown from Figure 8-8-2-1 Eight PFSPs including ones for four private terminals were formulated for Tg. Priok Port. The terminals other than those of private companies are as follows:

- Conventional terminal operated by PELINDO. Dry bulk such as cement, liquid bulk, general cargo and containers are handled.
- MIT (Container terminal sponsored 100% by the government)
- JICT (Container terminal sponsored and operated by concession contract by JICT, JV of PELINDO and Hutchison)
- KOJA (Container terminal sponsored and operated by concession contract by KOJA, JV of PELINDO and Hutchison)

88. Port facilities of the conventional terminal owned by PELINDO II Tanjung Priok Port and operated by private company are as follows:

- 005 to 007 berths; length 3@180m=540m, water depth -7m, cargo; plywood, general cargo, container, etc.
- 101 to 104 berths; length 556m, water depth -7m, cargo; ammonia, CPO, general cargo, container, etc.
- 109 to 203 berths; length 1,891m, water depth -7 to -9m, cargo; plywood, CPO,

rice, cement, soybeans, general cargo and container

- 208 to 305 berths; length 2,314m water depth -9 to –12m, cargo; sugar, rice, pulp, cement, steel, soybeans, scrap iron, general cargo, container, etc.

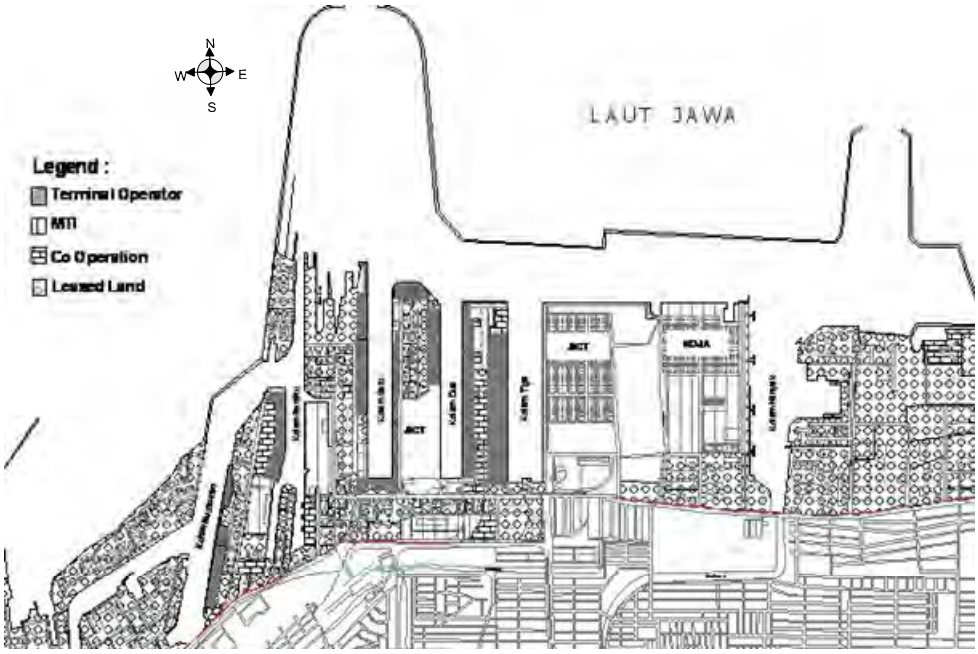


Figure 8-8-2-1 Layout Map of Tanjung Priok Port

8-8-3 Cargo Volume and Number of Vessel Calls

89. Number of vessel calls, cargo handling volume and container cargo handling volume in Tanjung Priok Port from 2000 to 2004 are as follows.

Table 8-8-3-1 Number of Vessel Calls in Tanjung Priok Port

Year	2000	2001	2002	2003	2004
International	1,609	1,405	701	352	589
Container	3,102	3,557	3,853	3,807	3,985
Inter-island	9,508	10,033	10,016	10,304	10,657
Tanker	986	737	703	716	687
Off Shore	1,176	1,336	1,049	458	244
Total	16,381	17,068	16,322	15,637	16,162

Source: PELINDO II Tanjung Priok Por

Table 8-8-3-2 Cargo Handling Volume in Tanjung Priok Port

Unit: ton

Year	2000	2001	2002	2003	2004
Import	9,455,562	10,846,549	11,813,315	11,327,570	12,161,217
Export	5,239,703	5,208,969	4,440,417	4,329,251	5,675,937
Inbound	12,677,459	12,579,993	14,123,243	13,846,718	13,546,588
Outbound	4,269,769	4,339,334	5,227,419	3,807,080	4,688,972
Total	31,642,493	32,974,845	35,604,394	33,310,619	36,072,714

Source: PELINDO II Tanjung Priok Por

Table 8-8-3-3 Cargo Handling Volume in Conventional Terminal

Unit: ton

Year	2000	2001	2002	2003	2004
General Cargo	8,476,519	9,861,152	9,792,976	5,952,311	4,035,195
Bag Cargo	2,448,881	3,769,330	2,757,960	2,374,160	1,434,571
Liquid Cargo	10,542,150	9,820,611	10,670,552	10,486,126	11,034,843
Dry Bulk	9,026,625	7,243,533	6,760,100	7,107,313	10,177,616
Container	870,318	2,279,859	5,622,806	7,390,725	9,391,489
Total	31,364,493	32,974,485	35,604,394	33,310,635	36,073,714

Source: PELINDO II Tanjung Priok Por

Table 8-8-3-4 Container Handling Volume at Koja and JICT

Unit: TEU

Year	2000	2001	2002	2003	2004
JICT	1,531,800	1,500,000	1,532,450	1,502,883	1,636,290
KOJA Container	494,795	490,120	551,179	547,280	615,253
Total	2,026,595	1,990,120	2,083,629	2,050,163	2,251,543

Source: PELINDO II Tanjung Priok Port

8-8-4 Port Management System

90. PELINDO II Tanjung Priok Branch is under control of the General Manager who is assigned by the Board of Directors of PELINDO II. The Deputy General Manager assists the General Manager to coordinate operational activities. There are nine divisions in the Branch: Purchasing & Logistic Division, Quality Control Division, Property Division, Technical Division, Finance Division and Personal Division under the GM, and Planning & Control Division, Pilotage Division and Customer Division under the deputy GM. Organization chart of PELINDO II Tanjung Priok Branch is shown in Figure 8-8-4-1.

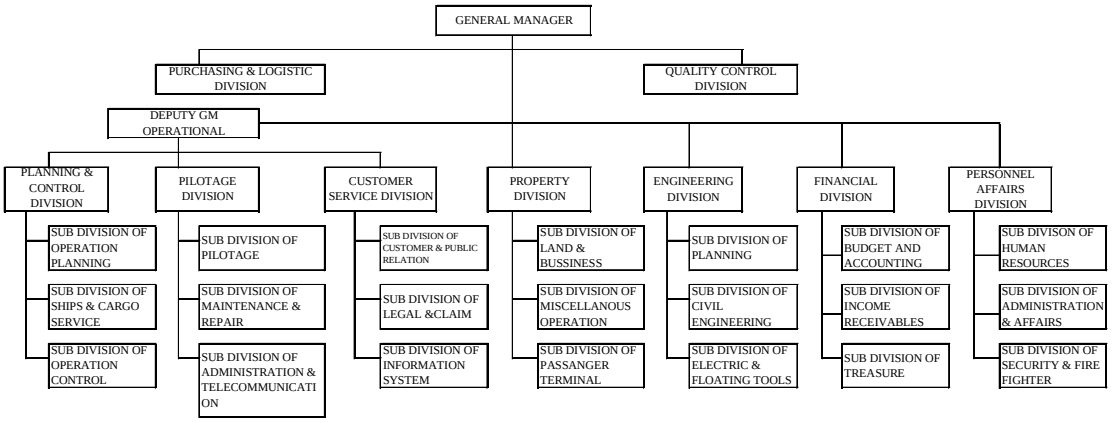


Figure 8-8-4-1 Organization Chart of PELINDO II Tanjung Priok Branch

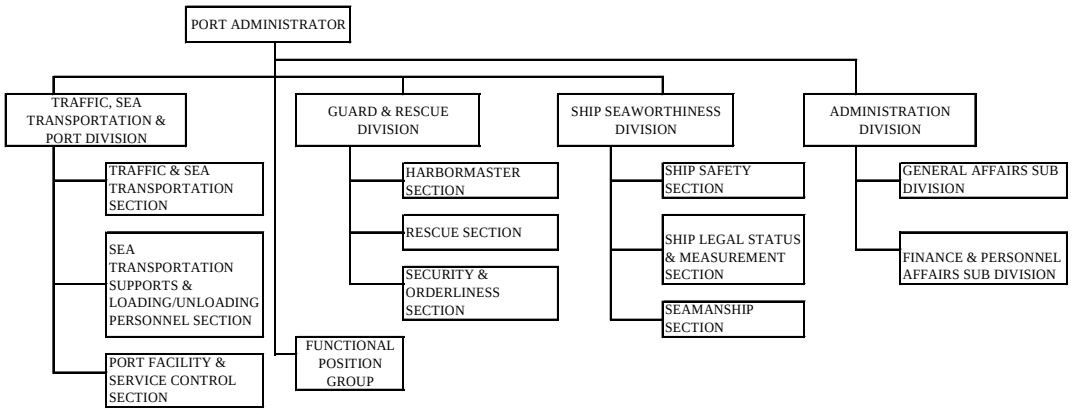


Figure 8-8-4-2 Organization Chart of Administration of Tanjung Priok Port

91. Port Security Committee in Tanjung Priok Port is convened by an administrator of ADPEL. The PSC is composed of various members including PELINDO II, ADPEL and other related bodies. Duties, responsibilities and organization chart are shown in Figure 8-8-4-3.

Port Security Officer's duties and responsibilities

- To coordinate with related security element in Tanjung Priok Port
- To determine the security level (based on the decision of DGST through PSC)
- To coordinate communication, security and safety measures together with SSO, CSO and PFSO
- To inspect ships, companies and port facilities
- To record and report all the events related with security in the port
- To give approval of DoS Validation (DoS is concluded by a PFSO and a PSO witnesses.)
- To control ship/port meeting point or ship to ship activity

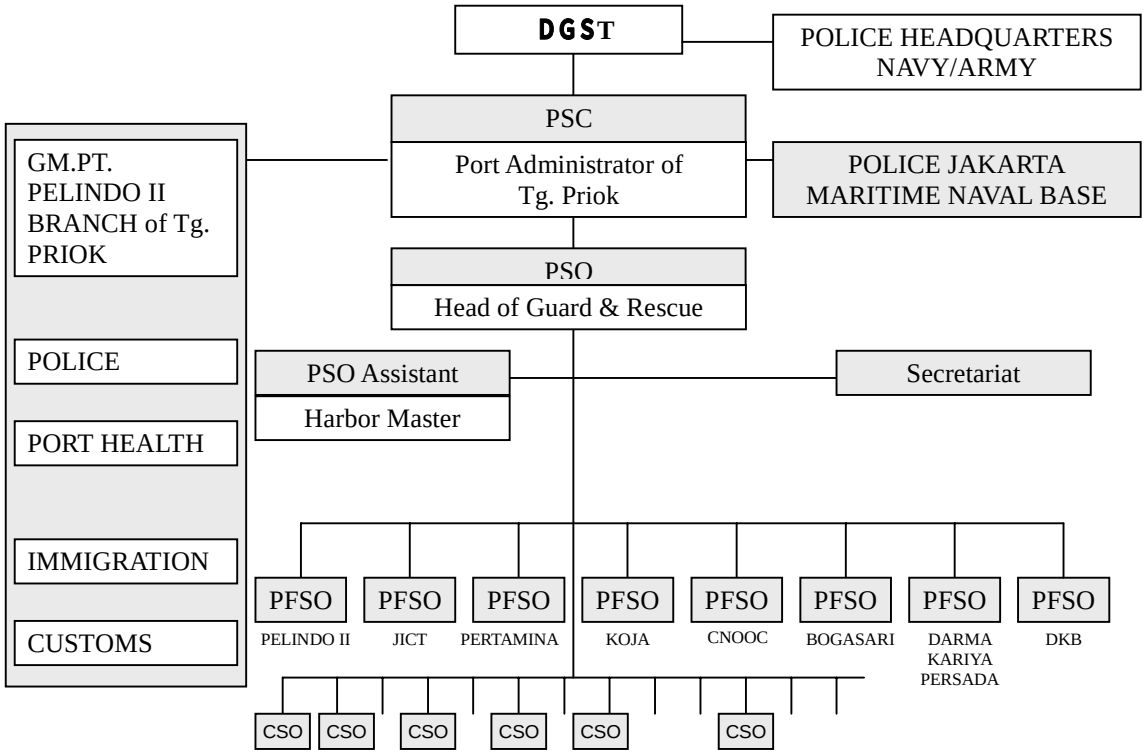
8-8-5 Present Situation of Port Facility Security Measures

92. Koja and JICT container terminal, which are operated by a private company, are under strict security control not only at the gate but also in the terminal. They have installed a perimeter fence and CCTV cameras that monitor the area 24 hours a day. MTI container terminal is a state owned company and has installed a perimeter fence but no CCTV camera. KPLP or KPPP patrol private terminals from water area to land area based on the intelligence.

93. The international berths other than Koja, JICT and MTI are managed by PELINDO II Tanjung Priok port. They are partitioned off by fence which is partially broken. Private operators have contracted to use the berths. Gates with car stopping boom are placed at the entrance of each terminal which have several berths and KPLP and KPPP control there.

94. CCTV cameras have installed in the international terminals operated by PELINDO II Tanjung Priok Branch. PELINDO II Tanjung Priok Branch issues stickers for vehicles entering the port.

95. Patrol on water area in the port is carried out by patrol boats belonging to ADPEL. The boats are used for not only security purpose but also safety and transportation.



PFSO responsible only for land patrol
Seaside patrol carried out by Guard & Rescue, Maritime police, Customs, Navy
Source: Study Team

Figure 8-8-4-3 Organization of PSC in Tanjung Priok Port

8-8-6 Issues on Implementation of Port Security Measures

96. Issues on implementation of port facility security measures are shown below:

- The number of public wharves amounts to 32 berths and their average length is 166m. Eighteen (18) different operators implement cargo handling on each of the contracted wharves, but wharves at which international ships berth are not fixed. Therefore all wharves are designated as the restricted area. However no security measures are taken for domestic vessels and cargoes.
- When an international vessel berths, mobile fences are placed on both edges of the wharf and security guards employed by an operator are deployed around the border. However, the length of the mobile fence is insufficient and it serves more as a marker than a barrier.
- Moreover, no strict access control is conducted at the gate placed at the entrance of the restricted area when an international vessel berths. Only check of individual ID and confirmation of vehicle sticker, access permission letter and cargo delivery/acceptance slip are sometimes conducted. In an extreme case, vehicles and persons can pass without any check.

8-8-7 Recommendation on Port Security

97. Recommendations on port security are follows:

- When an international vessel berths at a wharf, the wharf and cargo handling area should be separated by mobile fences and security guards should be

deployed as necessary.

- A clear zone along the fence should be maintained along the boundary of the restricted area.
- Some fences along the trunk road, which runs from west to east, can be climbed over and thus should be raised to the necessary height.
- Top guard should be attached on some gate and fence along the trunk road, which runs from west to east.
- The boom which is installed to stop vehicles at gates of PELINDO terminals should be pulled down while vehicles do not pass.

8-9 PORT OF PONTIANAK

8-9-1 Outline of Pontianak Port

98. Pontianak is the capital of West Kalimantan Barat which has a vast area of 146.807 km^2 and an industrial city of over 400 thousand. Pontianak port is the economic gate in the Province of West Kalimantan and the biggest port in Kalimantan Island. The port develops on the bank of the Kapuas Kecil River and its location is at 0°02' North Latitude, 0°05' South Latitude, and 109°16' - 109° 23' East Longitude. Location of Pontianak Port is shown in Figure 8-9-1-1.

99. Pontianak Port waters extend from the outer buoy to the toll bridge. The length of a channel from the estuary of Kapuas Kecil River to the port is 31 km. The channel in the river estuary of Kapuas Kecil River is 80 m in width and 4.7 LWS in depth.

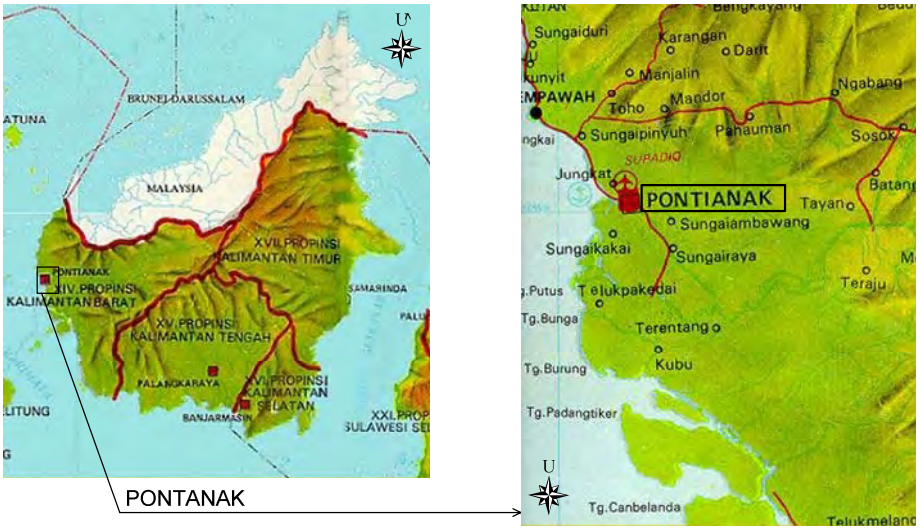


Figure 8-9-1-1 Location of Pontianak Port

8-9-2 Layout Plan of the Port

100. The location and the existing layout of Pontianak Port are shown in Figure 8-9-2-1.

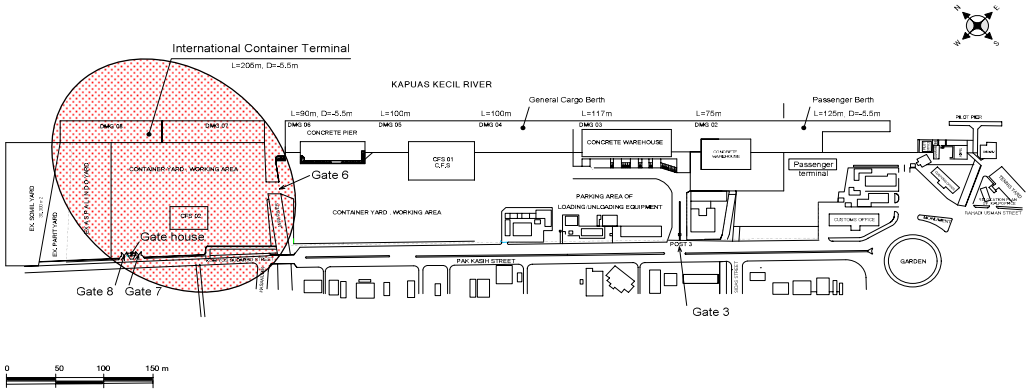


Figure 8-9-2-1 Layout Plan

101. Pontianak port is composed of an international container terminal on the west side of the port and a multipurpose terminal which is a consecutive wharf consisting of a general cargo and a passenger terminal on the east side of the port. In the international container terminal, not only international but also domestic containers are handled. Photo 8-9-2-1 shows the present situation of the international container terminal. Domestic containers are transported to a domestic container yard on the west side of the multi-purpose terminal. The multipurpose terminal also handles some domestic containers. International bulk trampers also berth at the multi-purpose wharf.

Photo 8-9-2-1 International Container Terminal at Pontianak Port

Source: Study Team

8-9-3 Cargo Volume and Number of Ship Calls

102. In 2003, 67 international container ships and 611 bulk cargo trampers called. There are three main routes, namely, to Singapore, Malaysia and Brunei. Ship calls at Pontianak port are shown in Table 8-9-3-1.

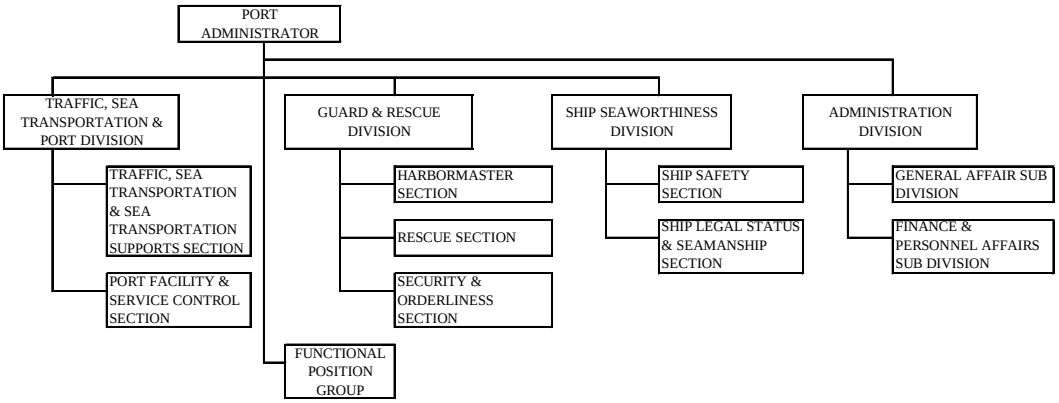
Table 8-9-3-1 Ship Calls at Pontianak Port

	2003	2004
International	678	520
Domestic	2,560	2,524
Traditional	246	237
State Ship	16	76
Total	3,500	3,357

Source: PELINDO II Pontianak Branch

8-9-4 Port Management System

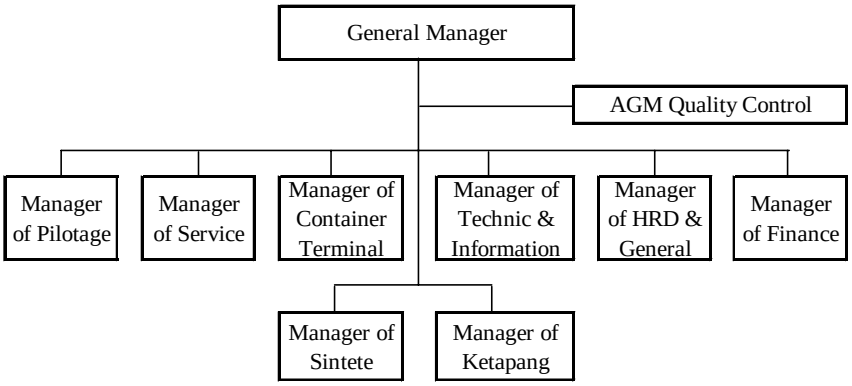
103. Organization of ADPEL Pontianak Port is as follows.



Source: ADPEL

Figure 8-9-4-1 Organization of Pontianak Port Administrator Office

104. Organizational Structure of PELINDO II Pontianak Branch is as follows.



Source: PELINDO II Pontianak Branch

Figure 8-9-4-2 Organization Chart of Pontianak Port, PELINDO II

8-9-5 Present Situation of Port Facility Security Measures

105. Present situation of port facility security measures at Pontianak Port is as follows:

1) Access Control at Gate
   - There are three gates at the international container terminal on the west side, that is, Gate 7 and 8 along the public road and Gate 6 at the bridge connecting international and domestic container yards.
   - Gate 7 and 8 are located on the opposite sides of the gate house. Gate 7 is designated for entry and Gate 8 is for exit. However, Gate 8 is used for both because Gate 7 is always closed. Therefore, the security check is conducted at Gate 8 only.
   - Gate 6 is a double door type and is used for passage from Gate 8 to the eastern terminal. Although security guards are at Gate 6, security check such as checking of ID card is not done.
   - Instead of Gate 6, Security check at Gate 3 at the multi-purpose terminal on the

east side is conducted for all persons and cargo in-coming/out-going.
- PELINDO or related organizations issue an ID card with personal photo for their working staff. Visitor cards are issued for each visitor.
- ID sticker is issued for not only vehicle but also motorcycle.
- Document check for cargo is executed at the gate. Empty containers are inspected at the gate.
- External check is conducted in the terminal mainly by customs staff.

2) Patrol
- Patrol is conducted in the terminal including berth.
- Surveillance of the water area around the terminal is conducted by KPLP.

8-9-6 Issues on Implementation of Port Facility Security Measures

106. Issues on implementation of port facility security measures at Pontianak Port are as follows:

- Visitor cards are issued for each visitor, but visitors are seldom identified.
- ID sticker is issued for not only vehicle but also motorcycle, but some motorcycles do not have an ID sticker.
- The clear zone is not secured due to the plants near the fence at the international container yard and on the eastern side of Gate 7.

8-9-7 Recommendations on Port Security

107. Recommendations on port security are as follows:

- The security check like checking of ID card should be done strictly to prevent suspicious persons from coming inside.
- It is recommended that the security check be done at Gate 6.
- The clear zone should be secured at the western international container yard and on the eastern side of Gate 7.

8-10 PORT OF BANTEN

8-10-1 Outline of Banten Port

108. Banten Port is located in Ciwandan City at the west tip of Java Island at 60°01'03"S and 105°57'04"E. Location of Banten Port is shown in Figure 8-10-1-1. Banten Port has been a center of tourism, shipping and trade nationally and internationally for more than three centuries with spices as its main commodity. It has grown rapidly along with its hinterland which is home to metal processing, machinery, chemical and crude palm oil (CPO) processing industries. The port basin is characterized by sand/mud with depth between 8-15 meters.

109. Though Banten Port has a large land area of which parcels are leased to private companies, only half of the land area is currently being used.

Figure 8-10-1-1 Location of Banten Port

8-10-2 Layout Plan of the Port

110. Layout plan of Banten port is shown in Figure 8-10-2-1. Port facilities include a liquid bulk jetty, conventional wharf, multi-purpose wharf, coal wharf and Ro/Ro wharf. The port area is fenced off. There are several manufacturing plants such as CPO, chemical, asphalt and salt. The trunk road connects the main road in the port.

111. The main public facility which handles international cargo is a multi-purpose wharf. Main exported commodity is steel, while main imported commodities are sugar and food. The facility handles both international and domestic cargo. Though the wharf has two container gantry cranes and a container yard across an area of five ha, it barely handles containers these days.

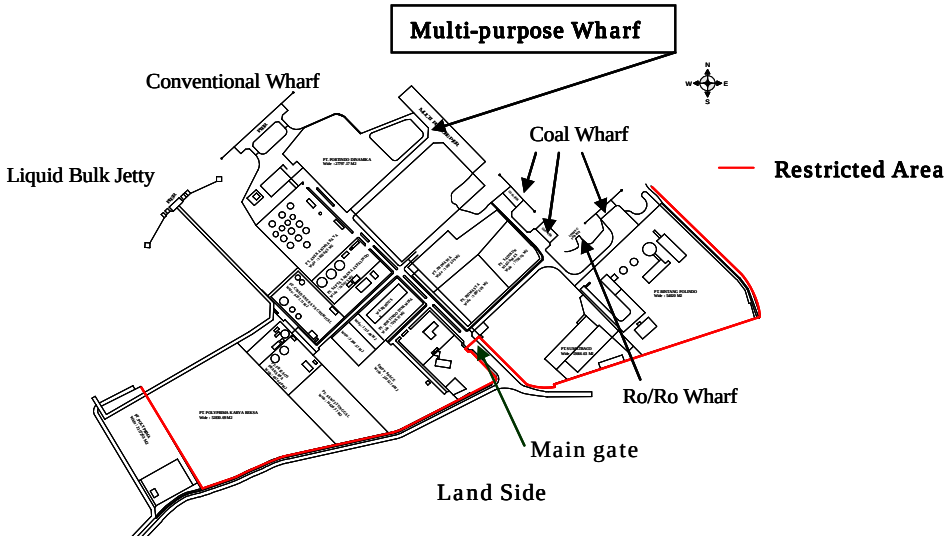


Figure 8-10-2-1 Overview of Banten Port

8-10-3 Cargo Volume and Number of Ship Calls

112. Cargo handling volume and number of ship calls at Banten port is shown in Table 8-10-3-1 and 8-10-3-2. Although exports have decreased, imports have steadily increased. Import volume is more than 30 times larger than that of export. Main exported commodity is steel, while main imported commodities are sugar, food, salt and steel.

Table 8-10-3-1 International Cargo Volume (Unit: ton)

Unit: ton

Year	2000	2001	2002	2003	2004
Import	460,485	587,166	741,678	750,657	743,478
Export	166,155	185,405	17,039	34,172	23,947
Total	626,640	772,571	758,717	784,829	767,425

Source: PELINDO II

Table 8-10-3-2 Number of International Ship Calls

Year	2000	2001	2002	2003	2004
Liner	28	78	68	41	30
Tramper	181	170	121	176	146
Total	209	248	189	217	176

Source: PELINDO II

8-10-4 Port Management System

113. Organization charts of Banten Port Administration Office (ADPEL Banten) and PELINDO II Banten Branch are shown in Figure 8-10-4-1 and Figure 8-10-4-2 respectively. PSO is a head of guard & rescue division of ADPEL Banten and PFSO is a head of human resources & general affairs division of PELINDO II Banten Branch. Port security committee, which consists of related organizations such as ADPEL, PELINDO, KPPP Customs is established.

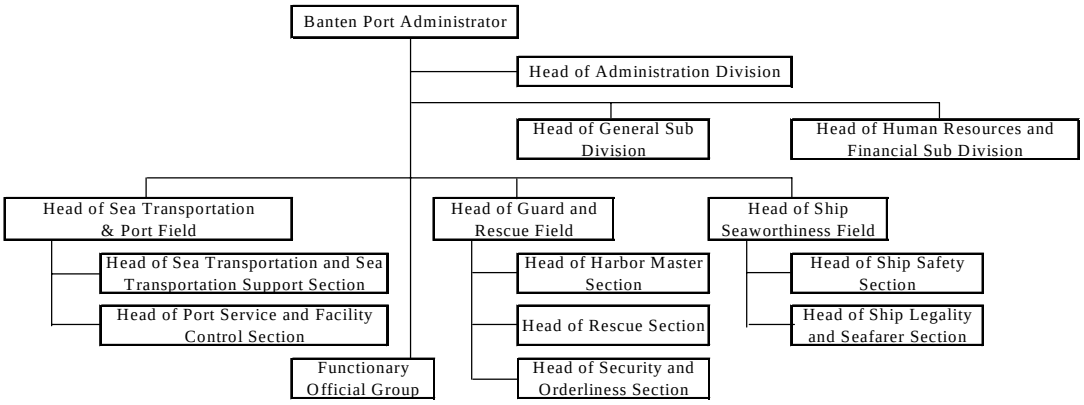


Figure 8-10-4-1 Organization of Banten Port Administrator Office

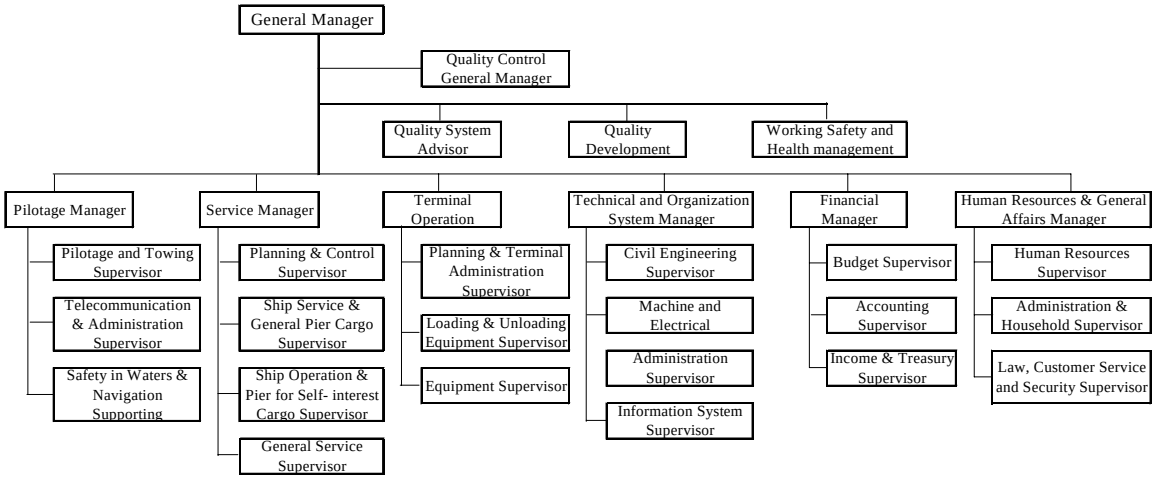


Figure 8-10-4-2 Organization of PELINDO II Banten Branch

8-10-5 Present Situation of Port Facility Security Measure

114. There is one gate in the restricted area of the Port. Access control is conducted at the gate by 5-6 security guards from KPLP, PELINDO II and KPPP around the clock. Security guards check ID cards for government officials, operators, and users such as forwarder and ID documents for truck. However, ID check is not strictly conducted.

115. The existing restricted area includes both the international and domestic cargo handling areas. The fence structure along the restricted area (port area) is in good condition. However, there is no top guard in some portions of the fence near the main gate.

116. The multi-purpose wharf area which is located in the restricted area and is mainly used for container yard is also surrounded by a firm fence with top guard and 3 meters in height. PELINDO II, Banten Branch plans to install a second gate in this area for access control.

117. Since the multi-purpose wharf handles international and domestic cargo, a mobile fence is set up in the cargo handling area when an international ship calls. However, number of mobile fence units is not sufficient. There is no CCTV camera monitoring system in the multipurpose wharf area. Patrol of the water area including the wharf side and anchorage is conducted once a day.

8-10-6 Issues on Implementation of Port Facility Security Measures

118. Issues on implementation of port facility security measures are shown below:

- ID check at the main gate is not strictly conducted.
- The fence structure along the restricted area is in good condition. However, there is no top guard in some portions of the fence near the main gate.
- The number of mobile fence units in the multi-purpose wharf is not sufficient.
- There is no CCTV camera monitoring system in the multi-purpose wharf area.
- Patrol of the water area including the wharf side and anchorage is conducted only once a day.

8-10-7 Recommendations on Port Security

119. Recommendations on port security are as follows:

- The top guard of the fence near the main gate should be installed as necessary to prevent intruders from climbing over the fence easily. More mobile fence units should be provided in the multi-purpose wharf area.
- When the container handling volume is not larger, PELINDO II should strengthen the patrol by security guards in the multi-purpose wharf area. If the container handling volume rapidly increases, PELINDO II should consider installing a CCTV camera monitoring system in the multi-purpose wharf area.
- Patrol of the water area should be conducted at least twice a day.

8-11 PORT OF TANJUNG EMAS

8-11-1 Outline of Tanjung Emas Port

120. Semarang is the capital of Central Java and with a population of nearly 1.5 million, the country's fifth largest city. Tanjung Emas Port lies on the north coast of Semarang. The exact

coordinates are latitude 06 ° 53' 00" south to 06 ° 57' 00" south and longitude 110 ° 24'00" east. Location of Tanjung Emas Port is shown in Figure 8-11-1-1.

121. The coastal area surrounding Tanjung Emas Port is low and swampy and the seabed is muddy. The depth is 3.5m to 10m. (L.W.S) The current, both the usual and the tidal ones, are weak. At the entrance of the port there is a weak cross current.

122. In the past, Semarang Port (the original name of Tanjung Emas Port) was the only way through which goods were transported by boats from and to the ocean ships anchoring offshore. Semarang Port dates back to the 19th century as shown by the inscription on the port tower which reads "Anno 1874". Since 1970, flow of goods at Semarang Port has been steadily increasing. The 1970-1983 data showed that the flow of goods on average increased by slightly over 10% each year. Thus, the government decided to develop Semarang Port in order to accommodate ocean ships. PELINDO III, in cooperation with JICA, conducted a study on the development plan of the port (Master Plan Study) in 1985-1986. In 1985, the port was given a new name, Tanjung Emas, and it entered a new era with the facilities of ocean pier.

Figure 8-11-1-1 Location Map of Tg. Emas Port

8-11-2 Layout Plan of the Port

123. Overview and layout plan of Tg. Emas port is shown in Figure 8-11-2-1 and 8-11-2-2. Although the port of Tg. Emas has a container terminal and multipurpose terminal for international cargo, public wharf is the only multipurpose wharf. There is a passenger wharf at the south side of the multipurpose wharf. This wharf is exclusively for domestic passenger ships.

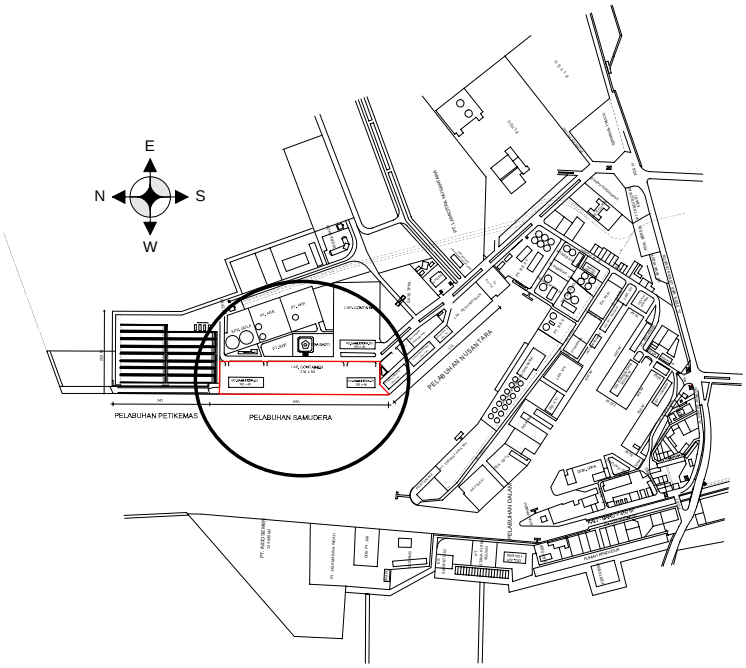


Figure 8-11-2-1 Overview of Tanjung Emas Port

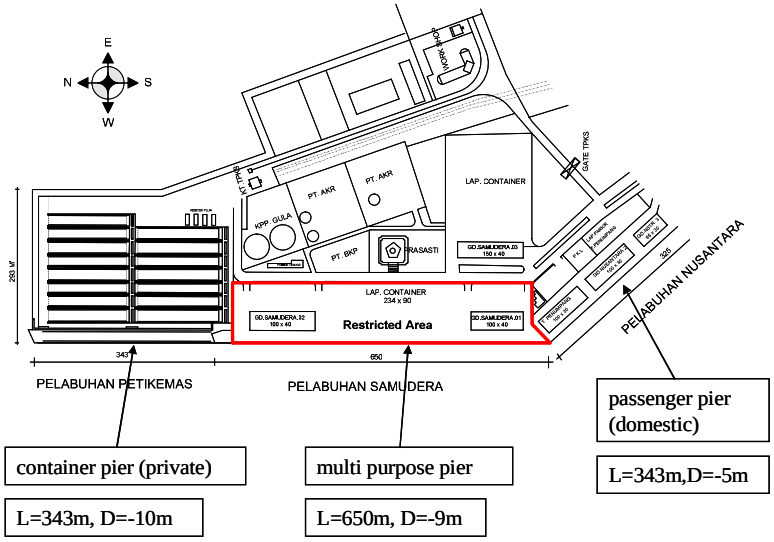


Figure 8-11-2-2 Layout of Tanjung Emas Port

8-11-3 Cargo Volume and Number of Ship Calls

124. Number of ship calls by ship type is shown in Table 8-11-3-1. Ship calls of both general cargo and container ships have gradually been decreasing. Major export items are lobster, frozen shrimp, fruit extract and goatskin. Major export counterparts are Japan, Hong Kong, Singapore, Belgium, Italy, Korea and Malaysia.

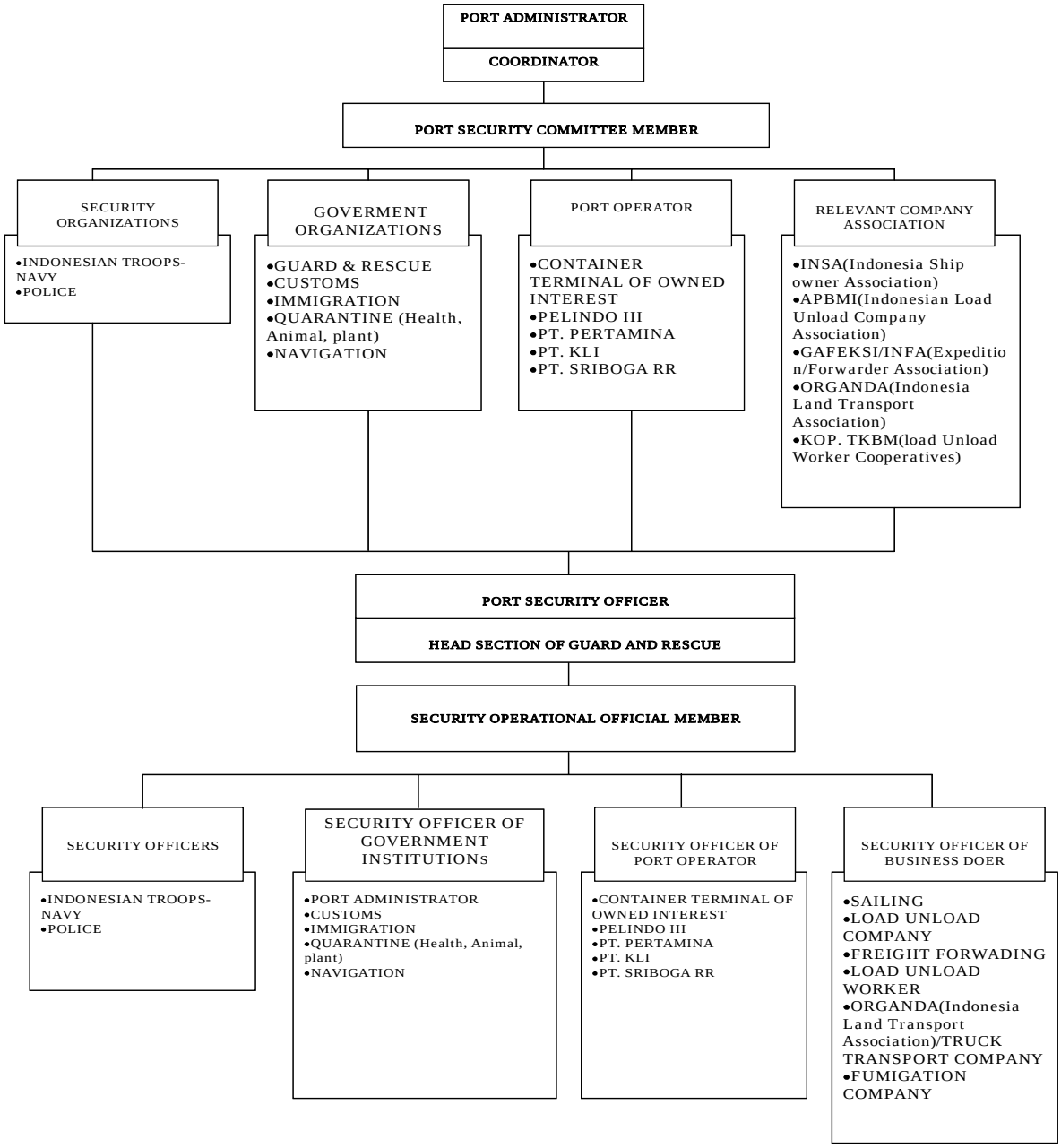
Table 8-11-3-1 Number of International Ship Calls by Ship Type

Year	2001	2002	2003	2004
Cargo Ship	149	152	122	123
GRT	*1,904,537*	*1,792,935*	*1,463,798*	*1,336,616*
Container Ship	728	737	631	576
GRT	*6,529,641*	*8,727,995*	*8,007,580*	*6,803,631*
Passenger Ship	9	2	2	5

Source: PELINDO

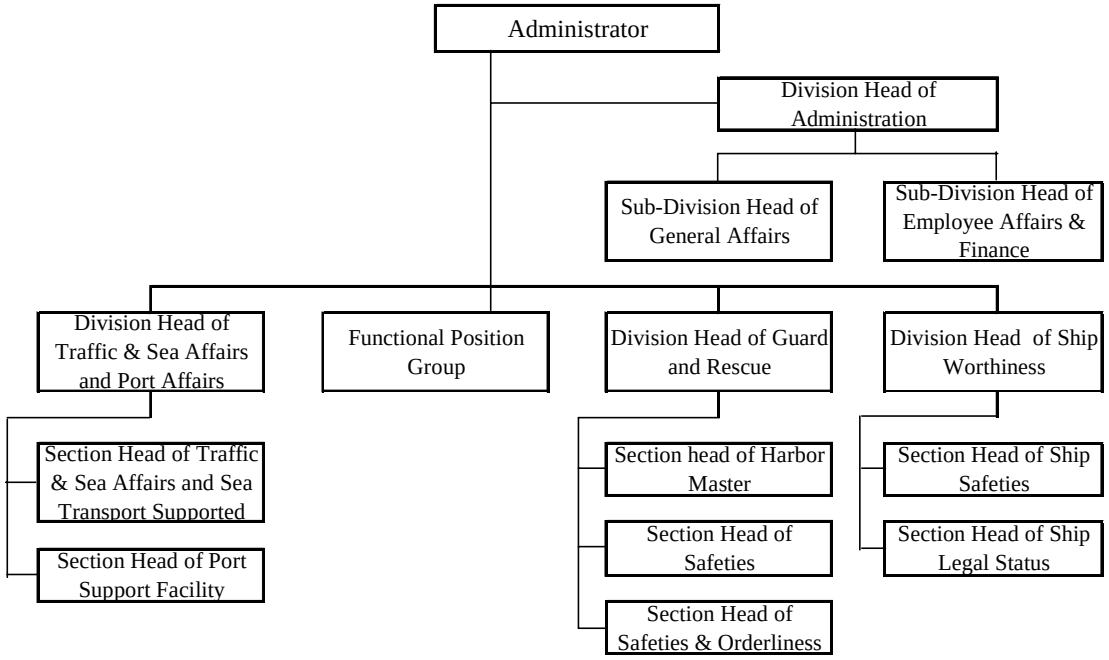
8-11-4 Port Management System

125. Organization charts of PSC and Port Administration Office are shown in Figure 8-11-4-1 and 8-11-4-2 respectively.



Source: PELINDO

Figure 8-11-4-1 Organization Chart of PSC



Source: ADPEL

Figure 8-11-4-2 Organization Chart of Port Administration Office

8-11-5 Present Situation of Port Facility Security Measures

126. The wharf is very neat and clean. Fence is properly installed except in between Samudera and Nusantra wharf. There is no top guard on the fence. Access control using ID card and vehicle pass is properly conducted at the entrance gate

8-11-6 Issues on Implementation of Port Facility Security Measures

127. Issues on implementation of port security measures at Tg. Emas Port are as follows:

- There is a big gap between the fence of Samudera wharf and Nusantara wharf, so the fence does not work as a deterrence to intruders.
- No clear zone at the backside of Samudera wharf is maintained. Containers are put very close to the fence. The lack of clear zone hinders visibility during monitoring and patrolling.
- There were no security guards at the open gate near PT.BKP. Security guard(s) must stay at the gate and conduct access control.

8-11-7 Recommendations on Port Security

128. Recommendations on port security at Tg. Emas Port are shown below:

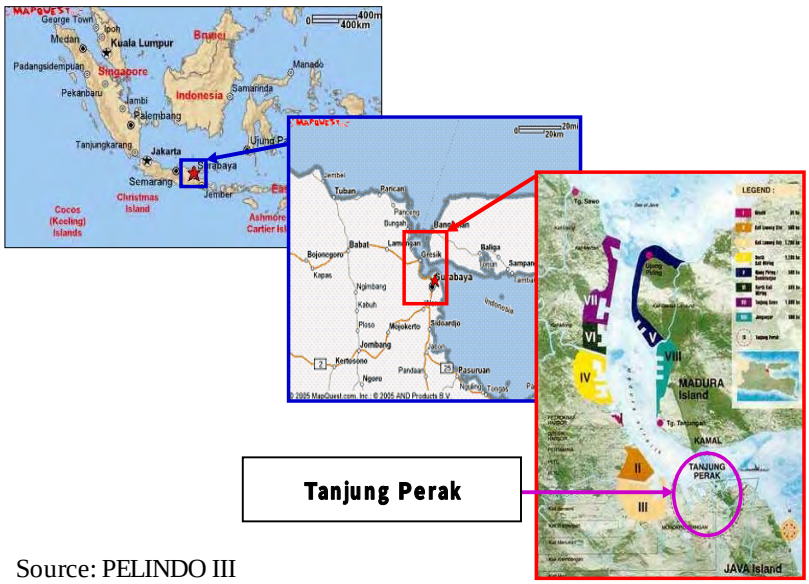
- Overhang of the fence shall be installed in between Samudera wharf and Nusantra wharf so that intruders cannot enter the restricted area easily.
- Containers shall be put at least three meters away from the fence to keep a clear zone.
- Whenever the gate is open, security guard(s) should conduct access control.

8-12 PORT OF TANJUNG PERAK

8-12-1 Outline of Tanjung Perak Port

129. The Port of Tanjung Perak is one of the main gateway ports of Indonesia. It is the principal port in East Java, and the main cargo collection and distribution center for both the province of East Java, and the whole eastern archipelago of Indonesia. The port is therefore the maritime transportation hub for the eastern region of Indonesia, servicing both International and Inter-island shipping in the region.

130. The Port of Tanjung Perak has contributed greatly to the economic development of the Eastern Indonesian region-influencing the growth of trade and development in East Java. The physical development of the Port of Tanjung Perak has continued to present day, with modification of existing berths, and provision of additional berth specifically designed for container handling operations. In addition, the Port Authority has been responsible for encouraging the development of associated port industries, and continues to upgrade port facilities and services.



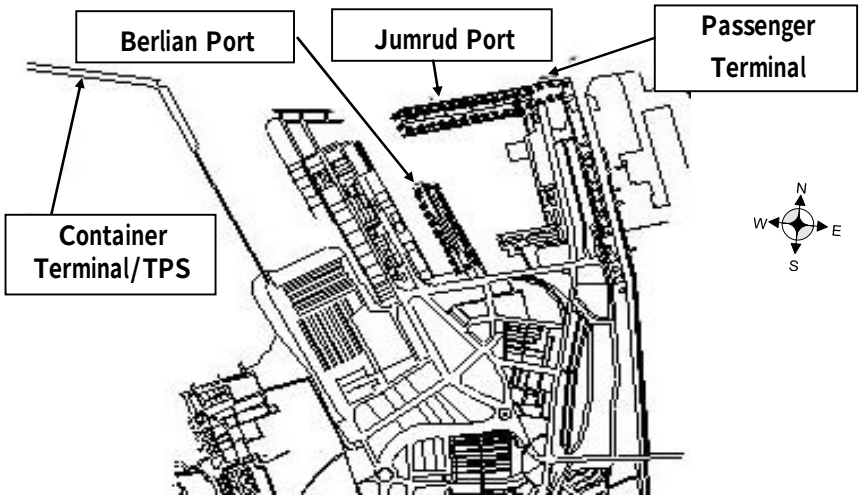
Source: PELINDO III

Figure 8-12-1-1 Location of Tanjung Perak Port

8-12-2 Layout Plan of the Port

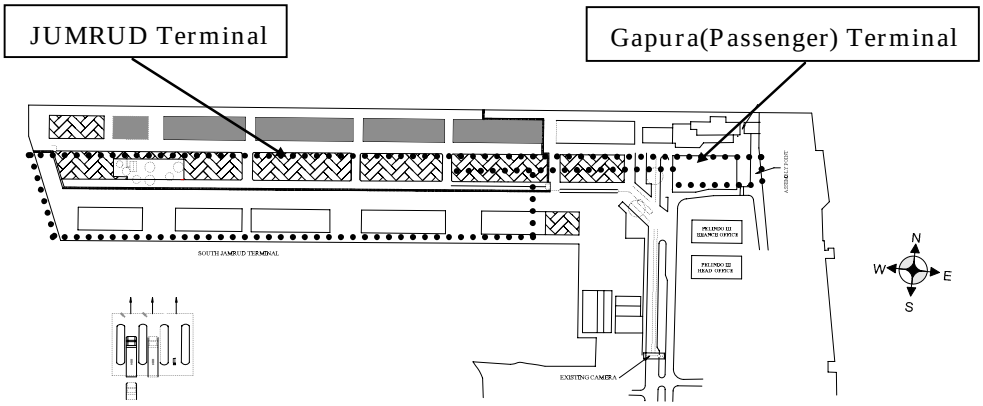
131. The existing layout of the Port of Tanjung Perak is shown in Figure 8-12-2-1～3. Table 8-12-1-1 shows main port facilities.

132. Berlian Terminal is under construction for reform of container yard. New layout is shown in Figure 8-12-2-4.



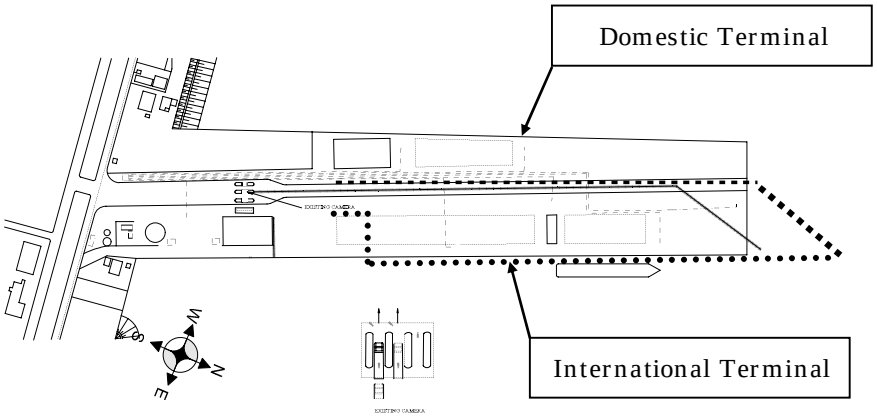
Source: Study Team

Figure 8-12-2-1 Existing Layout at the Port of Tanjung Perak



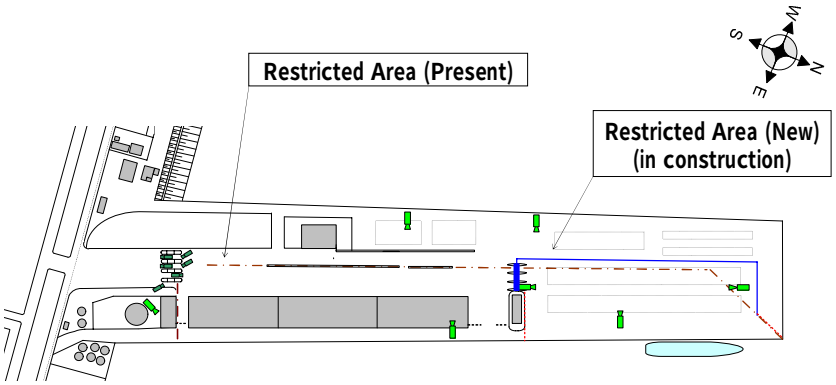
Source: Study Team

Figure 8-12-2-2 Existing Layout at the Port of Tanjung Perak (Jamrud and Gapura Terminal)



Source: Study Team

Figure 8-12-2-3 Existing Layout at the Port of Tanjung Perak (Berlian Terminal)



Source: Study Team

Figure 8-12-2-4 New Layout at the Port of Tanjung Perak (Berlian Terminal)

Table 8-12-2-1 Main Port Facility in Port of Tanjung Perak

Name	Ocean going or inter-island	Description					Note
		Main Facility	Length (m)	Draft (m)	Unit	Area (m^2)	
Jumrud	Ocean going	Berth Warehouse Open yard	1,200 800 160	-9.2 -8 -8	 14	 45,886 7,589	Inter-island Passenger Ship
Mirah	Inter-island	Berth Warehouse Open yard	640	-7	 4	 13,700 15,965	Inter-island
Intan	Inter-island	Berth Warehouse Open yard	100	-4	 4	 13,700 15,965	Oil discharges
Berlian	Ocean going	Berth Warehouse Open yard	785 700	-9 -9.5	 4	 17,946 19.5	Liuqid Dry Bulk
Nilam	Ocean going	Berth Warehouse Open yard	860	-9	 4	 18,235 14,125	Bulk cargo Liquid
Kalimas	Ocean going	Berth Warehouse Open yard	2,270	-2	 4	 6,714 3,200	Sailing Vessels Ferry Boats
Ferry Terminal		Berth Building width	12.27 12.22	-5 -5		 2,177	Ferry Boats
Passenger Terminal		Berth Building width	270	-9		2,384 4,522	

Source: PELINDO III

8-12-3 Cargo Volume and Number of Ship Calls

133. Passenger flow, Container flow, and Ship calls at Port of Tanjung Perak are shown in Table 8-12-3-1.

Table 8-12-3-1 Activities at Port Tanjung Perak

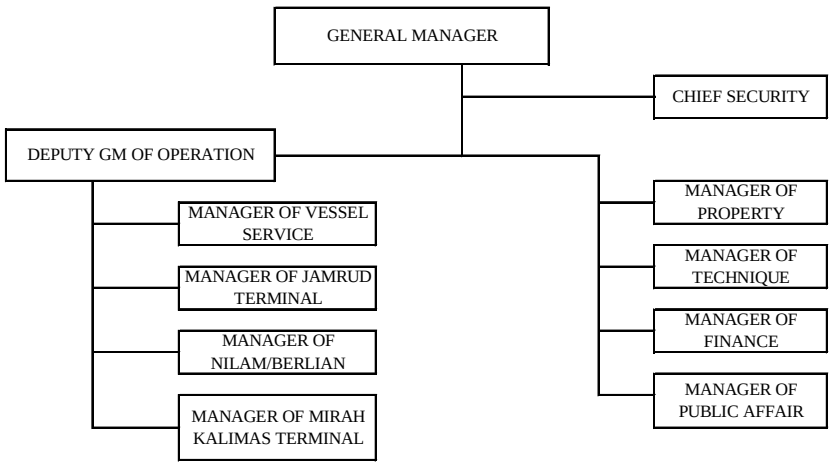
Year	1998	1999	2000	2001
Passenger	1,332,885	1,701,340	1,792,508	1,740,180
Container (TEUs)	207,551	215,447	17,378	19,045
Ship Calls	14,565	15,285	14,492	12,964

Source: PELINDO III Port of Tg. Perak

8-12-4 Port Management System

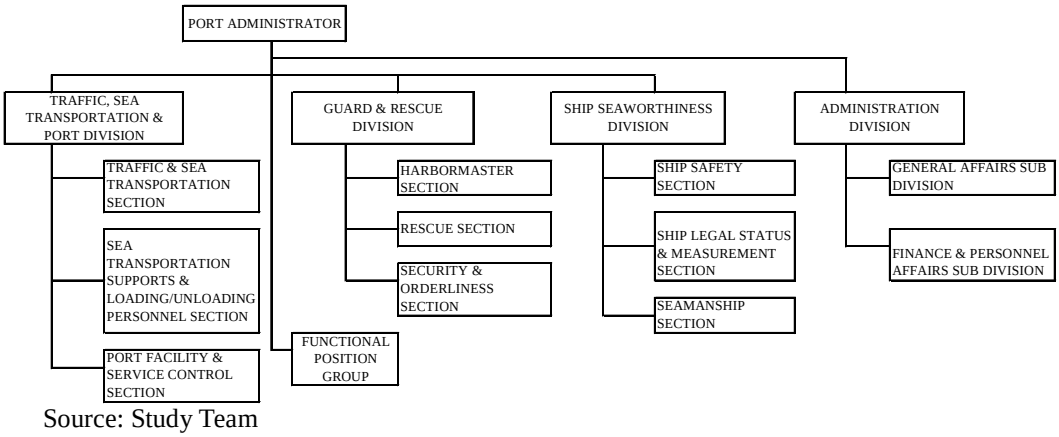
134. Port of Tanjung Perak manages three main operations, that is Branch of Tanjung Preak Port(PERINDO III), Berlian Jasa Terminal Indonesia(BJTI), and Terminal Petikemas Surabaya (TPS).

135. Public Wharf in Port of Tanjung Perak is managed and operated by PELINDO III itself. Figure 8-12-4-1 shows the organizational structure of PELINDO III Tanjung Perak Port. ADPEL administers the port area. Figure 8-12-4-2 shows the organization structure of ADPEL office of Tanjung Perak Port.



Source: Study Team

Figure 8-12-4-1 Organizational Structure of PELINDO III Port of Tanjung Perak



Source: Study Team

Figure 8-12-4-2 Organizational Structure of ADPEL Port of Tanjung Perak

8-12-5 Present Situation of Port Facility Security Measures

136. Present Situation of Port Facility Security Measures at Tg. Perak port are as follows:

- PELINDO has a control system in the port area using 32 units of CCTV 24 hours a day, and it is possible to check the current situation in the office by using this system. Installation of a total of 20 units of CCTV at four gates by JICA Grant Aid started from May 16 2005. This reinforced the security program.
- PFSOs at each terminal play a central role in the security organizations. In

addition, PSC consist of ADPEL, KPLP, KPPP and PFSOs at each terminal. Each organization keeps in constant touch with each other.

- Each restricted area is enclosed by fence or wall with a height of over 2m. However, part of the restricted area at Terminal Berlian has not been enclosed yet. Berlian terminal is under construction for reform of container yard.
- The access control is conducted at each gate of terminals. Though there are slight differences between each terminal, the basic procedure of access control is an oral inspection at the gate, identification such as ID card, Visitor card and Vehicle sticker, and a check by detective mirror.
- Installation of 2 X-ray machines at the passenger terminal by JICA Grant Aid also started from May 16 2005.
- Mobile fences are applied at the wharf that handles both international and domestic cargoes at the same time.
- The whole PSC is coping with the periodical training, drill and exercise based on PFSP, and making efforts to improve the knowledge and skill of staff related to security matters.
- The access control at each gate and patrol inside the port facility are well conducted by port security officers in accordance with PFSP. In addition, the police also carry out patrol. It can be said that the security condition is good.
- At present, foreign passenger ships have no fixed schedule to berth at the passenger terminal. As it is expected that foreign passenger ships will visit in the near future, the appropriate security system has been installed.

8-12-6 Issues on Implementation of Port Facility Security Measures

137. Issues on implementation of port security measures at Tg. Perak port are as follows:

- Each restricted area is enclosed by a fence or wall over 2.0m, and when some non-compliant vessels (including domestic vessels) are berthing at a complicated wharf and large vessels are berthing, mobile fence is applied.
- Part of the restricted area at one terminal has not been enclosed. (The terminal is under construction for reform of container yard as of the second site survey (5 January 2006).
- It is necessary to improve surveillance on the water area for not only safety but also security, because the access channel is very long and a lot of vessels are waiting offshore.

8-12-7 Recommendations on Port Security

138. Recommendations on port security at Tg. Perak port are shown below:

- The international and domestic areas at the terminal should be separated because the terminal has no fencing, making it easy for unauthorized persons or cargo to pass through unnoticed. Mobile gate and fence should be installed. Security Guard Surveillance is also required. (The terminal is under construction for reform of container yard as of the second site survey (5 Janualy 2006).)
- Security of the water area is mainly the responsibility of KPLP, which conducts security patrol periodically. Considering that the access channel is very long and a lot of vessels are waiting offshore, it may be necessary to consider the enforcement of the existing vessel observation system and the installation of high-spec vessel traffic observation system.

CHAPTER-9. SECURITY MEASURES OF PORTS FOR WHICH PFSP HAS NOT BEEN PREPARED

9-1 PORT OF PEKANBARU

9-1-1 Outline of Pekanbaru Port

1. Pekanbaru is the administrative capital of Riau Province and a major gateway into Indonesia from Singapore. Port of Pekanbaru is located at the south bank of Siak River which flows in the northern part of Pekanbaru. (00°33'05" N and 101°27'15" E) Locations of Pekanbaru and Pekanbaru Port are shown in Figure 9-1-1-1 and 9-1-1-2.

2. Pekanbaru Port is developed on sloping land. The Siak River waters are narrow and bend and therefore the width of the channel is only 60 m. The depth in front of the wharf varies between 1 - 5 m LWS and the water bed is mud. The tidal change occurs twice a day. The high water in neap tide is 220 cm and in crescent tide is 60 cm.

3. It is cloudy and rainy from November to April. Average precipitation is 200-300 mm, raining 15-20 days per month. Between May and October, the weather is generally good. Precipitation is 75 -150 mm, raining 7 -12 days per month on average. The temperature is 32°C - 34°C. The visibility is generally good. However, when it rains, visibility is less than 1 km. It gets foggy often in midday between August and October, but is clear once the rainy season starts.

4. Container ships cannot enter Pekanbaru Port due to the water depth restriction. Therefore containers are loaded/ unloaded at the anchorage area at Sungai Pakning. They are transshipped on a barge towed by tug boats from/to each wharf along the Siak River.

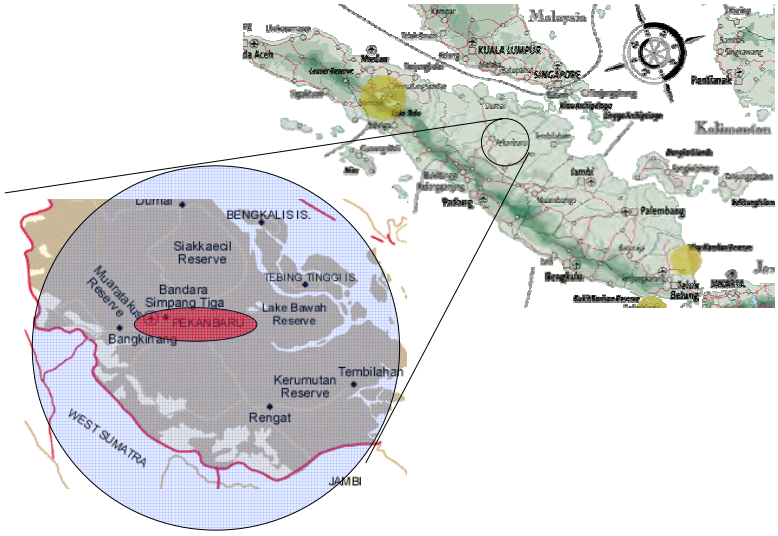


Figure 9-1-1-1 Location of Pekanbaru

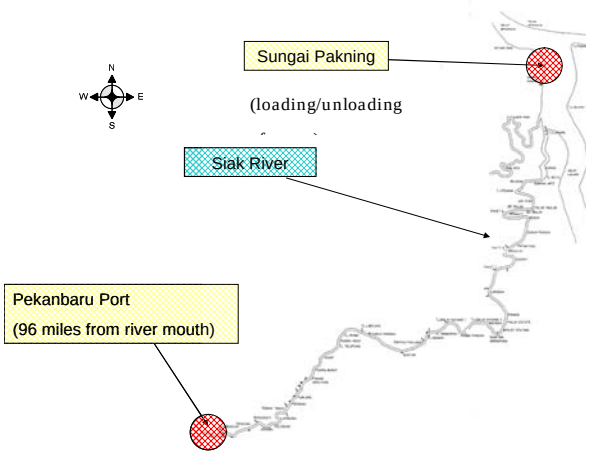


Figure 9-1-1-2 Port of Pekanbaru

9-1-2 Layout Plan of the Port

5. The layout plan of Pekanbaru port is shown in Figure 9-1-2-1.

6. Public wharves are located at Sungai Pakning on the most upper stream of the Siak River as shown below and are approximately 100 miles from the mouth of the river. Only bulk cargo is loaded/ unloaded in these wharves. Port facilities are old and the area in the vicinity of the port continues to be developed commercially. Therefore the municipal government plans to relocate the wharves in the near future.

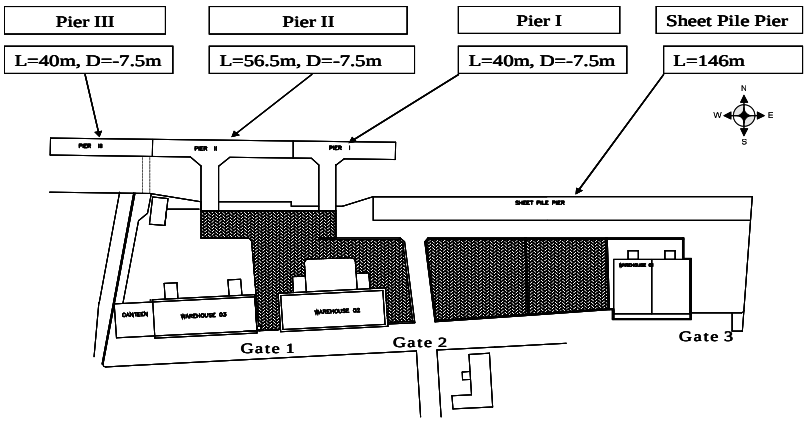


Figure 9-1-2-1 Layout Plan

9-1-3 Cargo Volume and Number of International Ship Calls

7. Cargo volume and number of international ship calls are shown in Table 9-1-3-1 and 9-1-3-2.

Table 9-1-3-1 International Cargo Volume

Unit:ton

Year	2001	2002	2003	2004	May 2005
Import	16,341	14,860	28,361	17,848	4,423
Export	212	6	145,869	167,965	52,342
Total	16,553	14,866	174,230	185,813	56,765

Source: PELINDO I

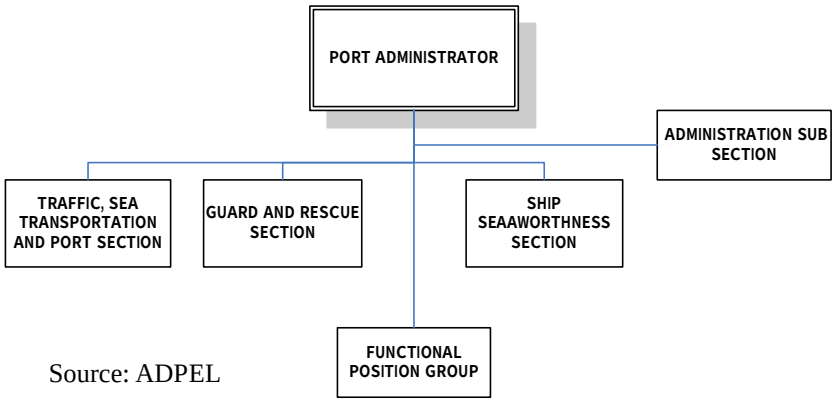
Table 9-1-3-2 International Ship Calls

Year	2001	2002	2003	2004	May 2005
Ship Call	263	402	417	389	131

Source: PELINDO I

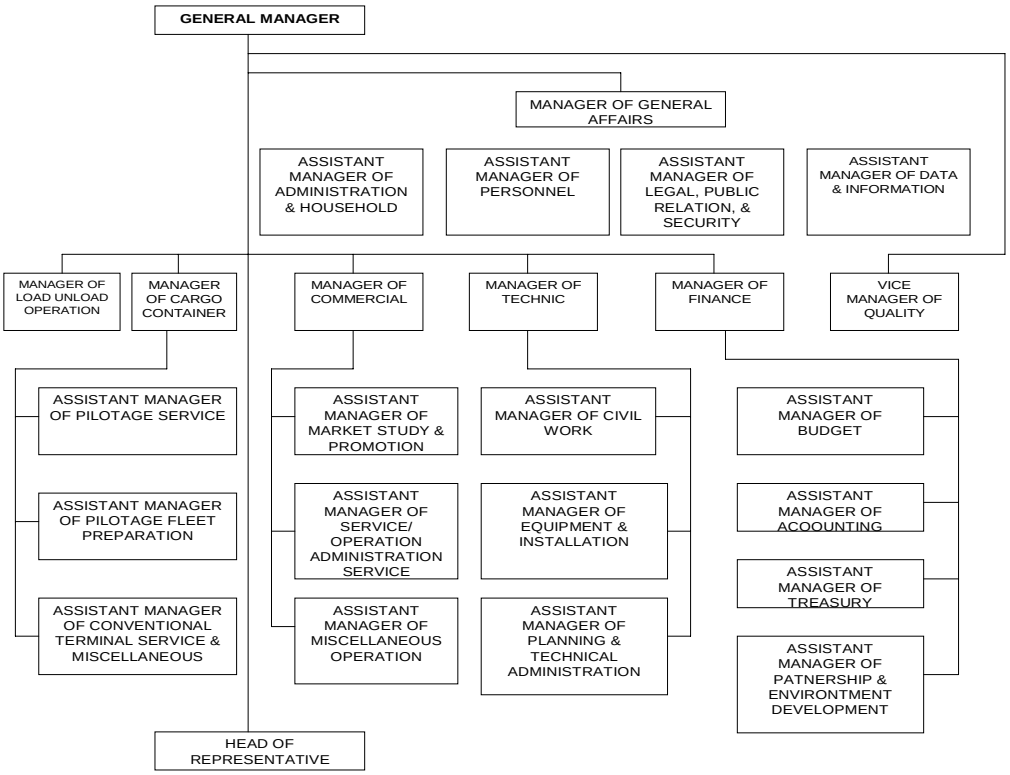
9-1-4 Port Management System

8. Pekanbaru port is managed and operated by PELINDO I Pekanbaru Branch. Organization charts of Port Administrator Office and PELINDO I Pekanbaru Branch are shown in Table 9-1-4-1 and 9-1-4-2.



Source: ADPEL

Figure 9-1-4-1 Organization Chart of ADPEL



Source: PELINDO

Figure 9-1-4-2 Organization Chart of PELINDO

9-1-5 Possible Security Incident Scenarios

9. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below.

Table 9-1-5-1 Possible Security Incident Scenario

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, which have arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia, likelihood of occurrence of the scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in the middle west of Indonesian sea such as Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Scenario of illegal act in the port such as tampering is possible	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	A
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is relatively low.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-1-6 Present Situation of Port Facility Security Measures

10. International cargo is rarely handled and no security measures are taken at the wharves. Facilities are very old. Fence installed along the port boundary has many tears and cuts. Lighting is not sufficient to illuminate during night time and some of the existing lighting is out of order. There is no security guard on duty. Neighboring area of the wharves which is a commercial area has been congested and trucks have difficulty entering the wharves these days. Therefore PELINDO has a plan to relocate the wharves.

9-1-7 Issues on Implementation of Port Facility Security Measures

11. It is necessary to improve security facilities, but it is planned that the wharves will be relocated in near future. Fence is poor and there is no security guard on duty, so many outsiders are free to enter the wharf. Until the wharves are relocated, certain security measures should be taken for international ships.

9-1-8 Risk Evaluation

12. Vulnerability issues identified during the assessment are noted as follows:

- Fence and Gates are very old and have tears. It is easy for intruders to enter the restricted area.
- Fence at the northwest side is very dark and also many vehicles are parked there. It is necessary to keep a clear zone and illuminate the area around the fence.

Table 9-1-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1) Channel		M		C	M			D	D	D	M
(2) Wharf		C		D	C	C	C	D	D	D	C
(3) Warehouse		D		D	D	D	D			D	D
(4) Storage and handling area		D		D	D	D	D			D	D
(5) Cargo handling equipment		D		D	D			D		D	D
(6) Port office		M		C	M					D	M
(7) Electricity		D		D	D					D	D
(8) Tug boat and Pilot boat		D	D	D	D	D	D	D	D	D	D
(9) Neighboring area		D			D					D	D
(10)International ship		M	M	C	M	M	M	D	D	D	M
Max		M	M	C	M	M	M	D	D	D	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not needed a protective measure at this time and therefore needs only to be documented)

9-1-9 Recommendations on Port Security

13. Recommendations on port security are as follows:

- Install new fence with top guard near gate 3.
- Improve gate 1. Height of the gate is not sufficient and barbed wire of the gate is cut off and is not functioning anymore.
- Install additional security lights near gate 2. Some areas around the fence are very dark and it is difficult for security guards to monitor the area.
- Establish a procedure for access control. It is necessary to control entrance of persons who is not related to port activities.

- Establish an ID card entrance system. “No ID, no entry” is the basic tenet of access control.
- Establish a Port Security Committee (PSC) immediately. There are more than 20 international ports along the Siak River and it is necessary for PSO to coordinate with each PFSO.
- Establish document management rules. PFSA and PFSP are highly confidential documents. Proper handling regulation is required.

9-2 PORT OF TANJUNG INTAN (CILACAP)

9-2-1 Outline of Tanjung Intan Port

14. Cilacap is the biggest city on Central Java’s southern coast. Facing the south coast, Port of Tanjung Intan (Cilacap) has the only deep water berthing facilities on Java’s south coast and is a gateway for the economic activities of southern Central Java Province, Daerah Istimewa Jogjakarta, and southern West Java Province. Locations of Cilacap and Tanjung Intan Port are shown in Figure 9-2-1-1.

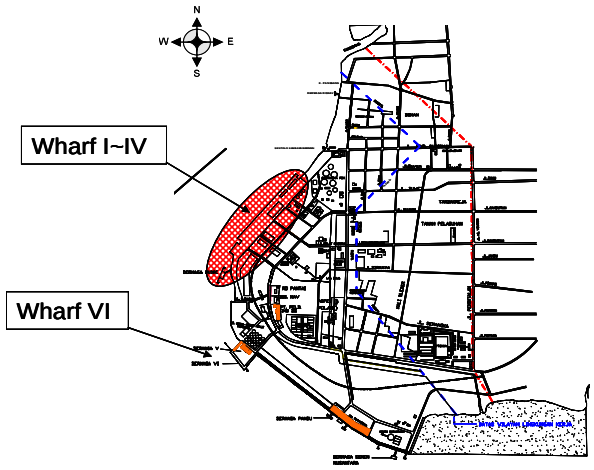


Figure 9-2-1-1 Port of Cilacap

15. The Port of Cilacap was founded in 1888. Before World War II, this port was the only one among the five biggest ports in Indonesia located at South Coast of Java Island. On June 29, 1996, the new name Port of Cilacap was confirmed by PT. (PESERO) Pelabuhan Indonesia Tanjung Intan and approved by the Ministerial Decree of Transportation No. 39/1996.

16. Port of Tanjung Intan has very calm and safe conditions, as it is sheltered by Nusakambangan Island from the waves of the Indian Ocean. (Port of Tanjung Intan resembles a natural harbor) The depth of the channel is -11m ~ -12m LWS with the width of 250m. The maximum height of wave at outer basin around SPM is ±2m. The average wind speed at the port is 2knots. The average current speed at the port is ±1.5 knots.

9-2-2 Layout Plan of the Port

17. Layout plan is shown in Figure 9-2-2-1. There are two public wharf areas in the port of Tanjung Intan. One area is multipurpose wharves I to IV and the other is wharf VI for flour import.

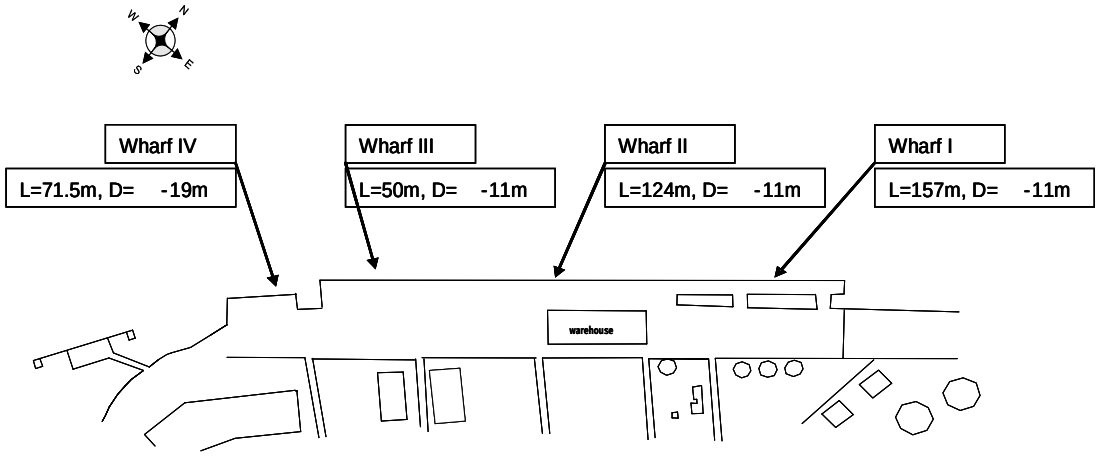


Figure 9-2-2-1Layout Plan

9-2-3 Cargo Volume and Number of Ship Calls

18. The number of ship calls and cargo volume at Tanjung Intan Port are shown in Table 9-2-3-1and 9-2-3-2.

Table 9-2-3-1 Number of Ship Calls

Year		1996	1997	1998	1999	2000
Cargo Ship	call	384	361	317	297	294
	GRT	1,844,082	1,579,789	1,657,917	1,743,673	1,795,540
Tanker	call	838	783	881	767	893
	GRT	15,732,654	15,844,285	18,989,403	17,263,412	18,344,373
Total	call	1,222	1,144	1,198	1,064	1,187
	GRT	17,576,736	17,424,074	20,647,320	19,007,085	20,139,913

Source: PELINDO III

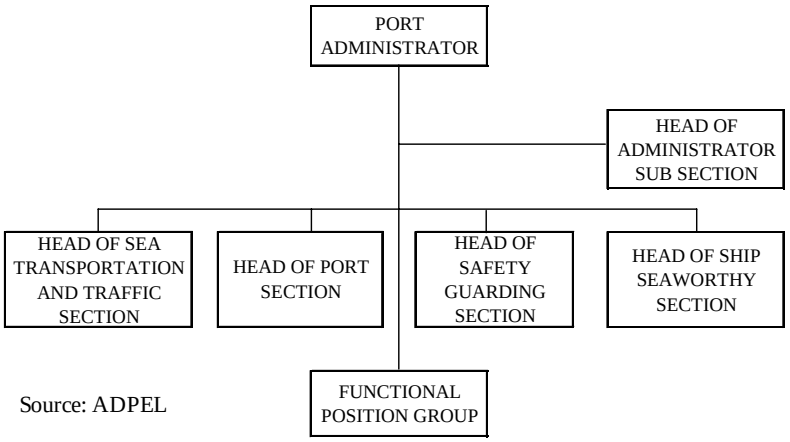
Table 9-2-3-2 Cargo volume

Year		1995	1996	1997	1998	1999
Import	ton	549,801	778,356	501,087	550,155	507,375
	m3	0	37,475	16,794	884	0
Export	ton	83,661	46,306	108,134	8,281	691,640
	m3	0	0	8,599	346,582	3,139
Total	ton	633,462	824,662	609,221	558,436	1,199,015
	m3	0	37,475	25,393	347,466	3,139

Source: PELINDO III

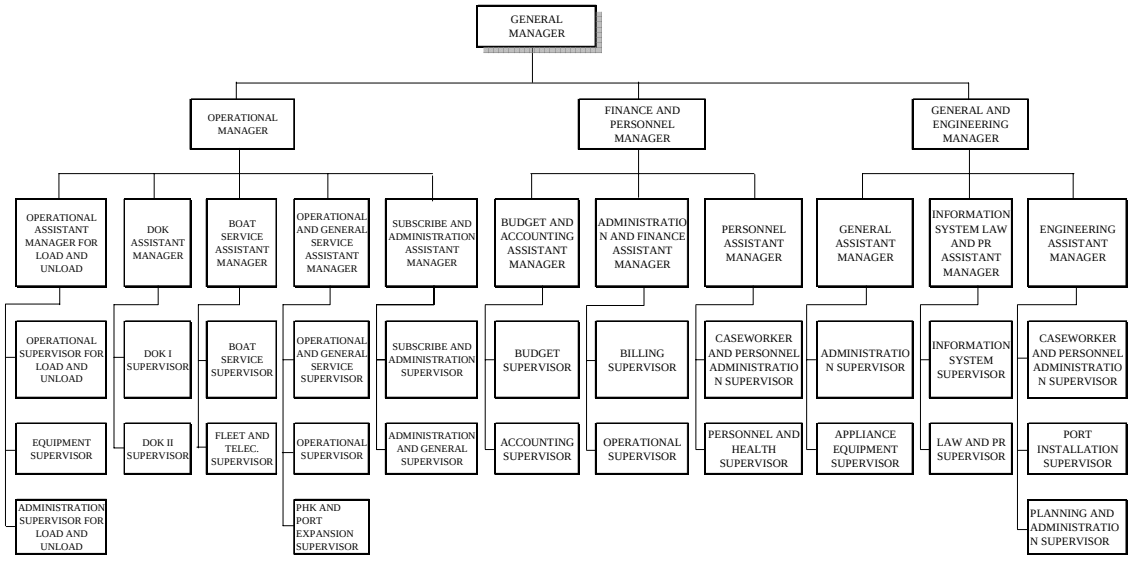
9-2-4 Port Management System

19. Organization chart of Port Administration Office and PELINDO are shown in Figure 9-2-4-1 and 9-2-4-2.



Source: ADPEL

Figure 9-2-4-1 Organization Chart of Port Administration Office



Source: PELINDO

Figure 9-2-4-2 Organization Chart of PELINDO III Tanjung Intan Cilacap Substation

9-2-5 Possible Security Incident Scenarios

20. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below.

Table 9-2-5-1 Possible Security Incident Scenarios

	Scenario (ICPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past incidents such as bombing of night club in Bali, bombing of a hotel and near the Australian Embassy in Jakarta, occurrence of the scenario is high	A
2	Hijacking or seizure	Considering the many piracy incidents in the middle west of Indonesian sea such as Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Scenario of illegal act in the port such as tampering is possible	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	A
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is relatively low.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-2-6 Present Situation of Port Facility Security Measures

21. Present situation of port facility security measures at the Port of Cilacap is as follows:

- Port of Cilacap has four public wharves and several private berths. It also includes crop fields and residents inside the area. Therefore if the restricted area is made wide, it will be necessary to conduct access control for those who are not related to the wharves. The target wharf handles bulk cargo only, 70-80 % of which is international cargo.
- Actually no access control is conducted at any gate. People can enter the wharf anytime without any alert. Outsiders fishing at the wharf are observed.
- Fence around the wharves has not been installed for some part of the boundary (near warehouse) and some portions of the existing fence are torn apart. Construction of a new fence and repair of the torn fence are urgently needed.
- Some areas along the fence are very dark.

9-2-7 Issues on Implementation of Port Facility Security Measures

22. It is necessary to establish a restricted area as small as possible to minimize access control. New gates are required and it is necessary to repair the fence or erect a new one. At present, outsiders can easily enter into wharf. Actually, many people can be observed fishing at the wharf and nobody instructs them to leave.

9-2-8 Risk Evaluation

23. No gate is installed near the wharf and the area is not completely fenced off. No security guards were standing at the gates. Many people fishing are seen in the wharf. Fishermen fish just beside the international ship. Risk evaluation is summarized in Table 9-2-8-1.

Table 9-2-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1) Channel		C		D	C			D	D	D	C
(2) Anchorage and basin area		C		D	C			D	D	D	D
(3) Wharf		M		C	M	M	M	D	D	D	M
(4) Warehouse		D		C	D	D	D			D	C
(5) Storage and handling area		D		D	D	D	D			D	D
(6) Cargo handling equipment		D		D	D			D		D	D
(7) Control center		M		C	M					D	M
(8) Port office		C		C	C					D	C
(9) Bunkering point		D		D	D					D	D
(10)Water supply point		D		D	D					D	D
(11)Electricity		D		D	D					D	D
(12)International ship		M	M	C	M	M	M	D	D	D	M
(13)Tug boat and Pilot boat		D	D	D	D	D	D	D	D	D	D
(14)Road		D			D					D	D
(15)Neighboring area		D			D					D	D
Max		M	M	C	M	M	M	D	D	D	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not require a protective measure at this time and therefore needs only to be documented)

9-2-9 Recommendations on Port Security

24. Recommendations on port security are as follows:

- Install new fence and gates with outrigger and barbed wire where there are no fence and gates. At the back of wharf 3, fence and gates are very old and have tears. It is necessary to repair the fence otherwise intruder can easily enter the restricted area.
- Install additional security lights along the fence of wharf 1 to wharf 3. Some

areas around the fence are very dark, and it is very difficult for security guards to monitor the area.

- Establish a procedure for access control. It is necessary to control the entry of people not related to port activities.
- Establish an ID card entrance system. "No ID, no entry" is the basic tenet of access control.
- Establish rules for document management. PFSA and PFSP are highly confidential documents. Proper handling regulation should be required.

9-3 PORT OF BENOA

9-3-1 Outline of Benoa Port

25. Bali Island is an exotic island with a rich culture heritage and unparalleled scenery that has attracted visitors from all over the world. As the main gate from the sea (Indian Ocean), the Port of Benoa, as one of the public port branches of PT.PELINDO III, has to serve both international passenger and domestic passenger vessels.

26. The position of Benoa port is strategically located in the southern part of Bali Island, and is blessed with smooth and safe port waters and basins. Benoa is a natural harbor, sheltered by Serangan Island and the Cape of Benoa (Tanjung Benoa) from the high waves of the Indian Ocean. The Port of Benoa is situated at position: 08°46' 15" South latitude and 115°14'45"East longitude.

27. The entrance channel extends about 2 nautical miles in length from the outer buoy to each berth and safe navigation aids (buoys and marks) are installed throughout, allowing for easy ship-maneuvering.

28. There are 3 facilities in the port which are operated by PT. PELINDO III.

Table 9-3-1-1 Summary of Main Port Facilities

Unit: m

Berth	Length	Width	Depth	Remark
South Berth	206	15	-6	Cargo ship
East Berth	290	20	-9	Passenger ship
West Berth	150	8	-4	Fishing boat

Source: PELINDO III Benoa Branch

9-3-2 Layout Plan of the Port

29. The existing layout of Benoa Port is shown in Figure 9-3-2-1, 9-3-2-2. There are some private companies and houses in the port area.

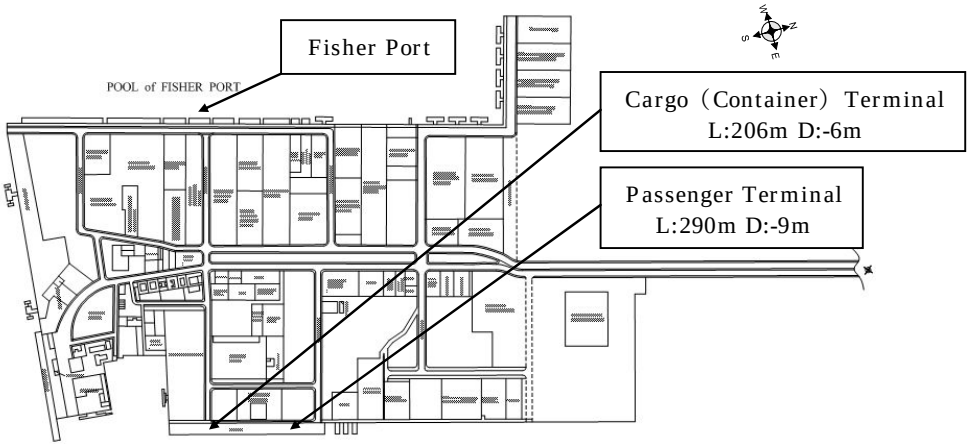


Figure 9-3-2-1 Existing Layout at Benoa Port

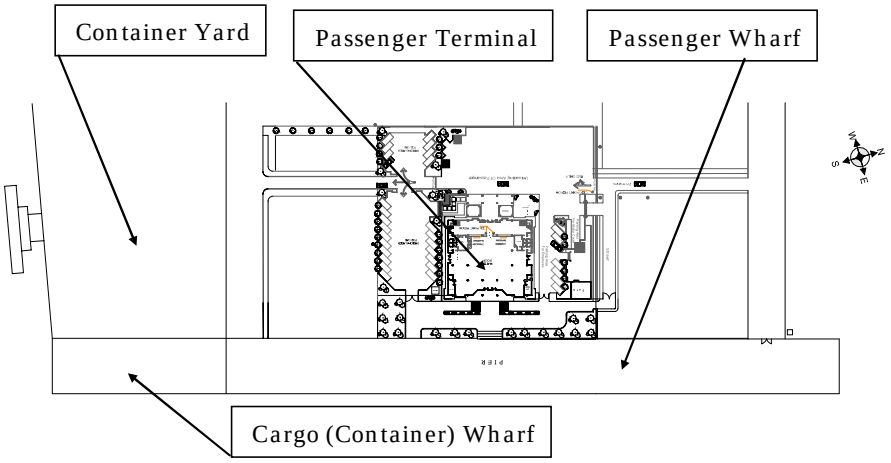


Figure 9-3-2-2 Existing Layout at Benoa Port(Passenger Terminal)

9-3-3 Cargo Volume and Number of Ship Calls

30. The cargo handling volume and ship calls at PELINDO III Benoa Port are summarized in Table 9-3-3-1and Table 9-3-3-2, respectively. The passengers through the port are international and domestic (See Table 9-3-3-3).

Table 9-3-3-1 Cargo Handling Volume at Benoa Port

Year		1999	2000	2001	2002
Internaitonal					
Import	ton	13,021	14,362	2,064	12,425
	m3	0	0	0	0
Export	ton	1,155	3,012	1,322	1,177
	m3	0	0	0	0
Total 1	ton	14,176	17,374	3,386	13,602
	m3	0	0	0	0
Domestic					
Unload	ton	40,757	30,598	42,456	80,992
	m3	126,728	254,590	242,172	217,402
Load	ton	97,818	22,417	17,819	9,464
	m3	0	8,393	7,510	29,588
Total 2	ton	138,575	53,015	60,275	90,456
	m3	126,728	262,983	249,682	246,990
Container					
Unload	box	6,325	4,674	5,630	6,448
	TEU	11,311	8,387	9,941	11,236
Load	box	6,531	4,633	5,683	6,408
	TEU	11,102	8,302	10,031	11,177
Total 3	box	12,856	9,307	11,313	12,856
	TEU	22,413	16,689	19,972	22,413
Refiend Fuel Oil	ton	754,725	832,450	828,013	866,116

Source: PELINDO III Benoa Branch

Table 9-3-3-2 Ship Call at Benoa Port

Year		1999	2000	2001	2002
International	call	327	463	486	300
	GRT	*395,789*	*444,157*	*207,024*	*304,162*
Domestic	call	11,817	10,778	10,918	12,343
	GRT	*4,003,299*	*4,248,498*	*4,352,804*	*4,180,066*
Total	call	12,144	11,241	11,404	12,643
	GRT	*4,399,088*	*4,692,655*	*4,559,828*	*4,484,228*

Source: PELINDO III Benoa Branch

Table 9-3-3-3 Number of Passenger at Benoa Port

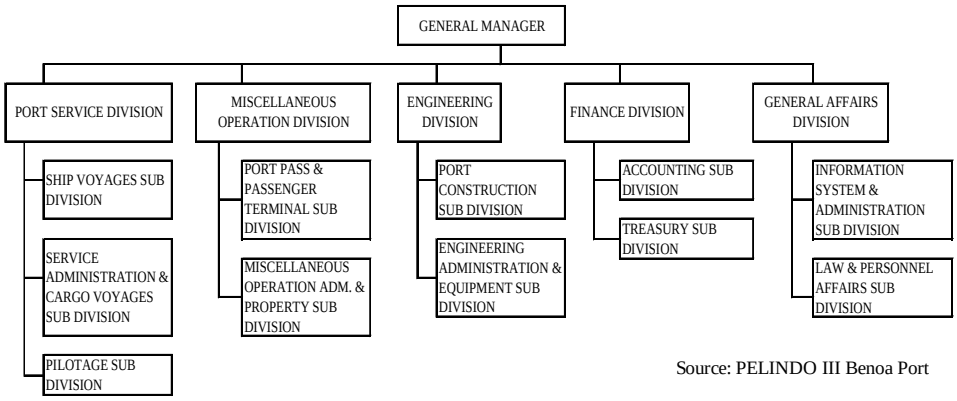
Year	1999	2000	2001	2002
International				
Debarkation	4,340	3,569	1,320	2,943
Embarkation	4,332	3,569	1,320	2,943
Sub-total	8,672	7,138	2,640	5,886
Domestic				
Debarkation	145,945	216,631	245,999	259,600
Embarkation	162,252	218,406	232,063	262,553
Sub-total	308,197	435,037	478,062	522,153
Total	316,869	442,175	480,702	528,039

Source: PELINDO III Benoa Branch

9-3-4 Port Management System

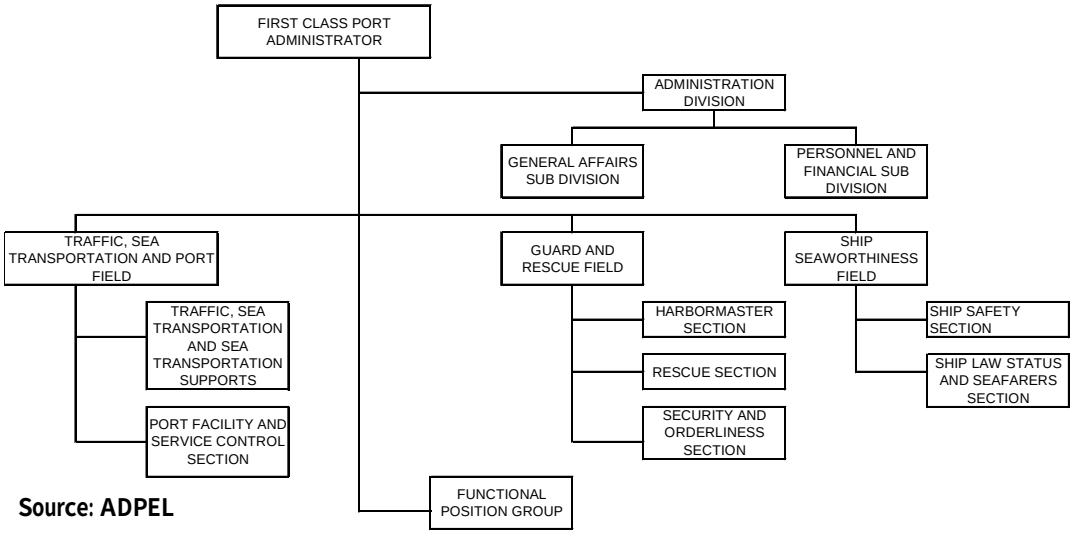
31. Benoa Port including the passenger and container terminals is managed and operated by PELINDO III itself. Figure 9-3-4-1 shows the Organization Chart of PELINDO III Benoa

Port. ADPEL administers the port area. Figure 9-3-4-2 shows the organization structure of ADPEL office of Benoa Port.



Source: PELINDO III Benoa Port

Figure 9-3-4-1 Organization Chart of PELINDO III Benoa Port



Source: ADPEL

Figure 9-3-4-2 Organization Chart of Administration office of Benoa port

9-3-5 Possible Security Incident Scenarios

32. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below. Likelihood point in the following table is a quantified likelihood of occurrence, used to obtain risk (evaluation) value.

Table 9-3-5-1 Possible Security Incident Scenario (Benoa Port)

	Scenario (ISPS Code B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia (e.g. the Bali Island nightclub booming in 2002, Mariott Hotel bombing in Jakarta in 2004, other) likelihood of occurrence of the scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in the Malacca Straits and middle west of the Indonesia, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Unauthorized access of stowaways to port facilities is probable.	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Unauthorized access of stowaways to port facilities is high.	A
5	Smuggling weapons or equipment	Likelihood of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Same as above	A
7	Use of the ship itself as a weapon	There has been no case where a ship itself has been used as a weapon even in the Malacca Straits. However, it is possible that terrorists could load a small ship with bomb.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-3-6 Present Situation of Port Facility Security Measures

33. Present situation of port facility security measures at Benoa Port is as follows:

- Port of Benoa covers a wide area which includes two public berths, several private berths and fishing boat berths. Residents are also found inside the area. Public berths are the Passenger wharf and Container wharf. There are 45 calls by international passenger vessel and 86 calls by domestic passenger vessel in 2004. Domestic container vessels also call here. Therefore if the restricted area is made wide, it will be necessary to conduct access control for those who are not related to the international wharves. PELINDO and related organizations conduct access control at the main-gate of the port.
- Actually no access control is conducted at any gate of public berths. People can enter the wharf anytime without any alert usually.

- PELINDO has special measures and procedure when international passenger vessels call. But these measures and procedures have not been put in writing.
- There is no PSC, since Benoa port does not comply with the ISPS code. However, they provide a Declaration of Security (DoS) to the international passenger vessels on request.

9-3-7 Issues on Implementation of Port Facility Security Measures

34. It is necessary to establish a restricted area as small as possible to minimize access control. To conduct effective access control, it will be necessary to repair the fence or erect a new one.

9-3-8 Risk Evaluation

35. Vulnerability issues identified during the assessment are noted as follows:

- Access control is conducted by PELINDO, KPLP, and KPPP at the Main Gate of the port. They check the ID card and ID sticker of persons and vehicles. However, the main gate is far from the public wharf, and they have no security procedure. No access control at the gate of the public wharf.
- Since the international passenger terminal handles domestic passengers and cargoes also, it is not designated as a restricted area.
- The terminal area is equipped with a fence and gate. However some part of the fence is low standard.
- Security guards also patrol within the berth area. There is no CCTV monitoring system in the port area.
- No security equipment is deployed at the main entrance / gate.
- Unauthorized persons and vehicles can access the passenger berth and cargo berth.
- Various ships conduct their activities without any inspection.

36. Result of risk evaluation is shown as follows:

Table 9-3-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1) Channel		M	M		C	M	M	C	C	C	M
(2) Anchorage and basin area		C	C	D	D	C	C	D	D	D	C
(3) Wharf		M	M	C	C	M	M	C	D	D	M
(4) Passenger terminal		M	M	C	M	M	M	M	D	D	M
(5) Transformer station		D		C	C					D	C
(6) Power station		M		C	M					D	M
(7) Water supply point		D			D					D	D
(8) Water strage tank		C		C	C					D	C
(9) Ship (Passenger)		M	M	C	M	M	M	M	D	D	M
(10)Ship		M	M	C	M	M	M	M	D	D	M
(11)Service boat		C	C	D	C	C	C	C	C	D	C
(12)Road		D			D					D	D
(13)Neighboring area		C			C					D	C
Max		M	M	C	M	M	M	M	D	D	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not need a protective measure at this time and therefore needs only to be documented)

9-3-9 Recommendation on Port Security

37. Recommendations on port security are as follows:

- The restricted area should be designated, and be enclosed by physical barriers such as fence and gates in order to conduct access control at the gates. Because international ships berth at the wharf occasionally and the berth is usually used for domestic vessels, mobile fence should be placed on the boundary with neighboring wharves. Before an international passenger ship berths, the mobile fence should be set up and the patrol should be conducted to make sure no suspicious persons or no unusual signs are present in and around the restricted area. Gates which are not usually used should be locked.
- Access control for persons, vehicle and cargo should be conducted strictly to prevent suspicious persons and objects from entering.
- Port Security Committee (PSC) is immediately established.
- Patrol should be executed continuously to ensure the safety of facilities, passengers and cargo.
- Surveillance of the water area and its port facility should be conducted, for example, by patrol boat.
- In a part of the terminal, the lighting is not sufficient for surveillance during the night. The lighting system should be repaired and improved in such places.
- A person's belongings should be inspected by using hand-held metal detector at the gate.

- In an emergency, a warning against suspicious persons and an evacuation report for ships, passengers, etc. should be given immediately using a PA system.
- Communication equipment should be installed or improved in the passenger terminal to allow for communication between security guard and security guard's office, administration office and any other related office. It is recommended that security guards carry a transceiver as a back-up to the hand phones.
- Measures should be taken quickly whenever damage to security related facilities is found.
- Security facilities should be inspected daily and periodically.
- More than two hand-held metal detectors should be installed at each gate.
- PA system should be installed.

9-4 PORT OF TENAU (KUPANG)

9-4-1 Outline of Tenau (Kupang) Port

38. Tenau Port is located at the west tip of Timor Island (10°11'52" South latitude and 123°31'20" East longitudes) and is the largest port in west Timur. It also serves as an outer port of Kupang which is the main city in west Timor. Tenau is away approx. 12km from south of Kupang city and has no industries other than port activity. The port is composed of several private ports and public wharves. Construction of the port began in 1964 and it has developed step by step. Multi-purpose wharf (237m) was completed in 2003. Location of Tenau Port (KUPAN) is shown in Figure 9-4-1-1.

39. Public wharves of Tenau Port handle little international cargo at present, but are expected to play a strategic role in the future. PELINDO III has a plan to place a maritime route between the public wharf and a sister port of Darwin in Australia. Granite and cement will be exported from the public wharves. PELINDO III intends to make the public wharf of Tenau Port compliant with the ISPS Code.

40. The public wharves of Tenau Port face Semau Strait are relatively calm and safe because they are sheltered by Semau Island.

Figure 9-4-1-1 Location map of Tenau Port

9-4-2 Layout Plan of the Port

41. Tenau Port has four wharves in a row: Traditional Public Wharf for sail boats which carry timber from other islands and other places of Timor Island, Local Wharf for passenger, Inter- islands Wharf for general cargo and Multi-purpose Wharf. Multi purpose wharf is expected to handle international cargo, especially containers.

42. There is a cement plant owned by a private company far behind Tenau Port and cement products are handled at the company's own berth. A fishery port is located at the south end of the Multi-purpose wharf.

43. The Multi-purpose Wharf has rails for quay side crane (but no crane is installed), lightning system for cargo handling at night, open storage yard and cargo handling yard. Trunk road from Kupang City to Tenau Port runs to the Multi-purpose Wharf. Layout of Multi-purpose Wharf is shown in Figure 9-4-2-1 and 9-4-2-2 and dimensions of the wharves are shown in Table 9-4-2-1.

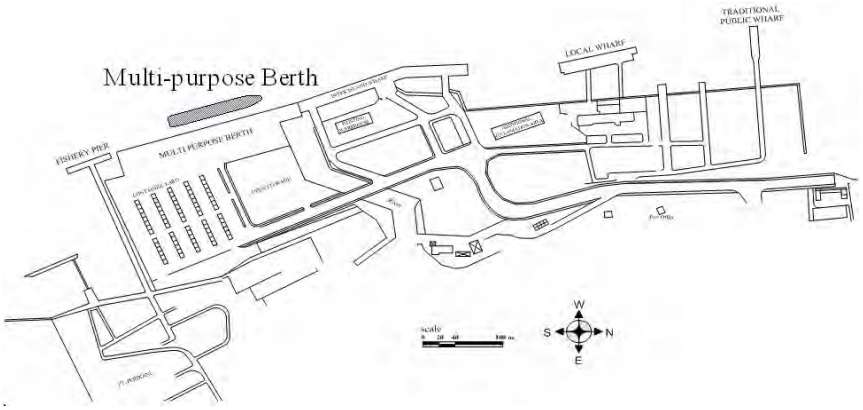


Figure 9-4-2-1 Layout map of Tenau Port

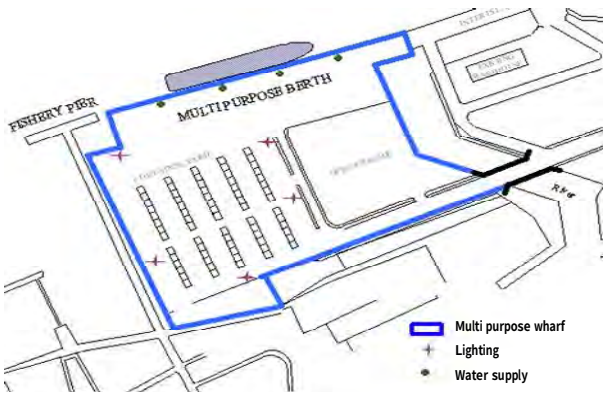


Figure 9-4-2-2 Layout of Multi-purpose Wharf

Table 9-4-2-1 Wharf Dimensions

Unit: m

Name of Wharf	Length	Width	Draft	Remarks
Inter-island Wharf	224	16	-8	Domestic general cargo
Passenger Wharf	100	15	-6	Domestic passenger
Traditional Wharf	70	10	-3/-6	Domestic timber cargo
Multi-purpose Wharf	238	45	-7.5	Container cargo

Source: PELINDO III Tenau Branch

9-4-3 Handling Cargo Volume

44. According to an interview with an officer of PELINDO III Tenau branch, international cargoes in Tenau Port are almost nil. Only one international passenger vessel came to Tenau Port in 2004. Data provided by PELINDO III head office including those of private berths is shown in Table 9-4-3-1and Table 9-4-3-2.

Table 9-4-3-1 Number of vessel call from 2000 to 2004

Year		2000	2001	2002	2003	2004
International Sea Transportation						
Liner						
Container Ship	Call			21	27	13
	GRT			*89,096*	*115,638*	*53,510*
Non Container Ship	Call		1	2		
	GRT		787	2,187		
Passenger Ship	Call	6	7			
	GRT	*13,578*	*10,519*			
Tanker	Call		4			
	GRT		*5,758*			
Sub Total	Call	6	12	23	27	13
	GRT	*13,578*	*17,064*	*91,283*	*115,638*	*53,510*
Tramper						
Container Ship	Call					1
	GRT					*497*
Non Container Ship	Call	39	17	22	8	31
	GRT	*120,320*	*36,098*	*67,897*	*17,883*	*28,905*
Passenger Ship	Call	14	10	11	1	25
	GRT	*23,518*	*18,586*	*4,322*	*39*	*44,121*
Tanker	Call		34	60	59	38
	GRT		*58,155*	*108,047*	*103,262*	*59,834*
Sub Total	Call	53	61	93	68	95
	GRT	*143,838*	*112,839*	*180,266*	*121,184*	*133,357*
Total I	Call	59	73	116	95	108
	GRT	*157,416*	*129,903*	*271,549*	*236,822*	*186,867*
Domestic Sea Transportation						
Container Ship	Call	112	100	81	88	130
	GRT	*6,987*	*73,272*	*65,619*	*81,077*	*149,014*
Non Container Ship	Call	887	604	735	573	717
	GRT	1,088,122	483,898	515,206	463,883	421,191
Passenger Ship	Call	391	611	703	572	685
	GRT	2,380,082	2,684,058	3,311,051	3,333,971	3,249,539
Tanker	Call		192	184	162	202
	GRT		568,077	423,601	412,874	555,283
Ship for Remote Area	Call	172	181	199	215	107
	GRT	51,713	65,333	99,545	90,387	54,226
Traditional Sailing	Call	978	889	807	648	766
	GRT	51,742	41,817	36,460	38,050	49,642
Ship with Fixed Activity	Call		168	105	37	34
	GRT		796	59,133	280	180
Total II	Call	2,540	2,745	2,814	2,295	2,641
	GRT	3,578,646	3,917,251	4,510,615	4,420,522	4,479,075
TOTAL I + II	Call	2,599	2,818	2,930	2,390	2,749
	GRT	3,736,062	4,047,154	4,782,164	4,567,344	4,665,942

Source: PELINDO III Head Office

Table 9-4-3-2 Number of Cargo from 2000 to 2004

Unit: ton

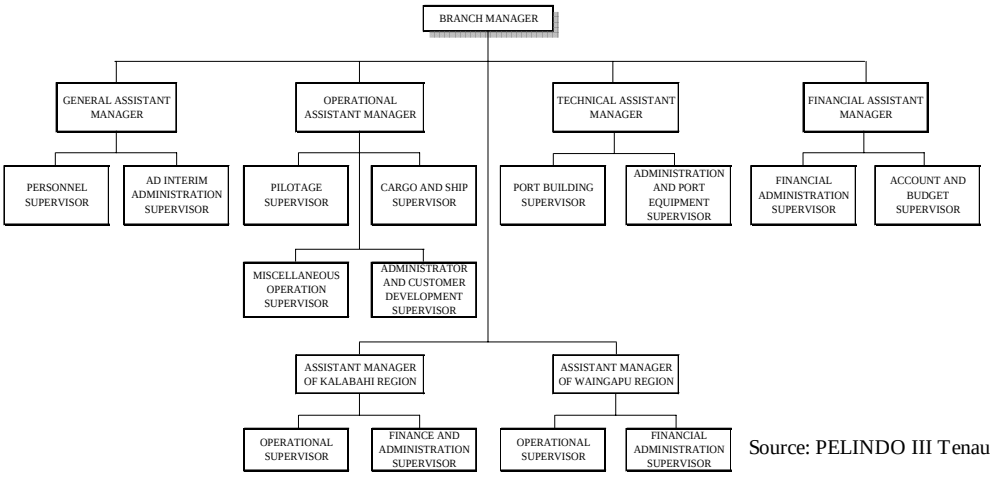
Year	2000	2001	2002	2003	2004
Import	41,225	31,000	95,017	12,100	14,450
Export	977	2,590	1,800		3,471
Sub Total	42,202	33,590	96,817	12,100	17,921
Unload	309,651	362,744	266,758	256,205	260,946
Load	65,544	47,452	62,040	31,583	37,706
Sub Total	375,195	410,196	328,798	287,788	298,652
TOTAL	417,397	443,786	425,615	299,888	316,573

Source: PELINDO III Head Office

9-4-4 Port Management System

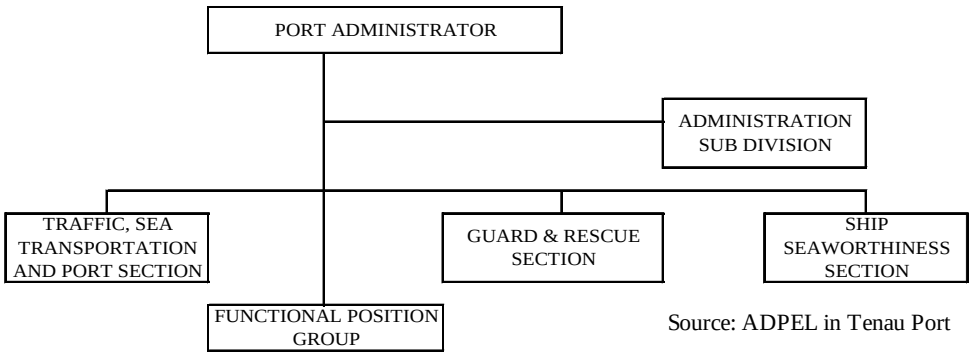
45. Tenau port is managed and operated by Tenau Branch of PELINDO III. Under the Branch Manager there are six sections. Organization chart of Tenau Branch of PELINDO III is shown in Figure 9-4-4-1. It is not compliant with the ISPS Code and there is no port facility security plan. However security officers including a PFSO have been assigned to the Cargo and Ship section to prepare ISPS implementation. The manager of the Ship Service Section is a PFSO and will be in charge of ISPS implementation.

46. ADPEL in Tenau is an administrator of Tenau Port(See Figure 9-4-4-2.). KPLP of the ADPEL in Tenau port is responsible for port security. KPLP personnel are deployed at gates and in the terminal and patrol by speed boat on the water area as well.



Source: PELINDO III Tenau Branch

Figure 9-4-4-1 Organization Chart of PELINDO III Tenau Port



Source: ADPEL in Tenau Port

Figure 9-4-4-2 Organization Chart of ADPEL in Tenau Port

9-4-5 Security Incident Scenarios

47. Possible security incident scenarios for the Multi-purpose Wharf are shown in Table 9-4-5-1 Likelihood of occurrence of each scenario is evaluated using a scale from A to C (With A being the highest, and C being the lowest).

Table 9-4-5-1 Possible Security Incident Scenarios

No	Scenario (ISPS Code, B 15.11)	Assessment	Likelihood of Occurrence
1	Attack by explosive devices, arson or sabotage	Bali Island Night Club bombing, Marriott Hotel bombing and explosions around the Australian Embassy. Likelihood of occurrence of this scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in middle west of Indonesian sea such as the Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo, essential ship equipment or systems or ship's stores	Although no case in which port activities are disturbed due to tampering with cargo has been reported, likelihood of occurrence of this scenario is not denied because of illegal activities including cargo theft.	B
4	Unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high.	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high, because terror exists in the country.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high because terror exists in the country.	A
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is low.	C
8	Blockage of port channels etc.	Likelihood of occurrence of this scenario is low, because a large-scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-4-6 Present Situation of Port Facility Security Measures

48. Present situation of port facility security measures at Tenau Port are as follows:

1) Security procedure

a) Personnel Access Control at Gate

- Persons who pass through gates are as follows: PELINDO officials, DGST officials, ADPEL officials, KPLP officials, KPPP officials, Customs officials, Immigration officials, cargo handling workers, tug boat crew/pilot crew/lasher, forwarders, ship crews, agent workers, warehouse workers, visitors and other officials.
- Officials of PELINDO, DGST, ADPEL, KPLP, KPPP, Customs and Immigration who wear uniforms are allowed to pass through the gate.

- Stevedores, workers of shipping company, agent, etc. are requested to show his/her ID.
- No access control is conducted for other persons such as vendors.
- PELINDO and KPLP officials manage and control gates and the port area.
- Visitors have to pay an entrance fee at gates. However when persons pay fees and receive receipts, the individual's identity is not checked.
- Moreover, persons and their belongings have not been checked by metal detector.
- Vending stands are seen in the port area but vendors are not checked.
- No access control is conducted at the offices of Pilot, ADPEL and KPLP.

b) Vehicle access Control at Gate
- Three gates for vehicles are placed in the terminal. Main gate is located at the end of the trunk road from Kupang City. The gate has pedestrian pavements
- Taxies are permitted to pass through gates including ones for the passenger terminal.
- Only external appearances of incoming vehicles are inspected by PELINDO and KPLP.
- Entry pass or sticker is not issued for vehicles that pass through the gates.

c) Cargo Access Control at a Gate
- Only slips and external appearance of cargo are checked at gates.
- A vehicle which has neither slips nor visit letters is not allowed to enter the port area in order to prevent pilferage.

d) Management of Cargo
- Container cargo stored in the terminal is checked and confirmed by a seal.

e) Management of Security Facilities and Equipment
- The main gate is not equipped with a pole to stop cars nor is there a lock.
- Even while no cargo is brought into the terminal, gates are always open.
- Security guards of PELINDO and KPLP stand at the gate all day.
- Fence is installed on the border of the port area. Although the fence is 2.1m in height, some part of the fence is broken.
- Fence on the boundary with Fishery Pier is not sufficient.
- Clear zone is secured perfectly because there are few cargoes in the port.
- Mobile fence for separating Multi-purpose Wharf from Inter Islands Wharf is not available.
- Lighting facilities for container handling in the Multi-purpose Wharf is maintained in good condition.
- Officials of PELINDO, KPLP and KPPP who make patrols in the port area bring a transceiver and privately owned mobile phone with them.

f) Patrol
- The port is guarded by officials of PELINDO, KPLP around the clock. No security guards are employed from a private company.
- Patrols are carried out along the wharf edge to the sea and during patrols the water area is observed visually.
- Although PELINDO does not monitor the water area, KPLP patrols the water area as needed.

g) Confirmation of a Vessel
- A vessel that intends to enter the port directly contacts the Pilot office and

informs ADPEL office of the vessel name and estimated arrival time through an agent at least more than 24 hours in advance.

h) Monitoring of the Front Water Area
- KPLP monitors the front water area and patrols by speedboat.

i) Monitoring of Channel and Anchorage
- KPLP usually does not patrol the anchorage area because of its tight budget.

2) Structural Security

- No damage is observed in the Multi-Purpose Wharf where the international vessels intend to berth.
- Fence which partitions off the port boundary is not in good condition.
- Fresh water storage tank is not protected by fence.
- Distributor is protected by iron box.
- There is a ladder over the fence.

3) Evacuation Route

- There is no evacuation route or muster point from the terminal and port management office.

4) Security Plan

- ISPS security plan has not been formulated until now.

5) Communication System

- No phone line is available in the Multi-purpose Wharf but mobile phones have a clear connection.
- Pilot office communicates with vessels by VHF radio transmission.
- Computer system has not been introduced in the Pilot office.
- Port call of a vessel is informed to KPLP office through an agent by telephone or facsimile.

6) Adjacent Area

- Urban area is not in close vicinity to the public port.
- Fishery Wharf is located beyond the Multi-purpose Wharf.

9-4-7 Issues on Implementation of Port Facility Security Measures

49. Issues on Implementation of port facility security measures at Tenau Port are as follows:

1) Accessibility issues

- The main gate is not equipped with a pole to stop cars nor is there a lock.
- The gate has no entrance for pedestrians.
- Even while no cargo is brought into the terminal, gates are always open.
- Although the fence is 2.1m in height, some part of the fence is broken
- Mobile fence for separating Multi purpose Wharf from Inter Islands Wharf is not available.

- No CCTV cameras, monitoring system and sensor as anti-intrusion system have been installed.
- Lighting of boundary should be installed.
- Fence which separates Multi-purpose Wharf from Fishery Pier is not sufficient.

2) Organic security issues

- No access control is conducted for persons other than port officials and workers such as vendors.
- When persons pay fees and receive receipts, the individual's identity is not checked.
- Persons and their belongings have not been checked by metal detector.
- Vending stands are seen in the port area but vendors are not checked.
- Only external appearances of incoming vehicles are inspected.
- Entry pass is not issued for vehicles that pass through the gates.
- Although PELINDO does not monitor the water area, KPLP patrols the water area as needed.
- KPLP usually does not patrol the anchorage area due to lack of funds. Therefore, patrol in the channel and anchorage area is not fully conducted.
- No access control is conducted at the pilot, ADPEL and KPLP offices

9-4-8 Risk Evaluation

50. In case of an international cargo vessel calling, risk evaluation for the terminal based on the above is shown in Table 9-4-8-1

Table 9-4-8-1 Summery of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1) Channel		C		D	C			D	D	D	C
(2) Anchorage and basin area		C		D	D			D	D	D	C
(3) Wharf		M		C	M	M	M	D	D	D	M
(4) Storage and handling area		M		C	M	M	M			D	M
(5) Cargo handling equipment		M		C	M			D		D	M
(6) Control center		M		C	M					D	C
(7) Port office		M		C	M					D	M
(8) Substation (Distributor)		C		D	C					D	D
(9) Fresh water supply point		C		D	C					D	D
(10) Fwresh water supply tank		C		D	C					D	C
(11) Electricity		D		D	D					D	D
(12) International ship (Dangerou goods)		M	M	C	M	M	M	D	D	D	M
(13) Tugboat, Pilot boat		C	C	D	C	C	C	D	D	D	D
(14) Road		M			D					D	M
(15) Adjacent area		C			C					D	C
Max		M	M	C	M	M	M	D	D	C	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)

C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not need a protective measure at this time and therefore needs only to be documented)

9-4-9 Recommendation of Port Security

51. Based on the assessment which was implemented by the study team, recommendations on port security are described as follows.

1) Important facilities to be protected
   - Multi-purpose Wharf
   - Container yard and storage yard
   - Cargo handling equipment
   - International ships
   - Lightning for container handling
   - Water supply point

2) Necessary security facilities and equipment
   - Lightning for boundary
   - Fence (repair and new installation)
   - New gate and gate house

3) Access control
   - To implement intensive access control concerning personnel, vehicle and cargo
   - To take measures to prevent unauthorized person's access
   - To ensure regular inspection of cargo appearance
   - To inspect explosives attached or loaded on a vehicle

4) Monitoring of terminal area
   - To separate the Multi-purpose Wharf where an international ship berths from the Inter Island Wharf by fence with top guard
   - To implement intensive access control (confirmation of personnel and vehicles, cargo appearance check and suspicious goods check of a vehicle with mirror and metal detector)
   - To patrol the surrounding area
   - To implement intensive monitoring

5) Communication with related organizations
   - To ensure communication between security personnel and a PFSO

6) Response to emergency
   - To establish emergency communication system and emergency response plan including initial action order, and to include them in the PFSP

7) Training
   - To conduct periodical training, drills and exercises as necessary

8) Others
   - Domestic passenger terminal should be fenced off so that passengers cannot enter the Local Wharf.
   - A pilot office apart from Tenau Port should be under access control
   - Port offices including ADPEL office should be under access control

9-5 PORT OF BANJARMASIN

9-5-1 Outline of Banjarmasin Port

52. Banjarmasin is the capital of South Kalimantan Province, and Banjarmasin Port is located along the Barito River, 40 km upstream of the mouth of the river. Banjarmasin Port is composed of the Trisakti area and Martapura area. In the Martapura area which faces the Martapura River, a tributary of the Barito River, only domestic cargo is handled.

53. As for the Trisakti area, the existing wharves are 510 m long, which consist of Container Wharf, General Cargo Wharf and Passenger Wharf with depth of -9 m LWS. The Passenger Wharf is used not only for domestic passengers but also for general cargo. In addition, there is a Coal Wharf downstream of the river. The coal is loaded onto a barge, which is pulled by a tug boat up to an anchorage area located at the mouth of the river, where it is transshipped to a large vessel for export to Japan, Taiwan and so on. Next to the Coal Wharf, there are a cement factory and Cement wharf. The cement factory is managed by a private company, but the Cement wharf is operated by the PELINDO. Downstream of the Cement wharf, a new container terminal of 240m in length is under construction.

54. Locations of Banjarmasin and Banjarmasin Port are shown in Figure 9-5-1-1 and 9-5-1-2.

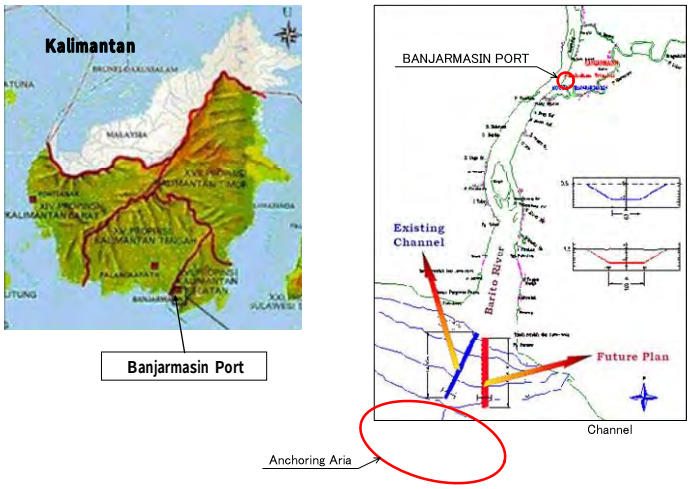


Figure 9-5-1-1Location of Banjarmasin Port

55. The many kinds of cargo handling equipment in Banjarmasin Port are listed in Table 9-5-1-1.

Table 9-5-1-1 Summary of Main Cargo Handling Equipment

Item	Unit	Capacity	Remarks
Floating crane	1	80 tons	Private
Land crane	2	25 tons	
Forklift	21	2-7 tons	4 PELINDO, 17 private
Reach stacker	6	40 tons	2 PELINDO, 4 private
Top loader	1	36 tons	
RTG	2	-	
Truck trailer	34	-	4 PELINDO, 30 private
Belt conveyor	2	350 tons/hr	Coal
Wheel loader	4	-	Coal

Source: PELINDO III Banjarmasin Branch

9-5-2 Layout Plan of the Port

56. The existing layout of Banjarmasin Port is shown in Figure 9-5-2-1.

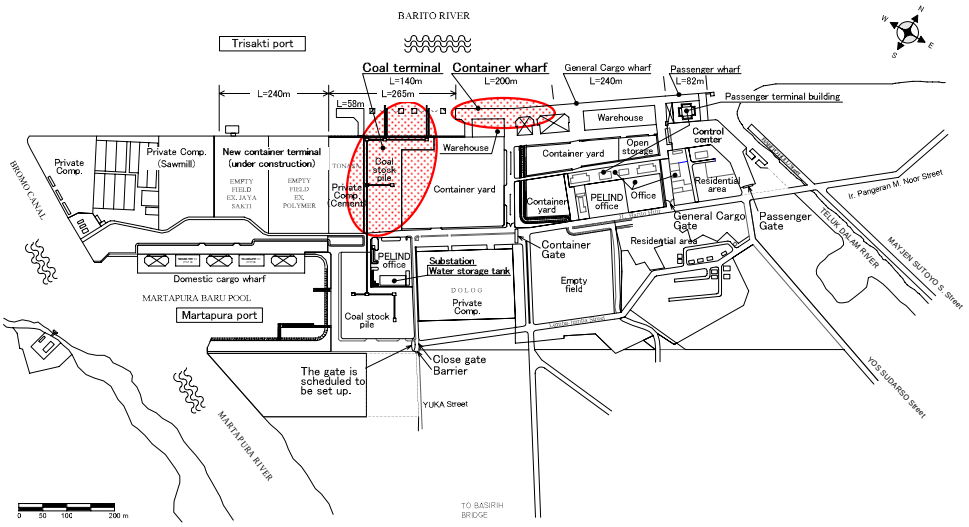


Figure 9-5-2-1 Layout Plan of Banjarmasin Port

9-5-3 Cargo Volume and Number of Ship Calls

57. The cargo handling volume and ship calls at PELINDO III Banjarmasin Port are summarized in Table 9-5-3-1 and 9-5-3-2, respectively. The main commodities of export are coal and plywood. The number of passengers, all of whom are domestic, is given in Table 9-5-3-1.

Table 9-5-3-1 Cargo Handling Volume at Banjarmasin Port

Year	2001	2002	2003	2004
General Cargo (ton or m3)				
Export	8,041,954	9,951,347	12,729,859	16,016,393
Import	61,125	53,499	53,338	17,121
In-coming (domestic)	3,327,169	3,272,347	3,304,719	2,177,352
Out-going (domestic)	2,681,287	2,961,015	4,106,811	5,240,905
Total	14,111,535	16,238,208	20,194,727	23,451,771
Container (TEU)				
Export/Import	13,163	15,448	16,634	14,643
Domestic	125,677	133,854	142,664	168,972
Total	138,840	149,302	159,298	183,615

Source: PELINDO III Banjarmasin Branch

Table 9-5-3-2 Ship Calls at Banjarmasin Port

Unit: call

Year	2001	2002	2003	2004
International				
Cargo Vessel	801	746	677	824
Domestic				
Cargo Vessel	6,522	6,976	7,116	8,632
Passenger Ship	761	576	576	483
Total	8,084	8,298	8,369	9,939

Source: PELINDO III Banjarmasin Branch

Table 9-5-3-3 Number of Passengers at Banjarmasin Port

Unit: person

Year	2001	2002	2003	2004
International				
Debarkation	0	0	0	0
Embarkation	0	0	0	0
Domestic				
Debarkation	265,244	300,687	499,571	225,011
Embarkation	428,820	397,614	350,248	184,176
Total	694,064	698,301	849,819	409,187

Source: PELINDO III Banjarmasin Branch

9-5-4 Port Management System

58. Figure 9-5-4-1 shows the organization Structure of ADPEL at Port of Banjarmasin.

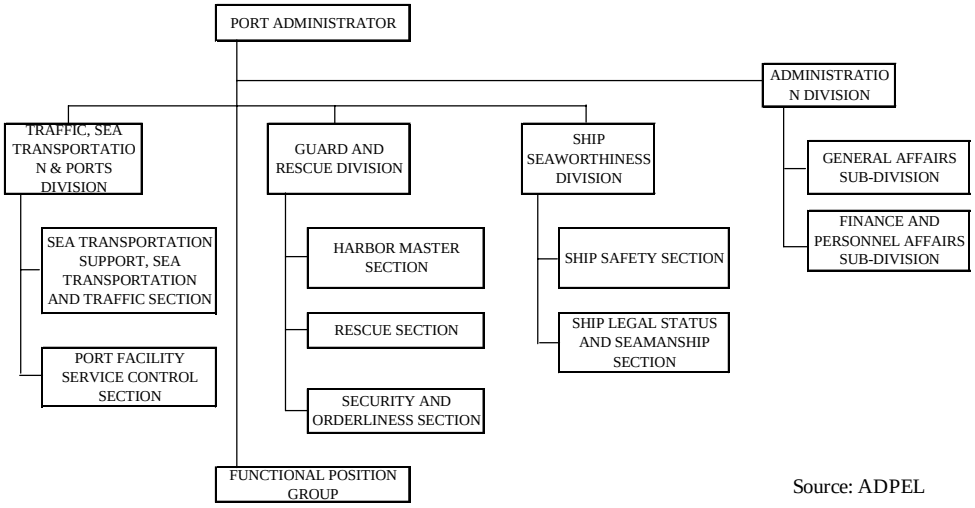
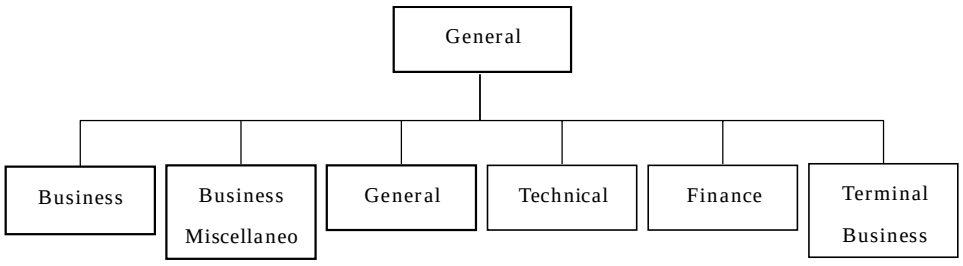


Figure 9-5-4-1 Organization Structure of Banjarmasin Port Administrator Office

59. Banjarmasin Port including the coal terminal is managed and operated by PELINDO III itself. Figure 9-5-4-2 describes the Organization Chart of PELINDO III Banjarmasin Port.



Source: PELINDO III Banjarmasin Branch

Figure 9-5-4-2 Organizational Chart of Banjarmasin Port, PELINDO III

9-5-5 Possible Security Incident Scenarios

60. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below. Possible scenarios are shown in Table 9-5-5-1.

Table 9-5-5-1 Possible security incident scenarios

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering past bombing incidents which have occurred in Indonesia, likelihood of occurrence of this scenario is high.	A
2	Hijacking or seizure	Considering the many pirate incidents in the Malacca Straits and middle west of the Indonesia, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Unauthorized access of stowaways to port facilities is probable.	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of unauthorized access of stowaways to port facilities is high..	A
5	Smuggling weapons or equipment	Likelihood of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	A
7	Use of the ship itself as a weapon	There has been no case where a ship itself has been used as a weapon even in the Malacca Straits. However, it is possible that terrorists could load a small ship with bomb.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-5-6 Present Situation of Port Facility Security Measure

61. Present situation of port facility security measures at Banjarmasin Port is as follows:

- Container Wharf, General Cargo Wharf and Passenger Wharf are adjacent to one another. Passenger Wharf does not receive international ships. In case of no domestic passenger ship berth at Passenger Wharf, it is also utilized as a general cargo terminal.
- A gate of Container Wharf is located outside of the area enclosed by fence and it doubles as the gate for Coal Terminal, the domestic terminals and the private terminal.

9-5-7 Issues on Implementation of Port Facility Security Measures

62. Issues on implementation of port facility security measures at Container Wharf, General Cargo Wharf, Passenger Wharf and Coal Terminal in Banjarmasin Port are as follows:

- PFSA and PFSP have not yet been formulated for the four terminals.
- There is no monitoring system such as a CCTV camera in the container terminal.
- Though a restricted area has not yet been designated in the port, the above-mentioned 4 terminals are divided into the following three areas and these areas are enclosed by fence or wall respectively. However, the height of fence is not adequate and there are some breakages on the fence.

  + Container terminal and General cargo terminal
  + Passenger terminal
  + Coal terminal

- In case of domestic passenger ship berth at Passenger Wharf, the continuous general cargo and passenger terminal area are divided off by mobile fence and a gate.
- Though the access control is conducted at the following three gates, they do not check ID cards.

  + Passenger terminal gate
  + General cargo terminal gate
  + Container terminal gate

- The gate for the container terminal is located outside of the area enclosed by fence and it doubles as the gate for the coal terminal, domestic terminal and private terminal.

9-5-8 Risk Evaluation

63. Risk evaluation for the four terminals based on the above current situation on port security is shown in the following table.

Table 9-5-8-1 Summary of Risk Evaluation (1)

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1)Channel		M		C	M			M	D	D	M
(2)Anchorage and basin area		C		C	C			C	D	D	C
(3)Wharf		C		C	C	M	M	C	D	D	M
(4)Storage and handling area		C		C	C	M	M			D	M
(5)Warehouse		D		D	D	D	D			D	D
(6)Cargo handling equipment		C		C	C			C		D	C
(7)Passenger terminal		M		C	M					D	M
(8)Control center		M		C	M					D	M
(9)Port office		M		C	M					D	M
(10)Substation (Distributor)		C		D	C					D	C
(11)Fresh water supply point		D		D	D					D	D
(12)Fwresh water supply tank		D		D	D					D	D
(13)Electricity		D		D	D					D	D
(14)International ship		M	M	C	M	M	M	M	D	D	M
(15)Service boat		C	C	D	C	C	C	C	D	D	C

(16)Road	D			D					D	D
(17)Neighboring area	C			C					C	C
Max	M	M	C	M	M	M	M	D	C	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not need a protective measure at this time and therefore needs only to be documented)

9-5-9 Recommendations on Port Security

64. Recommendations on port security are as follows:

- The restricted area should be designated, and be enclosed by physical barriers such as fence and gates in order to conduct access control at the gates. If a fixed fence would interface with cargo handling in other areas, mobile fences should be used instead. In such a case, before an international passenger ship berths at the wharf, the mobile fence should be installed and patrol should be conducted to make sure no suspicious persons or no unusual objects are present in and around the restricted area. Gates which are not used should be locked.
- Access control for persons, vehicles and cargo should be conducted strictly to prevent suspicious persons and things from coming inside. The photo ID card should be issued to persons who often enter into the restricted area. For temporary visitors, their identities control should be recorded.
- External check of cargo should be done while the cargo is in the storage area and during loading.
- Random patrols (intervals and routes) should be executed to ensure the security of port facilities, ships and cargo.
- Surveillance of the water area and its port facility should be conducted (for example, by patrol boat).
- In a part of the terminal, the lighting is not sufficient for surveillance during the night. The lighting system should be repaired and improved in such places.
- In an emergency, a warning against suspicious persons and evacuation directions for ships, passengers, etc. should be given immediately by using a public address (PA) system.
- In case that an international passenger ship berths at the Passenger Wharf, telephone (and fax machine if possible) should be installed in the passenger terminal for communication between security guard and a PFSO, security guard's office or administration office. It is recommended that security guards carry a communication device.
- Quick response to a security incident is vital.
- Security facilities must be regularly inspected.
- Emergency plan including communication network and instruction in case of emergency should be prepared and put in the PFSP.
- Exercises and drills should be done periodically and appropriately.

9-6 PORT OF SAMARINDA

9-6-1 Outline of Samarinda Port

65. Samarinda Port is a large port in Kalimantan. It plays an important role in the transport of raw materials especially plywood. International cargo is ammonia imported from China, Malaysia and Australia.

66. Samarinda port is located in East Kalimantan Province and is 2 to 3 hours by car from Balikpapan Airport. (South latitude 0°30’25’’, East longitude 117°24’16’’) Mahakam River flows from west to east in Samarinda city and Samarainda port is a river port in the Makaham River. Forty-five ports including private berths are scattered along the river. There are two channels which are used respectively in different seasons.

67. Public terminals at Samarinda Port are long and narrow along the river with its width of about 80m and its length of about 935m.

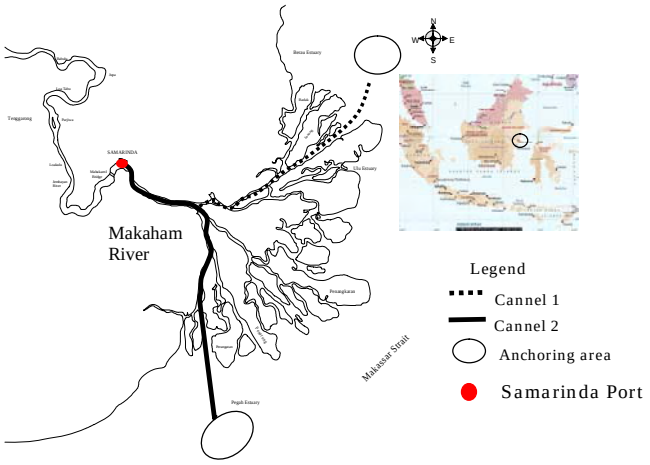


Figure 9-6-1-1 Location Map of Samarinda Port

9-6-2 Layout plan of the port

68. Layout plan is shown in Figure 9-6-2-1. The port faces the trunk road and opposite site of the trunk road is the downtown area. There is no factory near Samarinda Port. There are eight domestic terminals and an international terminal in Samarinda Port. Domestic passenger terminal is located at the east end. There is an international berth in front of the main gate. Regarding the adjacent area, urban area is in close vicinity of the public port and a trunk road runs at kissing distance of the north side of the public port. Downstream area of the berth is a confluence of the branch river, where small vessels such as traffic boats are moored. Upstream area has a mooring facility for small boats carrying food and goods.

69. Terminal dimensions are shown as follow:

- Total length of the wharf is 935m and water depth is -5.5m.
- Berth length for international vessels is 60m.
- Berth length for domestic passenger is 80m.
- There are 8 terminal operators.

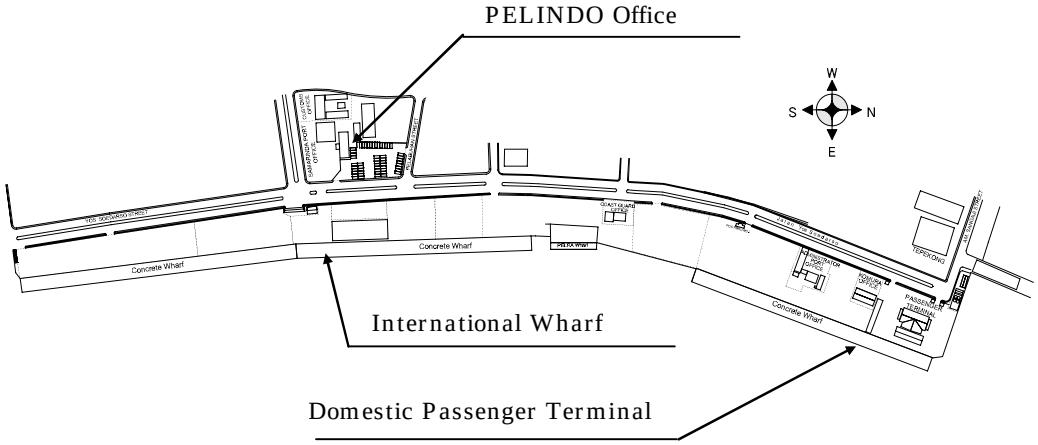


Figure 9-6-2-1 Layout plan of Samarinda Port

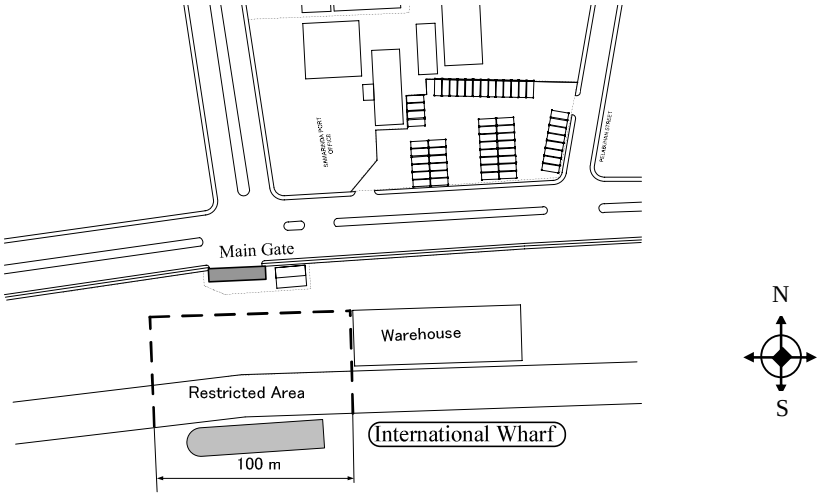


Figure 9-6-2-2 Layout Map of International Berth

9-6-3 Cargo Handling Volume

70. International cargoes in Samarinda port are mainly plywood and coal. These cargoes are transported to Tg. Perak and Tg. Priok as domestic cargo and then exported after transshipment. International vessel call in Samarinda Port is almost nil except for a chemical vessel.

71. Plywood (manufactured wood): Plywood is put into containers in a factory and transported from Samarinda public wharf to anchorage by barge. Containers are transshipped to the domestic vessel at anchorage, and transshipped to the international vessel at Tanjung Priok Port and Tanjung Perak Port. Major container cargo in Samarinda port is plywood, the volume of which amounted to 43,578 tons (2,909TEUs) in 2004. Coal is transported from private ports to anchorage by barge and is transshipped at anchorage like plywood. The handling volume amounted to 10,367,561 tons in 2004. Coal is transported by domestic vessels to Tg. Priok and Tg. Perak and exported from these two ports.

Table 9-6-3-1 Export Cargo Volume

Unit: ton

Year	2001	2002	2003	2004	Remarks
Public Port	1,220	30,734	35,353	45,414	Mainly plywood
Special Port	5,216,965	6,384,005	8,192,417	10,939,578	Mainly coal

Source: PELINDO IV Samarinda Branch

72. Chemical cargo: Imported ammonia is not unloaded at anchorage but unloaded at a public wharf. The handling volume amounted to 25,803 tons in 2004. The number of calling vessels is not clear at present. On the assumption that small chemical vessels (Gross tonnage: 698GRT, LOA: 62.45m, width: 11m, draft: 5.1m and tank volume: 1,193m3) call the port and factoring in the water depth of Makaham river and public wharf dimensions, the number of annual vessel calls reache 22. On the other hand, PELINDO official says that chemical ships call a public wharf only several times a year. Chemical vessels may be larger than the assumed one or a part of ammonia may be handled at private ports.

Table 9-6-3-2 Import Cargo Volume

Unit: ton

Year	2001	2002	2003	2004	Remarks
Public Port	15,584	18,301	15,183	25,803	Ammonium Nitrate
Special Port	8,960	22,441	15,496	2,397	

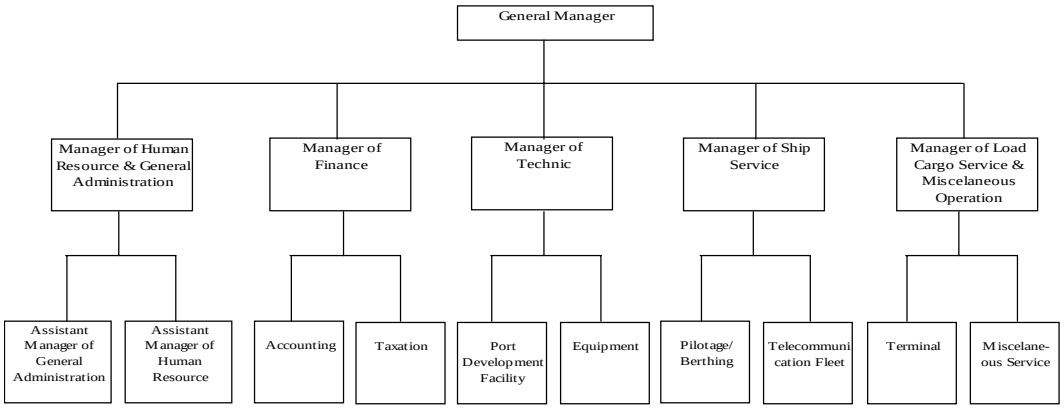
Source: PELINDO IV Samarinda Branch

9-6-4 Port Management System

73. Samarinda port is managed by Samarinda Branch of PELINDO IV. Under the general manager there are five sections. Organization chart of Samarinda Branch of PELINDO IV is shown in figure 9-6-4-1.

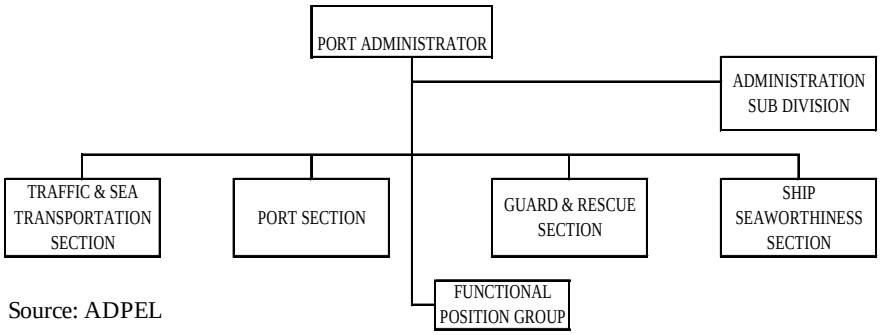
74. There is no security plan and Samarinda Port is not compliant with the ISPS Code. However security officers including a PFSO are assigned to the Ship Service Section to prepare ISPS implementation. The manager of Ship Service Section is the PFSO and will be in charge of ISPS implementation.

75. ADPEL is an administrating organization of Samarinda Port. KPLP of the ADPEL in Samarinda is responsible for port security. KPLP personnel are deployed at gates and in the terminal and patrol by speed boat on the water area as well.



Source PELINDO IV Samarinda Branch

Figure 9-6-4-1 Organization Chart of Samarinda Branch of PELINDO IV



Source: ADPEL

Figure 9-6-4-2 Organization Chart of ADPEL in Samarinda Port

9-6-5 Possible Security Incident Scenarios

76. Possible security incident scenarios for the passenger terminal are in Table 9-6-5-1. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being the high-test and C being the lowest).

Table 9-6-5-1 Possible Security Incident Scenarios

No	Scenario (ISPS Code, B 15.11)	Assessment	Likelihood of Occurrence
1	Attack by explosive devices, arson or sabotage	Some bomb incidents have occurred in Indonesia, and likelihood of occurrence of this scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in middle west of Indonesian sea such as the Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo, essential ship equipment or systems or ship's stores	Scenario of illegal act in the port such as tampering is possible.	B
4	Unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high.	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	A
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is low.	C
8	Blockage of port channels etc.	Likelihood of occurrence of this scenario is low, because a large-scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-6-6 Present Situation of Port Facility Security Measures

77. Present situation of port facility security measures in Samarinda Port is as follows:

1) Security Procedure

a) Personnel Access Control at Gate
- Persons who pass through gates are officials of PELINDO, DGST, ADPEL, KPLP, KPPP, Customs and Immigration, cargo handling workers, tug boat crew/pilot crew/lasher, forwarders, ship crews, agent workers, warehouse workers, visitors and other officials.
- Officials of PELINDO, DGST, ADPEL, KPLP, KPPP, Customs and Immigration who wear uniforms are allowed to pass through the gate.
- Stevedores, workers of shipping company and agent, etc. are requested to show his/her ID.
- No other access control is conducted for other persons such as vendors.
- PELINDO and KPLP officials manage and control gates and the port area.
- Visitors have to pay an entrance fee at gates. However when persons pay fees and receive receipts, the individual's identity is not checked.
- Moreover, persons and their belongings have not been checked by metal detector.
- Vending stands are seen in the port area but vendors are not checked.
- No access control is conducted at the offices of ADPEL, KPLP and Pilot which is apart from Samarinda Public Port.

b) Vehicle Access Control at Gate
- Three gates for vehicles are placed in the terminal. The main gate is located in front of the international handling area. None of the gates has an entrance for pedestrians.
- Taxies are not permitted to pass through gates other than that for the passenger terminal.
- Only external appearances of incoming vehicles are inspected by PELINDO and KPLP.
- Entry pass is not issued for vehicles that pass through gates.

c) Cargo Access Control at Gate
- Only cargo slips and external appearance of cargo are checked at gates.
- A vehicle which has neither cargo slips nor visit letters is not allowed to enter the port area in order to prevent pilferage.

d) Management of Cargo
- Container cargo stored in the terminal is checked and confirmed by a seal.

e) Management of Security Facilities and Equipment
- The main gate near the international berth is not equipped with a pole to stop cars nor is there a lock.
- Gates which are not used for incoming and outgoing of cargo are always open.
- Security guards of PELINDO and KPLP stand at the gate all day.
- Fence is installed on the border of the provisional restricted area along the trunk road. Although the fence is 2.1m in height, some part of the fence is broken and an outrigger is installed in only a portion of the passenger terminal area.

- Clear zone is not secured because cargo is stored an inch away from the fence.
- Mobile fence for international vessels is not available.
- Half of the lighting facilities are out of order.
- No CCTV cameras, monitoring system or sensor as anti-intrusion system have been installed.
- Officials of PELINDO, KPLP and KPPP who patrol in the port area bring a transceiver and privately owned mobile phone with them.

f) Patrol

- Officials of PELINDO and KPLP are deployed in the port around the clock. No security guards are employed from a private company.
- Patrols are carried out along the wharf edge to the sea and during patrols the water area is observed visually.
- PELINDO does not monitor the water area; KPLP patrols the water area as needed.

g) Confirmation of Vessel

- Pilot office that belongs to PELINDO is located at the river mouth which is 70km away from Samarinda port.
- A vessel that intends to enter the port directly contacts the pilot office and also informs ADPEL office of the vessel name and estimated arrival time through an agent at least more than 24 hours in advance.

h) Monitoring of the Front Water Area

- KPLP monitors the front water area and patrols by speedboat.

i) Monitoring of Channel and Anchorage

- Two anchorages are designated at the river mouth which is located in Makassar Strait. Due to the variation in the seasonal wind, southern anchorage is used from January to June and northern one is used from July to December. Water depth of the channel is only - 5.5m and thus large vessels cannot enter the port.
- Containers (plywood) and bulk cargo (coal) are transshipped from barges at the anchorage and then transported to Tg. Priok and Tg. Perak as domestic cargo. Anchorage where ship-to-ship interface occurs is an important place. However, KPLP usually does not patrol the anchorage area.

2) Structural Security

- No damage is observed at the place where international vessels berth.
- Fence around the port boundary and lighting in the port is not in good condition.
- Fresh water storage tank is protected by fence.
- Distributor is protected by a barrier made of iron bars.

3) Evacuation Route

- No evacuation route from the terminal and port management office has been set out.

4) Security Plan

- The PFSP has not been formulated until now.

5) Communication System

- No phone line is available in the terminal but mobile phones have a clear connection.
- Pilot office located near the river mouth communicates with vessels by VHF radio transmission.
- Computer system has not been introduced in the pilot office.
- A vessel informs ADPEL office of its arrival through an agent by telephone or facsimile.

6) Adjacent Area

- Urban area is in close vicinity to the public wharves beyond the city trunk road which runs at a kissing distance of the north side of the public port.
- Downstream area of the wharves is the confluence of the branch river, where small vessels such as traffic boat are moored.
- Upstream area of the wharves is a mooring facility for small boats carrying food and goods.

9-6-7 Issue on Implementation of Port facility Security

78. Issue on implementation of port facility security measures at the port are as follow.

1) Accessibility Issues

- The main gate near the international berth is not equipped with a pole to stop cars nor is there a lock.
- None of the gates has an entrance for pedestrians.
- Gates which are not used for incoming and outgoing of cargo are always open.
- Although the fence is 2.1m in height, some part of the fence is broken and a top guard is installed only in a part of the passenger terminal area.
- Mobile fence for an international ship is not available.
- Half of the lighting facilities are out of order.
- No CCTV cameras, monitoring system and sensor as anti-intrusion system have been installed.
- Fence around the port boundary and lighting in the port is not in good condition.

2) Organic Security Issues

- No other access control is conducted for other persons such as vendors.
- When persons pay fees and receive receipts, the individual's identity is not checked.
- Persons and their belongings by metal detector have not been checked.
- Vending stands are seen in the port area but vendors are not checked.
- Only external appearances of incoming vehicles are inspected.
- Entry pass is not issued for vehicles that pass through the gates.
- Even while no cargo is brought into the terminal, gates are always open.

- Clear zone of the fence is not secured because cargo is stored an inch away from the fence.
- Although PELINDO IV does not monitor the water area, KPLP patrols the water area as needed.
- KPLP usually does not patrol the anchorage area because only domestic vessels use it. Patrol in the channel is not appropriately conducted.
- Access control is not conducted at the pilot office and other offices including ADPEL office.

9-6-8 Risk Evaluation

79. Risk evaluation for the international terminal based on above issues shown in the following Table 9-6-8-1.

Table 9-6-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1) Channel		C		D	C			D	D	D	C
(2) Anchorage and basin		C		D	C			D	D	D	C
(3) Wharf		C		C	C	C	C	D	D	D	C
(4) Storage and handling area		C		C	C	C	C			D	C
(5) Warehouse		D		D	D	D	D			D	D
(6) Cargo handling equipment		C		C	C			D		D	C
(7) Control center		M		C	M					D	M
(8) Port office		M		C	M					D	M
(9) Substation (Distributor)		D		D	D					D	D
(10) Fresh water supply point		D		D	D					D	D
(11) Fresh water supply tank		D		D	D					D	D
(12) Electricity and city gas		D		D	D					D	D
(13) International ship (Dangerous goods)		M	M	C	M	M	M	D	D	D	M
(14) Tugboat, Pilot boat		D	C	D	D	D	D	D	D	D	C
(15) Road		D			D					D	D
(16) Neighboring area		C			C					D	C
Max		M	M	C	M	M	M	D	D	D	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not need a protective measure at this time and therefore needs only to be documented)

9-6-9 Recommendations on Port Security

80. Recommendations on port security are as follows:

1) Restricted area and important facilities should be protected. Mobile fence should be installed during berthing of an international ship and unloading of cargo from a ship because the number of international ships is few and a fixed fence might disturb efficient port operation. Important facilities to be protected by the movable fence are:

   - A wharf and cargo handling yard
   - Cargo handling equipment
   - An international ship

2) Necessary Security Equipment is mobile fence.

3) While an international vessel is berthing and an international cargo is being handled, it is necessary to do the following:

   - Implement intensive access control concerning personnel, vehicle and cargo;
   - Take measures to prevent unauthorized person's access;
   - Ensure steady check of cargo appearance; and
   - Inspect a vehicle for explosives

4) While an international vessel is berthing and an international cargo is being handled, the wharf where an international ship berths and the international cargo handling area should be separated from other wharves for domestic ships with mobile fence and intensive patrol for the surrounding area is needed.

5) Communication between security personnel and a PFSO should be ensured.

6) Emergency response plan including initial action directions should be prepared and the plan should be included in PFSP. Emergency communication system should be established according to the plan.

7) Training drills and exercises have to be conducted periodically.

8) Others

   - Domestic passenger terminal should be fenced off for safety and security reason so that passengers cannot enter cargo terminals.
   - Access control should be conducted at port offices including ADPEL office.

9-7 PORT OF BALIKPAPAN (SEMAYANG PORT)

9-7-1 Outline of Balikpapan Port

81. The port of Balikpapan, which is located in the south-east of Balikpapan City, is situated in the Bay of Balikpapan at latitude 01°17'00" (S) and longitude 116°48' 42"(E). It serves as the gate of East Kalimantan and supports the regional economic activities and development.

82. In early 1958, the port had a 84-meter long quay and one transit shed with an area of 1,000㎡. In accordance with the rapid development of Balikpapan region and its surroundings, port facilities are developed gradually, and now, the port of Balikpapan has a 489-meter long quay and 2,450-meter wide transit shed as well as other facilities to support its activities.

83. Port Facility equipment is summarized in Table 9-7-1-1.

Table 9-7-1-1 Summary of Main Port Facilities

Item	Dimensions	Remarks
Wharf	Length: 489m	Structure: Concrete
Transit Shed	No.1 : Area 2,450m2 No.2 : Area 1,170m2	Structure: Steel
Open Storage	Container: 11,820m2 Breakbulk: 815m2	Structure: Concrete Structure: Concrete
Water Facilities	Storage Capacity 650ton/m3 Max. supply 200ton/hour	
Electrical Power	240 KVA	

Source: PELINDO IV Balikpapan Branch

9-7-2 Layout Plan of the Port

84. The existing layout of Balikpapan Port is shown in Figure 9-7-2-1.

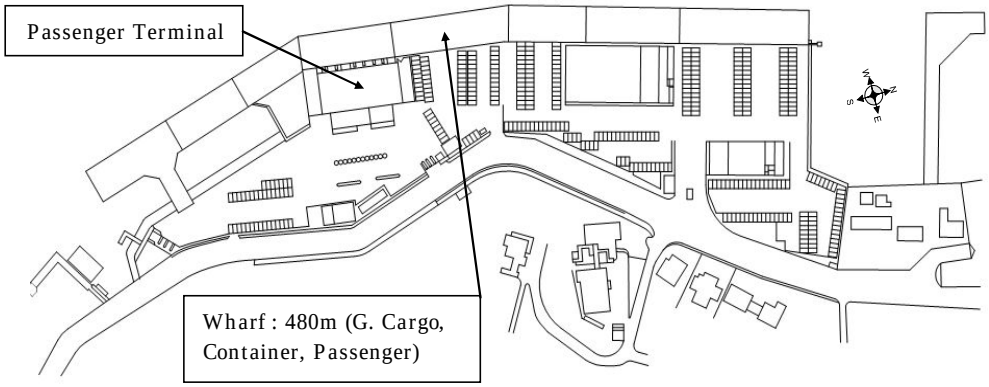


Figure 9-7-2-1 Exising Layout at Balikpapan Port

9-7-3 Cargo Volume and Number of Ship Calls

85. The cargo handling volume and ship calls at PELINDO IV Balikpapan Port are summarized in Table 9-7-3-1and Table 9-7-3-2, respectively. International ship calls are very few, and the main commodity was live stock (cattle) in 2005. The number of passengers (all domestic) is shows in Table 9-7-3-1.

Table 9-7-3-1 Cargo Handling Volume and Number of Passengers at Balikpapan Port

Year		2000	2001	2002	2003	2004
Cargo						
General Pier	ton	663,115	900,279	1,393,552	1,457,837	1,598,076
	TEU	22,401	34,210	52,632	54,467	65,520
Special Pier	ton	27,705,765	36,719,559	39,620,928	48,716,725	41,428,205
Special Port	ton	18,816,193	22,544,993	15,710,857		
Loading Point	ton	913,728	1,289,601	485,583	465,615	510,917
Total	ton	48,098,801	61,454,432	57,210,920	50,640,177	43,537,198
	TEU	22,401	34,210	52,632	54,467	65,520
Passenger	person	882,720	729,226	621,811	540,024	349,436

Source: PELINDO IV Balikpapan Branch

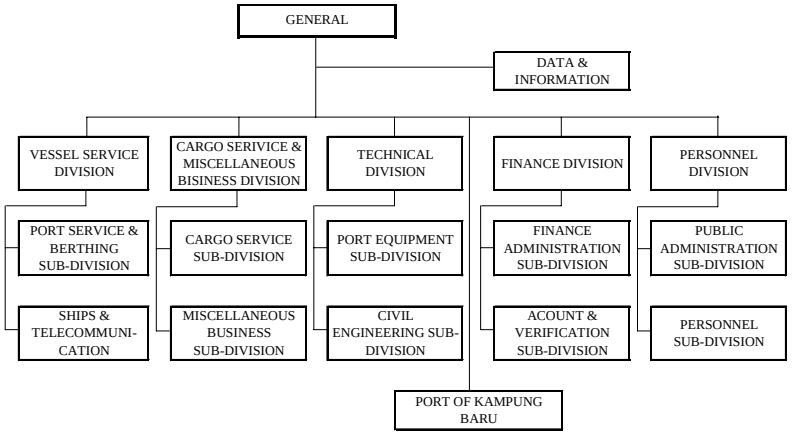
Table 9-7-3-2 Ship Call at Balikpapan Port

Year		2000	2001	2002	2003	2004
General Pier						
Cargo Ship	call	1,262	1,549	1,412	1,152	1,110
	GRT	*1,067,513*	*1,347,551*	*1,772,954*	*1,114,434*	*1,128,123*
Passenger Ship	call	373	458	418	344	237
	GRT	*2,745,376*	*3,465,564*	*4,559,593*	*3,659,458*	*2,722,805*
RORO Ship	call	242	297	271	458	472
	GRT	*861,497*	*1,087,491*	*1,430,797*	*2,985,442*	*3,348,497*
Other Ships	call	36	44	40	56	62
	GRT	*23,936*	*30,215*	*39,754*	*74,389*	*106,761*
Sub Total	call	1,913	2,348	2,141	2,010	1,881
	GRT	4,698,322	5,930,821	7,803,098	7,833,723	7,306,186
Special Pier	call	3,925	4,569	4,709	4,126	4,144
	GRT	*23,906,166*	*29,517,308*	*30,444,626*	*31,121,347*	*33,201,115*
Loading Point	call	324	448	690	749	845
	GRT	*741,333*	*907,202*	*2,686,044*	*2,589,511*	*2,783,689*
Total	call	6,162	7,365	7,540	6,885	6,870
	GRT	29,345,821	36,355,331	40,933,768	41,544,581	43,290,990

Source: PELINDO IV Balikpapan Branch

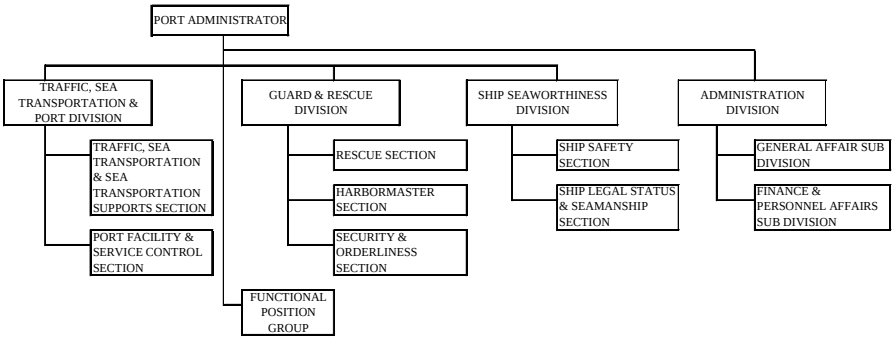
9-7-4 Port Management System

86. Balikpapan Port is managed and operated by PELINDO IV itself. Figure 9-7-4-1 shows the Organization Chart of PELINDO IV Balikpapan Port. ADPEL administer the port area. Figure 9-7-4-2 shows the organization structure of ADPEL office of Balikpapan.



Source: PELINDO IV Balikpapan Port

Figure 9-7-4-1 Organization Chart of PELINDO Ⅳ Balikpapan Port



Source: Study Team

Figure 9-7-4-2 Organization Chart of ADPEL Balikpapan Port

9-7-5 Possible Security Incident Scenarios

87. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below. Likelihood point in the following table is a quantified likelihood of occurrence, used to obtain risk (evaluation) value. Terrorist attack scenarios are envisaged as follows.

Table 9-7-5-1 Possibility Security Incident Scenarios (Balikpapan Port)

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia, likelihood of occurrence of the scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in the Malacca Straits and middle west of the Indonesia, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Unauthorized access of stowaways to port facilities is probable.	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Unauthorized access of stowaways to port facilities is high.	A
5	Smuggling weapons or equipment	Likelihood of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Same as above	A
7	Use of the ship itself as a weapon	There has been no case where a ship itself has been used as a weapon even in the Malacca Straits. However, it is possible that terrorists could load a small ship with bomb.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-7-6 Present Situation of Port Facility Security Measures

88. Present situation of port facility security measures at Balikpapan Port is as follows:

- The relevant pier facilities are used primarily for domestic navigating ships and rarely used by international ships and no security measures are taken at this wharf.
- PELINDO and related organizations conduct access control at the main-gate of the port and in passenger wharf for safety.
- Neighboring area of the wharf is a commercial area.

9-7-7 Issues on Implementation of Port Facility Security Measures

89. It is very difficult to separate domestic/international area and wharf/commercial area by fixed fence.

9-7-8 Risk Evaluation

90. Vulnerability issues identified during the assessment are noted as follows:

- Access control is conducted by PELINDO, KPLP, and KPPP at the Main Gate of the port. They check the ID card and ID sticker of persons and vehicles. However, a stricter inspection is necessary.
- No security equipment is placed at the main entrance/gate.
- No unauthorized persons and vehicles can access the cargo berth and passenger berth as security procedures are in place.
- The passenger terminal and cargo handling area are not separated, resulting in a congested condition.
- Since the cargo terminal mainly handles domestic passengers and cargoes, it is not designated as a restricted area.
- The terminal area has a fence and gate. However some part of the fence is low standard.
- Small shops and bars for seamen are found in the port area.

91. Result of risk evaluation is shown in the following Table:

Table 9-7-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1)Channel		C		D	C			D	D	D	C
(2)Anchorage and basin area		M		C	M			D	D	D	M
(3)Wharf		C		C	C	C	C	D	D	D	C
(4)Storage and handling area		C		C	C	M	M			D	C
(5)Warehouse		D		D	D	D	D			D	D
(6)Cargo handling equipment		C		C	C			C		D	C
(7)Passenger terminal		M		C	M					D	M
(8)Control center		C		C	C					D	C
(9)Port office		M		C	M					D	M
(10)Power station		D		D	D					D	C
(11)Fresh water supply point		D		D	D					D	D
(12)Fwresh water supply tank		D		D	D					D	D
(13)Electricity and city gas		D		D	D					D	D
(14)International ship		C	C	C	C	C	C	D	D	D	D
(15)Service boat		D	D	D	D	D	D	D	D	D	D
(16)Road, railway, bridge		D			D					D	D
(17)Neighboring area		M			M					D	M
Max		M	C	C	M	C	C	D	D	D	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not need a protective measure at this time and therefore needs only to be documented)

9-7-9 Recommendation on Port Security

92. Recommendations on port security are as follows:

- The restricted area should be designated and be enclosed by physical barriers such as fence and gates in order to conduct access control at the gates. If a fixed fence would interface with cargo handling in other areas, mobile fences should be used instead. Before international passenger ship berths, the mobile fence should be set up and the patrol should be conducted to make sure no suspicious persons or no unusual signs are present in and around the restricted area.
- Intensive access control for persons, vehicles and cargo should be conducted to prevent suspicious person and objects from entering port facilities.
- Continuous patrols should be executed to ensure the safety of facilities and cargo.
- Surveillance for the water area and its port facility should be conducted (for example, by patrol boat).
- Lighting is not sufficient for surveillance during the night in some part of the terminal. The lighting system should be repaired and improved in such places.
- In an emergency, a warning against suspicious persons and an evacuation notice for ships, passengers, etc. should be given immediately by using a PA system.
- Quick response should be taken quickly whenever trouble arises.
- Emergency plan including communication network and instruction in case of emergency should be prepared and put in the PFSP.
- Communication between security personnel and relevant organization should be ensured.
- Training, drills and exercises should be conducted as necessary.

9-8 PORT OF BITUNG

9-8-1 Outline of Bitung Port

93. Port of Bitung is approximately 45km from Manado City, the capital of North Sulawasi Province. An international airport named Sam Ratulangi is located in this city. As the entrance of Asia Pacific region, Port of Bitung will be the impetus for economic and hinterland growth of North Sulawesi and East Indonesian region. Location of the port is shown in Figure 9-8-1-1.

94. Geographically, Port of Bitung is located at Lembeh strait at 01°26’00”N and 125°11’00”E. The port is protected by the Lembeh Island which shields the port from storm

and swells disturbances. The length of the channel is approximately 15km and the width is about 600m. Minimum depth in the channel is 16m. The port is very calm and wave height, wind velocity and current velocity are 1m, 6 knots and 3 knots respectively. Also, tidal range HHWS and LLWS are 1.43m and 0.46m.

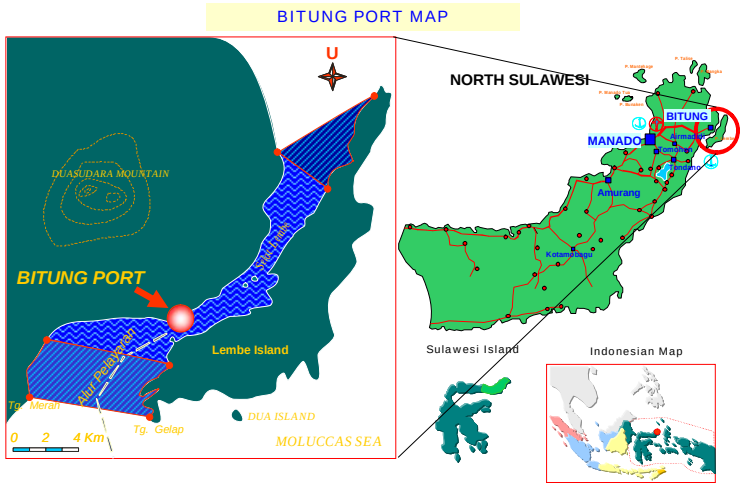


Figure 9-8-1-1 Location Plan

9-8-2 Layout Plan of the Port

95. Location plan and layout plan of Bitung port is shown in Figure 9-8-2-1 and 9-8-2-2.

96. Port area is divided into the new and old areas. The new port was constructed by Japanese loan and opened in January 2005. The new port handles domestic containers at present, but it is expected that international containers will be handled exclusively in the new port in the future. The old port has three continuous berths, dealing with international cargo (container and bulk), domestic cargo and domestic passengers.

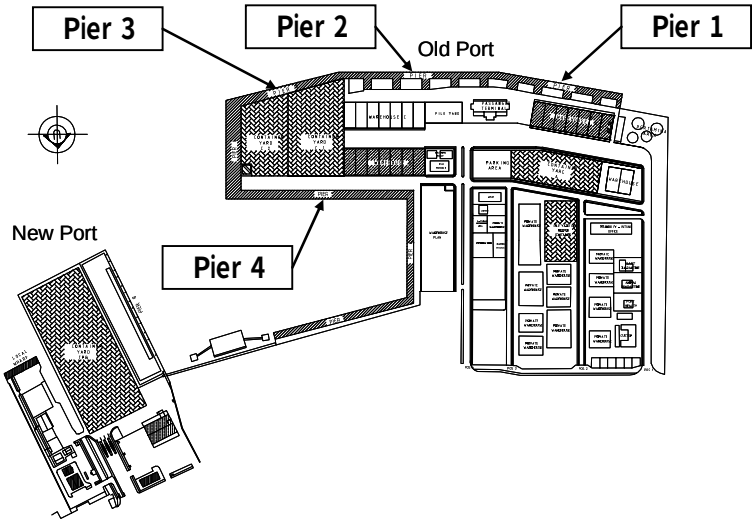


Figure 9-8-2-1 Layout of old port and new port

97. International vessels now berth at pier 1, pier 2 and pier 3. Domestic cargo vessels also use the same piers in parallel. There is a domestic passenger terminal building in front of pier 2. Passenger ships voyage to Sangihe, Tahuna, Jakarta and other places.

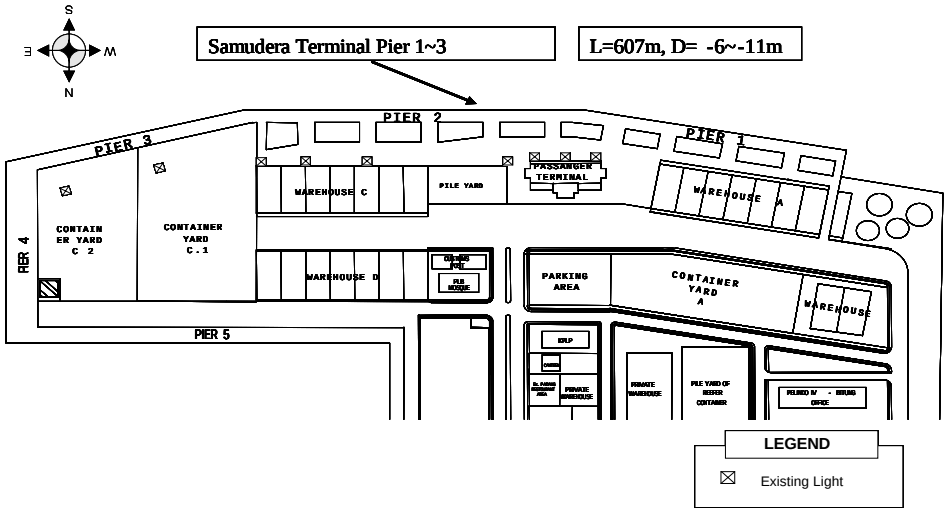


Figure 9-8-2-2 Layout Plan of old port

9-8-3 Cargo volume and Number of Ship Calls

98. Cargo volume and number of ship calls are shown in Table 9-8-3-1.

99. The dominant commodities of export are copra coconut oil, dried coconut cake, nutmeg, clove, coconut powder, clay from coconut sheet, rattan, vanilla, seaweed, fresh tuna and tinned fish and exported to the U.S., Europe, South Korea, North Korea, India, Japan, China, Philippines, Singapore, Malaysia, Australia and New Guinea.

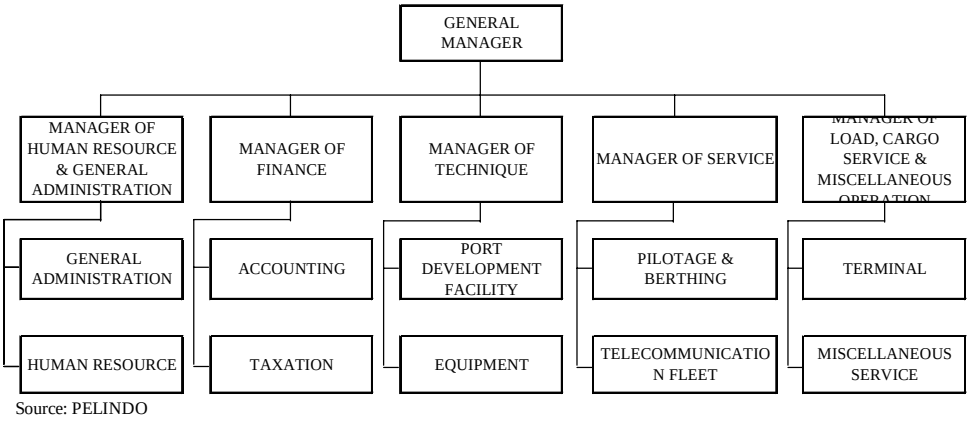
Table 9-8-3-1 Cargo Volume and Number of Ship Calls

Year			2001	2002	2003	2004
Cargo Volume	Import	ton	51,796	144,722	92,491	
	Export	ton	232,936	531,420	388,676	
	Total	ton	284,732	676,142	481,167	
Container	Import	box	36	590	200	151
	Export	box	928	1,739	645	332
	Total	box	964	2,329	845	483
International Ship Calls		call	293	334	334	550

Source: PELINDO IV Bitung Branch

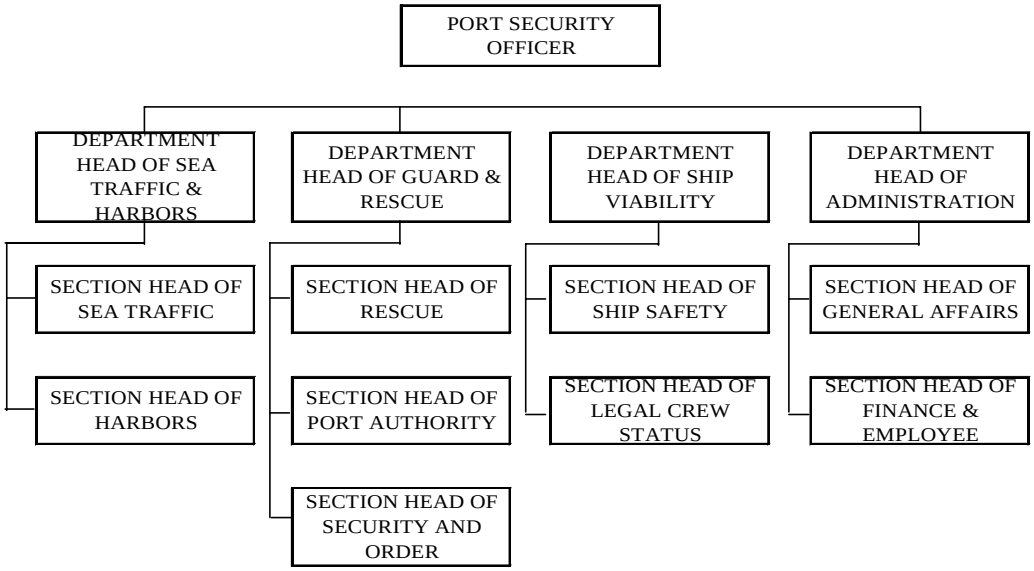
9-8-4 Port Management System

100. Bitung port is managed and operated by PELINDO IV Bitung Port Branch. Organization of Bitung Port Branch and Port Administrator are shown in Table 9-8-4-1 and 9-8-4-2.



Source: PELINDO

Figure 9-8-4-1 Organization Chart of Bitung Port Branch



Source: ADPEL

Figure 9-8-4-2 Organization Chart of Bitung Port Administrator

9-8-5 Possible Security Incident Scenarios

101. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table above.

Table 9-8-5-1 Possible Security Incident Scenarios

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of Occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia, likelihood of occurrence of the scenario is high.	A
2	Hijacking or seizure	Considering the many piracyincidents in the middle west of Indonesian sea such as Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Scenario of illegal act in the port such as tampering is possible	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	A
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is relatively low.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-8-6 Present Situation of Port Facility Security Measures

102. Present situation of port facility security measures at Bitung Port is as follows:

- International and domestic cargo ships berth at the wharves and load/unload in parallel. Moreover domestic passenger ships are using the same wharf. Fence is installed in front of Pier 1 and the passenger terminal, but no fence is installed for Pier 3 and 4. Therefore outsiders can easily enter the wharf from Pier 3 and 4 sides without warning by security.
- Containers are placed on the wharf and used as a temporary fence. It is not easy to remove and thus very useful.

9-8-7 Issues on Implementation of Port Facility Security Measures

103. It is difficult to separate domestic area from international area by fixed fence because both international and domestic ships use the same wharves. Security guards patrol only outside of the wharves.

9-8-8 Risk Evaluation

104. International cargo ship, domestic cargo and domestic passenger vessels use the same wharves in parallel. Gate and fence were installed only on the border of Pier 1 and 2 and no security guards are deployed at the gate of Pier 3 and 4 for access control. Risk evaluations are summarized in the following table.

Table 9-8-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1) Channel		C		D	C			D	D	D	C
(2) Anchorage and basin		C		D	C			D	D	D	C
(3) Wharf		C		C	C	C	C	D	D	D	C
(4) Storage and handling area		C		C	C	C	C			D	C
(5) Warehouse		D		D	D	D	D			D	D
(6) Cargo handling equipment		C		C	C			D		D	C
(7) Control center		M		C	M					D	M
(8) Port office		M		C	M					D	M
(9) Bunkering point		D		D	D					D	D
(10) Water supply point		D		D	D					D	D
(11) Electricity and city water		D		D	D					D	D
(12) International ship		C	C	C	C	C	C	D	D	D	C
(13) Service boat		D	D	D	D	D	D	D	D	D	D
(14) Road		D			D					D	D
(15) Neighboring Area		D			D					D	D
Max		M	C	C	M	C	C	D	D	D	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not require a protective measure at this time and therefore needs only to be documented)

9-8-9 Recommendations on Port Security

105. Recommendations on port security are as follows:

- Fence and a gate(s) should be installed so that no person can enter the terminal area of Pier 1 to 3 where international ships berth without being subject to access control. (Fence has been installed in front of Pier 1 and 2.)
- Temporary fence should be provided to fence off the restricted area and security guards be deployed.
- Security guards should be provided to patrol the restricted area and conduct access control. (Security guards now patrol outside of the wharves every 2 hours. Security guards should patrol the wharf and patrol route and time shall be at random.)
- Sufficient brightness is necessary to allow monitoring of the activities of suspicious persons visually by guards. Security lights should be installed at the

boundary of pier 2 and 3, middle of pier 2 and in front of pier 1. Some areas are not bright enough.

- The Port Security Committee (PSC) has to be established. A Port Security Officer (PSO) shall participate in "the Port Security Committee" and build communication, coordination and cooperation systems with other persons concerned including each PFSO.

9-9 PORT OF KENDARI

9-9-1 Outline of Kendari Port

106. Kendari is the capital of South-east Sulawesi Province, and Port of Kendari faces Kendari bay, which stretches 7 km, and is located 2 km inside from the narrow mouth of the bay. Locations of Kendari and Port of Kendari are shown in Figure 9-9-1-1 and 9-9-1-2.

107. Port of Kendari consists of International Wharf, General Cargo Wharf, Passenger Wharf and Traditional wharf. The length of wharves other than Traditional Wharf is 270 m with a depth of -6 to -12 LWS, in which containers, general cargo and passenger are handled. Judging from the 99.9% occupancy rate of the storage area in 2004, it can be said that port facilities are insufficient. The Traditional Wharf has four short finger piers and they are so deteriorated that these facilities may be unsafe.

108. The cargo handling equipment is summarized in Table 9-9-1-1.

Table 9-9-1-1 Summary of Main Cargo Handling Equipment

Item	Unit	Capacity	Remarks
Land crane	2/1	60/40 tons	
Forklift	4	3 tons	
Top loader	2	20 tons	
Pilot boat	1	600 HP	

Source: PELINDO IV Kendari Branch

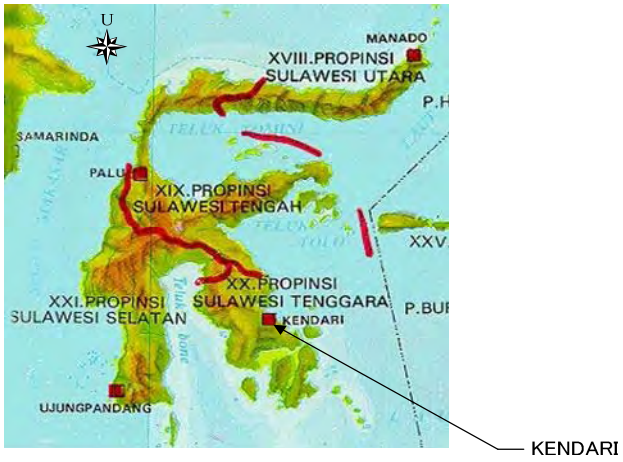


Figure 9-9-1-1 Location of Kendari

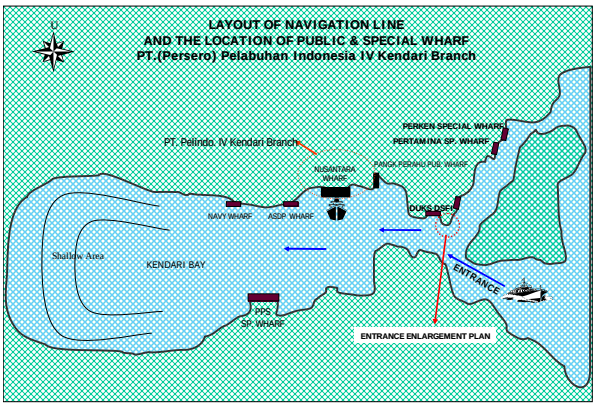


Figure 9-9-1-2 Port of Kendari

9-9-2 Layout Plan of the Port

109. The existing layout of Kendari Port is shown in Figure 9-9-2-1.

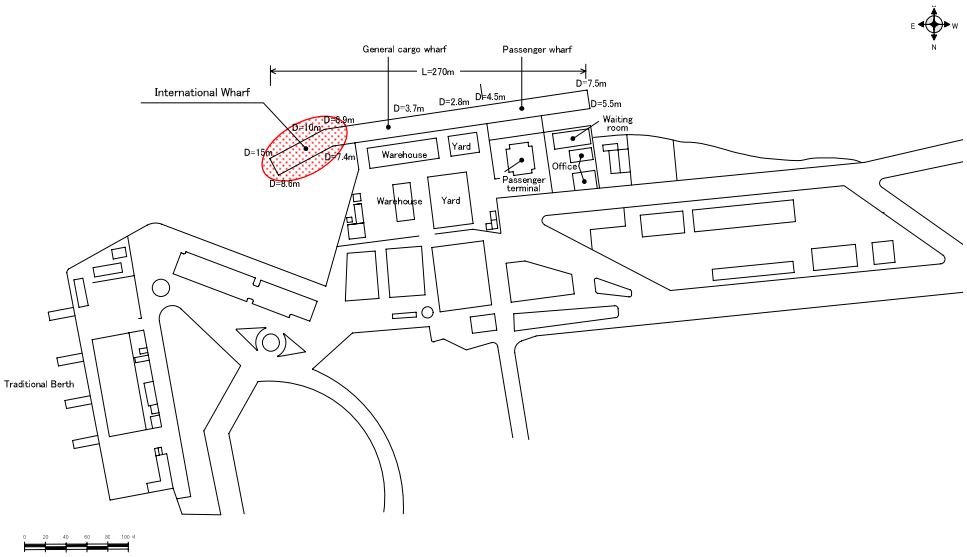


Figure 9-9-2-1 Layout Plan

9-9-3 Cargo Volume and Number of Ship Calls

110. The cargo handling volume at PELINDO IV Kendari Port is summarized in Table 9-9-3-1. The main commodity of export is fish. However, it is handled at the fishing port, which is located on the opposite side of Kendari bay and operated by a semi-government body. PELINDO IV Kendari Branch provides only pilot service to this fishing port.

111. As for the commodities of import, cement and sugar are normally transported via Surabaya, but depending on the situation of shipping companies, they can be imported directly from the Philippines and Thailand, respectively.

112. The number of ship calls in 2004 was 4,628 calls, which increased by 10.6% in comparison with that in 2003.

Table 9-9-3-1 Cargo Handling Volume at Kendari Port

Unit: ton

Year	2002	2003	2004
Public Wharf			
Export	0	0	0
Import	4,703	0	0
In-coming	254,000	414,000	519,000
Out-going	101,000	115,000	146,000
Total	359,703	529,000	665,000

Source: PELINDO IV Kendari Branch

9-9-4 Port Management System

113. Figure 9-9-4-1 shows the organization Structure of ADPEL at Port of Kendari

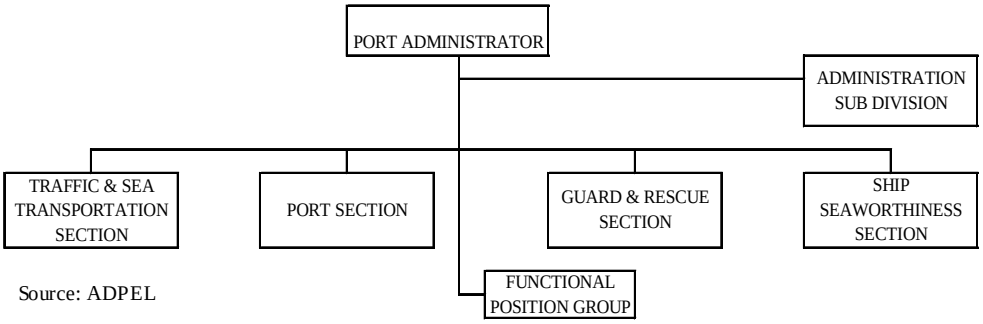


Figure 9-9-4-1 Organization Structure of Kendari Port Administrator Office

114. Figure 9-9-4-2 shows the organization Structure of PELIND IV at Port of Kendari

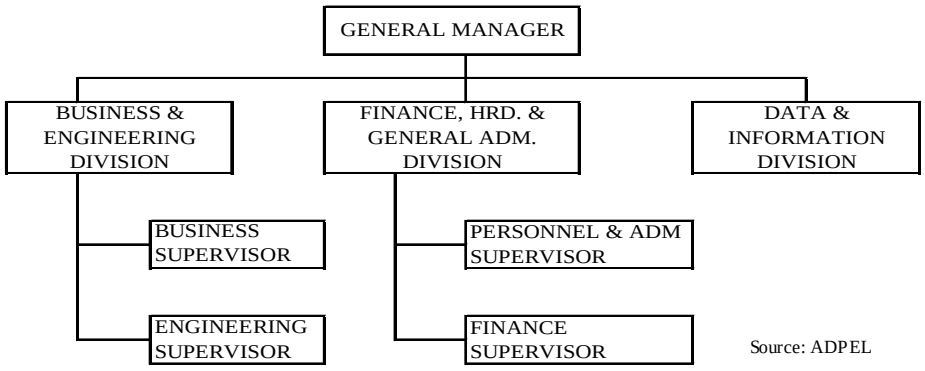


Figure 9-9-4-2 Organization Chart of Kendari Port, PELIND IV

9-9-5 Possible Security Incident Scenarios

115. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below.

Table 9-9-5-1 Possible Security Incident Scenario (Kendari Port)

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia, likelihood of occurrence of the scenario is relatively high.	A
2	Hijacking or seizure	Considering the many piracy incidents in the Malacca Straits and middle west of the Indonesia, likelihood of occurrence of this scenario is relatively high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Unauthorized access of stowaways to port facilities is probable.	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Unauthorized access of stowaways to port facilities is relatively high.	A
5	Smuggling weapons or equipment	Likelihood of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Same as above	A
7	Use of the ship itself as a weapon	There has been no case where a ship itself has been used as a weapon even in the Malacca Straits. However, it is possible that terrorists could load a small ship with bomb.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-9-6 Present Situation of Port Facility Security Measure

116. Present situation of port facility security measures at Kendari Port is as follows:

- There are two main gates: one is for passenger and vehicle and another is for general cargoes.
- Moreover, there are gates for the passenger terminal, which is usually closed.
- The Passenger Wharf and the General Cargo Wharf are continuous and movable fence is placed on the boundary between the two wharves.

9-9-7 Issues on Implementation of Port Facility Security Measures

117. Issues on implementation of port facility security measures at Kendari Port are as follows:

- No access control is conducted at the wharves.
- Patrolling by security guards is not conducted in the wharves.
- The number of lights is not sufficient to provide complete brightness on the wharf.

9-9-8 Risk Evaluation

118. Risk evaluations are summarized in Table 9-9-8-1.

Table 9-9-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1)Channel		M		C	M			M	D	D	M
(2)Wharf		C		C	C	M	M	C	D	D	M
(3)Storage and handling area		C		C	C	M	M			D	M
(4)Warehouse		D		D	D	D	D			D	D
(5)Cargo handling equipment		C		C	C			C		D	C
(6)Passenger terminal		M		C	M					D	M
(7)Control center		M		C	M					D	M
(8)Port office		M		C	M					D	M
(9)Substation (Distributor)		C		D	C					D	C
(10)Fresh water supply point		D		D	D					D	D
(11)Fresh water supply tank		D		D	D					D	D
(12)Electricity		D		D	D					D	D
(13)International ship		M	M	C	M	M	M	M	D	D	M
(14)Service boat		C	C	D	C	C	C	C	D	D	C
(15)Road		D			D					D	D
(16)Neighboring area		C			C					D	C
Max		M	M	C	M	M	M	M	D	C	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not needed a protective measure at this time and therefore needs only to be documented)

9-9-9 Recommendations on Port Security

119. Recommendations on port security are as flows:

- The restricted area should be designated in the port area and illegal access should be prevented by mobile fence. Before an international ship berths at the wharf, mobile fence should be installed and the patrol should be conducted to make sure there are no suspicious persons or no unusual objects in and around the restricted area.
- Intensive access control for persons, vehicle and cargo should be conducted to prevent suspicious person and things from entering the restricted area. The photo ID card should be issued to persons who often enter the restricted area. For temporary visitors, their access should be recorded.
- The appearance check for cargo should be done while the cargo is in the storage area and being loaded.
- The random patrol (intervals and routes) should be executed to keep the security of facility and cargo.

- The water area including a channel and an anchorage should be monitored and patrolled. Patrol by patrol boat is preferable.
- The brightness is not enough for monitoring during the night in some part of the terminal. The lighting system should be repaired and improved.
- Telephone (and fax machine if possible) should be installed for the communication between security guard and security guard's office, administration office or a PFSO. It is recommendable that security guard should carry a communication device.
- When damage or trouble is identified, measures should be taken quickly.
- The security facilities and equipment should be inspected periodically.
- An emergency plan including communication network and instructions in case of emergencies should be prepared and put in the PFSP.
- Exercises and drills should be done periodically.

9-10 PORT OF MAKASSAR

9-10-1 Outline of Makassar Port

120. Makassar is located at Sulawesi's southeast corner and faces Java and Kalimantan. It is a famous port city as a transit point to other cities in Sulawesi, Maluku and Papua and also a business center of the eastern Indonesia.

121. Makassar Port is located on the west coast of Makassar (05°08'08"S and 119°24'02"E). It also faces the Makassar Strait which is an international shipping lane. Location of Makassar Port is shown in Figure 9-10-1-1. Surrounding shore is slightly sloped and the sea bed consists of mud and sand. Shipping channel is 25 miles long (outer buoy) and 1 mile wide with an average depth of -10 to -14m. Current flows alongside the wharf or from north to south with a speed between 0-2 knots, depending on the flows of the Tallo River estuary within the port working zone.

122. Due to its strategic position, international ships choose Makassar Port as their distribution point in eastern Indonesia. The port itself is highly supported by its hinterland, namely all provinces in Sulawesi, Papua, Maluku, and other islands, all of which are rich in mining, agriculture as well as farming products.

123. Makassar Port has a container terminal, international cargo terminal, passenger terminal, domestic cargo terminal and a private company wharf managed by PT Berdikari producing flour. Except for PT Berdikari, the remaining terminals are managed and operated by PELINDO IV Makassar Branch.

124. Before 2003, international passenger ships called three times at the port. The passenger terminal now handles only domestic passengers. However, the DGST requested that a PFSP be formulated for the passenger terminal in preparation for the future acceptance of international passenger ships. Therefore, risk evaluation and recommendations on security measures for the passenger terminal are described in this section.

125. The public facilities which handle international cargo are the container terminal and the international cargo terminal. Statements of compliance have been issued for both

facilities. As to both facilities, the implementation of security measures is also reviewed in this section.

9-10-1-1 Location of Makassar Port

9-10-2 Layout Plan of the Port

126. The existing layout of Makassar Port is shown in Figure 9-10-2-1. From the west side, Hatta Container Terminal and Soekarno Multi-purpose Terminal are located side by side. The passenger terminal is located in the Soekarno Multi-purpose Terminal. The port area is fenced off. The trunk road runs in the direction of east-west in close vicinity to the port area

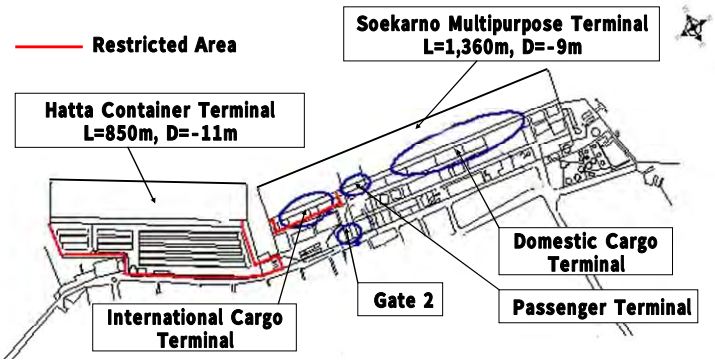


Figure 9-10-2-1 Layout of Makassar Port

9-10-3 Cargo and Container Volume

127. International cargo and container handling volumes at Makassar port are shown in Table 9-10-3-1and 9-10-3-2. International cargo has been steadily increasing recently. Most of the container volume is domestic and international container volume is broadly flat. Main exported commodities are clinker, cocoa beans and cement, while main imported commodities are grist, sugar and vehicle.

Table 9-10-3-1International Cargo Volume (Unit: ton)

Unit: ton

Year	1999	2000	2001	2002	2003	2004
Import	488,691	628,688	451,746	620,797	637,017	708,689
Export	669,431	923,687	1,501,363	1,028,516	1,138,219	708,689
Total	1,158,122	1,552,375	1,953,109	1,649,313	1,775,236	1,417,378

Source: PELINDO IV

Table 9-10-3-2 Container Volume (Unit: TEU)

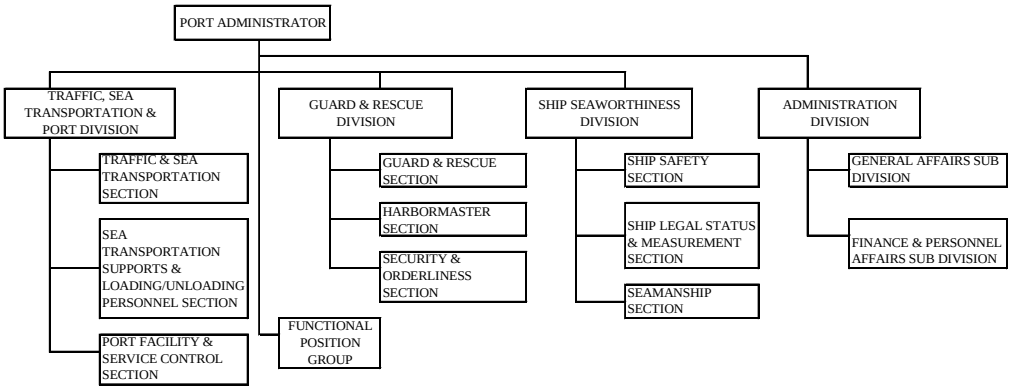
Unit: TEU

Year	1999	2000	2001	2002	2003	2004
Import	178	41	1,035	2,318	1,536	1,957
Export	8,792	10,682	10,167	7,671	8,604	9,783
Sub Total	8,970	10,723	11,202	9,989	10,140	11,740
Domestic	119,917	154,228	166,214	197,496	222,014	238,104
Total	128,887	164,951	177,416	207,485	232,154	249,844

Source: PELINDO IV

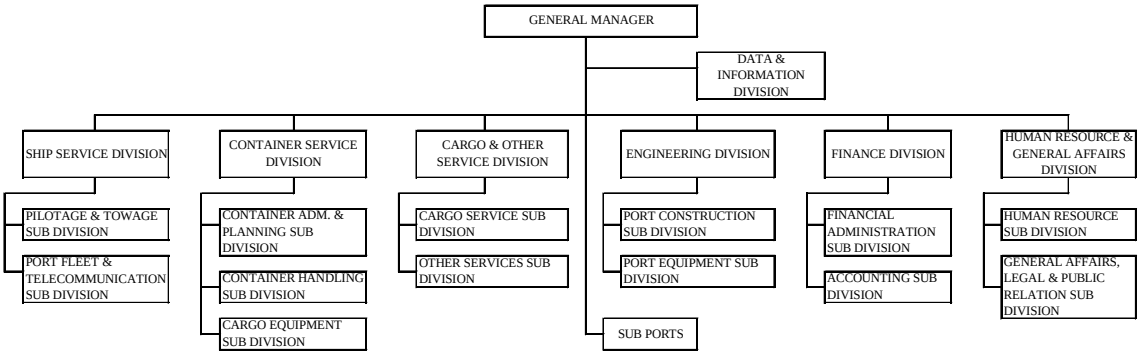
9-10-4 Port Management System

128. Organization charts of Makassar Port Administration Office (ADPEL Makassar) and PELINDO IV Makassar Branch are shown in Figure 9-10-4-1 and Figure 9-10-4-2 respectively. PSO is a head of guard & rescue section of ADPEL Makassar and PFSO is a head of ship service division of PELINDO IV Makassar Branch. Port security committee, which consists of related organizations such as ADPEL, PELINDO, KPPP and Customs, has been established.



Source: DGST

Figure 9-10-4-1 Organization Chart of Makassar Port Administrator Office



Source: PELINDO IV

Figure 9-10-4-2 Organization Chart of PELINDO IV Makassar Branch

9-10-5 Possible Security Incident Scenarios for the Passenger Terminal

129. Possible security incident scenarios for the passenger terminal are described in the following table. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being the highest, and C being the lowest).

Table 9-10-5-1 Possible Security Incident Scenarios (Passenger terminal, Makassar Port)

No	Scenario (ISPS Code, B 15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Some bomb incidents have occurred in Indonesia, and likelihood of occurrence of this scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in middle west of Indonesian sea such as the Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo, essential ship equipment or systems or ship's stores	Scenario of illegal act in the port such as tampering is possible.	B
4	Unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high.	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	A
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is low.	C
8	Blockage of port channels etc.	Likelihood of occurrence of this scenario is low, because a large-scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-10-6 Present Situation of Port Facility Security Measures

130. Present situation of port facility security measures at Makassar Port is as follows:

1) Container Terminal and International Cargo Terminal (Statement of Compliance has been issued)

- The entire container terminal area is designated as a restricted area, and an access gate and fence (height: 2.7m) have already been installed. Access control and patrol in the terminal area are properly implemented. However, illegal access to the restricted area does not seem to be difficult because the fence gauge is coarse and no top guard is attached. Although security guards

patrol the container yard, it is difficult for them to grasp conditions behind piled containers. Lighting in the terminal is in good condition, but a CCTV camera monitoring system is not installed.

- At the international cargo terminal, wharf, apron and warehouse are designated as a restricted area and access gate and fence have been installed. A mobile fence is used on the border abutting with the passenger terminal when a domestic passenger ship berths at the passenger terminal. Except for such cases, mobile fence is removed because vehicles carrying domestic cargo from the domestic wharf which is situated next to the north side of the passenger terminal pass the border. Access control is conducted at the gate. Security can be maintained by security guards' patrol because the international cargo terminal area is not so large. Since there is no top guard on the fence of access gate which faces the open space in front of the passenger terminal building, it would not be difficult for visitors and venders to climb over the fence.

2) Passenger Terminal (PFSP has not been prepared)

- Since the passenger terminal now handles only domestic passengers, it is not designated as a restricted area. Visitors and venders enter the passenger terminal area through gate 2. Though the terminal area is surrounded by a fixed fence and mobile fence, people can enter the terminal area freely because the side gate besides the terminal building remains open. There are many people and venders in front of the terminal building when a domestic passenger ship berths at the wharf even at night. The passenger terminal building has no X-ray scanner for baggage, walk-through type metal detector, or CCTV camera monitoring system.

9-10-7 Issues on Implementation of Port Facility Security Measures

131. Issues on implementation of port facility security measures at Makassar Port are as follows:

1) Container Terminal and International Cargo Terminal (Statement of Compliance has been issued)

- As to the container terminal, illegal access to the restricted area does not seem to be difficult because the fence gauge is coarse and no top guard is attached. Although security guards patrol the container yard, it is difficult for them to grasp conditions behind piled containers. A CCTV camera monitoring system is not installed.
- As to the international cargo terminal, since there is no top guard on the fence of the access gate which faces the open space in front of the passenger terminal building, it would not be difficult for visitors and venders to climb over the fence.

1) Passenger Terminal (PFSP has not been prepared)

- Since the passenger terminal now handles only domestic passengers, it is not designated as a restricted area. Though the terminal area is surrounded by a fixed fence and mobile fence, people can enter the terminal area freely because the side gate besides the terminal building remains open. There are many people and venders in front of the terminal building when a domestic passenger ship berths at the wharf even at night. Vendors are opposed to prepare a PFSP because the PFSP prohibits them from entering the terminal

area during berthing of an international passenger ship. The passenger terminal building has no X-ray scanner for baggage, walk-through type metal detector, or CCTV camera monitoring system.

9-10-8 Risk Evaluation for the Passenger Terminal

132. In case of an international passenger ship calling, risk evaluation for the passenger terminal based on the above issues is shown in the following table.

Table 9-10-8-1 Summary of Risk Evaluation for the passenger terminal

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	A	C	C	C	
(1) Channel		D		D	D			D	D	D	D
(2) Anchorage and basin		D		D	D			D	D	D	D
(3) Wharf		M		C	M	M	M	D	D	D	M
(4) Storage area		C		D	C	C	C			D	C
(5) Passenger terminal		M		M	M	M	M	C		C	M
(6) Control center (pilot office)		M		C	M			D		D	M
(7) Power Plant		C		C	C					D	C
(8) Bunkering point		C		D	C					D	C
(9) Fresh water supply point		C		D	C					D	C
(10) Fresh water supply tank		D		D	D					D	D
(11) Electricity and city water		D		D	D					D	D
(12) International ship		M	M	M	M	M	M	C	C	C	M
(13) Service boat		D	D	D	D	D	D	D	D	D	D
(14) Road		C			C					D	C
(15) Neighboring area		D			D					D	D
Max		M	M	M	M	M	M	C	C	C	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not require a protective measure at this time and therefore needs only to be documented)

9-10-9 Recommendations on Port Security

133. Recommendations on port security are as follows:

1) Container Terminal and International Cargo Terminal (Statement of Compliance has been issued)

- As to the container terminal, it is proposed that the top guard of the fence and CCTV cameras be installed to prevent unauthorized personnel from entering the restricted area and to monitor the container yard.
- As to the international cargo terminal, the top guard should be installed on the fence of the access gate to prevent intruders from climbing over the fence easily. PELINDO IV should maintain the security patrol in the terminal around the clock.

2) Passenger Terminal (PFSP has not been prepared)

- As to the passenger terminal, when an international passenger ship calls, access control at the gate 2 and the entrance of passenger terminal building should be enhanced by increasing the number of security guards. Patrol around the passenger terminal building should be also enhanced. In addition, baggage check should be conducted using handy metal detector. When an international passenger ship and a domestic passenger ship berth at the wharf at the same moment, the wharf area should be divided by a mobile fence.
- Communication between security personnel and a PFSO should be ensured. The emergency communication system and an emergency response plan including initial action order should be established and included in the PFSP. In addition, training, drills and exercises should be conducted periodically.

9-11 PORT OF AMBON

9-11-1 Outline of Ambon Port

134. Port of Ambon is located in Ambon Bay in Ambon Island Maluku Province. Geographically it is situated in 03°41' 00" S, 128°10'00" E and takes 15nm from Banda Sea to reach Port of Ambon. Locations of Ambon and Ambon Port are shown in Figure 9-11-1-1 and 9-11-1-2. Well known for its spice for centuries, major commodities shipped from this region are cloves, mace, peanuts and shell.

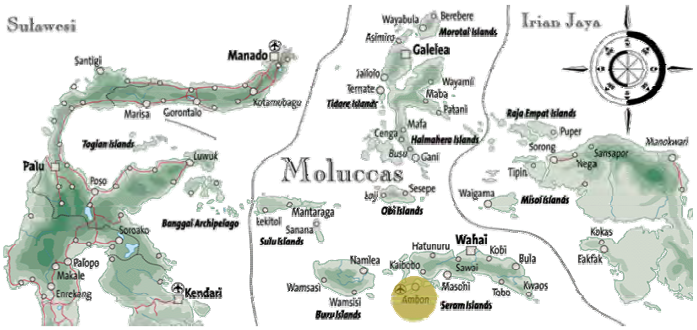


Figure 9-11-1-1 Location of Ambon Port (1)

135. The coast around Ambon Bay is steep and rocky. The bottom of the sea at the entrance channel of Ambon Bay is sandy and muddy. The mean level of spring tide is 130cm and at neap tide is 60cm. The low water is 110cm below mean sea level. The lowest water depth in front of public quay is 2.4m. Velocity of current is more than one knot heading northwest and northeast, depending on the wind directions.

136. Loading and unloading activity which usually needs four days is mainly conducted using vessel's crane. Unloaded containers will be either transported directly to a destination or stored in the container yard.

137. Prior to the conflict in 1999, Port of Ambon had a cool storage to export directly cloves and mace. However, after the conflict it was moved to Port of Tual. No international ship calls the Port of Ambon at present.

Figure 9-11-1-2 Location of Ambon Port (2)

9-11-2 Layout Plan of the Port

138. Location and layout plan of Ambon port is shown in Figure 9-11-2-1.

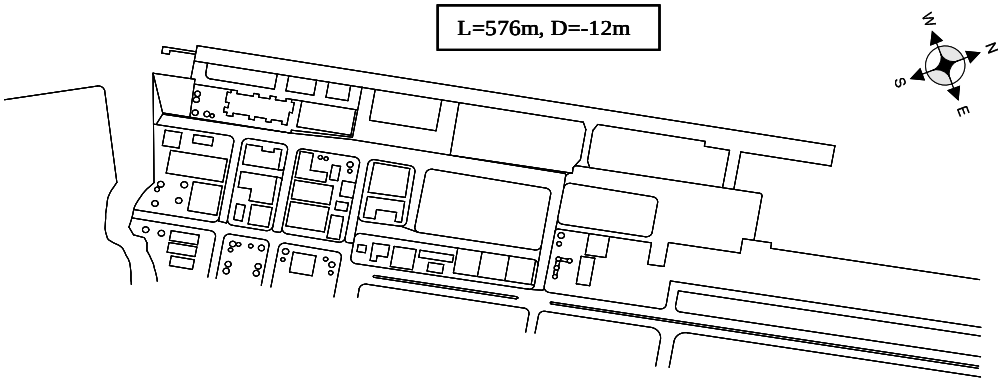


Figure 9-11-2-1 Layout Plan

9-11-3 Cargo Volume and Number of Ship Calls

139. Cargo volume and number of international ship calls given from PELINDO IV are shown in Table 9-11-3-1 and 9-11-3-2.

Table 9-11-3-1 Cargo Volume

Unit:ton

Year	2000	2001	2002	2003	2004
Import	12,500	4,907	1,300	0	8,400
Export	153	12,437	17,715	376	0
Total	12,653	17,344	19,015	376	8,400

Source: PELINDO IV

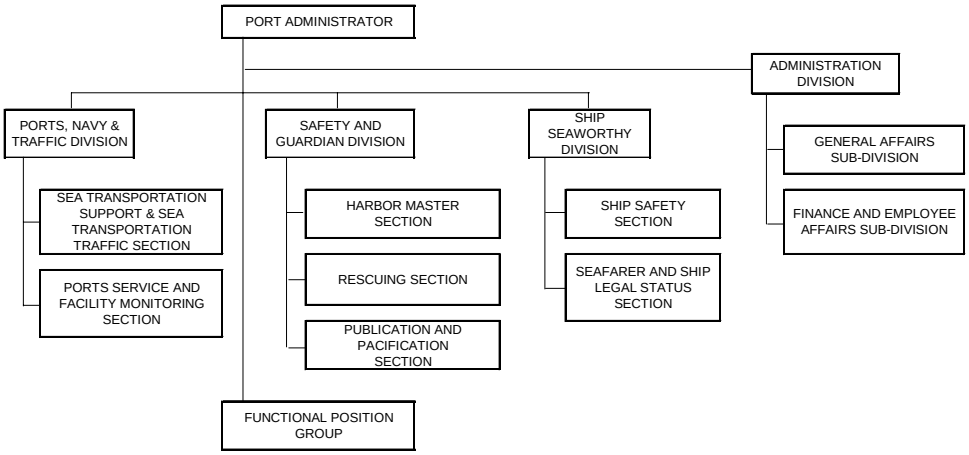
Table 9-11-3-2 International ship calls

Year	2000	2001	2002	2003	2004
Ship Call	81	42	26	308	177

Source: PELINDO IV
Note: These data come PELINDO IV and do not match the figures we obtained in interviews.

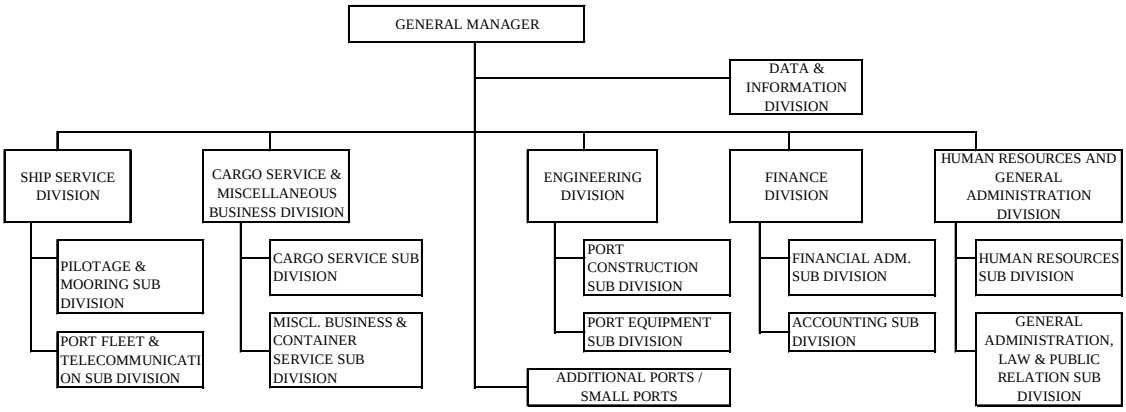
9-11-4 Port Management System

140. Organization chart of ADPEL and PELINDO are shown in Figure 9-11-4-1 and 9-11-4-2.



Source: ADPEL

Figure 9-11-4-1 Organization Chart of ADPEL



Source: PELINDO IV

Figure 9-11-4-2 Organization Chart of PELINDO IV Ambon Substation

9-11-5 Possible Security Incident Scenarios

141. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below.

Table 9-11-5-1 Possible Security Incident Scenario

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia, likelihood of occurrence of the scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in the middle west of Indonesian sea such as Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Scenario of illegal act in the port such as tampering is possible	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	B
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is relatively low.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large-scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-11-6 Present Situation of Port Security Measures

142. Present situation of port security measures at the Port of Ambon is as follows:

- Current condition of the Port of Ambon has no doubt been influenced by the conflict in 1999 and many squatters from other islands who are reluctant to return to their home islands are residents in the port.
- Although KPPP and Military Police offices are nearby the main gate, persons are not subjected to security check.
- Access points are made on east and west sides and no security check is conducted at both access points. Therefore many unauthorized people are found in the port.

9-11-7 Issues on Implementation of Port Facility Security Measures

143. Issue on implementation of port facility security measures at the Port of Ambon is that squatters live in and around the port. Therefore it is thought to be difficult to remove squatters from the port area.

9-11-8 Risk Evaluation

144. Risk evaluations are summarized in Table 9-11-8-1.

Table 9-11-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	B	C	C	C	
(1) Channel		D		D	D	D	D	D	D	D	D
(2) Anchorage and basin area		D		D	D	D	D	D	D	D	D
(3) Wharf		M		C	M	M	C	D	D	D	M
(4) Storage and handling area		C		C	C	C	C	D		D	C
(5) Warehouse		D		D	D	D	D			D	D
(6) Cargo handling equipment		C		C	C					D	C
(7) Passenger terminal		M		M	M					C	M
(8) Control center		M		C	M					D	M
(9) Port office		M		C	M					D	M
(10)Power station		C		C	C					D	C
(11)Bunkering point		D		D	D					D	D
(12)Water supply point		D		D	D					D	D
(13)City water		D		D	D					D	D
(14)International ship		C	C	C	C	C	C	D	D	D	C
(15)Service boat		D	D	D	D	D	D	D	D	D	D
(16)Road		D			D					D	D
(17)Neighboring area		C			C					D	C
Max		M	C	M	M	M	C	D	D	C	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not require a protective measure at this time and therefore needs only to be documented)

9-11-9 Recommendations on Port Security

145. In case international ships call at the port in the future, it is necessary to comply with the ISPS Code. To comply with the ISPS Code, the following measures must be taken:

- Fence needs to be installed on the border of the wharf.
- A restricted area must be set up.
- Security guard(s) are necessary to conduct access control. People not related to port activities must not enter the restricted area.
- Security lights must be installed to deter intruders.

- A Port Facility Security Officer must be appointed to secure port security.

9-12 PORT OF SORONG

9-12-1 Outline of Sorong Port

146. Port of Sorong is a natural port, located in 00°53'00"S and 131°14'00"E. Geographically it lies on the horn of Iran Jaya (Papua) island of West Papua Province. It is the crossing point connecting north/south and east/west maritime transportation in Papua and Maluku Province. Location of Sorong Port is shown in Figure 9-12-1-1.

147. Built in 1978, the Port currently has a water area of 207.5 hectares and a land area of 20.3 hectares. The main wharf with 280m in length can serve one large general cargo ship or passenger ship.

148. Port of Sorong has a narrow land area which is mostly hilly. The sea bottom is sandy and muddy. Water depth at the basin is approximately 20m MLWS. The highest wave is 1 m while velocity of the current is 2-3 knots. Rainy season and dry season is difficult to differentiate, as it rains almost every month. Precipitation is greatest from May to June.

149. As per our hearing, Port of Sorong is about to be appointed as a foreign trade facility for Indonesia's East Area. Maximum ship size which the port can accommodate is 14,000-20,000 GRT and ships can berth at the wharf safely due to sufficient water depth.

150. Limited length of the wharf as well as prioritization of passenger ships is a handicap for Port of Sorong to serve cargo ships. Therefore it often imposes time delay and additional cost on port users. To offer better service, Port of Sorong plans to extend another 100m to the north and south of the existing wharf.

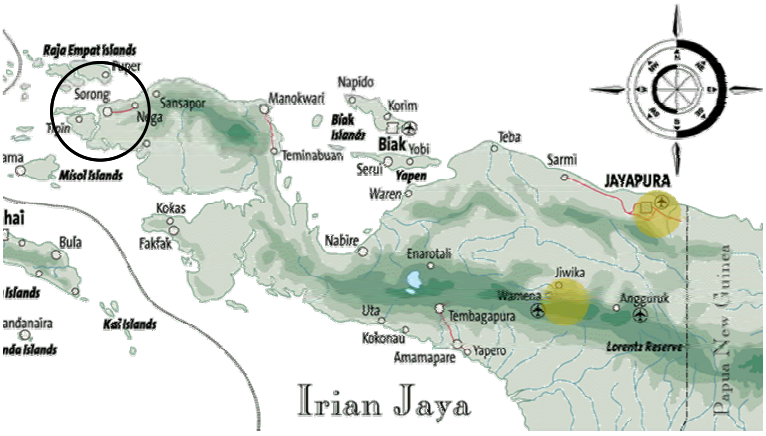


Figure 9-12-1-1 Location of Sorong Port

9-12-2 Layout Plan of the Port

151. The location and the layout plan of Sorong Port are shown in Figure 9-12-2-1.

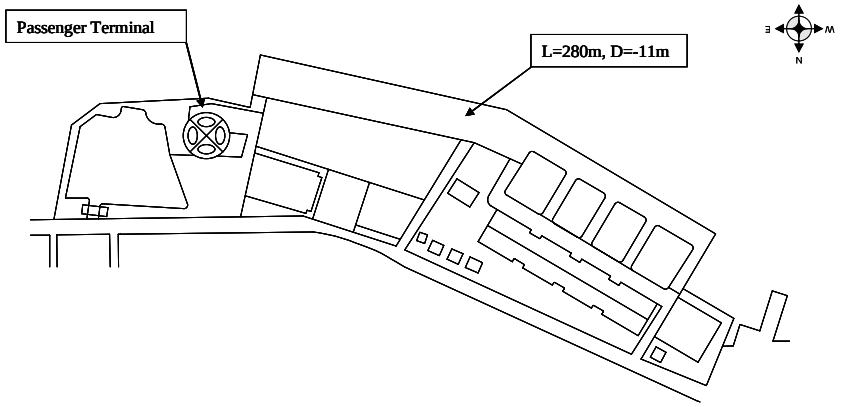


Figure 9-12-2-1 Layout Plan

9-12-3 Cargo Volume and Number of Ship Calls

152. Cargo and container volume and number of ship calls are shown in Table 9-12-3-1.

Table 9-12-3-1 International Cargo Volume and Ship Calls

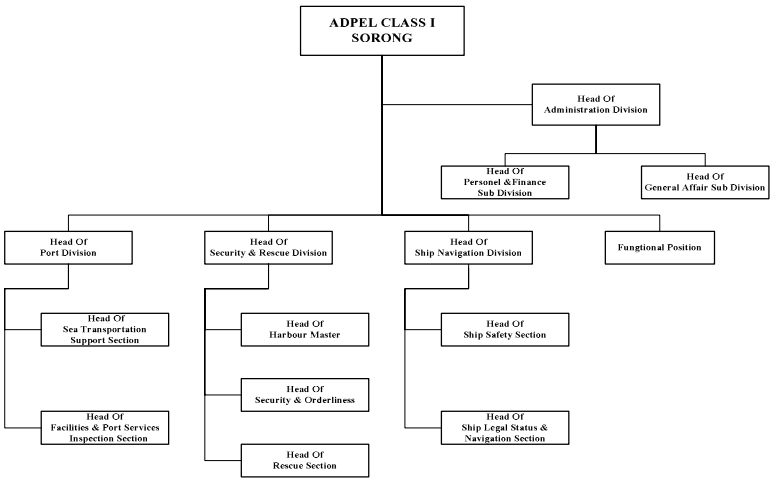
Year	2,001	2,002	2,003	2,004
Cargo Volume (ton)				
Import	5,170	14,177	842	8,883
Export	103,577	122,140	125,233	102,154
Total	108,747	136,317	126,075	111,037
Container (TEU)				
Import	2,898	3,935	4,974	5,858
Export	2,907	3,340	4,654	5,589
Total	5,805	7,275	9,628	11,447
Ship Calls	186	89	67	71

Source: PELINDO IV

Note: These data come from PELINDO IV and do not match the figures team obtained during interviews.

9-12-4 Port Management System

153. Figure 9-12-4-1 shows the organization chart of ADPEL CLASS I Sorong.



Source: ADPEL

Figure 9-12-4-1 Organization Chart of ADPEL (Sorong)

9-12-5 Possible Security Incident Scenarios

154. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below.

Table 9-12-5-1 Possible Security Incident Scenarios

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia, likelihood of occurrence of the scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in the middle west of Indonesian sea such as Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Scenario of illegal act in the port such as tampering is possible	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	B
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is relatively low.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-12-6 Present Situation of Port Facility Security Measures

155. Physically Sorong Port is adequately protected by its perimeter fence. Access control is well conducted in the passenger terminal which has separate gates for personnel and vehicle entrance/exit. These gates are closed when passengers do not embark or disembark. However, this good practice is not seen at the general cargo terminal where an entrance gate is open and no security measures are taken.

9-12-7 Issues on Implementation of Port Facility Security Measures

156. It is easy to enter the general cargo wharf because security check is not conducted.

9-12-8 Risk Evaluation

157. Access control was not conducted at the general cargo wharf. There were many outsiders at the general cargo wharf. Risk evaluations are summarized in Table 9-12-8-1.

Table 9-12-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	B	C	C	C	
(1) Channel		D		D	D			D	D	D	D
(2) Anchoring and basin		D		D	D			D	D	D	D
(3) Wharf		M		C	M	M	C	D	D	D	M
(4) Storage and handling area		M		C	M	M	C	D		D	M
(5) Warehouse		C		D	C	C	D			D	C
(6) Cargo handling equipment		C		C	C					D	C
(7) Control center		M		C	M					D	M
(8)Port office		M		C	M					D	M
(9) Substation		D		D	D					D	D
(10)Bunkering point		D		D	D					D	D
(11)Water supply point		D		D	D					D	D
(12)Water supply tank		D		D	D					D	D
(13)Electricity		D		D	D					D	D
(14)International ship		M	M	C	M	M	C	D	D	D	M
(15)Service boat		C	C	D	C	C	D	D	D	D	C
(16)Road		D			D					D	D
(17)Neighboring area		D			D					D	D
Max		M	M	C	M	M	C	D	D	D	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not require a protective measure at this time and therefore needs only to be documented)

9-12-9 Recommendation on Port Security

158. Recommendations on port security are as follows:

- Security guards should be stationed to conduct access control at the gate of the general cargo terminal. At present access control is conducted only at the passenger gate. “No ID no entry” rule should be established because there are many unauthorized persons in the restricted area.
- ID cards should be issued to those involved in port activities by PELINDO.
- Security guards should patrol in the restricted area. The patrol route and time should be random (periods and routes).

9-13 PORT OF BIAK

9-13-1 Outline of Biak Port

159. The Port of Biak is located at the south coast of Biak, Biak Island in the Province of Papua. Biak is the first stop for most airplanes from Java and the rest of Indonesia. Location of the port shown in Figure 9-13-1-1 is at latitude 01°11'10" S and longitude 136°05'46" E. Biak Port is a third-class port of PT. PELINDO IV. Biak Port consists of two wharves, one is a new wharf built in 1996 and another is the old (former) wharf built in 1960. The Port of Biak is open to international trades.

Figure 9-13-1-1 Location of Biak Port

9-13-2 Layout Plan of the Port

160. The existing layout plan of Biak Port is shown in Figure 9-13-2-1. There are two wharves, Wharf I and Wharf II in Biak Port. The Wharf I is for international use while the Wharf II is for domestic use.

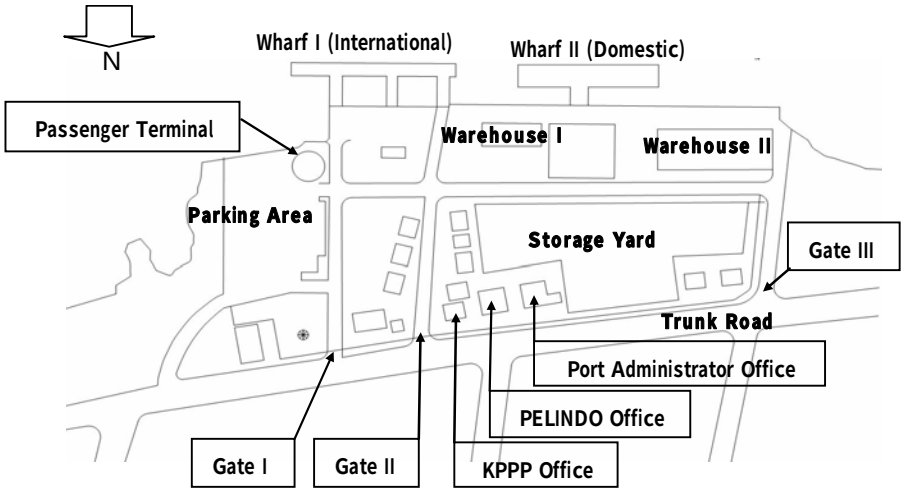


Figure 9-13-2-1 Layout of Biak Port

161. Main port facilities are as follows;

Table 9-13-2-1 Dimensions of Main Port Facilities

Port Facilities	Dimensions
Fairway/Channel	1.5mile (length), 360m (breadth), -1～-16 (dpth)
Wharf I (old Wharf)	142m (length), -12m (depth)
Wharf II (New Wharf)	120m (length), -12m (depth)
Passenger terminal	400m2 (area of floor)
Warehouse I	900m2 (area)
Warehouse II	3,800m2 (area)
Storage Yard	6,000m2 (area)

9-13-3 Cargo Volume and Number of Ship Calls

162. Biak Port services mainly domestic cargo vessels while few international cargo vessels call. Cargo handling volume, ship calls and passenger volume are shown Table 9-13-3-1, 9-13-3-2 and 9-13-3-3 respectively. Main commodities are plywood and fish.

Table 9-13-3-1 Cargo Handling Volume and Container Volume at Biak Port

Year	2000	2001	2002	2003	2004
Cargo (ton)					
International	31,281	7,992	13,060	36,485	58,161
Domestic	234,884	203,845	158,269	171,538	220,581
Total	266,165	211,837	171,329	208,023	278,742
Container (box)					
Import	0	0	0	0	14
Export	0	0	0	0	0
Total	0	0	0	0	14

Source: PELINDO IV

Table 9-13-3-2 Ship Calls at Biak Port

Year	2000	2001	2002	2003	2004
International	26	14	13	42	48
Domestic	831	856	761	751	814
Total	857	870	774	793	862

Source: PELINDO IV

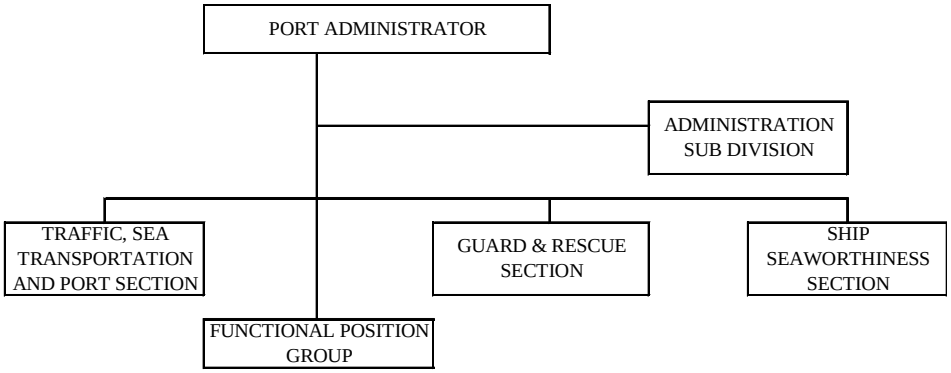
Table 9-13-3-3 Number of Passenger at Biak Port

Year	2000	2001	2002	2003	2004
International	0	0	0	0	107
Domestic	145,550	129,290	149,939	142,982	115,219
Total	145,550	129,290	149,939	142,982	115,326

Source: PELINDO IV

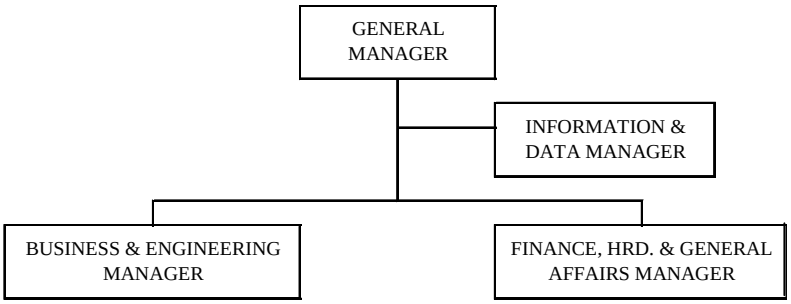
9-13-4 Port Management System

163. Organization charts of Biak Port Administration Office (ADPEL Biak) and PELINDO IV Biak Branch are shown in Figure 9-13-4-1 and Figure 9-13-4-2 respectively.



Source: DGST

Figure 9-13-4-1 Organization Chart of Port Administrator Office at Biak Port



Source: PELINDO IV

Figure 9-13-4-2 Organization Chart of PELINDO at Biak Port

9-13-5 Possible Security Incident Scenarios

164. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below.

Table 9-13-5-1 Possible Security Incident Scenarios (Biak Port)

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia, likelihood of occurrence of the scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in the middle west of Indonesian sea such as Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Scenario of illegal act in the port such as tampering is possible	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A

6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	B
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is relatively low.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-13-6 Present Situation of Port Facility Security Measures

165. Present situation of port facility security measures at Biak Port is as follows;

- The port area is surrounded by steel fence with no top guard (fence height is 2.5m). There is no mobile fence and CCTV camera monitoring system. A three-meter zone along the fence is not kept clear. There are three gates in the port area and Gate I is for passenger, Gate II/Gate III for vehicle/cargo. However, there is no security equipment such as a security bar and a mirror at the main entrance (Gate II).
- Access control is conducted by PELINDO, KPLP and KPPP at only Gate II for 24 hours a day. As ID card is not issued, security guards check an access list, uniform and a company label at doors of a truck. Gate III is mainly used for exit.
- Security guards from PELINDO, KPLP and KPPP patrol in the terminal and along the wharf occasionally. However, unauthorized persons and vehicles can access the terminal. Brightness of lighting is not enough for patrol at night. KPLP monitors the water area occasionally.
- Security guards communicate with each other using VHF, mobile phone and handy talky.
- There are no security plan, procedures and emergency communication systems.

9-13-7 Issues on Implementation of Port Facility Security Measures

166. Issues on implementation of port facility security measures at Biak Port are as follows:

- Fence surrounding the port area has no top guard. There is no security equipment such as a security bar at the main entrance (Gate II). A three-meter zone along the fence is not kept clear.
- Access control by PELINDO, KPLP, and KPPP at the Gate II is not strictly conducted.
- Security guards occasionally patrol in the terminal and along the wharf. Unauthorized persons and vehicles can access the terminal. Brightness of

lighting is not enough for patrol at night. KPLP monitors the water area occasionally.

- There are no security plan, procedures and emergency communication systems.

9-13-8 Risk Evaluation

167. Risk evaluation based on the above issues is shown in the following table:

Table 9-13-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	B	C	C	C	
(1) Channel		C		D	C			D	D	D	C
(2) Anchorage and basin area		C		D	C			D	D	D	C
(3) Wharf		M		C	M	M	C	D	D	D	M
(4) Warehouse		C		D	C	C	D			D	C
(5) Storage area		C		D	C	C	D			D	C
(6) Cargo handling equipment		M		C	M			D		D	M
(7) Passenger terminal		M		M	M	M	M			C	M
(8) Port office		M		C	M					D	M
(9) Power plant		M		C	M					D	M
(10) Bunkering point		C		D	C					D	C
(11) Fresh water supply tank		D		D	D					D	D
(12) Electricity and city water		D		D	D					D	D
(13) International ship		M	M	M	M	M	M	C	C	C	M
(14) Service boat		C	C	D	C	C	D	D	D	D	C
(15) Road		C			C					D	C
(16) Neighboring area		C			C					D	C
Max		M	M	M	M	M	M	C	C	C	M

Note:
M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not require a protective measure at this time and therefore needs only to be documented)

9-13-9 Recommendations on Port Security

168. Recommendations on port security are as follows:

- The top guard should be fixed on the fence in order to ensure that intruders do not enter the port facilities.
- The ID cards (with photo) should be issued for all personnel. In addition, temporary pass should be issued for visitors.
- Access control should be conducted strictly at Gate II. Security equipment such as a security bar should be made available at the gate II, and security guards should patrol several times.

- Security guards for access control should be deployed at the gate III & I.
- Security guard should conduct random patrols inside the restricted area. Water area should be monitored and patrolled.
- The Port Security Committee (PSC) should be established.
- Lighting system should illuminate the port area appropriately for monitoring and patrolling.
- Emergency communication system and an emergency response plan including initial action order should be established and included in the PFSP. In addition, training, drills and exercises should be conducted periodically.

9-14 PORT OF JAYAPURA

9-14-1 Outline of Jayapura Port

169. Jayapura is the capital city of Papua Province and a major port town. Port of Jayapura is located at the east part of Jayapura. It is a second-class port in the PT. PELINDO IV. Jayapura Port is located at 02°32'30" S and 140°42'30" E. Location of Jayapura Port is shown in Figure 8-14-1-1. Formerly, it was an old Dutch port, and then was rebuilt in 1950 (for Wharf No.1, namely Yos Sudarso Wharf). Wharf No.2 was built in 1994 and APO wharf was built in 1960.

170. The Port of Jayapura is at a strategic area as it is faces the Pacific Ocean on the north side, and supports various hinterland industries such as mining, agriculture, forestry. Agro-industry has good export prospects for the future. The hinterland of Jayapura produces sea products, chocolate, rubber copra, rice, beans, and spare parts. Finished goods are shipped from Jayapura Port to Makassar, Surabaya, Jakarta, Ambon and Sorong.

Figure 9-14-1-1 Location of Jayapura Port

9-14-2 Layout Plan of the Port

171. The existing layout plan of Jayapura Port is shown in Figure 9-14-2-1. From the west side, Cargo Wharf (Wharf I), Container Wharf (Wharf II) and APO Wharf are located consecutively. The port area is fenced off and the trunk road runs in the direction of west-east in close vicinity to the port.

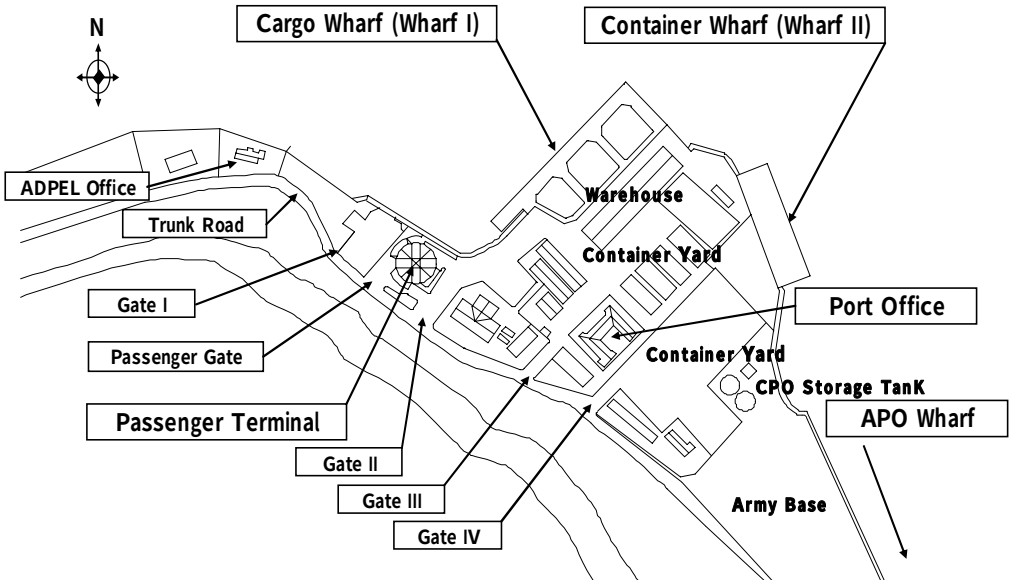


Figure 9-14-2-1 Layout of Jayapura Port

172. Main port facilities are as follows;

Table 9-14-2-1 Dimensions of Main Port Facilities

Port Facilities	Dimensions
Fairway/Channel	1.62mile (length), 500m (breadth), -27m (max. depth)
Port Basin	505ha (area), -11～-15m (depth)
Wharf I	82m (length), -10～-11m (depth)
Wharf II	82m (length), -10～-11m (depth)
APO Wharf	33m (length), -8m (depth)
Passenger Terminal	1,200m2 (area of floor)
Passenger Terminal II	180m2 (area of floor)
Warehouse	2,200m2 (area)
General Cargo Open Storage	250m2 (area)
Container Yard	6,970m2 (area)

9-14-3 Cargo Volume and Number of Ship Calls

173. Jayapura Port services mainly domestic cargo vessels. International vessels rarely call the port. Main domestic commodities are sea product, cacao beans, rubber and copra.

Table 9-14-3-1 Cargo Handling Volumes at Jayapura Port

Unit: ton

Year	2002	2003	2004
Import	30,097	0	0
Export	0	0	0
Domestic	584,236	703,527	729,475
Total	614,333	703,527	729,475

Source: PELINDO IV

Table 9-14-3-2 Ship Calls at Jayapura Port

Unit: call

Year	2002	2003	2004
International Ship	13	3	8
Domestic Ship	874	911	829
Total	887	914	837

Source: PELINDO IV

Table 9-14-3-3 Number of Passenger at Jayapura Port

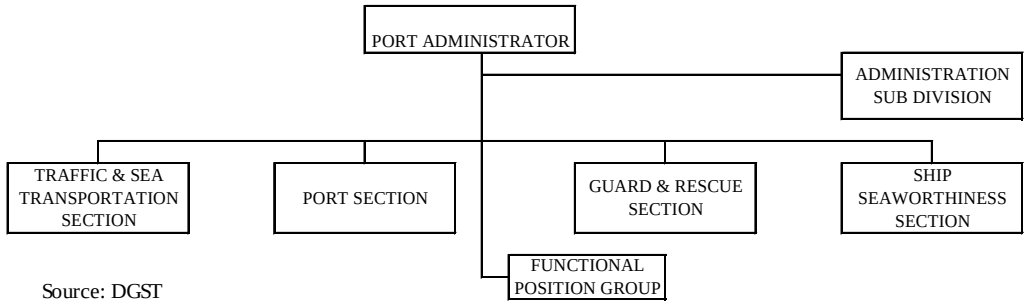
Unit: person

Year	2002	2003	2004
International	0	0	0
Domestic	323,180	322,540	279,283
Total	323,180	322,540	279,283

Source: PELINDO IV

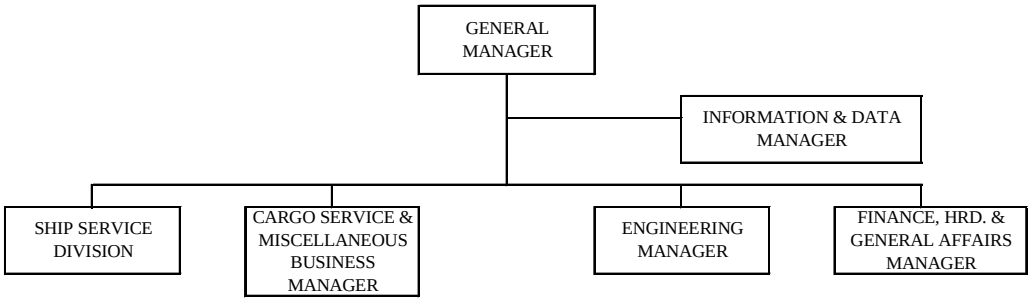
9-14-4 Port Management System

174. Organization charts of Jayapura Port Administration Office (ADPEL Jayapura) and PELINDO IV Jayapura Branch are shown in Figure 9-14-4-1 and Figure 9-14-4-2 respectively.



Source: DGST

Figure 9-14-4-1 Organization Chart of Port Administration Office at Jayapura Port



Source: PELINDO IV

Figure 9-14-4-2 Organization Chart of PELINDO Jayapura Branch

9-14-5 Possible Security Incident Scenarios

175. Likelihood of occurrence of each scenario is evaluated using a scale from A to C (with A being highest, and C being the lowest), as shown in the table below.

Table 9-14-5-1 Possible Security Incident Scenario (Jayapura Port)

	Scenario (ISPS Code, B15.11)	Assessment	Likelihood of occurrence
1	Attack by explosive devices, arson or sabotage	Considering the past bombing incidents which have occurred in Indonesia, likelihood of occurrence of the scenario is high.	A
2	Hijacking or seizure	Considering the many piracy incidents in the middle west of Indonesian sea such as Malacca Straits, likelihood of occurrence of this scenario is high.	A
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems	Scenario of illegal act in the port such as tampering is possible	B
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities	Likelihood of occurrence of this scenario is high	A
5	Smuggling weapons or equipment	Likelihood of occurrence of smuggling weapons or equipment is high.	A
6	Use of the ship to carry terrorists and their weapons	Likelihood of occurrence of use of the ship to carry terrorists and their weapon is high.	B
7	Use of the ship itself as a weapon	There have been few cases where a ship itself has been used as a weapon. Likelihood of occurrence of terror by small ship with bomb is relatively low.	C
8	Blockage of port entrances, channels etc.	Likelihood of occurrence of this scenario is relatively low, because a large scale preparation for terrorist operation is needed to block port entrances, channels etc. with the aim of halting port activities.	C
9	Nuclear, biological and chemical attack	Likelihood of occurrence of terrorism incidents using advanced technology such as nuclear, biological and chemical weapons is low.	C

9-14-6 Present Situation of Port Facility Security Measures

176. Present situation of port facility security measures at Jayapura Port is as follows;

- The port area is surrounded by steel & concrete fence with the top guard (the fence height including the top guard is 2.0m). However, the top guard has no barbed wire at some parts of the fence. There is no mobile fence and CCTV camera monitoring system. A three-meter zone along the fence is not kept clear. There are five gates in the port area and Gate I & Passenger Gate is for passenger terminal, Gate II, III & IV for vehicle/cargo. However, there is no security equipment such as a security bar and a mirror at the main entrances (Gate III & IV).
- Though security guards from PELINDO, KPLP and port operator are deployed at Gate III & IV for 24 hours a day, access control is not conducted sufficiently. ID card is not issued except for KPLP & PELINDO personnel and security guards do not check the personnel and visitors entering the terminal at Gate III & IV. As the entrance pass is issued for vehicles, security guards check the

entrance pass or a company label at doors of a truck.

- Security guards from KPLP patrol in the terminal and along the berth occasionally. However, unauthorized persons and vehicles can access the terminal. KPLP monitors the water area occasionally.
- The passenger terminal and cargo handling area are not separated, resulting in a dangerous and unsecured situation. In addition, there are many non-secure places, such as small shops and bars for seamen in the port area.
- The security guards communicate with each other using VHF, mobile phone or handy talky.
- There are no security plan, procedures and emergency communication systems.

9-14-7 Issues on Implementation of Port Facility Security Measures

177. Issues on implementation of port facility security measures at Jayapura Port are as follows:

- The top guard has no barbed wire at some parts of the fence surrounding the port area. There is no security equipment such as a security bar at the main entrances (Gate III & IV), and no patrol car for KPLP. A three-meter zone along the fence is not kept clear.
- Access control by PELINDO, KPLP, and port operator at the Gate III & IV is not strictly conducted. In addition, access control is not conducted at the other three gates.
- Security guards occasionally patrol in the terminal and along the berth. Unauthorized persons and vehicles can access the terminal. KPLP monitors the water area occasionally.
- The passenger terminal and cargo handling area are not separated, resulting in a dangerous and unsecured situation. In addition, there are many non-secure places, such as small shops and bars for seamen in the port area.
- There are no security plan, procedures and emergency communication systems.

9-14-8 Risk Evaluation

178. Risk evaluation based on the above issues is shown in the following table:

Table 9-14-8-1 Summary of Risk Evaluation

Port Facilities	Scenario	1	2	3	4	5	6	7	8	9	Max
	Likelihood	A	A	B	A	A	B	C	C	C	
(1) Channel		C		D	C			D	D	D	C
(2) Anchorage and basin area		C		D	C			D	D	D	C
(3) Wharf		M		C	M	M	C	D	D	D	M
(4) Warehouse		C		D	C	C	D			D	C
(5) Storage area		C		D	C	C	D			D	C
(6) Cargo handling equipment		M		C	M			D		D	M
(7) Passenger terminal		M		M	M	M	M			C	M
(8) Port office		M		C	M					D	M
(9) Bunkering point		C		D	C					D	C
(10) Fresh water supply point		C		D	C					D	C
(11) Fresh water supply tank		D		D	D					D	D
(12) Electricity and city gas		D		D	D					D	D
(13) International ship		M	M	M	M	M	M	C	C	C	M
(14) Service boat		C	C	D	C	C	D	D	D	D	C
(15) Road		C			C					D	C
(16) Neighboring area		C			C					D	C
Max		M	M	M	M	M	M	C	C	C	M

Note:

M: Mitigate (protective measures and/or procedures to reduce risk for that scenario are needed)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis)
D: Document (Scenario may not require a protective measure at this time and therefore needs only to be documented)

9-14-9 Recommendation on Port Security

179. Recommendations on port security are as follows:

- The passenger terminal should be separated with barriers (e.g. mobile fence).
- ID (with photo) cards should be issued for all personnel working in the port. In addition, temporary pass should be issued for visitors.
- Access control should be conducted strictly at Gate III & IV. Security equipment such as a security bar should be made available at the Gate III & IV, and security guards for access control should be deployed at the other three gates.
- Security guards should randomly patrol in the port area (different periods and routes).
- The water area and wharf side should be monitored and patrolled more frequently, for example, by increasing patrol boats and security guards.
- The Port Security Committee (PSC) should be established.
- An emergency communication system and an emergency response plan including initial action order should be established and included in the PFSP. In addition, training, drills and exercises should be conducted periodically.

CHAPTER-10. REVIEW OF GRANT AID PROJECTS ON PORT SECURITY IN INDONESIA

10-1 OUTLINE OF GRANT AID PROJECTS

1. Bali Island terrorist attack which occurred on October 12th, 2002 and subsequent bombing incidents that took place at various locations within the country dealt a heavy blow to Indonesia's overall tourist sector, and they also have taken a major negative toll on Indonesia's macro economy by, among other things, inviting the loss of external trust of Indonesia and reducing the once growing willingness of foreigners to invest in the country. Under these circumstances, in order to restore external trust, the Indonesian government will have to make every effort to implement the necessary security measures aimed at reducing the possibility that a terrorist attack like that which occurred on Bali Island could ever happen again, and to bring such to the attention of the outside world.

2. Against this background, a Security Facilities Improvement Plan Basic Design Study of the country's major airports and ports was formally requested by the Indonesian government in January, 2003. Thereafter, following bilateral coordination, it was eventually decided that a Grant Aid Cooperation Project Basic Design Study would be conducted on the contents of the request for the installation of X-ray inspection systems and other security equipment with the objective of strengthening security measures at eight of Indonesia's major airports and three of its major ports. The content of that request regarding the ports is set out below.

[Target Areas] : The three ports of Tanjung Priok (Jakarta), Tanjung Perak (Surabaya), and Batam

[Target Equipment] : X-ray baggage inspection system, metal detector (walk-through and handheld), explosive-detection equipment, CCTV surveillance system, wireless radio, radio relay station, infrared binoculars, fire extinguisher equipment, diving equipment.

3. Upon receiving this request, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Group to Indonesia from October 22nd to November 20th, 2003. Through consultations with the Directorate General of Air Communications and the Directorate General of Sea Communications within the Ministry of Communications, the group, among other things, confirmed both the content of the request and the maintenance administrative structure and examined the equipment plan. Thereafter, a Basic Design Outline Explanation Study Group was dispatched to the sites from February 29th to March 7th, 2004, and an explanation of the plan contents was given to the relevant parties within the Indonesian government. Based on these results, the final target equipment was narrowed down to X-ray baggage inspection systems, metal detectors (walk-through and handheld) and CCTV surveillance systems.

4. Subsequently, in 2004, JICA called for bids for the implementation of improvements to these ports based on this plan, and on January 17th, 2005, signed the contract. Construction operations were completed on September 15th, 2005.

10-2 TARGET PORTS AND EQUIPMENT

5. The target ports are the three ports of Tanjung Priok (Jakarta), Tanjung Perak (Surabaya), and Batam. The target equipment is as described below.

10-2-1 Tanjung Priok (Jakarta)

6. Security equipment to be installed at Tanjung Priok Port (Jakarta) is shown in Table 10-2-1-1.

Table 10-2-1-1 Security Equipment at Tg. Priok

No.	Equipment name	Units	Installation location	Intended application
1	CCTV surveillance system ・Outdoor Pan/Tilt camera ・Outdoor Fixed camera ・TV monitor ・Matrix switcher ・Digital video recorder	 26 30 5 1 5	 Throughout premises Main gate Surveillance room Surveillance room Surveillance room	Surveillance of the whole premises and the gate. (Gate surveillance aimed at deterring unauthorized access.)
2	X-ray inspection system (medium size)	2	Passenger ship terminal	Passenger baggage inspection. (Possible to detect dangerous materials such as suspected explosives by using the material identification function.)

10-2-2 Tanjung Perak (Surabaya)

7. Security equipment to be installed at Tanjung Perak Port (Surabaya) is shown in Table 10-2-2-1.

Table 10-2-2-1 Security Equipment at Tg. Perak

No.	Equipment name	Units	Installation location	Intended application
1	CCTV surveillance system ・Outdoor Fixed camera ・TV monitor ・Matrix switcher ・Digital video recorder	 20 3 1 3	 Main gate Surveillance room Surveillance room Surveillance room	Surveillance of the gate. (Gate surveillance aimed at deterring unauthorized access.)
2	X-ray inspection system (medium size)	2	Passenger ship terminal	Passenger baggage inspection. (Possible to detect dangerous materials such as suspected explosives by using the material identification function.)
3	Walk-through metal detector	2	Passenger ship terminal	Passenger body search

10-2-3 Batam

8. Security equipment to be installed at Batam Port is shown in the following tables.

Table 10-2-3-1 Batam Center Installed Security Equipment

No.	Equipment name	Units	Installation location	Intended application
1	Handheld metal detector	1	Passenger ship terminal	Outbound passenger body search

Table 10-2-3-2 Sekupng Installed Security Equipment

No.	Equipment name	Units	Installation location	Intended application
1	X-ray inspection system (small size)	1	Passenger ship terminal	Outbound passenger baggage inspection (Possible to detect dangerous materials such as suspected explosives by using the material identification function.)
2	Handheld metal detector	2	Passenger ship terminal	Outbound passenger body search

Table 10-2-3-3 Waterfront Installed Security Equipment

No.	Equipment name	Units	Installation location	Intended application
1	X-ray inspection system (small size)	1	Passenger ship terminal	Outbound passenger baggage inspection (Possible to detect dangerous materials such as suspected explosives by using the material identification function.)
2	Handheld metal detector	1	Passenger ship terminal	Passenger body search

Table 10-2-3-4 Nongsa Installed Security Equipment

No.	Equipment name	Units	Installation location	Intended application
1	X-ray inspection system (small size)	1	Passenger ship terminal	Outbound passenger baggage inspection (Possible to detect dangerous materials such as suspected explosives by using the material identification function.)
2	Walk-through metal detector	1	Passenger ship terminal	Outbound passenger body search
3	Handheld metal detector	2	Passenger ship terminal	Outbound passenger body search

10-3 IMPLEMENTATION OF GRANT AID COOPERATION PROJECT

10-3-1 Progress of Work

9. Since signing contract on December 3rd, 2004 (verification date: January 17th, 2005), construction had been conducted with a planned completion date of September 15th, 2005.

10. Pre-construction work was conducted in parallel with equipment procurement because it was estimated that time required for equipment production and installation work amounted to approximately four and six months respectively.

11. At the end of June, 2005, work on the bases of CCTV surveillance system camera poles as well as the laying of associated electrical wiring tubes was conducted in Tanjung Priok Port (Jakarta) and Tanjung Perak Port (Surabaya). Excavation was nearly completed. Additionally, by the middle of August the installation of equipment and the remaining electrical wiring work were completed. Then, following adjustments and operation maintenance training which were to be finished by the end of August and final testing was conducted until September 15th.

12. Thus, the grant aid cooperation project was successfully completed on September 15th, 2005 at Tanjung Priok (Jakarta), Tanjung Perak (Surabaya) and Batam ports respectively under the following implementation formation.

The Buyer: Directorate General of Sea Communication, Ministry of Communications
The Consultant: Pacific Consultants International, Japan
The Supplier: Kanto Bussan Kaisha, Ltd. Japan

13. The certificate of completion of the installation work was issued by the Consultant and approved by the Buyer on October 18, 2005.

14. Photographs 10-3-1-1 and 10-3-1-2 show the installed security facilities of the Tanjung Priok Port.

Photo 10-3-1-1 Tanjung Priok Port Security Facilities Construction Progress Photographs

Hand hole for wire cable

Camera pole base

Camera pole base pile

Camera pole base pile

Underground pipe for wiring
(upper portion of photo)

Buried piping backfill section

Construction materials processing factory
(in front of field office)

Materials processing site
(beside field office)

Photo 10-3-1-2 Tanjung Priok Port Security Facilities Completion Photographs

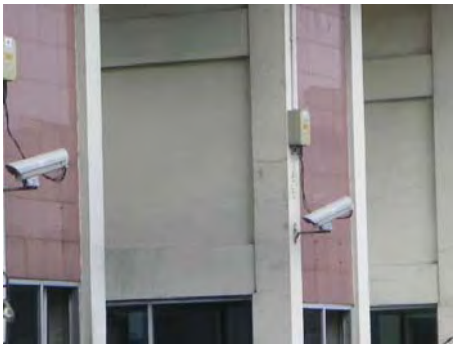
CCTV control panel (monitor installation)

Monitor console & CCTV operation board

CCTV camera pole panorama

CCTV camera installation situation

Gate entrance side CCTV camera



Gate exit side CCTV camera

Hand hall for CCTV

Sign of cable laying underground for CCTV

10-3-2 Observed Issues

15. Issues which were observed on the grant-aid project on port security are as follows:

- A part of the wiring routes and camera base installation locations were in use or were located on private lands. It took much time, energy and money to make adjustments.
- There were some cases where objections on installation sites for security equipment and cable routes were raised after starting installation works and it took much time to obtain a consensus.
- Installation works have to be carried out in an operating port. Many restrictions are imposed on the work. For example, it was prohibited to excavate at gate area; instead a drilling method was adopted. There were some cases where construction machines could not be used to avoid trouble with cargo handling and thus works had to be carried out manually.
- There are various kinds of buried objects in construction sites of the port area and no map of buried objects is prepared. There are some cases where a constructor had to decide details of the wiring route after digging specified sites.

10-3-3 Items to be Considered

16. It is proposed that the following items be paid attention when conducting similar types of programs.

- When carrying out construction works in a port which is in operation, cost for site purchase, compensation and other required expenses need to be appropriately earmarked.
- It is important to come to a mutual agreement concerning installation sites, routes and methods with relevant agencies and persons prior to the tender document preparation.
- It is important to set the appropriate construction cost, schedule and working time in consideration of restrictions of construction sites and inform bidders of such information so as not to interfere with cargo handling operation.
- In case the layout plan of the existing facilities can not be obtained or the presence of existing buried objects can not be known without excavation, it may be necessary to conduct a pre-survey and add to the specification a clause of preparation for an unforeseen situation.
- It is important to have prior consultation with relevant authorities prior to confirming the layout plan so as not to interfere with cargo operation and not to change the installation plan.
- It is important to prepare particular specifications for security equipment to implement necessary security measures.
- Lockable steel cabinet is necessary for safekeeping the spare parts.
- It is necessary to estimate and secure the appropriate budget for maintenance. Procurement of spare parts for at least two years of operation is necessary given the time required for the budgetary process.
- It is necessary to estimate and secure the budget for the procurement of important spare parts especially parts with short life spans such as radioactive made X-ray tubes which are durable for 1.0 to 1.5 years.

- Preparation of the CCTV monitoring room and regular reporting system will have to be created under the supervision of the consultant to efficiently operate the security system.
- It is necessary to limit to the extent possible the number of persons operating confidential equipment such as the CCTV camera monitor.
- It is important to obtain a consensus and understanding on engineering works from not only the executing agency (DGST) but also the contracted terminal operator who conducts cargo handling works at the site for the work to be conducted smoothly.
- Dust prevention specification will be important especially for CCTV cameras installed outdoors.
- Indonesian language manuals will also be necessary for practical use of equipment by Indonesian staff.

CHAPTER-11. ISSUES RELATED TO PORT SECURITY IN INDONESIA

11-1 SECURITY CONDITIONS OF THE 26 STUDY PORTS IN INDONESIA

11-1-1 Security Measures of Ports for which Statements of Compliance Have Been Issued

1. In the 26 study ports, statements of compliance have been issued for 12 ports: Belawan, Dumai, Tg.Pinang, Batam, Teluk Bayur, Palembang, Panjang, Tg.Priok, Pontianak, Banten, Tg.Emas and Tg.Perak.

2. In these ports, security measures have been taken based on PFSPs. The Study Team made a study on implementation of the ISPS code at these ports. Each port has been making efforts to introduce required structures for the port security system, conduct a PFSA, formulate PFSPs and implement security measures. However, security is a never-ending circle that can be likened to a game of cat-and-mouse. Persons and organizations that are in charge of security measures are always requested to improve their systems.

3. The following table presents an overview of the study results concerning the present situation of port security measures from the viewpoint of the study team members. "X" indicates that some issues/problems are found.

Table 11-1-1-1 Overview of Port Security Measures

	Gate	Fence	Metal-detector, X-ray	CCTV	Lighting	Communication	PA	Access control	Clear zone	Patrol	Others
Belawan	x	x	x			x	x	x			
Dumai	x	x	x					x			
Tg.Pinang		x	x		x	x	x	x			
Batam		x(m)			x			x			x
Teluk Bayur				x					x		
Palembang	x	x						x			
Panjang		x									x
Tg.Priok	x	x(m)									x
Pontianak								x	x		
Banten		x		x							
Tg.Emas		x							x		x
Tg.Perak		x(m)									x

Note: (m) stands for "mobile fence" and PA "Public Adress system"
Source: JICA Study Team

4. In many ports, problems including the gate & gate control and fencing are observed. Security measures and immediate responses are needed to cope with these issues.

1) Gate & gate control
   - No barrier or fence is installed at a gate
   - Barrier arm is always up (open).
   - IDs are not confirmed at gates.
   - Access control is not conducted at gates.
   - No security guard is deployed at gates.

2) Fence
- Height is insufficient.
- Mesh is too large.
- Some fences are aged or damaged.
- Outrigger is not placed on fence.
- Large gap between fences or between a fence and ground is observed.

5. Required facilities and equipment are not introduced due to the budget limitation. Lighting and public address systems are indispensable for port security. The study team proposes that an X-ray detector and a CCTV camera system be installed in international container, passenger and dangerous goods handling terminals. Even in an international container terminal, however, if the cargo volume is not large, security guards should be deployed instead of a CCTV camera system.

11-1-2 Security Measures of Ports for which PFSP Has Not Been Prepared

6. As to the remaining 14 ports, PFSPs have not been prepared. Many of the ports are located in the eastern part of Indonesia, which is far from the international trunk trade route and of which international trade is not large except raw materials such as coal and plywood. The DGSC hopes that these ports will comply with the ISPS Code as soon as possible. While the Study Team made site-surveys on 10 ports, the Study Team entrusted site-surveys on the ports in Maluku and Papua to RSOs.

7. The following table presents an overview of the study results concerning the present port situation. “X” indicates that some issues/problems are found.

Table 11-1-2-1 Overview of the Present Port Situation

	Gate	Fence	Metal-detector, X-ray	CCTV	Lighting	Communication	PA	Access control	Separation of cargo	Patrol	Others
Pekanbaru	x	x			x						
Cilacap	x	x						x			x
Benoa	x (e)	x		x				x			
Kupang		x		x	x			x			
Banjarmasin		x		x				x			
Samarinda	x	x			x			x		x	
Balikpapan	x (e)	x						x	x		
Bitung	x	x						x	x		
Kendari	x (e)				x	x	x	x		x	
Makassar	x	x	x	x				x			
Ambon		x			x			x			x
Sorong								x			x
Biak	x (e)	x						x		x	
Jayapura	x (e)							x	x		x

Note: (e) stands for "No security equipment at gate" and PA "Public Address"
Source: JICA Study Team

8. In all the ports security measures are inadequate because PFSPs have not been formulated. Insufficient or no access control is conducted. Security facilities and equipment such as gates, fence and lighting are also poor. As to the ports of which international cargo volume is not large, flexible system including combination of mobile fence and security guards should be introduced.

11-2 ISSUES RELATED TO PORT SECURITY IN INDONESIA

11-2-1 General

9. Indonesia has its own natural conditions and different social, economic and financial situations and organizations from other countries. Although port security measures have to be established according to the ISPS Code, Indonesia should have its own security measures in conformity with its conditions and situations.

10. Indonesia is an archipelagic country surrounded by the sea and its socio-economic activities are largely dependent on maritime transportation. Although there are many ports in Indonesia, most of them are small and receive only domestic vessels. Even in the port which receives an international ship, not only internationals ship but also domestic vessels berth at the same berth in many cases. In this case, fixed fence to enclose a restricted area becomes an obstacle for domestic cargo handling and instead it is proposed to install mobile fence and to station security guards.

11. In case of a small port where PFSP has not been formulated, an international ship may request that a DoS be completed. PSO (head of Guard and Rescue) completes DoS and takes certain security measures as mentioned above.

12. In Indonesia, there are many river ports where water depth is shallow. In these cases, large vessels cannot berth at a wharf in the port. Cargo handling is conducted between an international ship and a barge or a small vessel at an anchorage which is usually located at a river mouth. However, the length of a channel connecting a wharf with an anchorage runs more than 100 km in some cases. Security measures of the water area are thus important and are mentioned in the following section.

13. Small budget for port security measures is another issue. There are some port facilities catering to international voyages that have not yet complied with the requirements of the ISPS Code. Even a port that has complied with the ISPS Code does not always have enough port security facilities and equipment due to budgetary constraints. Port security development plan is described in Chapter 17. All necessary facilities and equipment to be installed are proposed in the plan.

14. Shortage of patrol boat's fuel is also related to budget constraints. KPLP has patrol boats and its main role is to patrol the water area around wharves for safety (not security). In order to patrol the water area such as anchorage and channel for security, it is necessary to make a framework for new funds.

15. Inadequate and aged patrol boats also have to be improved as described in Chapter 6. The port which receives international ships needs to deploy plural patrol boats. Part B 16.19 of the ISPS Code stipulates that at security level 2, the PFPS should establish additional security measures, which include the use of patrol vessels to enhance waterside security. Moreover patrol boats need to have idle time for regular inspection. In some ports in Indonesia which receive international ships, KPLP has no or only one patrol boat. At least two patrol boats should be deployed in these ports. In addition, aged boats should be repaired or renewed because many of them have low performance such as low speed and inefficient fuel consumption.

16. There are no technical standards and manuals for port security. Lack of security standard devices, such as fence, gate, security equipment, communication tools, and patrol ship is found in port facilities. Technical standards are indispensable for effective and efficient security measures. Most port facility security assessments have been carried out by recognized security

organizations (RSOs) and they have been approved by the Ministry of Transportation. RSOs carry out the security assessment using their own forms. These forms are not always unified which makes it difficult for unified assessment records to be made. A port facility security plan is prepared by a port management body itself or RSO who is entrusted by the management body. Forms used in the port security plan also vary. It requires a huge amount of work because every item of a plan is treated on a trial and error basis. Therefore PFSA and PFSP manuals are useful to port security works. (Refer to Chapter 14 Outline of PFSA &PFSP manuals.)

17. Piracy and property loss are found in Indonesia. As to piracy, we should examine it as a threat. Many property losses have been reported in ports. Valuables and metal products including manhole covers and gratings are stolen. Anti-theft measures for port security equipment should be considered.

18. Poverty problem also influences port security measures. In a long channel of a river port, local poor people come on board of a barge or a small vessel for begging. In case that the barge or small vessel carries international cargo, such unauthorized boarding must be prohibited. In addition poor people build their houses in close vicinity to port borders. In this case, higher fence is needed.

19. Items mentioned above are summarized as follows.

- In small ports international and domestic vessels use the same berth.
- There are many river ports where water depth is shallow.
- Budget for port security is small.
- Many patrol boats are aged and the number of boat is inadequate in some ports.
- There are no technical standards and manuals for port security.
- Piracy and property loss are found.
- Poverty.

11-2-2 Security Measures on Water Area

(1) General

20. According to the ISPS Code, a port facility security plan shall be developed and maintained, on the basis of a port facility security assessment, for each port facility, adequate for the ship/port interface. Port facility is a location, as determined by the Contracting Government or by the Designated Authority, where the ship/port interface takes place. This includes areas such as anchorages, waiting berths and approaches from seaward, as appropriate. ISPS Code is applied to port facilities serving such ships engaged on international voyage.

21. Security measures on the water area are a demanding task. Different from the restricted area on land, barriers cannot be placed on the border of the restricted area on the sea. In addition, the water area to be controlled is usually very large. Security measures for the water area cannot be effective without sufficient patrol boats and crews being deployed. Therefore there are various concepts regarding security measures on water area.

22. Many countries regard cargo handling which is conducted between an international ship and a domestic small vessel at an anchorage as a ship/ship activity. This means that a port facility does not take security measures for these activities. On that basis, some country requests a domestic ship to take security measures according to the ISPS Code while others do not.

23. In Japan, cargo handling at an anchorage is not recognized as a ship/port interface except for cases of a single mooring buoy and timber unloading at a basin. They are regarded as a ship/ship activity. In the case of a single mooring buoy, the restricted area on sea which covers a buoy and its surrounding area is designated, a patrol boat patrols the water area all the time during connecting the buoy. (PFSP describes the procedure.)

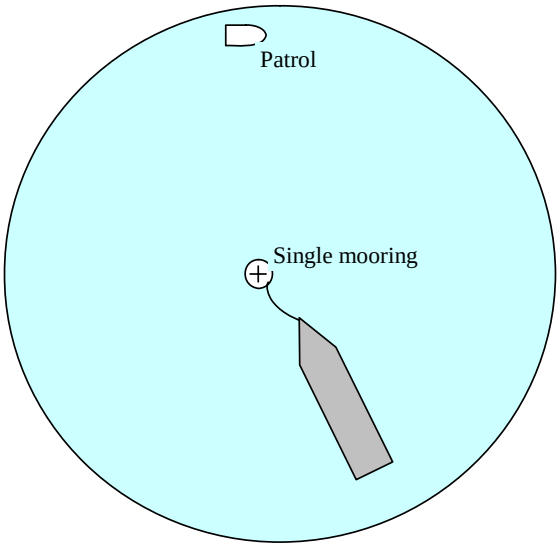


Figure 11-2-2-1 Single Mooring Buoy in Japan

24. Between ports of Tokyo and Yokohama, container transport by a barge and a pusher boat has been considered for the purpose of alleviating traffic congestion and environmental burden. In this case camera system is installed on a barge and security guards on barge are deployed on deck as the security measures. The camera system is operated at a control room of the pusher barge.

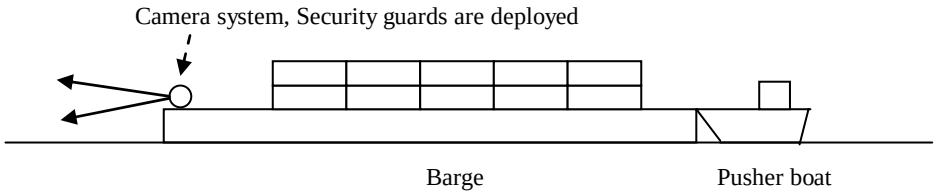


Figure 11-2-2-2 Security Measures of Barge Transport

25. In Australia, cargo handling in an anchorage is regarded as a ship/ship activity, but a domestic vessel which is involved in cargo handling in the anchorage is obligated to prepare SSP according to the ISPS Code. In addition, DoS is concluded if required.

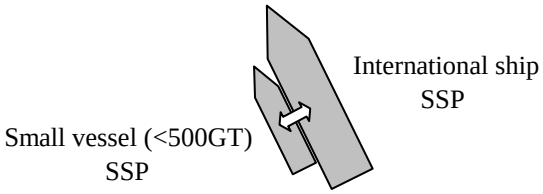


Figure 11-2-2-3 Ship/ship Activity in Australia

26. In Singapore, "Harbour Craft Security Code" which is pursuant to SSP is applied to small vessels in Singapore port areas. (See Appendix V.) In this case, a ship master is the responsible person for security. In addition, vessels are basically prohibited from entering the restricted water area designated around the important facilities such as oil berths and power stations.

27. In Hong Kong, loading and unloading of containers are conducted between an international ship and a wharf and between the ship and barges from seaside at one time, and conducted in an anchorage. The Maritime Department (MARDEP) does not require these container barges and small ships of less than 500 GRT which navigate to/from south China conclude DoS. Therefore, a barge does not have a security officer. However, the Vessel Traffic Center (VTC) of MARDEP manages navigation safety of these small vessels. Seen in this light, it can be deemed that MARDEP manages to take security measures for these small vessels.

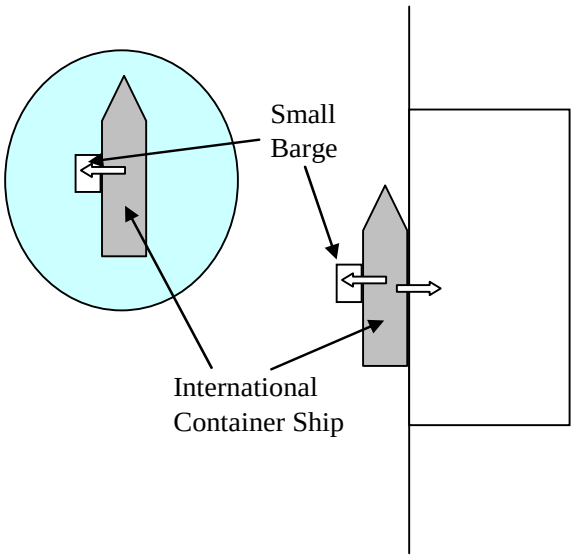


Figure 11-2-2-4 Ship/ship Activity in Hong Kong

28. As mentioned above, many countries regard a contact between an international ship and small domestic vessel at an anchorage as a ship/ship activity. A port facility does not take security measures for the activity on the sea.

29. In Indonesia, DGST regards the anchorages and channels which an international ship uses as port facilities defined in the ISPS Code. Therefore security measures for the anchorage and channel are included in PFSP. This means that one PFSP is made jointly for a wharf and water area in the port including an anchorage. In addition, in the case of ports with a long channel it also requires that the PFSP include measures for securing the channel against piracy and beggars who board small boats on the long channel.

(2) Security Measures for River ports

30. There are many river ports in Indonesia and most of them have a restriction on water depth. Therefore large bulk vessels cannot directly berth at wharves. They cast anchors at anchorages in a river or around the river mouth area. Cargo is transshipped from a large vessel to barges and carried to a wharf. Based on the above, ISPS Code is applied only to the anchorage area.

31. In the case of a port like Palembang and Pekanbaru, the wharves are located far upstream from the river mouth and anchorage areas are set at the river mouth area. Channel between a wharf and an anchorage is also designated as part of the port area. Measures against poor local residents who live along the river and get on board for begging should also be considered.

32. In the case of Samarinda and Banjarmasin ports which are also river ports, anchorages are set out of the main port area but in fairly close proximity to it. An anchorage itself is also part of the port area and is owned by PELINDO.

33. If security measures are applied only to an anchorage as the “interface”, international cargo can be contaminated while the cargo is transported from a gate of a port to the anchorage through the wharf and channel because shippers or consignees cannot supervise their cargo directly at wharves and the cargo is transported on the channel as domestic cargo. Therefore it is deemed necessary that security measures be applied to not only the anchorage area but to the channel and main port area. Water area security in a port is regarded as ship/ port interface and is included in the PFSP.

34. However, we have to remember that implementing security measures across a wide water area is a challenging task. Especially in a port with a long channel such as Pekanbaru and Palembang, many boats are needed to patrol the wide-spread area. If a patrol boat accompanies to a barge with slow speed, more patrol boats are needed. This problem is dealt with in the following section.

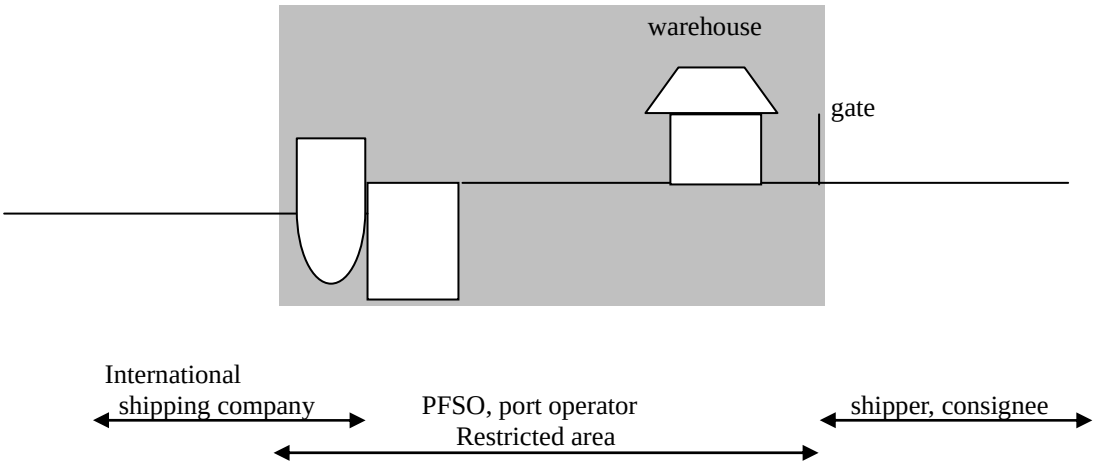


Figure 11-2-2-5 Ordinary Case

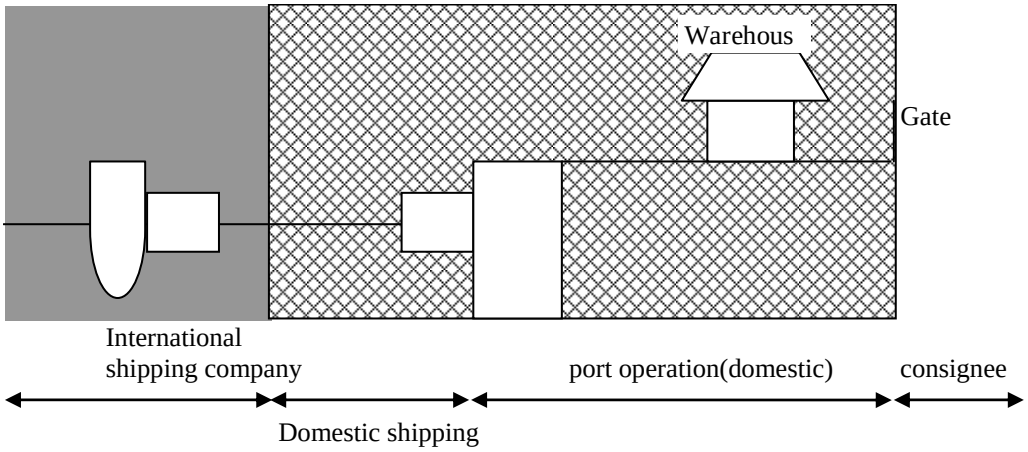


Figure 11-2-2-6 Case that Only Anchorage is Ship/port Interface

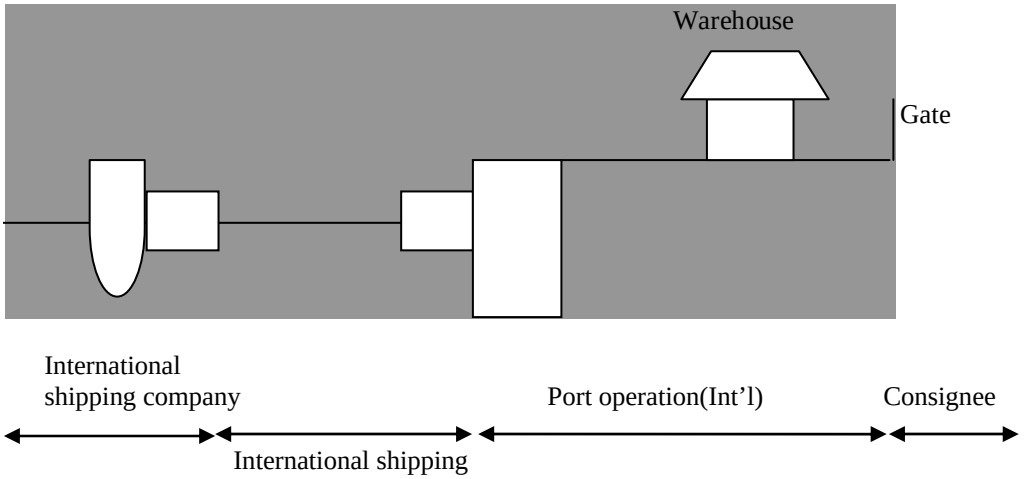


Figure 11-2-2-7 Case that Wharf, Channel and Anchorage are Designated as Port Facility

35. In principle anchorages and channels for international vessels, even if the channel is very long, should be patrolled for security by a patrol boat at least once a day. In case that anchorages are located far from a main port and at a river mouth, a base for patrol boats should be placed around the river mouth. The base can deter a terrorist vessel to approach anchorages and to come in the channel in the river.

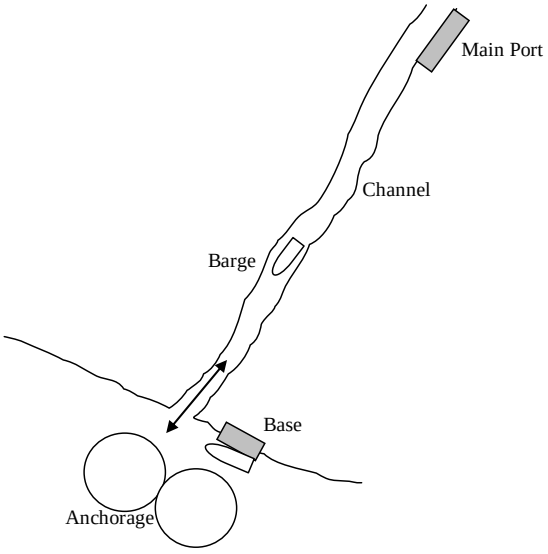


Figure 11-2-2-8 Base for Patrol Boat

(3) Responsible Organization

36. In Indonesia, in the case of a port which has one anchorage and several international wharves in a port, PFSPs for each international wharf are formulated for each wharf and the one anchorage area and channel. The anchorage area and channel are shared by port management bodies.

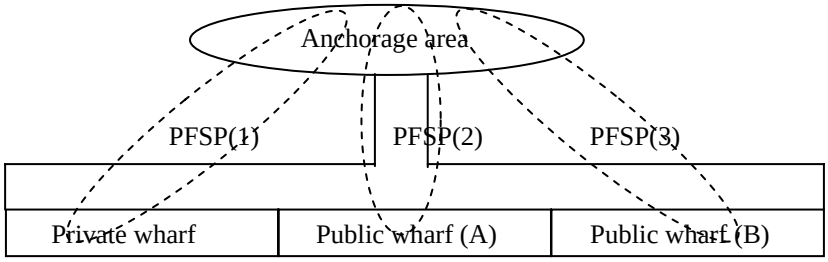


Figure 11-2-2-9 Case that Several Wharves Use One Anchorage

37. In the case of Samarinda port, there are two anchorages which stand off each other. The two anchorages used to change from one place to another every season due to changes in wind direction. In this case one PFSP is basically formulated for one wharf and two anchorages.

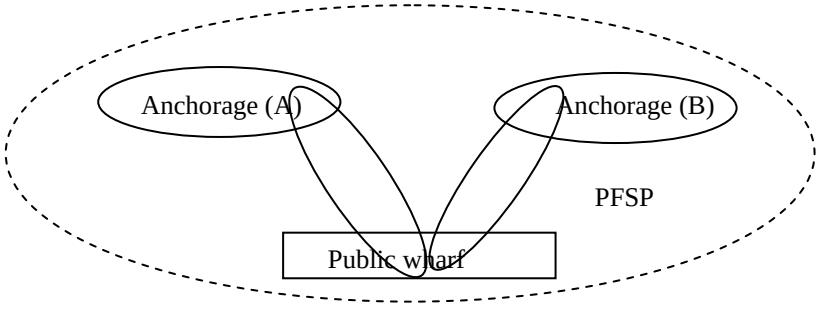


Figure 11-2-2-10 Case that One Wharf Uses Two Anchorages

38. The other idea is to formulate one PFSP for the anchorage and channel. A PFSO is nominated from KPLP which is responsible for patrolling these water facilities. Locus of the responsibility for the anchorage and channel is clear.

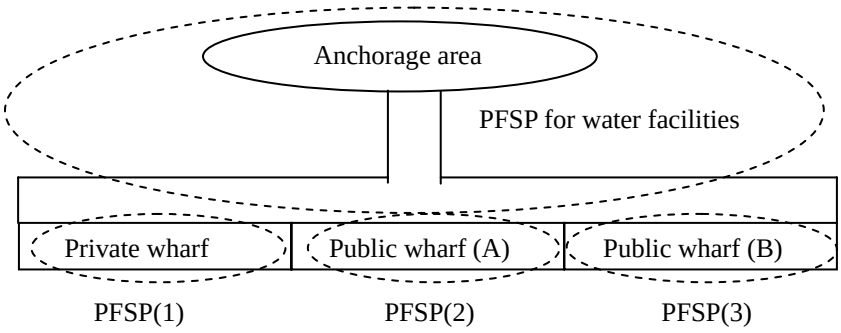


Figure 11-2-2-11 PFSP for Water Facilities

39. USA adopts the similar system as item 32. A vast water area adjacent to several port areas is designated and a port area security plan is prepared for the area in addition to PFSPs for each port facility.

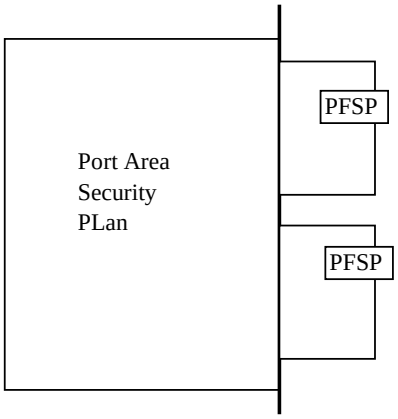


Figure 11-2-2-12 Port Area Security Plan in USA

40. When considering security measures for the water area in Indonesia, the following are important factors.

1) In Indonesia, it is stipulated that KPLP has the authority to patrol water areas in a port including anchorages and channels, while port management bodies such as PELINDO lack that authority. This means that KPLP is basically responsible for water area security in a port.
2) However, Indonesian government is on tight budget. It seems to be quite difficult for KPLP as an organization of the government to rapidly increase the budget for patrol boat's fuel for security measures on water area according to the ISPS Code. Renewal of aged patrol boats also seems to be more difficult.
3) Port management bodies including PELINDO have no patrol boats, while KPLP has.

41. Based on the above facts, KPLP is primarily responsible for security measures on water area such as anchorages and channels and thus item 32 could apply. However, this idea does not lead to implementation of effective security measures on water area due to the budget

constraint. DGST is requested to make efforts for increasing the budget relevant to water area security, but other countermeasures are required for the time being.

42. It should be remembered that port security measures are an important part of port promotion. In other words, only a safe and secure port can develop and flourish. Many port authorities that are competing against other ports are making an investment in port security measures as not only a duty but also one of the promotion measures. Therefore bearing the cost for water area security is in the self-interest of port management bodies including PELINDO. Although some port management bodies are reluctant to bear the cost for patrol of the anchorage and channel, they should bear a part. Based on this idea, the present idea of PFSP in Indonesia can be acceptable.

43. As to sharing of roles between KPLP and port management bodies, KPLP is willing to provide patrol boats and crews free of cost. According to DGST, PELINDO can patrol water area by its own boat if one KPLP official gets on the boat. However, it may be a large burden for PELINDO to purchase a new boat for water area patrol.

44. DGST has tried to build a system that port management bodies including PELINDO delegate water area patrol to KPLP. In this system, KPLP provides patrol boats and crews while port management bodies share fuel expenses. The points at issue are that all relevant port management bodies have to approve the cost-sharing and it will take a lot of time and energy to establish the system. In Tg. Priok port and Tg. Perak port, this system was successfully started.

45. This system may not be able to be applied to all international ports in Indonesia because many patrol boats belonging to KPLP are aged and have low performance as described in Chapter 6. In addition, some KPLP has no or only one patrol boat in a port which receives international ships. In these ports, it may be possible that KPLP borrows a patrol boat from the Water Police or hire a small vessel of a private company for patrol. At any rate, since it is difficult to go on sufficient patrol on the water area in a port using only KPLP patrol boats in all international ports, other measures have to be prepared.

(4) Interface with small vessels

46. There are many occasions that international ships come into contact with small vessels including pilot boat, tug boat and supply boat in a port. Barges for transshipment of international cargo are also included in this category. How to ensure security of an international ship in these cases is one of the issues that need to be addressed.

47. According to the ISPS Code, “Ship to ship activity means any activity not related to a port facility that involves the transfer of goods or persons from one ship to another”. Therefore ship to ship activity at a port facility which the Contracting Government designates falls under the ship/port interface. If the government with a port facility or port facilities within its territory designates an anchorage area as a port facility, pilot boarding, feeding fuel, water supply, loading of ship articles and transshipment of cargo to/from barges in the anchorage fall under the ship/port interface.

48. There are several kinds of ship-to-ship activities in a port. Basically the ISPS Code needs to record all ship-to-ship activities during last 10 ports. Items to be recorded are date, location, identification of contact ship and type of activity. When an international ship conducts a ship-to-ship activity, the record is usually treated as follows in foreign countries.

1) Contact with an ISPS compliant ship
   - Actually it is not recorded in many cases, because no additional security measures

are needed.

2) Contact with a vessel on which officials of pilot, customs, immigration and security board
   - Usually DoS is not needed and it is not recorded because only government or port management body officials board on an international ship and the ship easily identify them

3) Contact with a tug boat
   - It does not need to record because no one boards on an international ship. In some cases, a person boards on an international ship after the work to obtain captain's signature. Usually this case is not recorded because it is covered by ship's security measures.

4) Contact with a barge or small vessel for lightering (transshipment of cargo)
   - If a port does not provide security measures based on PFSA, DoS is needed and the contact has to be recorded. Usually an international ship obtains the copy of the barge's or small ship's marine document.

5) Contact with a bunkering boat
   - Usually DoS is not completed and it is not recorded. However, DoS is occasionally completed, when a person boards on an international ship to obtain confirmation document for work conditions and methods.

6) Contact with a small vessel for ship's store and unloading of waste by ship
   - Usually DoS is not completed but contact is recorded.

49. According to PELINDO, some boats for Pilot, Customs and Immigration and tugs have complied with the ISPS Code. All these boats and tugs should comply with the ISPS Code and then an interface between an international ship and them can be treated as a ship/ship interface. As to other vessels, a port facility has to take some sort of security measures.

50. As to supply boats, an agent usually arranges them for an international ship. The international ship easily distinguishes them from others and has the procedures for them prescribed in the Ship Security Plan. Therefore these supply boats are usually excluded from coverage of PFSP. However, it is advisable that PELINDO issue IDs to supply boats like vehicles on land.

(5) Recommendations

51. For security measures on the water area in a port, DGST has to make efforts to increase the budget for repair and renewal of aged patrol boats, new patrol boats for a port which has no or only one patrol boat, and fuel for operation according to the ISPS Code.

52. On that basis, in case that there are enough KPLP patrol boats to patrol the water area in the port, KPLP patrols on the condition that all port management bodies agree to delegate water patrol to KPLP and share cost of patrol boat's fuel.

53. If there is not enough KPLP patrol boats in a port, KPLP tries to borrow a patrol boat from the Water Police or hire a small vessel of a private company for patrol on the condition that all port management bodies agree.

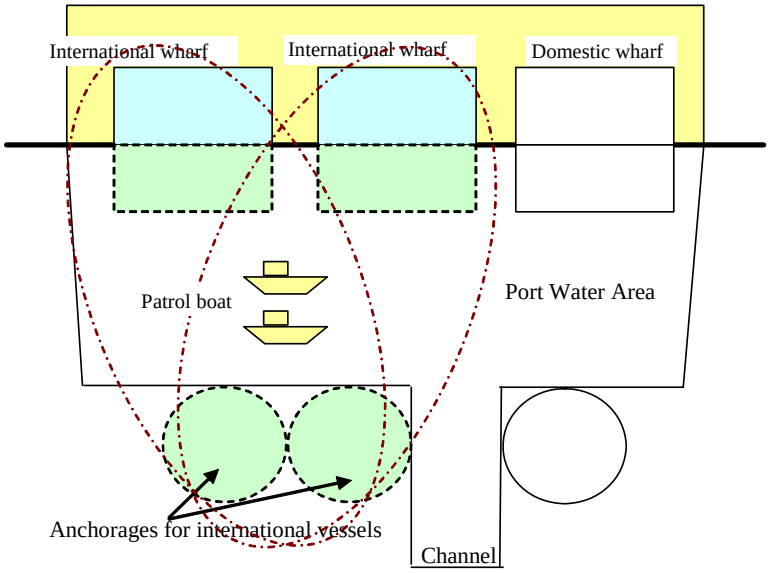


Figure 11-2-2-13 Image of Water Area Patrol by KPLP Boat

54. According to Paragraph 16.19 of the ISPS Code Part B, "At security level 2, the PFSP should establish additional security measures to be applied, which may include: 6). using of patrol vessels to enhance waterside security." If a patrol boat is not provided at security level 2, alternate method is needed. In Japan, it is required to monitor the water area from an upland position in this case. Therefore it should be remembered that if additional security measures such as patrol by boat cannot be taken at security level 2, a port facility may not receive an international ship.

55. Alternative proposal for barges and small vessels for transshipment of cargo is to have a security guard (guards) board a barge or small vessel. Security measures to be described in PFSP are proposed as follows:

1) Security level 1
   - A port management body makes a signed cargo list and hands it to the captain of a barge or small vessel.
   - At least one security guard under control of PFSO gets on a barge/small vessel.
   - The captain of an international vessel receives the cargo list and checks the cargo.

2) Security level 2 (The following measures are taken in addition to Security level 1.)
   - Security guards on a barge/small vessel are increased.
   - KPLP patrols before an international vessel arrives at anchorage and during loading/unloading

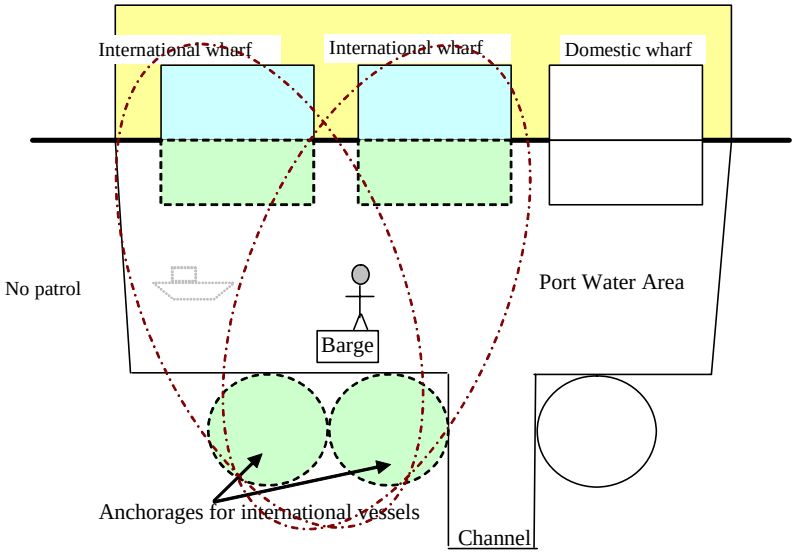


Figure 11-2-2-14 Image of Water Area Security by Security Guard (1)

56. In case of a port which has a long channel, many patrol boats are needed to patrol the water area in a port. In this case, PFSO also has a security guard who is under him board a barge or small vessel to monitor and patrol water area.

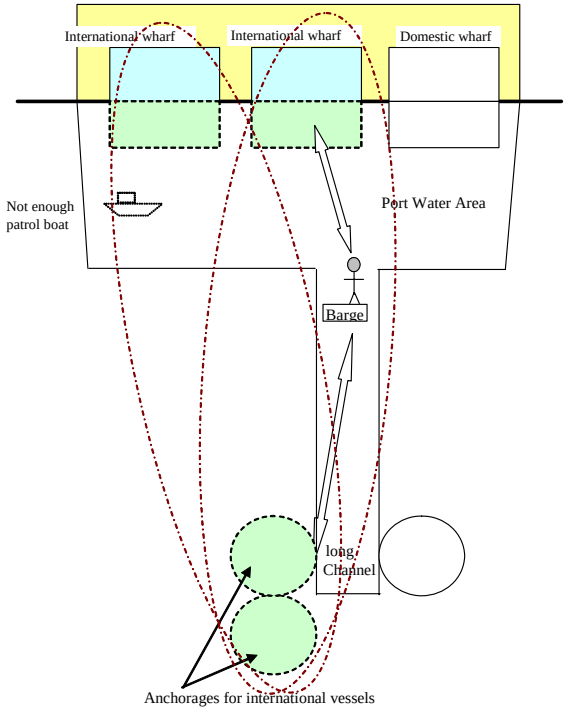


Figure 11-2-2-15 Image of Water Area Security by Security Guard (2)

57. It is recommended that the following measures be taken for other small vessels.

1) Pilot boats and the boats for government organizations such as Customs and Immigrations inform ADPEL/KAMPEL before going to an international vessel. In addition, pilot boats which serve international ships should comply with the ISPS

Code.

2) Tug boats, bunker vessels and ship's stores supply vessel which serve international ships inform ADPEL/KAMPEL before going to an international vessel, and are checked if necessary.

11-2-3 Mixed Use of Wharf by International and Domestic Ships

58. As mentioned before, in some small port which receives a few international ship, not only an international ship but also domestic vessels berth at the same berth in many cases. In this case, fixed fence to enclose a restricted area becomes an obstacle for domestic cargo handling and instead it is proposed to install mobile fence and to station security guards.

59. This kind of mixed use of a wharf by international and domestic ships is found even in a large port. For example, the mixed use is often implemented at public wharves in Tg. Priok port. These public wharves are very congested and small traffic accidents frequently happen. Terminal operation is delegated to several private companies and this leads to make the situation complicated. Although wharf area for an international ship has to be separated from other area as the restricted area by placing mobile fence and deploying security guards while the ship berths at the wharf, security measures are inadequate. Moreover it is not clear who is responsible for security measures in the site. In the large port like Tg. Priok, international wharves basically should be separated from domestic wharves.

11-2-4 Ports Receiving Few International Vessels

60. Security measures must be taken for all ports where the following types of ships engaged on international voyages call on regardless of the number of calls.

- Passenger ships, including high-speed passenger craft;
- Cargo ships, including high-speed craft, of 500 gross tonnage and upwards; and
- Mobile offshore drilling units.

61. The ISPS Code Part A 3.2 prescribes as follows:

> Not withstanding the provisions of section 3.1.2, Contracting Governments shall decide the extent of application of this Part of the Code to those port facilities within their territory which, although used primarily by ships not engaged on international voyages, are required, occasionally, to serve ships or departing on an international voyage.

62. In Japan, among the port facilities which ships engaged on international voyages call at, ports which come under the following items are obliged to make security plans and to take security measures, while other ports have no such obligation. (In other words, Japanese government decided that there usually is no need for ports where the calling numbers of international cargo ships is under 12 a year to comply with the ISPS Code Part A.)

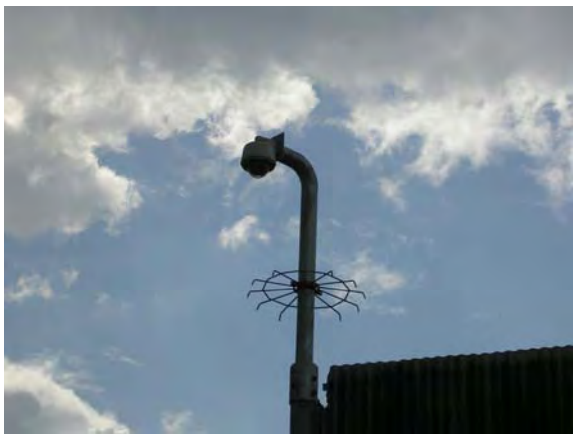
1) The calling number of passenger ships engaged on international voyages is more than one a year.
2) The calling numbers of ships other than one mentioned in 1) is more than 12 a year. (These numbers do not include berthing for refugee during rough weather, berthing during construction or repair and berthing without loading/unloading or boarding /alighting.)

63. In Indonesia which has so many ports, it is unrealistic to prepare and execute port facility security plans for ports where a limited number of small international ships call. The Study Team deems that it is necessary for Indonesian ports to adopt the same rule as the one in Japan and to incorporate it in the regulations.

11-2-5 Other Issues

64. There are many cases of property loss in Indonesia and not only valuable goods but also metal products including gratings are easily stolen. Therefore security equipment itself has to be protected from theft. An example of such protection was found in a private chemical company in Jakarta. Photograph shows a protected CCTV camera.

Photo 11-2-5-1 Antitheft Measures



65. In the ISPS Code, role of the central government is clearly different from that of port management bodies. The central government conducts port facility security assessment (PFSA) and the port management body prepares port facility security plan (PFSP) based on the PFSA and carries out security measures according to PFSP. On the other hand, role sharing between the central government and port management body such as PELINDO is not clear. Especially, KPLP in ADPEL, a branch office of DGST, not only prepares PFSA but also is closely involved in preparing PFSP and implementing port security measures. All authorities related to port security measures are concentrated to PSC (Port Security Committee) and PSO (Port Security Officer). Even when concluding a DoS which is the responsibility of PFSO, PFSO has to consult with PSO on the grounds that PFSO cannot order KPPP or Police to come to a port.

66. In addition, KPLP has authority to patrol the water area in a port. Therefore PELINDO deems that security measures, especially for the water area, essentially must be assigned to KPLP and that PELINDO is forced to be involved in these works which are not their original responsibility. PELINDO is in the right under thecurrent status. At least at security level 1, all security works should be entrusted to PFSO except for water area patrol which is delegated to KPLP.

CHAPTER-12. PORT SECURITY IMPROVEMENT STRATEGY FOR INTERNATIONAL PUBLIC PORTS

12-1 BASIC POLICY

12-1-1 Premise

1. When formulating the security strategy, it is necessary to consider climate, socio-economic conditions, political conditions and international relations of the target country. This is just as valid for drawing up the port security improvement strategy. In Indonesia which is an archipelagic country, maritime transport is the base for all socio-economic activities. Development of Indonesia will not be realized without sound development of maritime transport.

2. As a result of the September 11 terrorist attacks in the United States, many people have been concerned over the issue of security measures in the fields of maritime and air transport. The amendment to the 1974 SOLAS Convention was adopted in December 2003 and all contracting countries have been obliged to further strengthen security systems according to the ISPS Code. Under this situation, Indonesia is facing many security related issues including not only two Bali Island bombings and two explosions in Jakarta which are thought to be the work of terrorist groups, but also separatist movements, piracies in the Malacca Straits and traffic of terrorists in the southern part of the Philippines.

3. Indonesia's international trade is predominantly with Asian countries. Cargoes to/from the United States and European countries, although not insignificant in terms of volume and value, have been carried as transit cargo through hub ports such as Singapore. No serious security issues related to Indonesian ports have happened until now. However, it has to be recognized that if a large security incident happens even once, it might have a serious impact on maritime transport and also might bring heavy damages to the socio-economic development of Indonesia.

4. Eliminating economic anxiety as represented by rising gas prices, realizing social stability by alleviating poverty, preventing environmental deterioration and realizing public safety are important factors to improve the security situation.

5. In Indonesia, the Director General of DGST has already authorized the establishment of PSC and appointment of PSO and the basic framework with reference to the port security measures. Organizations and systems are being established and security measures are being implemented in accordance with DGST's initiatives. The important issue from now on is to make them more autonomous and effective. Therefore, it is necessary that appropriate measures and improvements be drawn up considering all the factors mentioned above in an integrated manner.

6. Port security measures must be pursuant to the ISPS Code. However, while the ISPS Code contains the base framework for security measures, it allows for a variety of security measures provided they follow the fundamental points of the Code. The other side of the coin is that the Code prescribes the minimum security measures. Therefore, it should be recognized that a Contracting Government can employ more comprehensive security measures than are prescribed in the Code in some cases. When formulating a security plan, port security

measures which are most suitable for Indonesia have to be formulated considering the above points.

12-1-2 Conditions of Indonesia

7. The following items need to be taken into account when studying the port security measures in Indonesia:

1) Large numbers of international ports;
   - Indonesia, an archipelagic country, has many ports not only for domestic vessels but also for international cargo vessels and passenger ships. In addition to international hub ports and international ports, many domestic ports often receive international vessels.

2) River ports;
   - In Indonesia there are many river ports, where large vessels cannot enter due to shallow water depth. Therefore, a large vessel comes to an anchorage at a river mouth and transships cargo to barges or small ships. Then cargo is carried by them to wharves at a main port.

3) Budgetary restrictions;
   - For the landside of a port, port security plans have been formulated and security measures have been taken. However, for the seaside of a port, security measures have not been fully implemented because of the small number of patrol boats and insufficient budget for fuel of patrol boats.

4) Piracy;
   - There are many piracy incidents in Indonesian seas including the Malacca Straits. The number of piracy incidents in Indonesia accounted for nearly one-fourth of all incidents in the world. When formulating a port security plan in Indonesia, security measures against piracy also should be studied.

5) Port operation system;
   - In Tg.Priok port, plural port operators take part in cargo handling operations in one terminal and their responsibility is not always clear.

12-1-3 Necessity of Comprehensive Security Measures

8. When formulating port security measures, the following comprehensive security measures should be considered in addition to the measures prescribed by the ISPS Code.

- Increasing awareness about port security
- Making clear the responsibility
- Enlightening residents and stake holders
- Introduction of optimum transport security system
- Cooperation with other relevant organizations
- Appropriate education and training
- Sharing of latest security information
- Security of information on international cargo
- Formulation of Implementation Plan on Port Security Improvement Strategy

1) Awareness about Port Security

9. In order to implement port security measures, it is vital for every person in charge of port security to have clear awareness about security and to carry out their duties surely and

steadily. For example, a security guard who performs security duty on site has to understand the purpose of conducting gate control or patrolling in the restricted area, he must know what to check and how to takes measures (including to whom he calls) when he finds a suspicious object. In addition, it is also important to obtain an understanding of the importance of port security from other government organizations such as BAPENAS and Ministry of Finance and leaders of relevant organizations including MOT, DGST and PELINDO.

2) Responsibility

10. In Indonesia, framework for port security system has been made and the system has been put into practice. However, it is not necessarily clarified where responsibility lies. Chief responsible person should be clarified for every security level and all the information for port security should be concentrated to him/her.

- Security level 1:PFSO (PELINDO)
- Security level 2:PSC-PSO (KPLP)
- Security level 3:PSC (Port Administrator)

11. At security level 1, PFSO should be responsible for taking care of all matters related to implementation of the port facility security plan. Therefore, other relevant organizations do not have to join the port security works. That is to say, it is necessary to stipulate that other relevant organizations such as KPPP do not take part in gate control and patrol for restricted areas. In addition, it should be clearly specified that KPPP starts a criminal investigation based on the call by PFSO after a crime occurs in the restricted area.

12. As to responsibility of maritime cargo transportation, shipping companies assume the responsibility for cargo from the time when it is loaded to a ship (passing waterside line) to the time when it is unloaded from a ship (passing waterside line). And a shipper (consignee) assumes the responsibility for cargo after it is unloaded and leaves the port area or from a gate of a port to a factory. In one incident, a container trailer of a shipper was attacked on a highway and the cargo was stolen. In the incident, the shipper bore the loss caused by the robbery. Since then, the shipper no longer transports cargo by a single container trailer and instead runs several container trailers together.

13. The biggest problem is responsibility within a port area. Smuggling and theft occur in a port area quite often. PELINDO is responsible for all incidents occurring in a port area. For example, as to a container, a seal (to be described below) is checked at a gate and is checked again when the container is loaded onto a ship. If it is found that a seal is broken when loading a container onto a ship, PELINDO usually has to pay the damage. However, it is often reported that these incidents are left vague in Indonesia and that a shipper has to bear these damages or receive the insurance. In the case that plural operators conduct cargo handling at one terminal like Tg.Priok port, responsibility has to be observed more definitely.

14. Considering the current system of collecting charges from visitors at the first gate of a port, PELINDO, that collects the charges, assumes the primary responsibility for incidents which occur in the port area. It is also necessary to make clear the responsibility between a port authority and operators against incidents in the restricted area because port operators conduct cargo handling there based on a contract with a port authority.

3) Enlightening Residents and Stake Holders

15. When a port facility security plan is formulated and is implemented faithfully, it may be possible that surrounding residents who used to enter a port area without any restriction and vendors who sell daily necessaries, convenience food and so on are excluded from a port area.

In these cases, these residents and stake holders may come down on implementation of port security measures. One example is seen in the case of a passenger terminal in Makassar port. It is necessary to have meetings with relevant persons to explain and discuss the importance of such measures. As to vendors, it may not be necessary to exclude them completely. For example, after explaining to vendors the necessity of port security measures in a way that is easy to understand and teaching vendors not to board a ship or act suspiciously, IDs allowing entrance to the restricted area could be issued. Another idea is to make the restricted area as small as possible.

4) Introduction of Optimum Transport Security System

16. Containerization of many cargos except bulk cargo has been proceeding and today a wide range of cargoes from valuable to ordinary are transported by container. Several cases have been reported in which only certain goods (valuable ones) were stolen from a container. In order to cope with these incidents, container seals were developed to detect whether goods in a container were touched or not. These security measures are introduced by shippers and it is advised that the government and port authorities strongly encourage them to bring in these devices. To countervail installation of seals, new modus operandi in which hinges of a container door are broken without damaging a seal, cargo in the container is stolen and then hinges are welded has come into being. At present, reinforced hinges are under development and shipping companies are trying to support these developments in a positive manner.

17. On the other hand, containers can be used to carry hidden weapons and terrorists because containers have a hard shield which cannot be seen through. One of the countermeasures to cope with this problem is to open doors of an empty container and to check inside. Introduction of an X-ray device should be examined in coordination with relevant organizations including Customs if necessary. However, an X-ray device is now very expensive and it takes a lot of time to scan one container. Therefore, it is impossible that all containers can be checked by an X-ray device.

18. To grasp the present position of a container in real time, a system which incorporates GPS (Global Positioning System) has been developed. The position of a container can be seen using this system at any time and this system also can be applied to security measures for container transport. In addition, when container handling volume increases, computer system is usually introduced to automate container management. This computer system also improves container security and it is advised that the government encourage the introduction of such a system.

5) Cooperation with Other Relevant Organizations

19. As mentioned above, it is impossible to scan the inside of all containers at present. In order to complement this, screening of shippers and cargoes in cooperation with Customs is indispensable. Customs are generally apt to put emphasis on checking of import cargo. It is important to have Customs understand that checking export cargo is also important from the viewpoint of maritime transport security and to prevent dangerous goods from boarding a ship or coming into a partner country.

20. As to international passenger, cooperation with immigration and police is important. If it can be envisaged that suspicious persons may board a ship, check of passports and baggage has to be strictly conducted. It is also very important to prepare for the possibility of such a situation.

6) Appropriate Education and Training

21. In Indonesia, port facility security officers (PFSOs) receive training to study ISPS Code and understand contents of the code. However, they do not gain an understanding on how to apply the code to their ports and how to implement port facility security plans (PFSPs) in an appropriate manner. Drills and exercises are important to deepen their understanding of PFSPs.

22. On the other hand, as to countermeasures against an unexpected security incident, repeated practical training by simulating incidents is needed. It is vital that officials in the field and PFSOs respond appropriately when an incident occurs. Appropriate measures must be mastered through Drills and Exercises.

7) Sharing of Latest Security Information

23. Information on security incidents is important for formulating a security plan on ports. It is vital to make efforts for collecting information not only on security incidents in Indonesia but also on those in foreign countries and to provide this to relevant security officials nationwide. Care must be taken when handling the information because most of it is confidential. Moreover, it is recommended that it be mandatory to notify DGST (Directorate of Sea and Coast Guard) through PFSO-PSO-PSC of security incidents including theft.

24. Latest information on port security measures are being released day by day. This information is indispensable for improving port security measures. It is necessary to establish a system in which the information obtained in outside meetings including seminars and work shops by security officials in DGST can be circulated among all relevant security officials in Indonesia.

8) Security of information on international cargo

25. As mentioned in item 16, several cases were reported that only valuable goods were stolen from a container. Leakage of information on international cargo causes this kind of theft. Persons who can access the information on international cargo are limited. Therefore it is proposed that security regulations to handle the information should be introduced and that handling of the information should be regularly checked.

9) Formulation of Implementation Plan on Port Security Improvement Strategy

26. It is necessary to formulate an implementation plan (an action plan) for materializing port security improvement strategy for international public ports.

12-2 IDENTIFICATION OF INTERNATIONAL PUBLIC PORTS WHERE SECURITY MEASURES ARE TO BE IMPLEMENTED

27. The Study Team tried to propose the basis of selection on an international public port in Indonesia for which a PFSP is to be formulated through listing public ports in Indonesia which received international cargo ships and international passenger ships and analyzing international cargo handling volume, passenger number, hinterland population, international navigation route number and vessel calling numbers at the ports. However, the government of Indonesia basically considers that all public ports which receive international ships, even if only one, should take security measures. In addition it proved to be difficult to collect data on international cargo and passenger at all public ports which receive international ships. Therefore the Study Team proposes the following way based on the port hierarchy in Indonesia.

28. Security measures for port facilities are classified into some categories considering importance of facilities, risk of destructive act occurrence (seriousness of incident impact and possibility of threat occurrence), budget restriction, etc. The Study Team proposes to introduce two groups as below.

1) Group A: Port facilities which need strict security measures
   - Container berths,
   - Passenger berths and
   - Hazardous material berths
2) Group B: Other port facilities
   - Bulk material berths and
   - Multi purpose berths

29. Note:Hazardous materials include: oxidizing solid (permanganic base), combustible solid (sulfur, magnesium, etc.), pyrophoric material (kalium, natrium, etc.), inflammable liquid (gasoline, alcohol, etc.) autoreactive material (nitro compound), oxidizing liquid (nitric acid etc.) and etc.

30. According to the port hierarchy in Indonesia, "International hub port" serves transshipment of national and international containers, domestic and international container transport, while "International port" functions as a national container distribution and international container transport center. The Study Team proposes to conduct port facility security assessments and to formulate port facility security plans for port facilities receiving international ships in all international hub ports and all international ports regardless of Group A and B.

31. In the port hierarchy, "National port" serves transport of domestic container, domestic general cargo and passengers. However, some national ports receive international cargo vessels and international passenger ships. At national ports, port facilities receiving international vessels have to take security measures. The Study Team proposes that the Group A port facilities and the Group B port facilities satisfying the following conditions in terms of numbers of calling vessels should be required to conduct a port facility security assessment and to formulate a port facility security plan.

- International cargo vessel: more than 12 vessels per year
- International passenger vessel: more than 1 vessel per year

32. As to the Group B port facilities which do not satisfy the above conditions, PFSP is not mandatory, but it is suggested that a quasi port facility security plan be formulated. When requested by an international cargo vessel or an international passenger vessel, DoS is completed and security measures are taken. The quasi port facility security plan is not a formal one and it includes necessary physical measures and organic measures.

33. Table 12-2-1 shows the necessity of PFSP for a national port based on terminal groups (kind of terminals) and number of international ship callings. A PFSP which is defined in the ISPS Code and approved by the Contracting Government is legally binding. A quasi PFSP is prepared for the time when an international ship requests DoS and necessary security measures to a port. It is not legally binding and the security measures are not mandatory.

Table 12-2-1 Necessity of PFSP in a National Port

Group		No of international ship calling per year: 1~11	more than 12
A	Container berth, Passenger berth Hazardous material berth	Compulsory	Compulsory
B	Bulk material berth Multi-purpose berth	Non- Compulsory (quasi PFSP)	Compulsory

34. In case that a port facility handles both domestic cargo and international cargo and that the international cargo is predominant, security measures shall be applied to both domestic and international cargo. In case that domestic cargo is predominant, it is a practical way that security measures are applied only when international vessels arrive.

12-3 CONSIDERATION OF PRIORITIZATION FOR PORT FACILITY SECURITY

12-3-1 Ranking of Port Facility Security Improvement

1) Basic improvement of port facility according to rank

35. The following port facility security improvement shall be the standard for Group A and B Facilities.

1) For Group A Facility
   - Fence: Fixed type
   - Monitoring: Round-the-clock monitoring by CCTV except the time when no ship and no cargo are at a berth.
   - Patrolling: Check regularly in the restricted area by security guards
   - Others: X-ray inspection apparatus (for liner passenger berths)

   If CCTV and X-ray inspection apparatus are not installed due to the budget restriction, security guards are deployed around the boundary of the restricted area and patrol intervals by security guards are shortened.

2) For Group B Facility
   - Fence: Fixed or mobile type
   - Monitoring: Conducted by security guards. Put security guards every 300m for fixed fence and every 40m for mobile fence.
   - Patrolling: Check in the restricted area by security guards. One security guard shall be provided for every 80,000m2.

36. Intervals of patrolling at security level 1 to 3 are shown in Table 12-3-1-1, 12-3-1-2 and 12-3-1-3 respectively.

Table12-3-1-1 Interval of Security Patrol at Security Level 1

		Group A	Group B
International ship	berthing	around 4h	around 4-8 h
	others	around 4-8 h	around 8h

Note: When there is no ship and cargo at a berth, patrol is not needed.

Table 12-3-1-2 Interval of Security Patrol at Security level 2

		Group A	Group B
International ship	berthing	around 2h	around 2-4 h
	others	around 2-4 h	around 4h

Note: When there is no ship and cargo at a berth, patrol is not needed. Security guards are increased. Patrol should be carried out by multiple security guards together.

Table 12-3-1-3 Interval of Security Patrol at Security level 3

		Group A	Group B
International ship	berthing	patrol in full time	patrol in full time
	others	patrol in full time	patrol in full time

Note: Continuously patrol in and around the restricted area is needed regardless of berth type. Security guards are increased. Patrol should be carried out by multiple security guards together.

37. Table 12-3-1-4 shows the standard number of identity check in access control at each security level.

Table 12-3-1-4 Standard Number of Identity Check

Security level	Contents
Security level 1	• confirmation of ID possession: all persons • check ID photo and the face for 5~10 out of every 100 persons • conduct at least once in a day
Security level 2	• confirmation of ID possession: all persons • check ID photo and the face for 30~50 out of every 100 persons
Security level 3	• check ID photo and the face for all persons

38. Figure 12-3-1-1 to 12-3-1-4 show conceptual drawings of Group A and B facilities with various conditions.

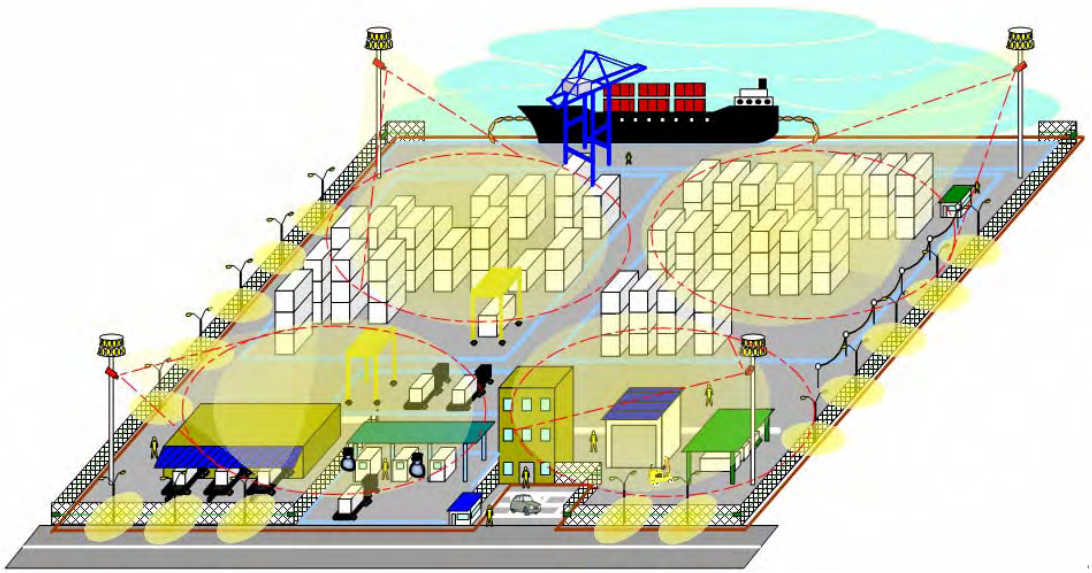


Figure 12-3-1-1 Conceptual Drawing of a Group A Container Terminal

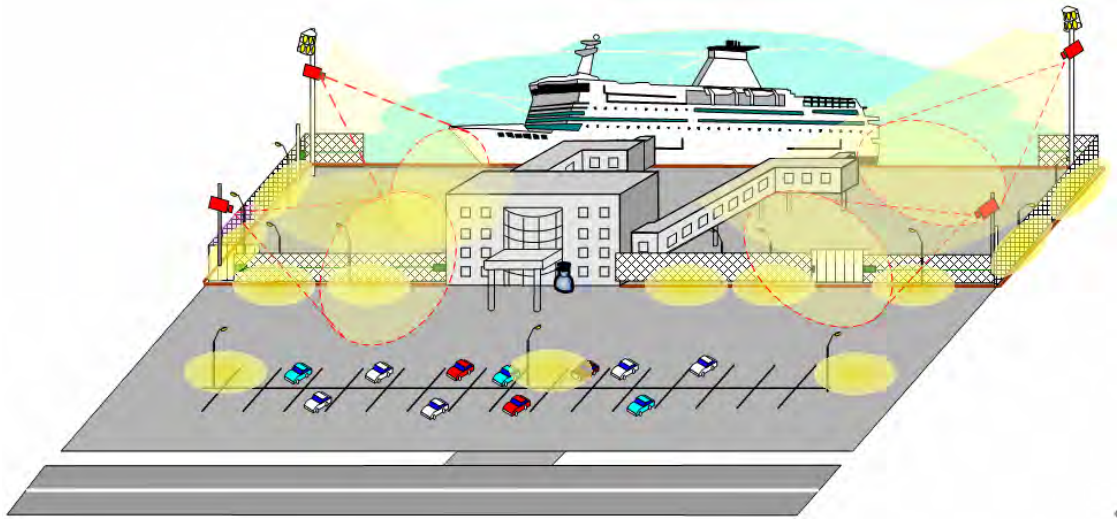


Figure 12-3-1-2 Conceptual Drawing of a Group A Liner Passenger Terminal

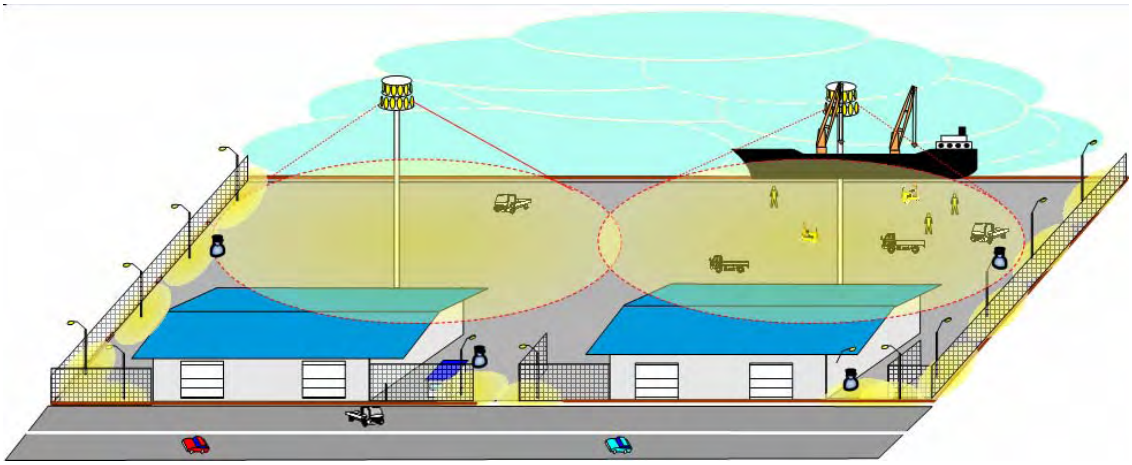


Figure 12-3-1-3 Conceptual Drawing of a Group B Multi Purpose Berth with Fixed Fence

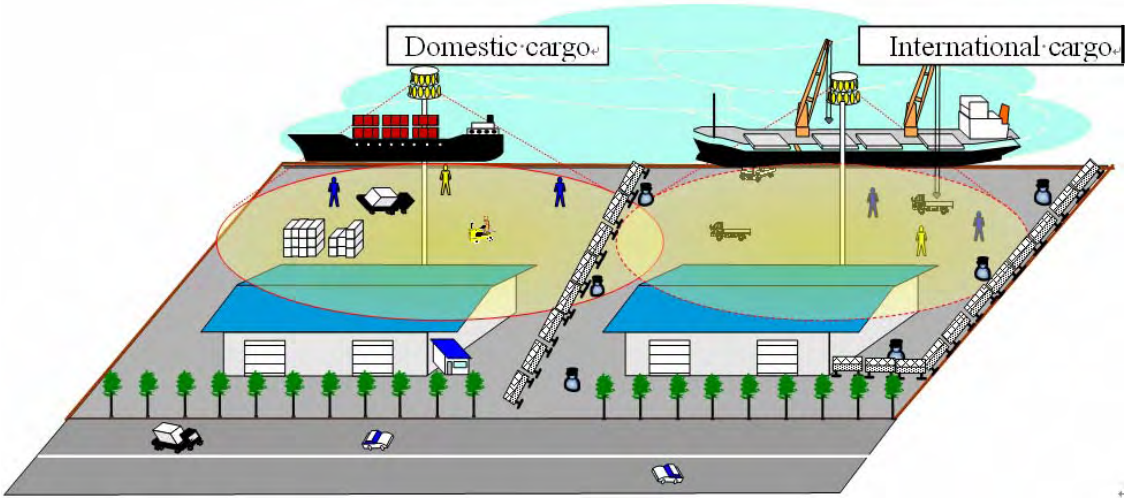


Figure 12-3-1-4 Conceptual Drawing of a Group B Multi Purpose Berth with Mobile Fence

12-4 BASIC POLICY ON CURRENT PORT SECURITY SYSTEM

12-4-1 DGST

39. In DGST, the Directorate of Sea and Coast Guard is in charge of port security. The Directorate of Sea and Coast Guard assumes responsibilities over formulating policies, extending technical supports, and examining and approving PFSAs and PFSPs. Officials in charge of port security are very busy because they have to attend many meetings on security matters held in Indonesia as well as abroad, meet requests from relevant organizations including international ones and examine many PFSAs and PFSPs. In addition, they will have to tackle the intermediate audits from the latter half of 2006. They also have to keep abreast of the latest information on port security measures.

40. DGST officials' knowledge and experience on port security outstrips other relevant persons' in Indonesia. However it is difficult for the officials to disperse the latest information and experience to relevant persons including PFSOs due to the limited personnel and budget. Review of the existing PFSPs is another issue. It is advisable to reinforce the budget and personnel on port security. Collaboration with the Education & Training Agency should be brought into view.

41. The Directorate of Sea and Coast Guard exclusively examines and approves all PFSAs and PFSPs. Even now many PFSAs and PFSPs are piled up. It is expected that new PFSAs and PFSPs will increase and revisions of the existing documents will be added. Computerization of these PFSAs and PFSPs as well as a keeper of them is needed.

42. Under the present port security system, PSC plays proactive roles in all security measures and judgments in the port. As to the important matter such as the security level change, PSC consults with the DGST (Guard and Rescue Bureau). On the other hand, DGST has to constantly grasp all the security matters in Indonesia as the Designated Authority. Important security matters have to be informed to DGST as soon as possible. Other information including statistics regarding port security should be periodically reported. These systems have to be established. The information is reported through port administrators.

43. When a serious security issue arises in a port, it may have to be examined whether the same countermeasures are implemented in other ports or not. In such a case, DGST should play an important role in such decisions. From this viewpoint, the reporting system mentioned above is indispensable.

44. At present, a system and procedure to examine and decide the security level in the whole country has not been established yet. This is a comprehensive and sensitive issue and many organizations have to be involved. This is also related to the security level in other fields including air transportation. DGST should play an essential role in establishing them for port security and they should be realized as soon as possible.

45. In making port security policies and measures, the Directorate of Sea and Coast Guard needs information not only on port security but also data on international cargo handling volume and the number of international passengers and international ship calls by each port facility. At present even such data by each port has not been compiled and released at some ports. It is suggested that DGST have port authorities prepare the above data and submit them to DGST.

12-4-2 Port Security Committee

46. At many ports which receive international ships, the PSC has already been established. However, if the PSC has not been established, it should be set up immediately. (Port Administrator and Head of KPLP have been nominated as the coordinator of PSC and PSO respectively. Other members of PSC have to be nominated.)

47. PSC members have not always recognized their roles and responsibility. In some ports excessive security measures have been taken due to duplication of security works. For example, at security level 1 (ordinary condition) a PFSO who usually works for the port authority is responsible for all port security matters in a port facility and other organizations are not requested to join security works. Nevertheless, some organizations take part in access control and/or patrol. In order to avoid these misunderstandings, each member's role and responsibility has to be confirmed in writing at the PSC. Direction of DGST may be necessary.

48. To ensure seamless cooperation and smooth communication among PSC members, PSC should draw up the action plan and have the members learn the hard way by implementing an exercise plan. In addition, the PSC encourages PFSOs to conduct training and drills for security guards.

49. Many PSCs have not formulated the criteria and procedure to change the security level of their port facilities. Since the criteria and procedure should be nationally uniform, it is suggested that the DGST offers a standard procedure. At the same time, the system to promptly inform the DGST of a change in the security level has to be established.

50. ISPS code (Part A16.4) requires that PFSP may be combined with, or be part of, the port security plan or any other port emergency plan or plans. However, at some ports confusion has arisen over the security measures required by the ISPS code in the restricted area and general security measures taken outside the restricted area. In some cases, excessive security measures have been taken.

12-4-3 Port Administration Office and Port Office (KPLP)

51. KPLP is a sub-organ of port administration office or port office and one of the important members of the PSC. It is expected that the KPLP plays a central role in port security using its close relation with DGST. PFSOs and relevant organizations report security issues to KPLP as PSO. KPLP informs not only PSC of them but also DGST of certain important issues. KPLP also plays a role in contacting DGST when the PSC wants to change the security level. On the other hand, the latest information obtained by DGST is circulated through KPLP. This system should be established as soon as possible.

52. In Indonesia, water area security is an important issue. KPLP is responsible for it in principle. However, many of them face constraint of budget and cannot conduct adequate patrol due to the lack of fuel budget. Therefore, KPLP has to make efforts to increase the budget for fuel. In addition, repair and renewal of aged patrol boats should be pushed ahead for effective patrol.

53. However, since it may be difficult for KPLP to increase the budget for the time being, second-best solution is required. One of them is that KPLP requests port management bodies to share the burden of fuel costs.

12-4-4 PELINDO

54. PELINDO is an owner and operator of most major ports in Indonesia. PELINDO collects an entrance fee at gates and is responsible for matters in its port area. A PFSO who usually belongs to PELINDO assumes the responsibility for all security matters in the restricted area of an allotted port facility. PFSOs are busy because he/she usually has an original job in addition to their PFSO assignation. In Indonesia, there are few cases where a DoS is completed between a ship and a port. In case that a PFSO has to complete a DoS many times and that the security level has been changed, work of the PFSO rapidly increases. It is suggested that PELINDO supports PFSOs by deploying supporting staff, installing required security facilities and equipment, providing training opportunities to PFSOs and other security guards, and clarifying assigned work and responsibility of each official.

55. In case that PELINDO delegates cargo handling work to operators, it is suggested that PELINDO prescribes operator's responsibility on port security in a contracting document.

12-5 ESTABLISHMENT OF DUAL "PLAN-DO-SEE" SYSTEM FOR STRENGTHENING PORT SECURITY MEASURES

56. In order to strengthen the port security measures and maintain the level of port security measures, two kinds of port security systems should be established: one is established in the central government mainly in charge of PFSP and the other is in the port management body which manages and operates port facilities mainly in charge of preparation and implementation of PFSP. In other words, "Plan-Do-See" systems should be established in both DGST and port management bodies such as PELINDO (see Figure 12-5-1).

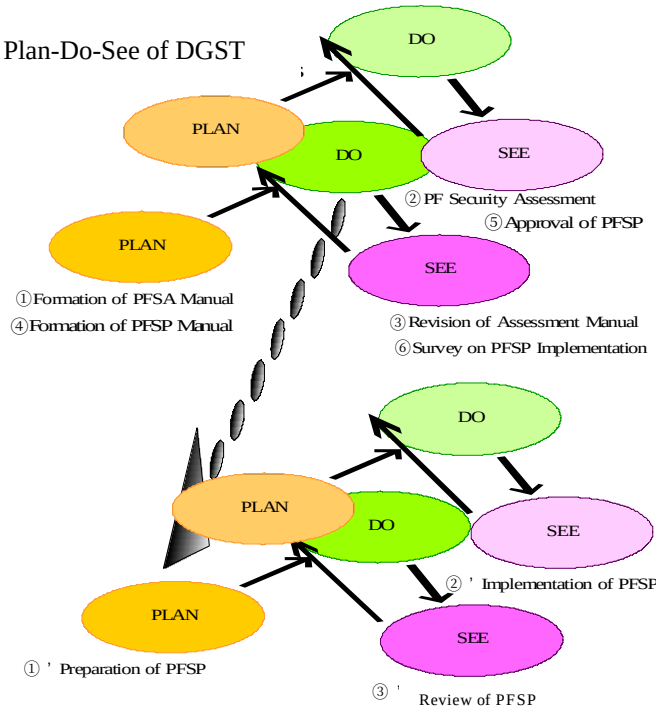


Figure 12-5-1 Dual Plan-Do-See Systems

12-6 PREPARATION OF SUPPORTING TOOLS

57. The following supporting tools should be prepared for ensuring the dual "Plan-Do-See" systems and enhancing the port security measures.

- Technical Standards on Port Security Facilities and Equipment
- Standard Specification for Port Security Facility and Equipment
- Manual of Port Facility Security Assessment (PFSA)
- Manual of Port Facility Security Plan (PFSP)
- Port Security Regulations
- Procedures of Drills and Exercises
- Port Security Development Plan

CHAPTER-13. IMPLEMENTATION PLAN FOR PORT SECURITY IMPROVEMENT STRATEGY

13-1 ESTABLISHMENT OF COOPERATIVE RELATIONSHIPS WITH INTERNATIONAL ORGANIZATIONS AND NEIGHBORING COUNTRIES

1. Indonesia has been actively involved in establishing cooperative relationships with international organization such as the International Maritime Organization (IMO), the International Labor Organization (ILO), the United States of America and also with neighboring countries such as Singapore, Malaysia, Australia, Japan and others in areas of maritime security, namely port security and the ISPS Code.

2. The regional sea-lanes link countries in Asia to markets around the world and bring to Asian countries the energy resources and other goods necessary for their economies. In particular, the Malacca and Singapore Straits are among the world's most important shipping routes due to the high volume of shipping passing through the Straits as well as the proportion of global trade and energy resources carried. Any serious disruption to maritime traffic through the Straits would have a widespread and far-reaching detrimental effect.

3. The littoral states of Singapore, Malaysia and Indonesia have recognized the importance of the strategic nature of the Straits and have been cooperating for some time now. Indeed, functional cooperation is good between all three littoral countries bordering the Malacca Straits. The Police Coast Guard of Singapore, the Malaysian Marine Police and the Marine Police of the Riau region have met regularly for information exchanges. The navies of the three countries have also exercised regularly, albeit more on a bilateral and not multilateral basis. As a result of long established relations between the three navies, bilateral operating procedures are in place and a degree of inter-operability have been developed at the tactical level. The ease in which maritime security issues such as the interdiction and recovery of rogue vessels, the enhancement of surveillance abilities, and data sharing between participating navies, could be included in recent bilateral naval exercises between the three countries serve to highlight the level of confidence developed between units at the tactical level. This functional proficiency at the tactical level is also poised for further improvement as the exercises begin to move from a bilateral mode to a multilateral one. For example, the trilateral coordinated patrols (MALSINDO) between the three countries started in July 04 and there has been the recent "Eye in the Sky" (EiS) initiative involving Singapore, Malaysia, Thailand, and Indonesia. Moreover, the three littoral states are part of the Western Pacific Naval Symposium (WPNS), a grouping of 22 navies in the Western Pacific. The WPNS has just conducted a multilateral maritime security sea exercise in May this year where participating navies were required to share surveillance information via a locally developed data link unit embarked upon participating ships.

4. The cooperation with Indonesia by international organizations and neighboring countries is as follows.

1) United States Trade and Development Agency (USTDA)
   - The USTDA has awarded two grants worth $845,000 in Indonesia to help that country meet transportation security objectives that are part of the Secure Trade in the Asia-Pacific Economic Cooperation (APEC) Region or "STAR" Initiative.
   - The USTDA awarded $555,000 to Indonesia's Directorate General of Sea Transportation to help the Port of Tanjung Priok develop an information

technology and communications infrastructure.

2) APEC Maritime Security Expert
   - The Maritime Security Workshop for APEC Countries are sponsored and jointly conducted by the Office of Transport Security, Australian and the Maritime and Port Authority of Singapore (MPA). Three runs were conducted in Singapore.

3) Singapore
   - Singapore Maritime and Port Authority enter into a Memorandum of Understanding with DGST to provide Indonesian officials maritime related training.

4) Australia
   - DORARS of Australia is at table to talk with DGST over implementation of capacity-building to enhance port security.

5) Japan
   - Japan strengthens technical cooperation by accepting overseas students to the Japanese Coast Guard Academy, offering Maritime Law Enforcement courses, and implementation of Coast Guard Human Resource Development projects. It will also continue to participate in regular experts' meetings and joint exercises with the coast guards of Malaysia, Indonesia, the Philippines, India, Thailand and Brunei.
   - Japan International Cooperation Agency (JICA) sponsors government officials from ASEAN countries for port security training in Japan
   - JICA conducts study on the port security enhancement program of the major Indonesian public ports.

13-2 IMPLEMENTATION PLAN (ACTION PLAN) FOR PORT SECURITY IMPROVEMENT STRATEGY

13-2-1 Remaining Issues Related to Port Security in Major Indonesian Public Ports

5. More than one year has passed since the ISPS Code came into force on July 1, 2004. A total of 27 port facilities of 22 public ports obtained SoCPF from DGST, the designated authority in Indonesia as of February 2006.

6. More than 200 port facilities in public ports are not compliance with the ISPS Code.

7. However, regarding the 27 port facilities which have obtained SoCPF from DGST, the following issues related to implementation of port security measures in accordance with the ISPS Code are still remaining.

- Lack of awareness of port security from security personnel
- Mistakes or errors with application in the field
- Low standards for security equipment, communication system and human resources
- Small budget for port security measures
- Unclear responsibility among security personnel
- Many residents and stakeholders such as vender in port area
- Insufficient cooperation with other relevant organizations
- Inappropriate education and training
- Latest security information is not shared among relevant organizations

13-2-2 ISPS Self-Assessment and Audit

8. In order to realize ISPS implementation, it is important to ensure that security equipment which falls under physical security measures and security organization (organic security) are in good condition. PFSOs should conduct security test by themselves (self-assessment) for good security maintenance. If PFSOs find any inappropriate security measures, they should revise security activities or PFSP. When officers who are independent of PFSP check and make a recommendation for the same purpose, the procedure is called an audit. In both cases, a check list might be useful for PFSOs and auditors.

9. There is a voluntary self-assessment tool for port facility security in IMO Circulation 1131. An out line of the self-assessment tool is as follows.

- Port facility overview
- Particular characteristics of the port facility which may increase the likelihood of being the target of a security incident
- Ensuring the performance of port facility security (Code A 14.2.1and A 14.3)
- Controlling access to the port facility (ISPS Code A 14.2.2, A14.2.1 and A14.3)
- Monitoring of the port facility (Code A 14.2.3 and A14.3)
- Monitoring of restricted area (Code A14.2.4 and A14.3)
- Supervising the handling of cargo (Code A 14.2.5 and A 14.3)
- Supervising the handling of ship's stores (Code A 14.2.6 and A 14.3)
- Ensuring security communication is readily available (Code A 14.2.7 and A 14.3)
- Training, Drills and Exercises(Code A 18)
- Miscellaneous

13-2-3 Actions to Solve the Issues

10. As mentioned in Chapter 12, the "Dual Plan-Do-See" systems should be established in DGST and port management bodies such as PELINDO to strengthen the port security measures and maintain the level of port security measures.

11. In order to establish the dual Plan-Do-See systems, the following actions should be implemented.

- Establishing manuals for PFSA, PFSP and DoS
- Establishing commentaries on port security facilities & equipment development standards
- Establishing PFSAs & PFSPs of the remaining 70 public ports serving international ships using the PFSA & PFSP manuals
- Review of PFSAs & PFSPs for ISPS compliant ports if necessary
- Installation of security facilities and equipment using foreign assistance programs such as yen loan package
- Effective implementation of exercises, drills and training and capacity building including seminars & workshops
- Establishing port security regulations to ensure the implementation of port security measures based on the ISPS Code
- Implementation of self-assessment according to the time schedule
- Implementation of internal and external audit according to the time schedule
- Promotion of cooperation with other countries/parties to enhance the implementation of port security measure

13-2-4 Time Schedule of Action Plan

12. The above-mentioned actions shall be implemented based on the following figure 13-2-4-1.It is proposed that the target completion time of the project will be the end of June 2009, since it will be necessary to report to IMO at that time. Thus, phased implementation will have to be conducted for the project of port security development plan as illustrated in Figure 13-2-4-1 below.

	2004	2005	2006	2007	2008	2009
Report to IMO	☆				☆	☆
Internal Audit			※			※
JICA Study on Port Security		▬	▬			
Capacity Building			▬	▬	▬	
Security Equipment Installation			▬	▬	▬	
Dual Plan Do See Action Cycle		▬	▬	▬	▬	▬
		Phase I	**Phase II**		**Phase III**	
		Plan, Do, See	Do, See		Action (rolling Pla	
Joint Seminar with APEC	★	★				
Port Security Training in Japan		▬	▬	▬		
	Minister's Meeting					

Source: JICA Study Team

Figure 13-2-4-1Time Schedule for ISPS Action Plan

CHAPTER-14. PROGRAM FOR IMPROVEMENT OF EDUCATION AND TRAINING ORGANIZATION

14-1 BASIC POLICY FOR ENHANCING EDUCATIONAL AND TRAINING ORGANIZATION

1. The training organizations responsible for the conduct of Port Facility Security Officer (PFSO) course were introduced in Chapter 7. They comprise:

- BP3IP - Training and Education Agency, Ministry of Communication
- Pertamina Marine Training Centre
- Recognized Security Organization

2. This chapter looks at policy requirements to be established in aspects of resources needed for capacity building of the training organizations, role-sharing and the required training systems to meet the objective of capacity building.

3. While this basic policy focuses on education and training of port facility security officer, recommendations will also be made on other appointment holders who are responsible for security in the port as a whole.

14-1-1 Study Approach in Policy Development

4. The approach taken in this study comprises the need to provide directions in the capacity build-up of the training organizations in three stages as follows:

- Approval and Accreditation as a Training Provider
- Continuing Professional Upgrading and Knowledge Currency
- Verification of Standards

(1) Approval as a Training Provider

5. The training organizations as identified in the last report, prior to conducting the PFSO course to the industry, should firstly have its PFSO syllabus duly recognized by the Contracting Government through the Designated Authority (DA). An additional step of having the training organizations accredited to the Contracting Government may be necessary but not mandatory, subject to the requirements of the DA.

(2) Accreditation of Training Organization as a Training Provider

6. An accreditation system for short training courses - the Port Facility Security Officer (PFSO) Course is a short course. With accreditation given by the Contracting Government to recognize such training organizations in conducting this course, the certificates issued to the participants can bear the logo of the Contracting Government together with the training organization. This accreditation legitimizes the training organization.

All ISPS legislated Course Syllabi should be submitted to the Designated Authority (Contracting Government) for recognition and accreditation

(3) Registered Trainer(s)

7. The training organization that conducts the PFSO Course should have other basic qualities to effectively conduct the PFSO Course that should meet the requirements of the IMO Model Course 3.21 in that, relevant trainer(s) of the training organization nominated to conduct the said course should be included in the submission to the DA, through which, and upon endorsement by DA, are deemed as registered trainer(s) for the course.

8. As a pre-requisite to be a registered trainer, individual nominated ISPS/PFSO instructor should have successfully completed the International Maritime Organization (IMO) Training - Of -Trainer (IMO TOT) program. This course will equip them with the necessary skills and knowledge in conducting the said ISPS and PFSO courses. This is necessary because:

- An important element of support for training provided by the training organization would have significance and lends credence to the training organization as these trainers are duly recognized by the DA.
- Registered trainer(s), having been duly screened by the DA can then be included in the registered list of ISPS Code instructors, through which, service requestors can be reasonably assured of the trainers having attained the acceptable Government standard.

9. All ISPS/PFSO registered trainer(s) should preferably have gained the relevant experience for the lessons that they are supposed to teach as follows:

- Conducting Ship Security Assessment(s) [SSA] and development of Ship Security (SSP) Plans if they are nominated to conduct ISPS Courses for the Company Security Officer (CSO) and Ship Security Officer (SSO). Additionally, they should have conducted or participated in conducting drills and exercises for the ship and company.
- Conducting Port Facility Security Assessments [PFSA] and development of the Port Facility Security Plans [PFSP]. Additionally, they should have conducted or participated in conducting drills and exercises for the port facility.

10. Where deemed necessary, the list of ISPS/PFSO trainers could be increased with the number of qualified trainers as expanded to meet the industry's demand.

All trainers for ISPS Courses should be submitted to the Designated Authority for authentication and registration in the list of authorized trainers

(4) Continuing Professional Upgrading and Currency in Knowledge

11. Continuing professional development requirements of the trainers are necessary to ensure that knowledge and skills that are imparted by the registered trainers at the courses would enable the proliferation of updated information. ISPS/PFSO trainer(s) as professionals in their own right are required to keep up to date on changes in legislation or government policies that will impact on the training conducted for ISPS related courses. Therefore, the latest IMO Maritime Safety Circulars on the ISPS Code should be an important "live" module/ lesson that need periodic updating. Cases in point are:

- Prior to, and immediately after July 1st 2004, the emphasis on the syllabi for the SSO, CSO and PFSO were based on the respective Model Courses.

- Soon after July 1st 2004, the emphasis shifted to the Code of Practice (COP) course to bring in the ILO aspects, as well as the introduction of the Training-of-Trainers Course, that were considered to bridge the knowledge and skills gaps in the implementation of the ISPS Code. In both these two programs and dependent on the timing of the said courses, all matters discussed at the biannual Maritime Safety Committees (MSC) that have bearing to the ISPS Code were factored into the syllabi for the programs.
- The latest program that came about is the "Maritime Security Workshop for APEC Economies for the Implementing and Sustaining Strategies for Port Security". A first run was conducted recently by STET in Singapore, whereby the participants were kept updated of the MSC proceedings.

ISPS trainers need to be updated on current developments in Governmental Legislation and international requirements promulgated through IMO

(5) Verification of Training Organizations' Standards

12. As in all Quality Management Systems, there is need for systems to be put in place to ensure standards are maintained. All statutory courses conducted by the training organization, especially those pertaining to the ISPS Code may likewise be subject to unannounced audits by the Designated Authority to ensure quality control.

Establish procedures and processes to audit the competency of trainers and relevancy of subject matter for statutory courses especially those of the ISPS Code

14-1-2 Role-Sharing of each Educational and Training Organization

13. The training organization should have a list of trainers who have the necessary experience in conducting a port facility security assessment, written a port facility security plan and have conducted or participated in conducting drills and exercises for the port facility. These will greatly enhance the value of training to the participant as the trainers will be able to value-add through his experience-sharing when lessons are taught.

14. It is through his experience-sharing and keeping abreast of current threat situation and national regulations with regards to the port facility that the trainers can position themselves to instruct with professional convictions and relevancy. Such information can be proliferated from the Contracting Government to only the registered trainers.

15. BP3IP - Training and Education Agency - Ministry of Transportation is one of the 7 training institutions in Indonesia that provide education courses; refresher and upgrading training to experienced seafarers. Experienced lecturer from the Directorate of Sea and Coast Guard (KPLP), DGST should assist in proliferating the knowledge and experiences to new staff. In addition, permanent staff from BP3IP should be trained in IMO Training of Trainer on Maritime Security. This will increase the credibility of the institution and provide consistent expertise in these areas.

16. Pertamina Marine Training Centre (PMTC) engages external training consultants to conduct PFSO courses. PMTC can complement BP3IP for such training to the private sectors. However, DGST should recognize her as the authorized training centre and conduct periodic checks for quality and consistency. The certificates issued by Pertamina may not be required to have the DGST logo as long as they comply with the standards provided by DGST.

17. Recognized Security Organizations (RSO) do not have formal education and training departments that conduct PFSO course per se. However, they have the resources and contacts to organize such courses on an ad-hoc basis. RSO can play a part in ensuring standards and consistency in their training as well. They should consult the services of competent staff from DGST to provide such training and updates on compliance and security situations.

14-1-3 Capacity Building Training System

(1) International Awareness Workshop

18. The international body has since assisted in the proliferation of the ISPS Code in Indonesia. Some of the workshops conducted inside and outside Indonesia include:

- Joint IMO-DGST Workshop on ISPS Code - held in Jakarta & Surabaya, **Indonesia**
- ISPS Code Workshop held in **Singapore** (MPA)
- ISPS Code Workshop - Australian Transportation Department, **Australia**
- ISPS Code One Day Seminar - **Japan** (Jakarta)
- Cooperation DGST and Japan COAST Guard (JCG)
- ILO-IMO Code of Practice for Security in Port held in Turin-**Italy**, Busan - **Korea** and **Singapore**.
- APEC Workshop on Maritime Security organized by Singapore and Australia held in **Singapore**
- IMO Training of Trainers Workshop held in **Korea** and **Singapore**
- ILO - Safeguards to Secure the Integrity of Container Movements in the Transport Chain to be held in **Europe** and **Singapore**.

19. Capacity building is not a one-off event but rather a progressive build-up to meet the ultimate aim of the Contracting Government. As reported above, besides setting up the training organization, there is also the need to sustain the knowledge and skill-set base of trainers that can value-add and maintain the relevancy of the trainers. To this end, a comprehensive system must be put in place to ensure that both the:

- Trainers can proliferate relevant and value-added knowledge and skills to the practitioners of the system, i.e., personnel who have the responsibility of security related duties
- Recipients would be trained and know the current situation so that they can remain effective in the performance of their roles and duties.

(2) Stakeholders in Port Security and Port Facility Security

20. In the context of this study on ports in the Republic of Indonesia, respective stakeholders in the entire system would need to be familiar with the requirements of the ISPS Code, and be appropriately qualified to undertake the role of proliferating the relevant knowledge and skills to enable a safe and secure environment to work in.

14-1-4 Conclusion

21. In conclusion, the report explains the approach that primarily focuses on the need to provide policy directions as stated and within the respective boxes, in the capacity build-up of the training organization over the following three stages:

- Approval and Accreditation as a Training Provider

- Continuing Professional Upgrading and Knowledge Currency
- Verification of Standards

22. Effort must be channeled into ensuring the entire system works for the Republic of Indonesia and where there are best practices in the industry that can be adopted and/or adapted, they should be considered to bolster the position of the ports in the Republic of Indonesia to gain international recognition and confidence as safe and secure for maritime business to thrive.

14-2 EXISTING CURRICULUM AND EQUIPMENT OF EDUCATION AND TRAINING

14-2-1 Introduction

23. Chapter 7-1-1 explains the objectives of this study. In addition, the study will also look into the training requirements as spelt out in the Port Facility Security Plan (PFSP). After which, recommendation will be made to the syllabus, if needed; and any gaps found in training resources highlighted. The contents and current practice for drills and exercises will also be examined for compliance with the requirements of the ISPS Code.

14-2-2 Syllabus

24. Contracting Governments to the ISPS Code currently adopt the standard syllabus from IMO Model Course 3.21 for Port Facility Security Officer (PFSO). Indonesia being a Member State of the IMO Council has adopted these standards throughout its Education and Training Agency that have been duly authorized by DGST to conduct the PFSO Course. Similar to most other member states, a module on the existing maritime security situation and specific to Indonesian regulations is also included for the Indonesian participants.

25. Educational and training organizations currently focus on conducting PFSO courses for port facilities in accordance with the ISPS Code. Most do not conduct courses outside the PFSO syllabus. Findings show that there are gaps in the areas of coordination and communications between and within agencies. The roles and responsibilities of security personnel in the ports need to be reinforced through periodic training, drills and exercises. Most of the security personnel are either unaware or uncertain of the ISPS Code requirements. From these findings, there is a need for security personnel to be trained to the level of understanding of their duties and roles as well as be fully conversant with the requirements so that they can carry out their respective duties and tasks proficiently and efficiently.

14-2-3 Training Resources

(1) Delivery (Trainers)

26. Most of the private port facilities send their PFSO for training at Pertamina Maritime Education & Training Centre (METC) or through workshops hosted by Recognized Security Organizations (RSO). For training organized by RSO, staff from the Directorate of Sea and Coast Guard (KPLP), DGST will assist in the conduct of the training. Although the Education and Training Agency (ETA)'s BP3IP has the capacity to conduct such courses, it has not conducted any thus far. As such, there is a limited pool of experienced trainers; namely, from KPLP-DGST and Pertamina METC. From the angle of professionalism, effective trainers and facilitators who can best train participants are those who are technically competent and have the following pre-requisites:

- Effective communications with competency in varying their style and approach

to pedagogical training / education methodology to enhance the participants' level of knowledge, skill and attitude (KSA).

- Fully and correctly interpret the international and national requirements.
- Necessary training and practical experiences on the topic(s)/ subject to be delivered.
- Requirements as spelt out in the ISPS Code Part B/4.5 for RSO competency.

(2) Training Resources

27. Currently, the training resources used in support of education and training is sufficient. With technological development in the field of pedagogy, traditional practice where trainer uses transparencies with overhead projector (OHP) is slowly phasing out. TEAs are slowly moving towards using technology to enhance their training effectiveness. This is attested through the observation that the use of notebook and power point slides is now a common sight. However, the resources and techniques used by the trainers/facilitators must be for the purpose of transferring the KSA from the trainer/facilitator to the participants. In this respect, there is still room for improvement in presentation skills; for example, a presentation could be augmented by the appropriate use of photographs and excerpts of video clips to enhance the participants' learning experience.

28. Another observation made is that, currently, the curriculum includes neither classroom demonstration nor appropriate equipment for equipment-based training such as metal detectors, undercarriage mirror or training model of improvised explosive devices. Although the use of such security equipment is trained in SATPAM schools, there is a need for reinforcement on the ground. These are simple resources that, if made available for training, will definitely enhance the effectiveness of learning.

14-3 RESTRUCTURING OF EDUCATIONAL AND TRAINING CURRICULUM

29. Currently there are no international requirements to restructure the existing curriculum for Port Facility Officer Course - basis being that from the international stage, one must look at the varying progress made by respective Member States. But when one looks at it from the National Front, then, it would be the national agency to take stock of such feedbacks and introduce changes and restructure the curriculum to meet national interests first and then proliferate to the international body.

30. Therefore, it is deemed that the existing curriculum is sufficient as it is based on the IMO Model Course 3.21. To value-add to the PFSO training DGST should include module on Maritime Security Legislation and Security Situations in Indonesia with inclusions of the responsibilities and coordination between inter-agencies. It is recommended that a standardized syllabus for the PFSO Model Course 3.21 with additional modules be included to adapt to the Indonesian context. In this respect DGST may wish to issue a directive or circular as deemed necessary for all educational and training organizations. The directive/circular may include, for example, the following:

1) Other courses to be included for security and non-security personnel working in the port area as given in the ISPS Code Part A/18 and Part B/18. The list of recommended courses is given at the end of this chapter.
2) A model plan for drills and exercises for port facility management and staff to fulfill the ISPS Code requirements, and;
3) To sustain the Security Journey for the port, its facilities and all those who work within - ADPEL, PSC, management, staff, shipping agencies, freight forwarder,

vendors, partners, etc.

14-4 RECOMMENDATIONS FOR IMPROVEMENT OF EDUCATIONAL AND TRAINING ORGANIZATIONS

14-4-1 Role of each Educational and Training Organization

31. **DGST** - The Sub-Directorate of Port Safety and Security from the Directorate of Sea and Coast Guard, DGST, is responsible for the enforcement of ISPS Code related matters. They have a team of subject matter experts to oversee the compliance of the ISPS Code. DGST plays a pivotal role in assisting education & training organizations to conduct ISPS Code training. Although DGST is not an educational and training organization per se, she works closely with RSO/PELINDO to provide advice and expertise with regards to government legislature and the latest maritime security updates. DGST staff also provides assistance in conducting the PFSO Training, Training Drill & Exercise (TDE) and other maritime security related matters.

32. **Training & Education Agencies (TEA)** - TEA as accredited by DGST should be the forerunner in conducting maritime security courses for seafarers. Their syllabi for the range of courses and training programs must receive endorsement from DGST; hence, they should work closely with the Subject Matter Expert (SME) from the Directorate of Sea and Coast Guard, DGST. Currently both sides do not have the opportunity to cooperate in these areas as BP3IP training institute has not started any such courses. Trainers from BP3IP are encouraged to attend the IMO Training of Trainers Course and also the IMO Maritime Security Training of Trainers Course to ensure their international credibility. Trainers from this institution should be actively engaged in workshops and conferences on maritime security issues so that they can be kept current on developments and enhance their understanding and knowledge in such international developments.

33. **PELINDOs** can play a crucial role in ensuring that training standards and practices are consistent throughout the 4 PELINDOs. In addition, she should synergize with ADPEL to co-provide C4I related training for all personnel who has a role to ensure the safety, security and stability of the ports. C4I is an abbreviation for Command, Control, Communication, Coordination and Information. One such recommended course to bridge the gap between all the stakeholders is to have a standard Code of Practice for Port Security. The International Labour Organization (ILO) model would be a good start.

34. PELINDO is a profit generating company for the state. As such, she has the ability and resources to ensure that her security guards (SATPAM) and PFSO are well equipped and trained. SATPAM undergoes 3 weeks of in-house training conducted at Lido, Sukabumi under the Indonesia Police auspices. However the ISPS Code or Maritimes Security related awareness course are not conducted in this institution. On graduation, these guards will return to their respective agencies for assignment. These guards if assigned to PELINDO port facilities are under the supervision of the PFSO. Therefore it is imperative that the security guards undergo Port Facility Security Awareness Training. Such course will equip them with the knowledge and understanding of the ISPS Code.

35. As mentioned in the ISPS Code Part B 18.2 Port facility personnel having specific security duties should have knowledge and receive training, in some or all of the following, as appropriate:

1) knowledge of current security threats and patterns;
2) recognition and detection of weapons, dangerous substances and devices;
3) recognition of characteristics and behavioral patterns of persons who are likely to

threaten security;
4) techniques used to circumvent security measures;
5) crowd management and control techniques;
6) security related communications;
7) operations of security equipment and systems;
8) testing, calibration and maintenance of security equipment and systems;
9) inspection, control and monitoring techniques; and
10) methods of physical searches of persons, personal effects, baggage, cargo and ship's stores.

36. PELINDO port facility personnel should have knowledge of and be familiar with relevant provisions of the PFSP, in some or all of the following, as appropriate:

1) the meaning and the consequential requirements of the different security levels;
2) recognition and detection of weapons, dangerous substances and devices;
3) recognition of characteristics and behavioral patterns of persons who are likely to threaten security; and
4) techniques used to circumvent security measures;

37. **RSO -** Currently only a limited number of RSO has the ability to conduct PFSO Courses, Training, Drills and Exercises. RSO should also be certified and trained in areas as specified in the following 15-4-2.

38. **PSC -** The chairman (ADPEL) and members of the Port Security Committee (PSC) are encouraged to attend the ILO Code of Practice for Security in Port. However if their schedules do not permit for a 4 day absence, they should participate in the Port Facility Security Awareness Course. However they must attend the ISPS Auditor Course for Port Facility in order to execute the intermediate audit for port facilities that have earned the SoCPF.

14-4-2 Improvement Strategy for each Education and Training Organization

39. **TEA** - The Training and Education Agency should consistently upgrade the knowledge and skills of their staff. Since they do not have external participants at this point in time, they should incorporate the latest updates in Maritime Security and ISPS Code to their existing awareness syllabus. They can also invite the Subject Matter Expert (SME) from the Directorate of Sea and Coast Guard, DGST as a guest lecturer for seagoing cadets.

40. **RSO** - There are a total of 25 RSOs in Indonesia with 2 more awaiting approval. However, more than 50% of these RSOs are inactive and some do not have the relevant expertise as spelt out in the ISPS Code Annex B/4.5. As such, DGST or the Designated Authority should consider reducing the number of RSO to ensure consistent and quality consultancy. Perhaps and audit could be conducted to ascertain the credential of the RSO. Meanwhile, active RSO should continue engaging with the Directorate of Sea and Coast Guard, DGST in the conduct of PFSO training. This is because staff from the Directorate of Sea and Coast Guard is better informed with the latest intelligence and legislation on the maritime security situations in Indonesia. As such, they can update the port personnel during the conduct of the training.

41. **PSC** - PSC are stakeholders for security in port. The PSO should assist the PSC chairman in encouraging committee members to participate in awareness training so that they can make more informed decisions during PSC meetings. PSO may want to incorporate short training in the form of a briefing before each PSC meeting.

14-4-3 Equipment Procurement Plan for Education and Training

42. There is no requirement for procurement of training resources in terms of logistics to support the delivery of training. Most training organizations have adequate equipment such as projector and training materials to support their functions. SATPAM personnel would also have completed their equipment training during their basic training. On the job refresher course are conducted by the PFSO or supervisor using the existing security equipment for daily operations.

14-4-4 Education and Training System

43. The training courses for capacity building are recommended for personnel who have a specific security role working in the port and port facility area in Table 14-4-4-1 to Table 14-4-4-6. Although they are not exhaustive it is recommended that serious consideration be given to ensure all personnel, both security and non-security, have the necessary knowledge and skills to complement each other in enhancing the security of their ports. Course Syllabus for the recommended trainings is shown in Table 14-4-4-7.

Table 14-4-4-1 Training Plan for Key Appointment Holder (1)

Appointment Holder	Total KSAs Required	Priority	Training Program
Port Administrator (ADPEL) / Chairman, Port Security Committee (PSC)	Knowledge and Awareness of ISPS Code and Maritime Security Threat	High (1-3 month)	Port Facility Security Awareness Course
	Knowledge and Skill to assist ADPEL in conduct of audit in port facility based on ISPS Code requirements	High (1-3 months)	ISPS Auditor Training for Port Facility
	Knowledge of concepts and principles of port security, roles and function of inter-agency responsible for port security i.e. PSC	High (1-3 months)	ILO-IMO Code of Practice on Security in Ports
	Knowledge and Understanding to perform duties in accordance with ISPS Code Part A/18.2 on training, drills and exercise.	High (1-3 months)	Training, Drills and Exercise

Table 14-4-4-2 Training Plan for Key Appointment Holder (2)

Appointment Holder	Total KSAs Required	Priority	Training Program
Port Security Officer (PSO)	Knowledge and Skill to assist ADPEL in conduct of audit in port facility based on ISPS Code requirements	High (1-3 months)	ISPS Auditor Training for Port Facility
	Knowledge of concepts and principles of port security, roles and function of inter-agency responsible for port security i.e. PSC	High (1-3 months)	ILO-IMO Code of Practice on Security in Ports
	Knowledge and Understanding to perform duties in accordance with ISPS Code Part A/18.2 on training, drills and exercise.	High (1-3 months)	Training, Drills and Exercise
	Enable PSO to conduct maritime security training and courses to selected personnel	Medium (3-6 months)	Maritime Security Training of Trainers
	Knowledge and understanding of ISPS Code and the role of PFSO with regards to Port Facility, DoS exchange and Security Level	Medium (3-6 months)	Port Facility Security Officer Course
	Knowledge and understanding of security principles, structure and management philosophy.	Low (6-12 months)	Facility Security Management in Port Area
	Knowledge and understanding of IMO regulation with regards to Port State Control and Flag State Control, MoU and Port State Control Inspection and Detention Process.	Low (6-12 months)	Port State Control Officer Course

Table 14-4-4-3 Training Plan for Key Appointment Holder (3)

Appointment Holder	Total KSAs Required	Priority	Training Program
Port Facility Security Officer (PFSO)	Knowledge and understanding of ISPS Code and the role of PFSO with regards to Port Facility, DoS exchange and Security Level	High (1-3 months)	Port Facility Security Officer Course
	Knowledge and Skill to understand the requirements for the conduct of audit in port facility based on ISPS Code requirements	High (1-3 months)	ISPS Auditor Training for Port Facility
	Knowledge and Understanding to perform duties in accordance with ISPS Code Part A/18.2 on training, drills and exercise.	Medium (3-6 months)	Training, Drills and Exercise
	Enable PSO to conduct maritime security training and courses to selected personnel	Medium (3-6 months)	Maritime Security Training of Trainers
	Knowledge of concepts and principles of port security, roles and function of inter-agency responsible for port security i.e. PSC	Low (6-12 months)	ILO-IMO Code of Practice on Security in Ports

Table 14-4-4-4 Proposed Course for Capacity Building Based on Role Assignment

S /No	Course Title	Synopsis	Role Assignment	Dur.	Trainers	Proposed Future Trainer
01	ISPS Auditor Training for Port Facility	This two day course which combines ISPS familiarization and security audit elements, is designed for those interested in understanding and performing Internal Audits of security management systems based on the International Ship and Port Facility Security (ISPS) Code. The auditor training element meets the requirements of the International Register of Certificated Auditors (IRCA) and Procedure 25 of the International Association of Classification Society.	DGST ADPEL KANPEL PELINDO IMMIG. CUSTOM KPPP SATPAM	3 days	Import External Training Consultant who has attended and conducted IMO Training of Trainers	DGST ADPEL/PSO
02	Training, Drills & Exercise	To ensure that the port facility personnel are equipped with sufficient knowledge to enable them to perform their assigned duties for port facility security, in accordance with the mandatory ISPS Code Part A, Section 18.2	DGST ADPEL PSO PFSO	3 days	Import /Local External Consultant and DGST	DGST APDEL/PSO
03	Maritime Security Training of Trainers	The aim of the course is to enable instructors to present specialized maritime security training courses to selected personnel. • Conduct maritime security training applying the general principles of learning and instruction • Correctly present validated model	DGST ADPEL PSO PFSO	3 days	Import IMO Consultant	DGST ADPEL/PSO

		maritime security training courses training courses • Identify, select and prepare appropriate teaching aids • Develop or modify training objectives and tests as appropriate to meet National requirements • Identify and use various instructional methods as appropriate				
04	Port Facility Security Officer Course	Ensure that port facility personnel are equipped with all necessary knowledge and skills to competently perform their assigned duties for port facility security, in accordance with the mandatory ISPS Code part A Section 18.2	PSO PFSO Deputy PFSO	3 days	Local DGST	DGST
05	Port Facility Security Awarenes s Course	The aim of the PFSC is to ensure that port facility personnel are equipped with sufficient knowledge to be able to perform their assigned duties for port facility security, in accordance with the mandatory ISPS Code Part A/18.2 B/18.3.	DGST ADPEL PELINDO IMMIG. CUSTOM KPPP SATPAM	1 days	Import /Local External Consultant/ DGST	DGST PSO
06	Facility Security Managem ent in Port Area	The aim of this course is to provide PSO, Security Manager, Security Supervisor the principles of security, Security organization structure and Security management philosophy through planning, training, inspections, effective communications, roles & job description of principal & general	PSO PFSO KPPP	3 days	Import /Local External Consultant / PSO	ADPEL/PSO

		security staff				
07	ILO Code of Practice for Port Security including Supply Chain Security	This workshop will familiarize participants with the concepts and principles of port security as specified in the IMO-ILO Code of Practice on Security in Ports and provide an introduction to the techniques for the conduct of a port security assessment and documenting a plan. Upon completion of the workshop, participants will be able to: ➢ Describe the ILO-IMO Code of Practice on Security in Ports (2004) and its link with the IMO ISPS Code and with the ILO Seafarers' Identity Documents Convention (Revised), 2003 (No. 185). ➢ Analyze the institutional and organizational arrangements necessary for the implementation of the ILO-IMO Code of Practice on Security in Ports (2004). ➢ Identify the roles and responsibilities of governments, employers and workers in the implementation of the ILO-IMO Code of Practice on Security in Ports. ➢ Undertake a port security assessment (PSA) and describe the format and content of a port security plan (PSP).	DGST ADPEL PSC PFSO KPPP PELINDO IMMIG. CUSTOM	4 days	Import ILO-IMO Consultants	DGST ADPEL/PSO

		➢ Provide general advice to their organizations on the implementation of the ILO-IMO Code of Practice on Security in Ports (2004)				
08	Bomb Incident Management for Non Security Personnel Working in Port	The objective is to educate non-security personnel working in the port area to detect, protect and appropriately report to the relevant authorities on bomb threat. The course will also educate telephone receptionist on how to handle bomb threats over the phone with the aid of a checklist. What to do when a suspicious letters, parcels and other objects are detected. What to do for suspicious vehicle, how to conduct bomb sweep, evacuation and making proper PA announcement.	Office Staff Ship Chandler Contractors	1 days	Import /Local External Consultant / PSO	PSO
09	Port State Control Course	Port State Control is a rapidly and constantly changing area for ship owners, operators and maritime administrations. It demands particularly high standards of technical knowledge with respect to ship operations and their related regulations according to international conventions, and other national or regional instruments in order to promote both maritime safety and the flow of commerce. Content: • Origin and Purpose of IMO • International Convention adopted • General Obligation	PSO PSCO	3 days	Import /Local External Consultant / DGST	DGST

		for the Administration under the Convention • Power of Authority for Flag State Control / Port State Control • Provision for Port State Control in IMO Conventions • Memorandum of Understanding(MOU) on Port State Control • Port State Control Inspection / Detention Process				

Table 14-4-4-5 Participants for Education and Training

No	Courses	For Whom	Total Participants From								
			DGST	ADPEL	KAMPEL	PELINDO	IMMIGR.	BEA & CUKA	KPPP	SATPAM	Total
1	ISPS Auditor Training for Port Facility	DGST/ADPEL/ PSO/PFSO	5	89	20	8	4	4	4	4	138
2	Training, Drills and Exercises	DGST/ADPEL/ PSO/PFSO		25 Facilities							25 Facilities
3	Maritime Security Training of Trainers	DGST/ADPEL/ PSO/PFSO	5	23							28
4	Port Facility Security Officer Course	PSO/PFSO/ Deputy PFSO	7			23					30
5	Port Facility Security Awareness Course	KPPP/Immigration/ Customs/SATPAM	2	4		4	4	4	4	4	26
6	Facility Security Management in Port Area	PSO/PFSO/KPPP	2	37		23	4	4	4	4	78
7	ILO Code of Practice for Port Security including Supply Chain Security	PSC/ADPEL/PSO/PFSO /KPPP/IMMIGR./ Customs/POLAIR	5	89	88	4	4	4	4	4	202
8	Bomb Incident Management for Non Security Personnel Working in Port	PELINDO Staff/Ship Chandler/Contractors	5	37		23	4	4	4	4	81
9	Port State Control Course	PSO/PSCO	8	120							128
Total			39	399	108	85	20	20	20	20	711

Note: Number of participants is given by DGST.

Table 14-4-4-6 Proposed Schedule

No.	Courses	Unit	Qty	2006				2007			
				1	2	3	4	1	2	3	4
1	ISPS Auditor Training for Port Facility	6	138				⇕				
2	Training, Drills and Exercises	25	NA				⇕				
3	Maritime Security Training of Trainers	1	28				○				
4	Port Facility Security Officer Course	1	30					○			
5	Port Facility Security Awareness Course	1	26					○			
6	Facility Security Management in Port Area	3	78					⇕			
7	ILO Cade of Practice for Port Security including Supply Chain Security	8	202					⇕	⇕		
8	Bomb Incident Management for Non Security Personnel Working in Port	4	81						⇕		
9	Port Stale Control Course	5	128					⇕	⇕	⇕	

Note: Unit = Number of run
TDE = per port facility

Table 14-4-4-7 Course Syllabus for Recommended Training

S/No	Course	Brief Summary of Syllabus
01	ISPS Auditor Training for Port Facility	• Requirements of the ISPS Code for Shipping Companies, Vessels, and Port Facilities • The applicable ship security criteria • Knowledge in current maritime security practices • The necessary interaction between ships and ports interfaces • Auditing requirements of the ISPS Code • Requirement of ship security plan approval and of ISSC certification process • Plan, schedule and conduct an audit for compliance with the ISPS Code workshop
02	Training, Drill and Exercise (On-Site)	• Training - To ensure that the port facility personnel are equipped with sufficient knowledge to enable them to perform their assigned duties for port facility security, in accordance with the mandatory ISPS Code Part A, Section 18.2 • Drill - To ensure the effective implementation of measures listed in PFSP, drills should be conducted at least every 3 months to test individual elements of the plan such as those security threats listed in Part B Section 15.11 • Exercise - The Maritime Security Exercise is a collaborative effort by Individual port facility operator and STET to evaluate the level of operational readiness of the Port Facility Security Plan.
03	Maritime Security Training of Trainers	• Introduction to IMO • The Threat • IMO Maritime Security Policy • National Organization • ISPS Code Requirements • Security Procedures • Operational Procedures • Systems Testing • Contingency Plans • Instruction Techniques • Student Presentation
04	Port Facility Security Officer Course	• SOLAS Amendments & Introduction to ISPS • ISPS Code - Part A • Maritime Security Overview • Maritime Threats (Cargo Theft, Drugs, Stowaway, Sabotage and Sea Robbery) • Terrorism • Weapons of Mass Destruction • Crisis Management & Crowd Control • Circumventing Security Measures • Bomb Threat & Responses • Security System • Port Facility Security Actions - Operational Security • Port Facility Security Assessment - Risk and Vulnerability Assessment • Port Security Scenario Ex - Briefing/Practical • Port Security Scenario Ex - Briefing/Practical

		• Group Presentations on Port Security W/shop • Developing/Implementing PFSP • Course Assessment • Security Training • Emergency Preparedness, Drills and Exercises
05	Port Facility Security Awareness	• Maritime Security Threats • Intrusion / WMDs / IEDs • Detection of Threats • Access to facility and ship • Suspicious person • Suspicious vehicle • Suspicious craft • Suspicious object • Security equipment • Deterrence of Threats • Physical security • Patrolling • Access control • Vehicle control • Cargo/stores check • Port Facility Security Procedures • Restricted areas • Crowd control • Communications • Inspection, control and monitoring techniques • Emergency responses • Legal Powers and Constraints • Search procedures • Protected area/Protected place • Handling suspicious person • Arrest powers/procedures • Wrongful restraint • Wrongful confinement • Self-defense • Industrial action • Crime-scene protection • Security clearance
06	Facility Security Management in Port Area	• principles of security, • Security organization structure • Security management philosophy • planning, training, inspections, • effective communications, • roles & job description of principal & general security staff
07	ILO-IMO Code of Practice for Security in Ports	• Introduction to IMO • Revision - SOLAS and the ISPS Code • The aim of security measures • Security Policy • Roles and Tasks – a discussion • Port Security Advisory Committee • Physical Security and the link to ILO Convention 185

		• Security Awareness, Training & Confidentiality • Port Security Assessment • Port Security Plan • Exercise Phase I • Exercise Phase I Presentation • Exercise Phase II • Exercise Phase II Presentation • Summary & Conclusion
08	Bomb Incident management of Non Security Personnel	• Overview Perspective of Bomb Threats • Evolution of bomb threats • Bomb threats in the Region • Types of bombs • Improvised Explosive Devices • Bombs by mail • Courier delivered bombs • Vehicle-borne improvised explosive devices • Profiles of Bombers • Types of bombers • Bomb Threats • Recognizing characteristics of bomb threats • Recognizing indicators of bomb threats • Issues in the management of bomb threat • Security against a bomb incident • Defending building against a vehicle-borne IED • Preventive measures against a bomb incident • Planning • Bomb incident plan • Evacuation plan • Training of staff • Preparation for a Bomb Threat at Your Facility • Preparation • Response • Evacuation • Recovery • Media relations • Bomb Search • Bomb search procedure • Incident Checklist • On receipt of a phone-in bomb threat • On receipt of a written bomb threat • On encountering a in-person bomb threat • Simple prevention steps • Video – Bomb Threat Management
09	Port State Control	• Duly Authorised Officers (DAO) • Information required prior to entry into port; • Clear grounds; • Control measures, and • Access to the Ship Security Plan.

14-4-5 Recommendations

44. Recommendations on the training center are as follows:

- PELINDO, being a state-own enterprise, is recommended to have their own Training Centre or PELINDO Academy. This centre will provide for all of her training needs such as human resources, technical, operational, leadership and management training. It will also be the key centre to provide training for maintenance of facilities and equipment. ISPS Code and Maritime Security training should also be conducted in this centre. It is a one-stop service centre for all the four PELINDOs. The centre, if setup, will ensure quality and consistency in PELINDOs policy, training and standards. It will also provide a corporate identity for PELINDO staff. Trainers from the respective service provider should deliver their service at the proposed PELINDOs Training Centre.
- ADPEL and personnel with security related duties in PELINDO ports should also hold their training in this centre. This centre would have competent and certified trainers to conduct the various courses. If PELINDO lack resources, they should forge a partnership with a local or foreign education and training institution that has such capability and resources. In addition, trainers from DGST may complement the training centre in providing trainers for specialized training. DGST trainers should present the latest IMO MSC Circular, local legislation and maritime security threats in Indonesia and the region for ISPS Code and security related training.
- In the event that PELINDO is unable to setup such infrastructure, she should engage the service of a private maritime training centre or academy who has the capabilities and resources to fulfill PELINDOs need. These private organizations may work with PELINDO to ensure training to PELINDO staff is aligned with her corporate vision and mission. They should seek advice from the Directorate of Sea and Coast Guard, DGST as to the credentials and credibility of such trainers.
- BP3IP - The existing government training school responsible for training seafarers should incorporate an awareness program in maritime security and the ISPS Code. All trainers should undergo IMO Maritime Security Training of Trainer Course to meet the expected standard and quality. Pre-qualified trainers or those with prior training experience from government training school are preferred. Trainers from the private sector must also have attended the IMO TOT course. Institutes conducting maritime security courses should be duly recognized by the Administration.

14-5 OUTLINE OF EXERCISES AND DRILLS GUIDELINE

14-5-1 Guideline of Exercise

(1) General

45. The exercise is usually large scale and comprehensive training events and involves two or more parties and organizations. Test issues are as follows.

- Command and control
- Communications
- Coordination
- Resource availability and allocation
- Responses

46. The establishment of more elaborate control organization is necessary for the exercise, and the exercise is conducted based on scenarios. It includes participation of two or more of:

- PSO, PFSO
- Relevant authorities of contracting government

47. The exercise requires a longer planning period and is conducted as:

- Practical with deployment of assets
- Table-top discussions
- Simulation-based activities

48. It is necessary to form an exercise planning and control team (EPCT) to plan the exercise program and control the exercise.

(2) Exercise Planning

49. The following items are needed for the exercise planning.

- To determine the aim of the exercise – providing focus for planning and conduct of the exercise
- To set the exercise objectives
- To emphasize the exercise intent
- Resource availability, allocation and requirement
- Time available
- Types and level of exercise play

50. It is necessary to consider the performance outcome of participants and to provide checklists for evaluating required attainments which include qualitative and quantitative measurements.

(3) Exercise Scenarios

51. The exercise scenarios must meet stated objectives, be realistic to overall environment setting and have potential to escalate with added issues for players. The list of nine security threat scenarios can be referred to in Part B, Section 15.11 of the ISPS Code.

(4) Developing Exercise Narrative

52. The exercise narrative should be opened with 1-2 phases of escalation. The start state for the exercise should also be set, but responses to the event should not be described. The subsequent narratives should be provided to take stock of the existing situation, shift the exercise play to jump to another level, time frame, or focus.

(5) Determining the Exercise Time-Table

53. The table-top exercise can be conducted within a few hours, or 1 or 2 days, if necessary.

54. The deployment exercise may be conducted within a few hours. The deployment exercises over several days involve extensive administrative and logistics planning and resources.

(6) Developing Injections and Master Event List (MEL)

55. The security incidents should be injected in the exercise to generate the required response according to the scenario, for example, "Damage to, or destruction of, the ship or of a port facility".

56. The injections should be given to test the effectiveness of:

- Access control measures
- Command, control, co-ordination and communications of the responses

57. The master event list should be prepared in the exercise. The master event list consist of items of the injection time, events such as security incidents and information related to changing security levels, expected response/remarks, conductors and recommended participants.

(7) Injection Planning

58. When developing the injection plan, the following items should be considered.

- Dynamics of exercise play
- To test the validity of existing (or lack of) security plans and processes
- To prevent complete destruction of, or overwhelm the responder's capabilities
- To draw participants through sequence of events to unfold during a response
- To be realistic – controllers should not be seen as "playing-god"
- To avoid wasting exercise opportunities – to inform participants of the security plans and processes to be evaluated

(8) Exercise Organization

59. The exercise organization which consists of the following members should be set up for the exercise.

- Exercise director – senior or top executive
- Chief controller – chairperson of the exercise planning and control team (EPCT)
- Controllers / players – EPCT members / department managers / key appointment holders

60. The exercise players consist of PSO, PFSO, CSO, SSO and personnel with security duties, live or simulated port / port facility operations, technical, logistics, marketing, and media representatives.

(9) Conducting the Exercise

61. The exercise should be conducted based on selected scenario and pre-planned injections. The players interact between low controller and high controller.

(10) Control and Safety Management of the Exercise

62. Where necessary and should the situation warrant, the president director may declare an 'Exercise Hold', pending the outcome of the state (example foul weather, shipboard accident, ambiguity arise).

63. When it is assessed that the issues have been clarified or status is correct, he will declare an 'Exercise Resume'.

64. However, should the situation regress beyond control, and it is deemed that the exercise can no longer continue, the president director may declare an 'Exercise Abort'.

65. Upon completion of the exercise, the president director will declare an 'Exercise End'.

(11) Post-Exercise Debrief and Reports

66. The post-exercise debrief is the most important activity and should involve as many participants as possible. The comments, lessons learnt and recommendations on the following items should be drawn from participants.

- Exercise aim, objectives, scope and attainments
- Exercise conduct
- Deficiencies in the plan
- Participants' performance

67. After the post-exercise debrief, the report should be filed and follow-up actions should be pursued.

14-5-2 Guideline of Drills

(1) General

68. The features of drills are as follows.

- Limited to specific procedures
- Conducted frequently to ensure proficiency
- Usually intra-organization / agencies
- Uncomplicated management
- Live activities

69. The drill objectives are to maintain a high level of readiness, to practice hands-on skills, to test equipment and to test procedures.

(2) Planning of a Drill

70. When planning a drill, the following items should be considered.

- To determine type of drill to be undertaken
- To determine objectives – procedures and/or elements of security plan to be tested / practiced
- To develop drill with principal supervisors
- To identify and list the elements (e.g. bomb search, evacuation, mustering and headcount, reporting headcount)

71. For planning of a drill, it is necessary to determine if evaluators are required and select date and time of drill. It is important to notify participants of the implementation of a drill.

(3) Conducting a Drill

72. At first, all participants should receive the briefing on drill parameters and special instructions (e.g. bomb search).

73. It is necessary to ensure participants have a clear understanding of expectations.

74. It is also necessary to announce simulated events to facilitate the drill. Safety and non-exercise conditions should be specified. In addition, the end point of drill should be determined.

(4) Debrief

75. A debrief should be conducted with all participants for feedback and lessons learnt.

76. The personnel errors should be identified and corrected in debrief. The conduct of the drill should be recorded.

77. It is important to follow up on recommendations for improvements to procedures and/or equipment.

CHAPTER-15. TECHNICAL STANDARDS ON PORT SECURITIES AND EQUIPMENT

15-1 GENERAL

1. When developing facilities and equipment for port security measures, it is fundamental to think of socio-economic conditions, present situation of port facilities and port operation, etc. On the other hand, it is undesirable to develop them on a case-by-case basis from the viewpoint of unified implementation of port security measures. Therefore it is important to formulate the technical standards in conformity to the Indonesian situation and to develop facilities and equipment for port security for effective implementation.

2. The Study Team proposes the draft technical standards and its commentaries on port security facilities and equipment which is prepared based on the Japanese methods to develop port security facilities and equipment, using examples of foreign countries and revised in consideration of the current condition in Indonesia.

3. The draft technical standards and its commentaries consist of main body of technical standards, interpretations which describe backgrounds and basis of the technical standards, and reference which shows specific examples already implemented. The main body of the technical standards is composed of functional requirements and standard specifications. The interpretations include explanations of the numeric values employed in the technical standards and more detailed explanations of the standards. In addition, cases implemented in foreign countries and examples installed in Indonesia are shown for full understanding in the reference. The documents also explain how to not only install new facilities and equipment but also improve existing ones using many examples.

4. The draft technical standards can also serve as a textbook for persons involved in port security tasks. Therefore Bahasa Indonesia version is prepared in addition to the English version. Although DGST counterparts proofread the Bahasa Indonesia version, it is suggested that the English version be referred to if any unclear sections are found.

5. The draft technical standards and its commentaries written in English are as follows.

15-2 TECHNICAL STANDARDS ON PORT SECURITY AND EQUIPMENT (DRAFT)

15-2-1 Gneneral

6. This document explains the technical standards and its commentaries on port security facilities and equipment in the forms of functional requirements and standard specifications. It should be noted that the standards are no more than standard specifications to be observed and the practical specific actions should be determined on an individual basis in consideration of the actual using conditions of the relevant facilities. (Use of more stringent specifications may be necessary depending on the situation.)

7. On actual facilities, any specifications that deviate from the standards may be adopted if they are considered equivalent in functionality.

8. The definitions for the terms used for these standards are as follows:

1) Group A facility:
   - Pier dedicated for containers, pier for regular passenger liners or pier dedicated for hazardous materials

2) Group B facility:
   - Pier for irregular passenger liners, pier for hazardous materials other than stated above, pier handling bulk materials, or multi-purpose pier

15-2-2 Restricted Areas

(a) Functional requirements

9. Restricted areas shall be properly designated based on the considerations on the local port arrangements, berthing conditions of international ships, loading & unloading of cargoes, embarkation and disembarkation of international passengers and other conditions and, at the same time, based on sufficient understanding according to the provisions of the ISPS code.

(b) Interpretations

10. The purposes of designating restricted areas according to the ISPS code are to:

- Protect the passengers, crew of ships, personnel as well as visitors of port facilities including those visiting the facilities in connection with the ships;
- Protect the port facilities;
- Protect the ships that use the port facilities or provide services;
- Protect secret security sites in the port facilities;
- Protect the security and surveillance equipment and systems;
- Protect cargoes and ship accessories from unauthorized unpacking.

11. The following items which are provided in the PFSP should be controlled in restricted areas.

- Access by individuals,
- Entry, parking, loading and unloading of vehicles,
- Transfer and storage of cargoes and ship goods and
- Hand luggage or personal belongings without owner

12. The restricted areas may include the following facilities:

- Shore and waterside areas immediately adjacent to the ship;
- Embarkation and disembarkation areas, passenger and ship's personnel holding and processing areas including search points;
- Areas where loading, unloading or storage of cargoes and ship accessories is undertaken;
- Locations where security sensitive information, including cargo documentation, is held;
- Areas where dangerous goods and hazardous substances are held;
- Vessel traffic management system control rooms, aids to navigation and port control buildings, including security and surveillance control rooms;
- Areas where security and surveillance equipment are stored or located;
- Essential electrical, radio and telecommunication, water and other utility installations; and
- Other locations in the port facility where access by vessels, vehicles and individuals should be restricted.

(c) Designation of restricted areas

13. It will make the security measures easier to limit the restricted areas as small as possible in a manner that will not impede the proper access of ships to the piers, loading and unloading of cargoes, embarkation and disembarkation of passengers etc.

14. When designating areas, however, sufficient consultation with the port facility users for their understanding is important to ensure their observation of the port security codes. Considerations in designating restricted areas are:

1) Considerations should be given in the demarcation of restricted areas so the logistic functionalities will not be impaired.
2) Limiting the restricted areas to the minimum level will minimize the number of people to be checked for ingress and egress. However, any demarcation of a restricted area in the apron may cut the flow line between the yard behind its back and the area may end up closing the entrance to the warehouse facing the apron, adversely affecting the port operations.
3) Setting the restricted area at the entrance of the port facilities will make it possible to operate freely once you get inside the facilities. However, it will increase the number of people or cargoes to be checked, involving those that are not directly engaged in material handling operations.

15. Considering all of the above, it is desired to limit the restricted areas to piers and yards that are used for foreign trades. Many Indonesian ports, however, handle a mix of domestic and foreign trade cargoes and some of them handle domestic cargoes for the most part and foreign trade cargoes very rarely. Since any simple separation of foreign trade cargo area will cause problems with the operations with the domestic cargoes, some measures must be taken to satisfy both the port logistic efficiency and security as by taking the action 2) as shown above only when foreign trade cargoes are present. In the practice of restricted area designation, the using conditions of the relevant facilities should be considered on an individual basis.

15-2-3 Barriers

(1) Fixed Fences

(a) Functional requirements

16. The following shows the functional requirements for barriers.

- The installation of the fencing must be able to increase the watching capability of the guards by providing psychological restraint to any possible intruder, retarding any intruding actions or by providing clear zones.
- Sufficient height to prevent any person from intruding
- Sufficient strength and durability to withstand assumed loads
- Wire mesh or grid rod diameter that will not be easily cut
- Structure that will not allow detour for entry at water edge sections of borders with neighboring land
- Signs posted to prohibit any trespassing
- Clear zone provided on both sides of fences

(b) Standard specifications

17. The following shows the standard specifications for barriers.

- Effective height of 2400 mm or over for Group A facilities and 1800 mm or over for Group B facilities (less the height of spike for both cases)
- Spike added on top as overhung outward (length of 450mm or over, angled 30 deg or over outward and barbed.
- The assumed load is wind load (standard speed of 34m/sec).
- Mesh of a size (diamond side of 50 mm or less) or grid of a width (50 mm or less) that will not provide foothold
- Mesh wire diameter of 3.2 mm or over (without cladding) and grid rod diameter of 6.0 mm or over.
- Prevention against any curling up, or construction against any crawling under the fence.
- Fence used at port must be highly resistant to corrosion in consideration of salt damage.
- Intrusion prevention fence must be provided as on large-sized drainage trench that passes across under the fence.
- Intrusion prevention fence must be provided on structures or communicating passage that pass across over the fence
- Standard clear zone should be 3 meters inside the fence and some width on the outside as necessary for the early detection of any unauthorized intrusion.

(c) Interpretations

18. The effective height has been determined based on cases from other countries. The wind load is a value that is commonly used in Japan as standard and is a force equivalent to 960N per square meter. The fundamental condition for net fencing is a long term permissible soil bearing capacity of 100 kN/m^2.

19. When using any existing facility, secure equivalent functionality. When using existing block fencing, for example, ensure the effective height and install a spike on top of the fencing. The effective height of the fencing does not include the spike and the foundation that can become a foothold.

20. In case the above-mentioned spike cannot be angled outward because the land area is adjacent with private residence or may constitute an obstacle for the road traffic, make the barbed wire fencing vertical and as high as practical (600 mm or over).

21. Shown below is a sample construction of a fixed fencing.

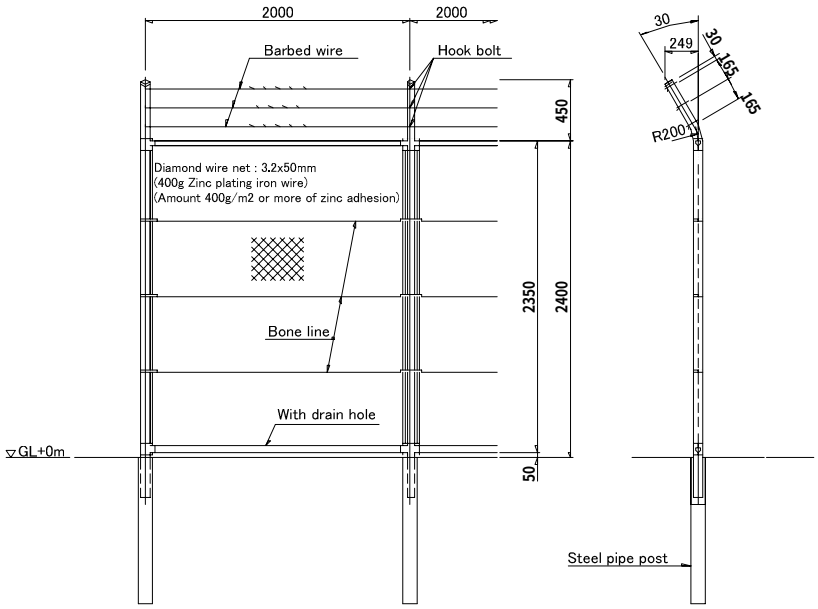


Figure 15-2-3-1 Example of Fixed Fencing Construction

22. In order to prevent any climbing as by placing a toe in a mesh diamond or grid, the mesh size or grid width must be 50 mm or less. The wire diameter or grid rod diameter must be of a size that cannot be easily cut or with the following specifications.

1) The fence wire diameter of 3.2 mm or over will be difficult to cut, durable and advantageous for maintenance.

2) Since, with a grid type fencing, the number of rods that need to be cut for opening a hole for intrusion may be small, the rod diameter must be 6.0 mm or over that makes cutting difficult (existing fences that are used at Indonesian ports primarily use 6.0 mm diameter rod). Note that a grid type fencing must be of a construction that is reinforced against any expansion of grid opening as by bending the rods in opposite directions, or must have grid rods of a diameter that cannot be easily bent.

23. The top and bottom portions of the mesh must be securely retained to the railings to prevent any curling up. The gap between the bottom of the mesh (or railing) and the ground (foundation) must be 50 mm or less to prevent any person from crawling through.

24. Any part that may be corroded as by salt damage must be provided with some preventive measures against such corrosion. For example, the fencing used should be made of metals with a high resistance to corrosion or a hot dip zinced material. The amount of zinc deposited on such hot dip zinc material must be 400 grams/m^2 or over. According to the Galvanized Steel Structures Study Group of Japan, the rate of corrosion along the Japanese seashore is 11-14 g/m^2/year and the estimated service life is assumed to be 31 years for a zinc deposit of 400 g/m^2.

25. Barrier must be provided against any intrusion through drainage trench that crosses under the fence, passage of a transfer line (such as a conveyer) or any structure that crosses over the fence.

26. At water edge sections of borders with neighboring land, there must be walls or fencing protruding to water area to prevent any detour for intrusion.

27. The purpose of installing clear zones is to provide visibility both inside and outside the boundary fencing for early detection of any unlawful intrusion or tampering with the fencing and

for psychological restraint against any intrusion. Shown below are considerations to be given when securing the clear zones.

1) While the clear zones should be 3 meters wide as a standard for both inside and outside of the fencing, the width on the outside may be 1.5 meters [*1] minimum if securing that width is difficult due to land ownership. If securing the clear zone is still not possible on the outside of the fencing, it may be substituted by the effective height of the fencing as shown in the item (f).

   [*1]: The width of 1.5 meters represents a distance to prevent any jumping in from a tree or from a vehicle parked beside the fencing.

2) There shall be no object in the clear zones that will obstruct the view. Containers and vehicles must be kept away from the clear zones and trees be pruned if they may obstruct any part of the view.

3) Any structure must be removed if it may facilitate unauthorized intrusion.

4) It is desired to install guardrails or any other facility in order to prevent any vehicle from coming alongside the outside face of the fencing.

5) Clear zones may not be self-owned land area.

6) If it is not practical to secure clear zones due to private residents close by, the effective height of the fencing must be secured as measured from the neighboring structure that provides a foothold.

(d) Reference

28. Examples of overseas ports are as follows.

1) Recommended standards in the United States
   - Recommended standards of US National Science and Technology Council
     Fence height: 2400 mm, spike length (double-twisted barbed wire): 600 mm, angle: 45 degrees, mesh size: 50 mm
   - NVIC11-02 (guidelines issued January 2003 by the US Coast Guard; no binding authority)
     Fence height: 2100 mm, spike height: 300 mm
   - PACAREA (guidelines issued January 2002 by the Pacific Area commander of the US Coast Guard; no binding authority)
     Fence height: 2400 mm, spike angle: 45 degrees, spike length: 600 mm, gauge: 3.75 mm

2) Fence heights at major overseas ports
   - Los Angeles port (Yusen T): 2400 mm
   - Pusan port (existing pier, CT): 2700 mm
   - Hong Kong port (HIT international T): 3000 mm

29. Examples of clear zones are as follows.

- Example of United States
  Inside of restricted areas: 9 m, outside of restricted areas: 6 m

30. Examples of fixed fence are as follows:

1) Fence with correct-direction top guard

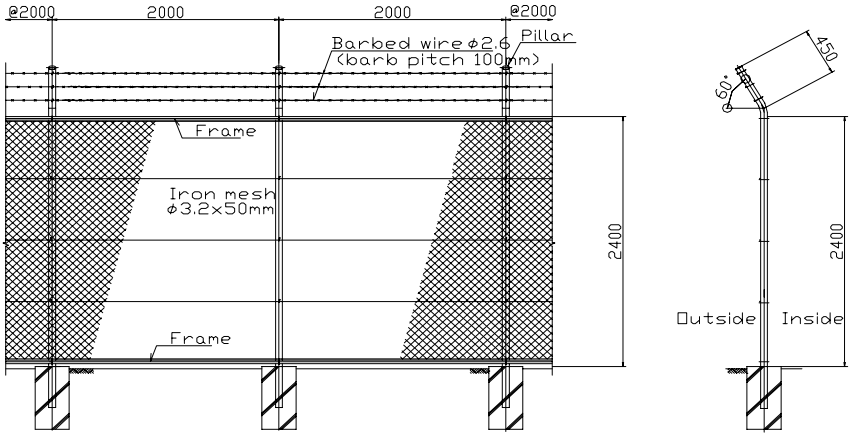


Figure 15-2-3-2 Example of Fence with Correct-direction Top Guard

2) Fence with erect top guard

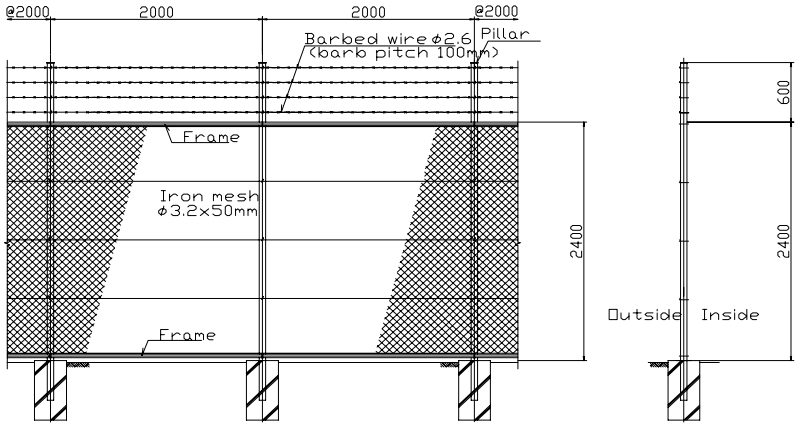


Figure 15-2-3-3 Example of Fence with Erect Top Guard

3) Net fixing system

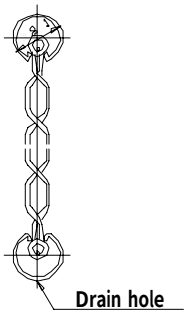


Figure 15-2-3-4 Example of Net Fixing to Frame

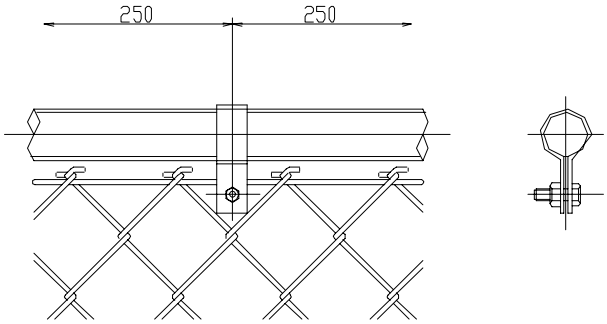
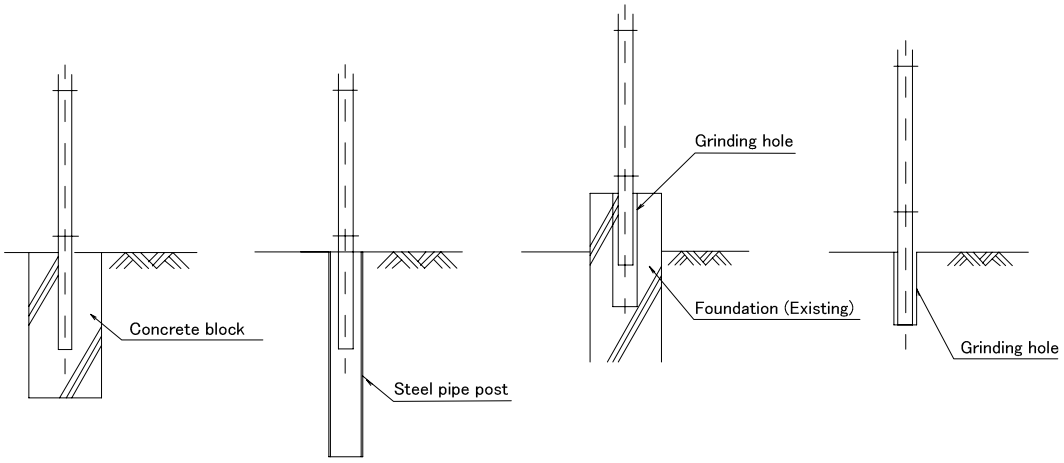


Figure 15-2-3-5 Example of Net Fixing with Metal Parts

4) Basement of Fence



Block type Steel pipe type Concrete type Concrete hole type

Figure 15-2-3-6 Fence Basement Type

5) Improved Fence

a) To add correct-direction top guard

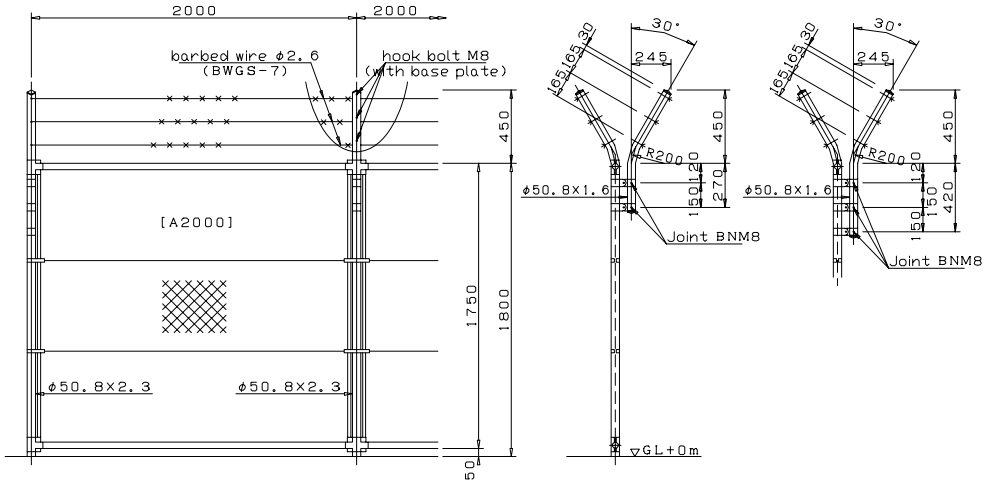


Figure 15-2-3-7 Example of Improvement
(Correct-direction top guard is added into wrong-direction top guard.)

b) To add erect top guard

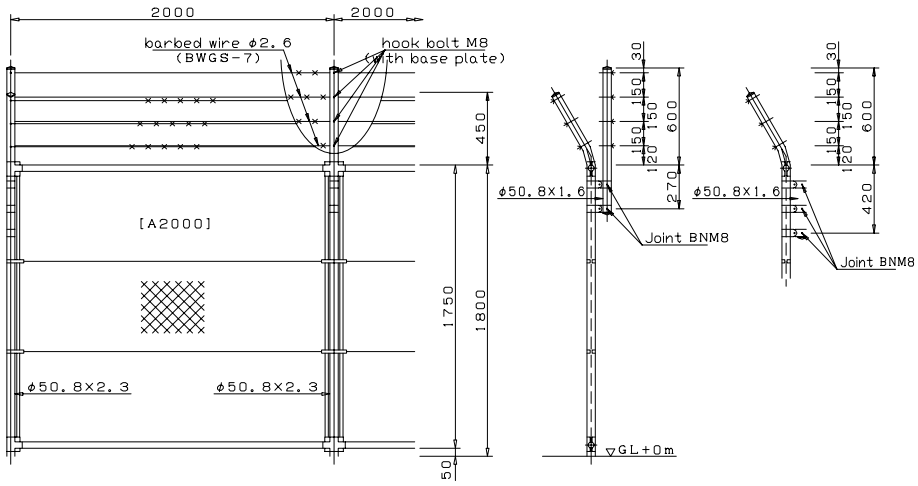


Figure 15-2-3-8 Example of Improvement
(Erect top guard is added into wrong-direction top guard.)

c) Metal parts fixing system of main pole of top guard

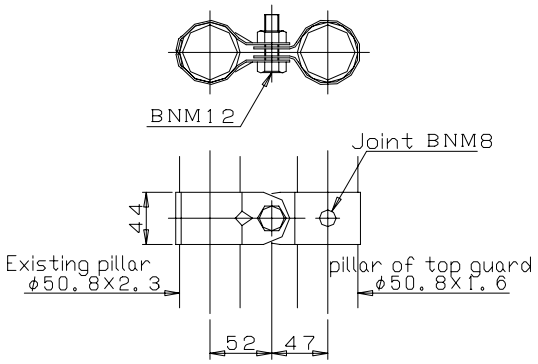


Figure 15-2-3-9 Example of Metal Parts Fixing System of Main Pole of Top Guard

d) Insert fixing system of main pole of top guard

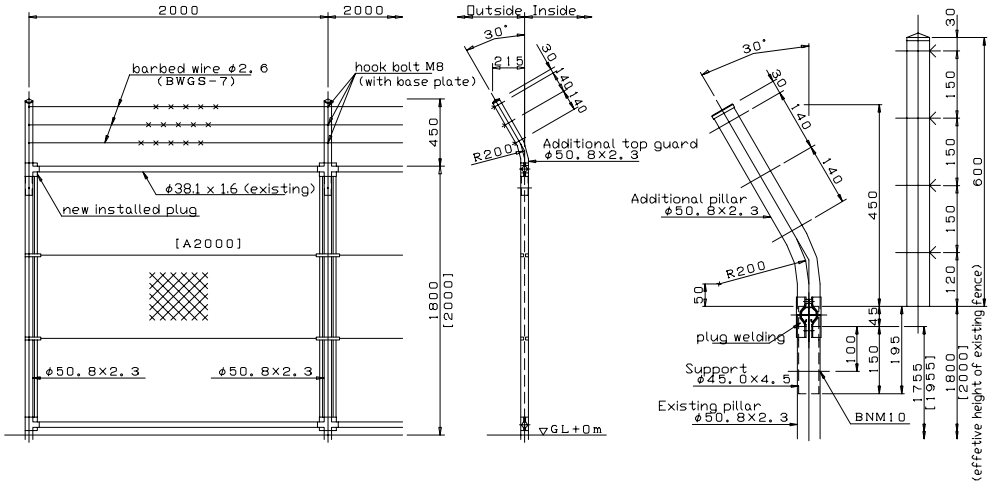


Figure 15-2-3-10 Example of Insert Fixing System of Main Pole of Top Guard

6) Installation of erect top guard on the wall

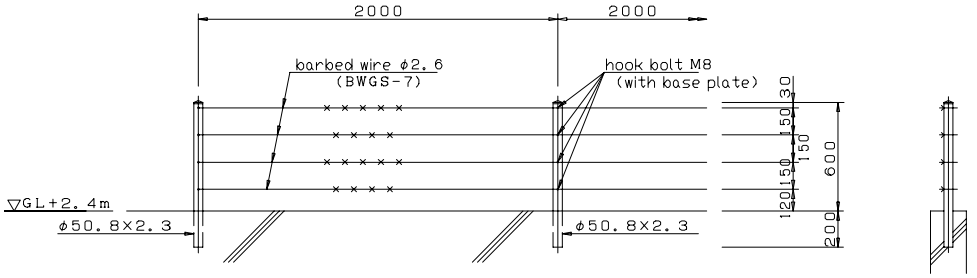


Figure 15-2-3-11 Example of Installation of Erect Top Guard (barbed wire) on the Wall

7) Grid fence is mainly applied in Indonesian ports and its interval is 100 mm without top guard. Its height is usually below 2 m and does not meet the standard requirement. However, it is necessary to study the specification by each port facility because there is a difference between an effective height of fence in a port facility of Group A and that of Group B.

The next photos show the existing fence and its improvement plan (Example). The study on its performance and economical aspect is needed to decide how to improve the existing fence considering the existing condition of the port facility.

Photo 15-2-3-1 Improvement Plan of Grid Fence

Existing Condition

Improvement Plan

a) Grid bar should be added between the existing grids to reduce its interval to below 50 mm. (Red lines in the right photo mean the grid bars to be installed.)

b) Correct-direction top guard should be installed on the existing fence. (Green lines in the right photo mean the top guard to be installed.)

c) There is a wide space between the ground and the lowest edge of the fence. This space should be reduced to below 50 mm by installing the additional horizontal beam. (Yellow line represents the additional horizontal beam.) This additional horizontal beam should be installed inside the existing fence and should not function as a step in climbing over the fence.

8) Various improvement plans for existing fence

In case that the effective height does not meet the requirement, new fence which meets the standard specification should be installed or the existing fence should be improved by the installation of additional parts to meet the requirement. Examples of improvement plans are shown below.

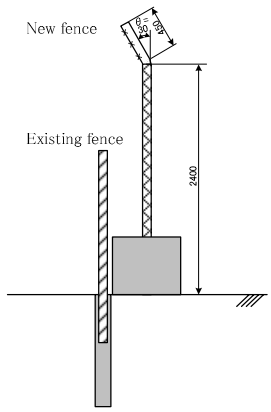
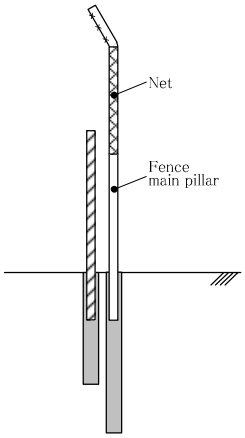
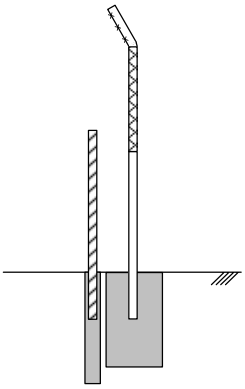
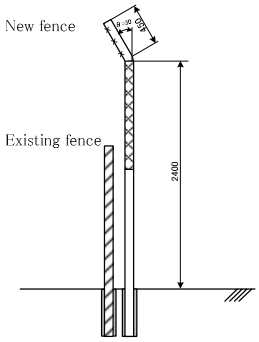
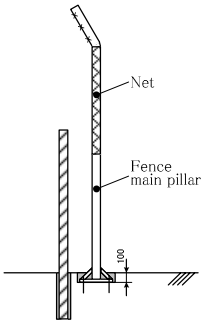
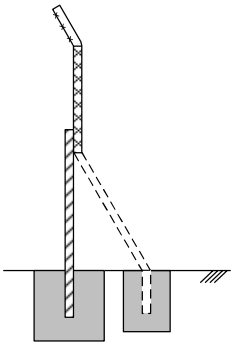
Fence with concrete block base *1	Making a hole + filling with mortar	Casting concrete
		
Making a concrete hole + filling with mortar (The ground is concrete.)	**Chemical anchor (The ground is concrete.)**	**Extension *2**
		

Figure 15-2-3-12 Examples of Improvement Plans for Existing Fence

*1: The distance between the new and existing fences must reflect the contents of the "Remarks" shown below.
*2: New fence will be reinforced by support in case of insufficient strength.

(Remarks)

- New fence may be made of mesh or grid for the entire surface even when no mesh or grid is required for its lower part. Alternatively, the lower part of the fence that does not require any mesh or grid may be covered with barbed wire.
- To prevent the existing fence from being a foothold for climbing the new fence, the distance between the new and existing fences should be made as small as

possible so there is no room for a foot to enter.

- Where the new fence is installed away from the existing fence, the distance between both fences must be 1.7 m or over so the existing fence will not provide any foothold for climbing the new fence.

Depending on the nature of the modification of the existing fence, installing a new fence may be more economical. In practical application of any modification, the actual situation of the facility should be considered for proper judgment.

The following photos show the fence before and after the improvement.

Photo 15-2-3-2 Fence before and after Improvement

Before improvement

>>

After improvement

Mesh fence and upright top guard added on top of the existing fencing

Before improvement

>>

After improvement

Outward angled top guard added on top of the existing fencing

After improvement

The above photo shows the Y-shaped top guard added on top of the existing fencing. (Strands of barbed wire are spun horizontally across the vertical section of the fencing and coils of barbed wire are placed on top of the Y-shaped portion as well.)

After improvement

The above photo shows the upright top guard added on top of the gate post.

9) Measures to prevent detour of fence

Measures to prevent intruders from making a detour to avoid a fence are as follows.

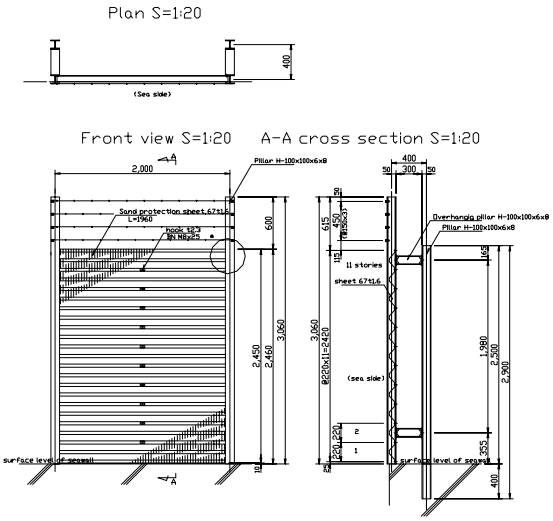
a) Measures to prevent a detour of the water area

Two examples are shown below.

i) Prevention wall

Setting up a plat wall along the berth line prevents anyone from making a detour to avoid the fence. This advantage of this type of wall is that it does not project into the sea.

Photo 15-2-3-3 Detour Prevention Wall



ii) Additional fence

Setting an additional fence that projects into the sea from the berth prevents anyone from making a detour to avoid a fence.It will be more effective to install barbed wire on the additional fence.

Photo 15-2-3-4 Additional Fence (1)

The left photo shows the additional fence attached to an entry gate. When the door is closed, the fence will be projecting into the sea. However, two points should be improved.

- No top guard on the entry gate.
- The existing fence is so low that a person can climb over it.

Top guard should be installed on the gate, and the existing fence should be higher and improved with top guard.

Three points should be improved.

- There is enough space between the additional fence and net fence on the right for someone to come in through the fence.
- Beams of the additional fence can function as steps for person to climb the fence.
- No top guard on the prevention fence.

Photo 15-2-3-5 Additional Fence (2)

An example of improvement plan of a prevention fence is shown below.

Existing Condition

Improvement Plan

The above photo shows a fence projecting into the sea. This projecting fence has barbed wire on it. However, as this fence is not wide, it should be improved as illustrated in red on the right photo.

- The lower end of the additional fence should extend down to the surface of apron.
- Top guard should be installed on the fence.
- Barbed wire should be installed on the extended projecting fence.

Fence and gate should also be improved.

b) Measures to prevent intrusion through drainage

The following photos show examples of a fence erected to prevent intrusions through the drainage below the fence.

Photo 15-2-3-6 Prevention Measures

Fence in a drainage (center)

Fence covering left half of drainage
(The fence should cover the right half as well.)

c) Measures to prevent intrusion via conveyor belt

The following photos show examples of measures to prevent intrusion from a belt conveyor over the fence.

Photo 15-2-3-7 Sample Measures against Intrusion as from Overhead Structures

An additional fence (highlighted in red circle) should be installed to prevent a person from gaining entry along the belt conveyor.

- An additional fence should be erected outside the restricted area to prevent persons from throwing suspicious goods on to the conveyer. This fence should be made in accordance with the standard of the fixed fence. A door should be installed for inspection purposes.
- For the case as shown on the photo on the right, some measures must be provided against any penetration into the conveyer chamber, as with a door installed at the entrance and having it locked.

10) Measures to prevent intrusions by pole-climbing

In case important facilities are outside the restricted area, these important facilities should be enclosed by a physical barrier. If important equipment is on the pole, this pole should be secured with a fence that prevents climbing of the pole.

It is recommended that a fence to prevent stealing and destroying of equipment be installed if important security equipment such as CCTV camera is on the pole (see Photo 13-2-3-8).

Photo 15-2-3-8 Anti-climbing Barriers as Installed on Steel Towers

Fence which prevents climbing of the pole

Fence to protect the CCTV camera

11) Security measures in case that a warehouse is used as a physical barrier

In case that a warehouse outside the restricted area is used as a physical barrier, the security measures or monitoring should be conducted to prevent persons from climbing over this warehouse. If these measures are impossible, such measures as barbed wire on the roof should be taken to prevent an intruder from entering the port via the warehouse. An example of security measures is shown in the following figures. In these figures, the wall on the seaside of warehouse is used as a physical barrier. Barbed wire is installed on the seaside edge of the roof of the warehouse.

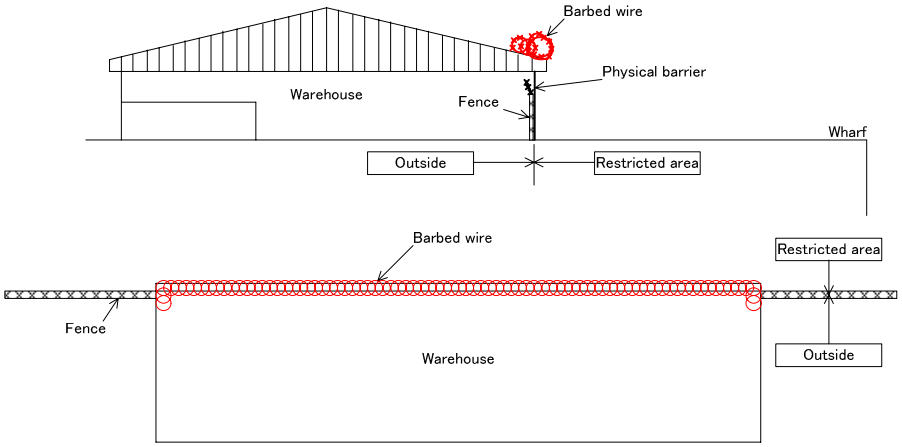


Figure 15-2-3-13 Example of Security Measures (Warehouse is used as a physical barrier)

12) Installation of Sign Board

Sign boards which prohibit enter to restricted areas should be installed at the gates and fence on a boundary of the restricted area. Independent fixed type sign board is ideal. Fixing type sign board on the fence is acceptable. In case that fixing type board on the gate or fence is applied, it should be checked whether sign board can be seen while the gate is open. Wind load should be considered in the structural capacity if a lot of sign boards are fixed on the fence. Examples of sign board are shown in the following photos.

Photo 15-2-3-9 Sign of Fence

Mobile sign board

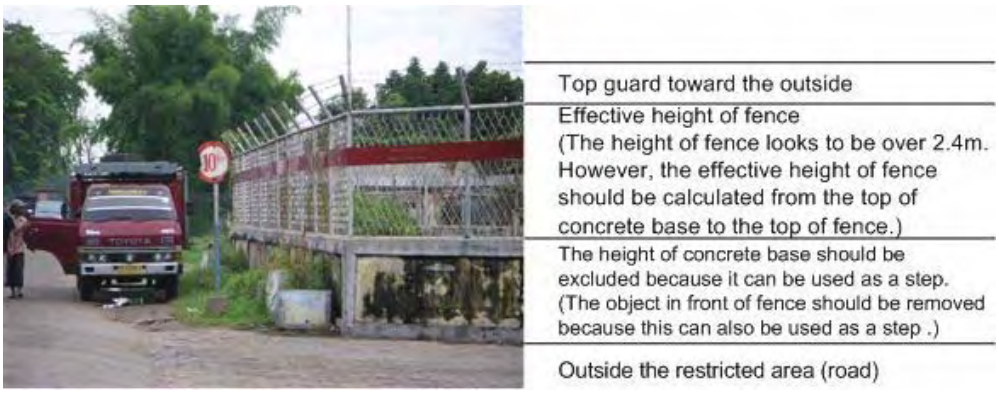
Independent sign board inside the restricted area
(Red arrow shows the back side of sign board.)

13) Effective height of fence

The effective height of a fence excludes the top guard and base, because the base can function as a step for somebody to climb over the fence (see example below).

a) Example (The effective height of the existing fence does not meet the standard.)

Photo 15-2-3-10 Fence on the Concrete Basement



b) Example (The effective height of improved fence meets the standard.)

The following example shows that the new fence to meet the standard was installed inside the existing wall.

Photo 15-2-3-11 Fence Improvement

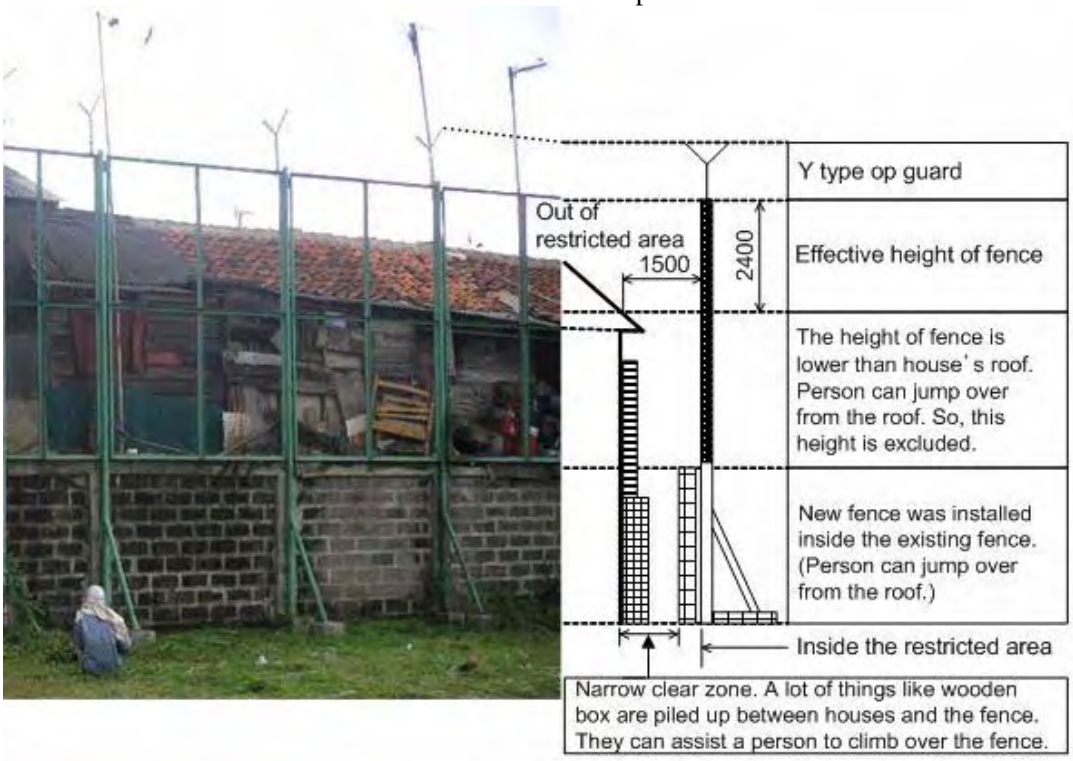


Photo 15-2-3-12 Sample Improvement of Concrete Foundation

SUS steel sheets installed on the foundation to provide a steep slope so no person can stand on the fence foundation

14) Clear Zone

a) Provision of a sufficient clear zone

The clear zones shown on the following figures must be 3 meters wide as standard on both inside and outside of the fencing. If it is difficult to provide the width of 3 meters on the outside, the minimum width of 1.5 meters must be secured.

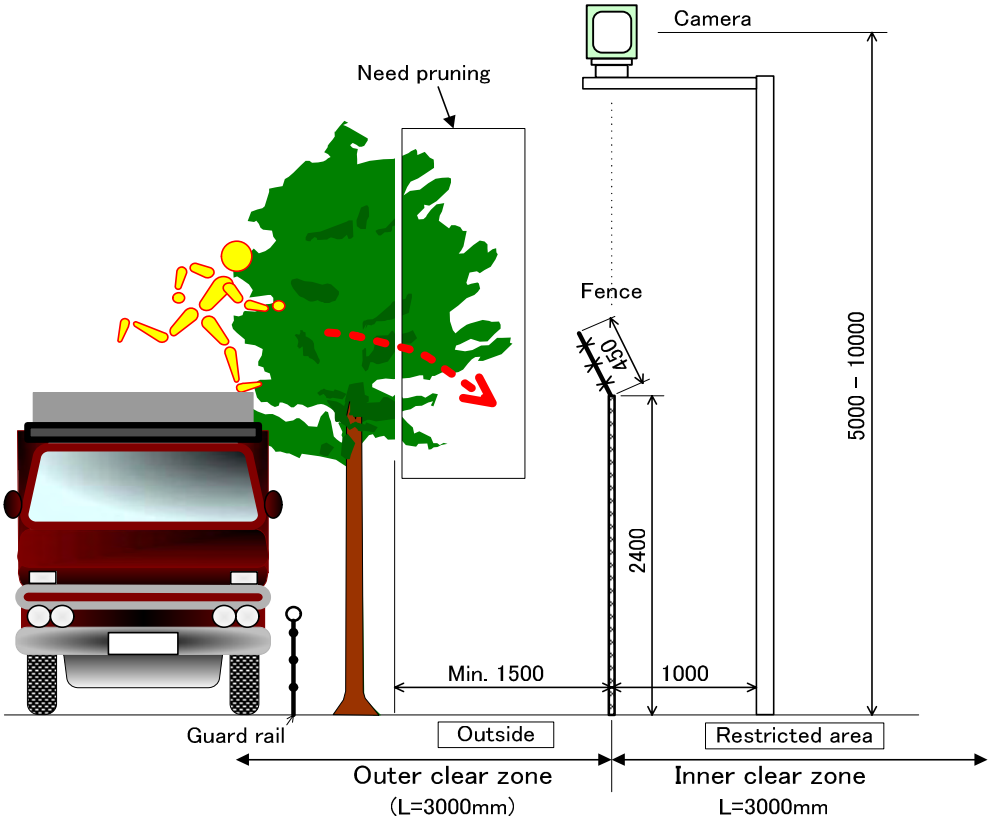


Figure 15-2-3-14 Example of Clear Zone

b) Example of a clear zone

Photo 15-2-3-13 Example of Site Condition (1)

- The plants should be cut to secure the minimum outside clear zone of 1.5 m.
- A guard rail should be installed along the fence to prevent vehicles from coming within 1.5 m of the fence.
- Objects which can function as steps should be removed around the fence.
- The effective height of the fence except top guard and basement should be increased to meet the standard.

Photo 15-2-3-14 Examples of Site Condition (2)

The sidewalk provides a clear zone and, at the same time, prevents any vehicle from accessing close by. However, the trees should be pruned for a clearer view.

Since there are electric poles close to the fencing, the outward angled top guard is added on the fencing facing the poles so the poles will not be utilized for any unauthorized penetration. In addition, the top guard should have a sufficient width to prevent any person from jumping from a pole directly onto the ground.

(2) Mobile Fences

(a) Functional requirements

31. Shown below are functional requirements for the mobile fences.

- It can clearly indicate the boundaries to restricted areas to identify any intruder.
- Signs are posted to prohibit any trespassing.
- Clear zone is provided.

(b) Standard specifications

32. Shown below are standard specifications for the barriers.

- It has self-supported construction that will not easily fall.
- Standard clear zone should be of a width both inside and outside the fence that is necessary for the early detection of any unauthorized intrusion etc.

(c) Interpretations

33. Where the following conditions are met, mobile fences may be used as substitute for part of the fencing.

1) The relevant pier facilities are used primarily for domestic navigating ships and rarely used by international ships.
2) Sufficient clear zones can be secured as because the back of the pier facilities is unused land area.
3) Before demarcating the restricted areas by mobile fences, inspections are conducted with the cargoes and goods in the restricted areas.
4) Where mobile fences fail to meet the standard specifications of fixed fences, additional guards are deployed to watch for any intrusion from outside while the restricted areas are being demarked by the mobile fences.

34. The following is an example of mobile fence construction.

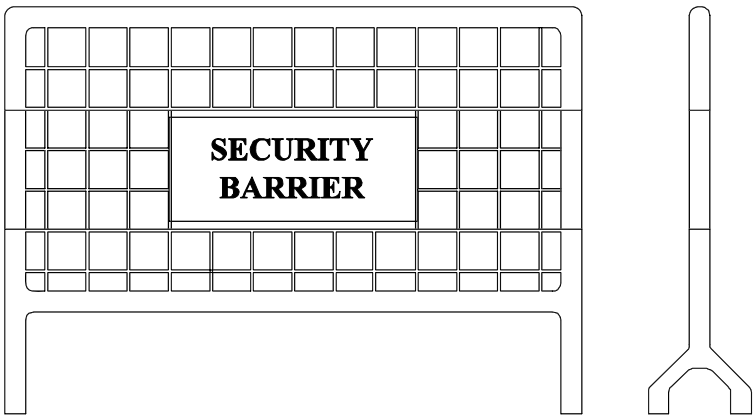


Figure 15-2-3-15 Example of a Mobile Fence Construction

35. Mobile fences may be substituted with containers etc. for effective utilization of existing facilities.

(d) Reference

36. The following photos show the site condition of mobile fence.

Photo 15-2-3-15 Mobile Fence

In storage

In use as a partition between passenger berth and general cargo berth

Fence is moved in accordance with the size of restricted area.

Mobile fences are in use as a partition between international vessel and domestic vessel.

Mobile fence made of container (The inner bent part is a door.)

Empty containers are used as a physical barrier. (Mobile fence is used on the apron.)

Mobile fence with sign board

Mobile fence is used for the fence to prohibit vehicles to pass through.

(3) Gates

(a) Functional requirements

37. Shown below are functional requirements for the gates.

- The installation of a gate is intended to prevent any intrusion of persons and vehicles for increased control of ingress and egress by restricting or closing the entrance to and exit from a restricted area.
- Gates shall have the same height as fixed fences and shall be of a construction

of strength and durability to withstand assumed loads.

- Car bump or cross bar shall be provided at the gate.
- Gate shall be of a construction that allows locking. When locked, the lock and key shall not allow any easy removal, replacement or replication.
- The construction shall allow separate access control of humans and vehicles.

(b) Standard specifications

38. Shown below is standard specification for the gates.

- The standard specifications shall be the same as with fixed fences.

(c) Interpretations

39. Gate types include swinging and sliding constructions. The following are the examples.

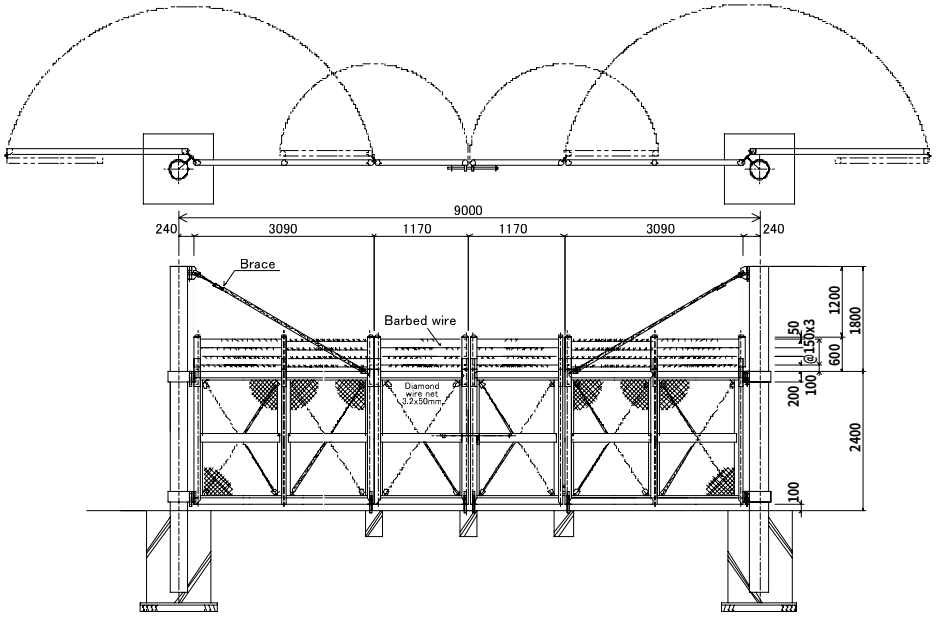


Figure 15-2-3-16 Example of Swinging Construction Gate

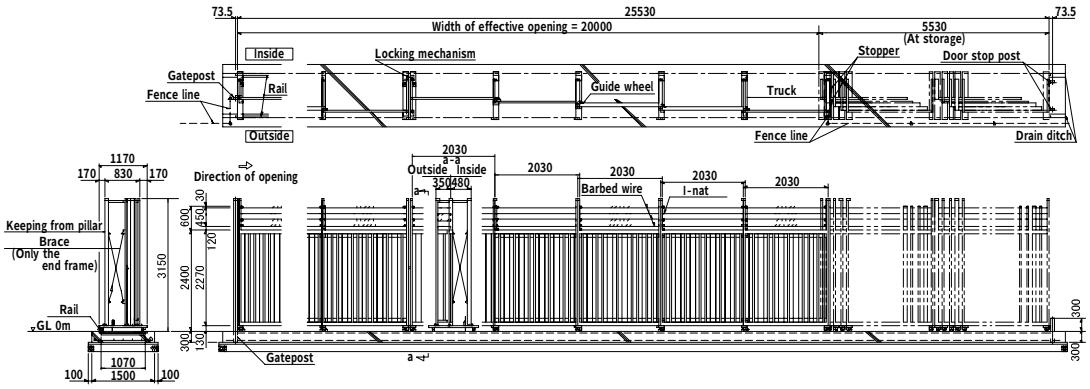


Figure 15-2-3-17 Example of Sliding Construction Gate

40. Any unmanned gate shall be of a construction to allow locking in order to prevent any intrusion of suspicious individuals. For the storage of the keys, dedicated personnel shall be assigned and be responsible for strict custody of the keys. The locks shall not be easily destroyed.

41. Entrances are separated for humans and vehicles to prevent any suspicious persons or goods from entering in the midst of any congestion.

(d) Reference

42. An example of improved gate (Hinge type gate with erect top guard.) is shown in the following figure.

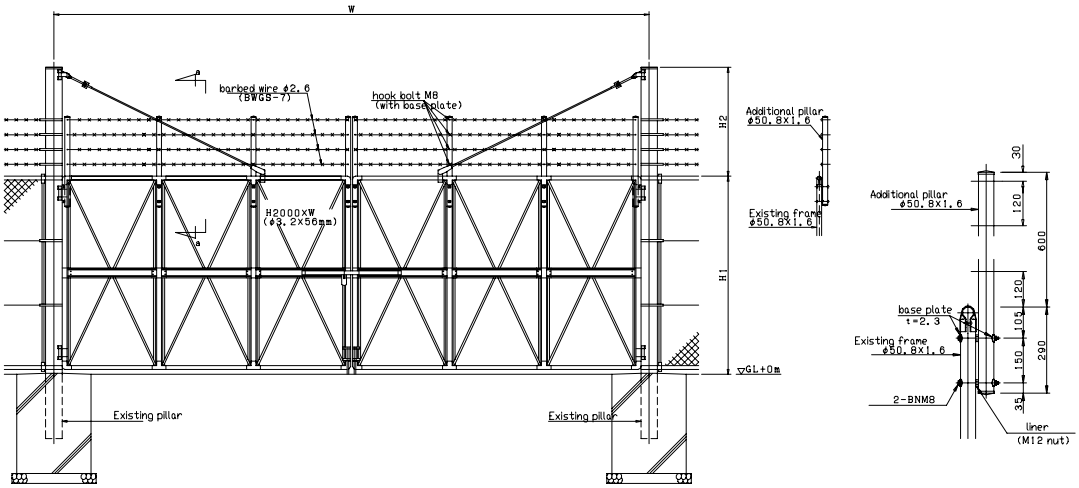


Figure 15-2-3-18 Example of Improved Gate (Hinge Type Gate with Erect Top Guard)

43. Examples of net fixing system are shown in the following figures.

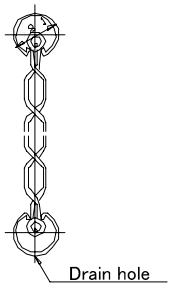


Figure 15-2-3-19 Example of Net Fixing

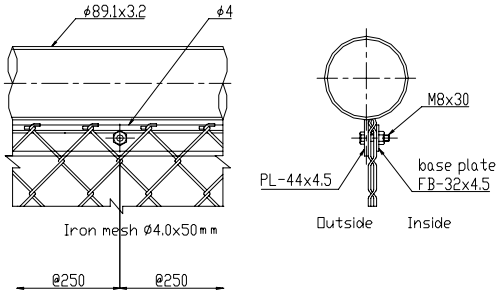


Figure 15-2-3-20 Example of Net Fixing with a Plate the Frame

44. An example of improved gate (Roller type gate with erect top guard.) is shown in the following figure.

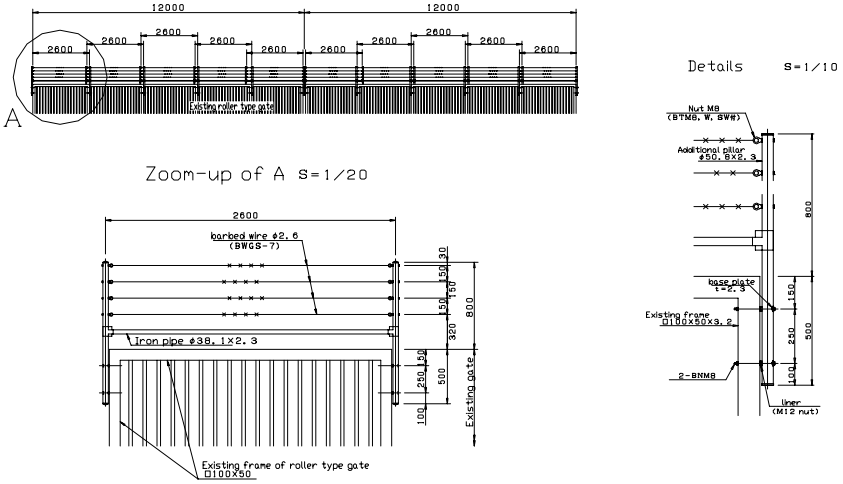


Figure 15-2-3-21 Example of Improved Gate (Roller Type Gate with Erect Top Guard)

(4) Vehicle Stopping Equipment

(a) Functional requirements

45. Shown below are functional requirements for the vehicle stopping equipment.

- It can clearly indicate the instruction to stop to the vehicle.
- It makes vehicle drivers recognize the necessity of stopping.

(b) Standard specifications

46. Shown below are standard specifications for the vehicle stopping equipment.

- Group A facilities shall be equipped with vehicle stopping equipment. With Group B facilities, installation of such equipment is desired.
- The equipment shall be of a construction that will easily prevent any vehicle from intrusion by onrushing, running over or under.

(c) Interpretations

47. Vehicle stopping equipment is intended to restrict the motions of vehicles that attempt to enter without access control or inspection at the gates. Some port main gates have no more than a vehicle stopping device without a gate door installed. Such vehicle stopping devices merely make vehicles stop temporarily and are no substitute for a gate door. A boom-type vehicle stopping device, for example, is effective to make vehicles stop for a while. However, persons can easily pass under or over the boom. The same is true with devices of other types. Therefore, if there is no gate door installed, there should be guards stationed 24 hours a day.

48. There are two types of vehicle stopping equipment; boom type and simplified moving type, whose constructions are shown below:

Photo 15-2-3-16 Example of Boom Type Vehicle Stopping Equipment

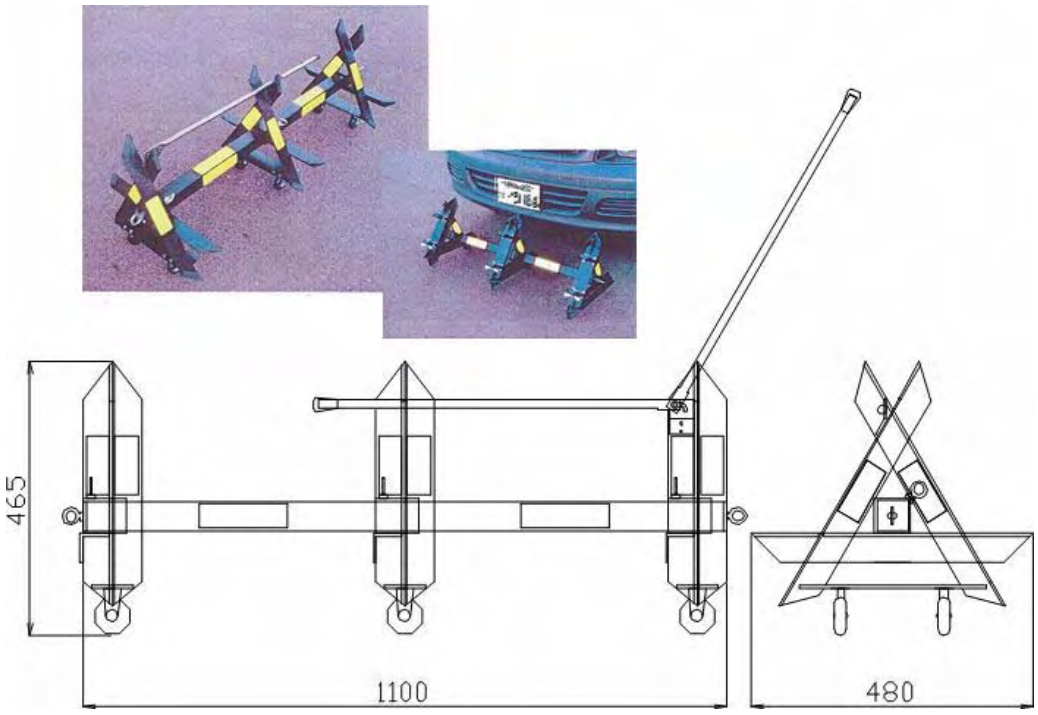


Figure 15-2-3-22 Example of Simplified Moving Type Vehicle Stopping Equipment

49. The length (width) of the vehicle stopping equipment must cover the entire width of the gate in order to prevent any passage of vehicles. When using simplified moving vehicle stopping equipment, sufficient number of units must be installed to suit the gate opening.

50. The height of the vehicle stopping equipment must be set to prevent any vehicle from passing over or under it. Common height should be approximately 1 m.

51. The moving vehicle stopping equipment shown on the above photo is equipped with wheels so it can easily move in the direction perpendicular to the direction in which a vehicle advances. In the direction of vehicle advancement, on the other hand, the equipment will not move easily even if driven by the vehicle. Furthermore, it is equipped with a handle so it can be

moved easily. As shown, the equipment must be easy to use. Difficult handling will keep the equipment unused.

(d) Reference

52. Examples of boom type car-stop device are shown in the following photos.

Photo 15-2-3-17 Boom Type

Boom type car-stop device which is installed in front of main gate of port area

The boom is closed.
(single boom)

The boom is open.
(single boom)

The boom is closed.
(wide boom)

The boom is open.
(wide boom)

53. Crossing gate type car-stop device: The crossing gate indicated in the following photos stops a vehicle once at the gate. However, this crossing gate does not have enough strength to withstand a rushing vehicle. This crossing gate is generally operated as an automated toll gate for parking or access control.

Photo 15-2-3-18 Site Condition of Crossing Gate Type Car-stop Device

Boom is closed.

Boom is open.

54. Mobile fence as a car-stop device: If a mobile fence is applied for car-stop device, it should be able to be moved easily. Unless a person cannot move a fence easily, this mobile fence is always open as shown in the following photo. Such a mobile fence can be used to prohibit vehicles from passing.

Photo 15-2-3-19 Site Condition of Mobile Fence as a Car-stop Device

Mobile fence in the main gate of port area

Simple car-stop

15-2-4 Security Lighting Equipment

(a) Functional requirements

55. Shown below are functional requirements for the security lighting equipment.

- The lighting shall provide an illuminance that allows surveillance for any suspicious individual's behaviors by the sentinel's naked eyes or through surveillance cameras.
- The height of the lighting shall be considered so no light source be within the scope of the cameras.
- The lighting arrangement shall be considered not to be utilized for any intrusion across the fence.
- To watch for any intrusion from the pier or any access to ships, the lighting shall be able to illuminate the entire apron.
- In case of surveillance through cameras, uniform illuminance at the borders shall be secured
- Considerations shall be given for securing a sufficient illuminance as at any

narrow places.
- It shall be able to illuminate the entire range within the yard.
- It shall provide a sufficient level of illuminance at the gate that allows viewing certificate documents required for the authorization of the entry.
- It shall be provided with emergency power source that is available for the surveillance of the boundary in case of power outage.

(b) Standard specifications

56. Shown below are standard specifications for the security lighting equipment.

1) Boundary area
   - The illuminance should basically be 3 lux to allow surveillance by the naked eye. Where cameras are used for the surveillance, the illuminance should be a level that allows camera-based surveillance (assumed to be 3 lux). The illuminance level and lighting equipment should be determined based on the capacity of the camera used.
   - The equipment shall be of a construction that will easily prevent any vehicle from intrusion as by onrushing, running over or under.

2) Yard
   - Work lighting should be utilized and any deficiency be supplemented by providing additional lighting.

3) Gate
   - Spot lighting shall be provided at the position of the standing sentry. The standard illuminance should be 30-50 lux that will allow reading 10 point (approximately 3.5 mm) characters almost effortlessly.

4) Other
   - Backup measures shall be provided for any power outage to ensure the minimum level of surveillance functionality including the surveillance of boundary areas.
   - Group A facilities shall be equipped with emergency power source. With Group B facilities, while having emergency power source is recommended, alternative measures may be used such as enhancing the patrol surveillance upon any power outage.

(c) Interpretations

57. A certain level of illuminance must be secured at the boundaries of restricted areas as a psychological deterrent to any intrusion. For that reason, lighting needs to be provided separately from the yard lighting so the illumination can be maintained throughout the night.

58. When doing patrol, surveillance by the naked eye in the illuminance of 1 lux is extremely difficult. The illuminance that will allow naked-eye surveillance is approximately 3 lux. Even where the surveillance cameras used function in any illuminance below 3 lux, the minimum surveillance illuminance level may not be reduced, because human surveillance is always necessary. Therefore, a minimum horizontal or vertical illuminance of approximately 3 lux is desired within the port facilities from the security point of view. When using surveillance cameras, if the camera capacity requires more than 3 lux, the illuminance level must be determined to the requirement.

59. Illuminance includes the horizontal illuminance and the vertical illuminance. The horizontal illuminance represents the amount of light incident on a horizontal plane of unit area and the vertical illuminance the amount of light incident on a vertical plane. Normally, the

illuminance represents the horizontal illuminance. Since observation by surveillance cameras and patrol is primarily based on the observation of vertical surfaces, the illuminance required for observation should be beyond the standard value for either the horizontal or vertical illuminance.

60. The figure below shows approximate brightness for different illuminance levels.

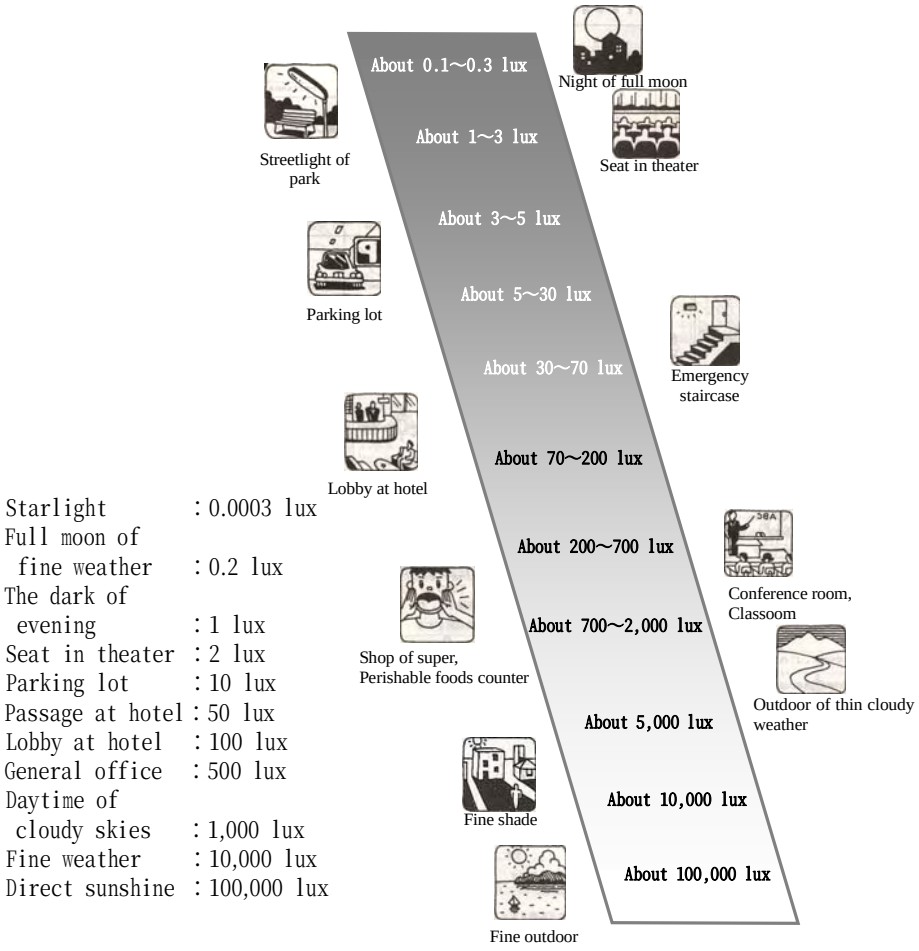


Figure 15-2-4-1 Brightness and Illuminance

61. When providing a 3 lux illuminance for the entire boundary, the use of 270-watt sodium lights at the height of 12 m is considered optimum because of the long interval between lights and small variation in the illuminance. The following figure shows the distribution of illuminance where a series of 270-watt lights are installed.

62. The following figure shows that, when illuminating with a low illuminance level of 3 lux, the lights installed at a height of 12 meters provide wider rage of illumination than the case of 10 meter height. It also shows that the interval of lights is 69 meters for the light height of 12 meters which is longer than 61 meters for the height of 10 meters.

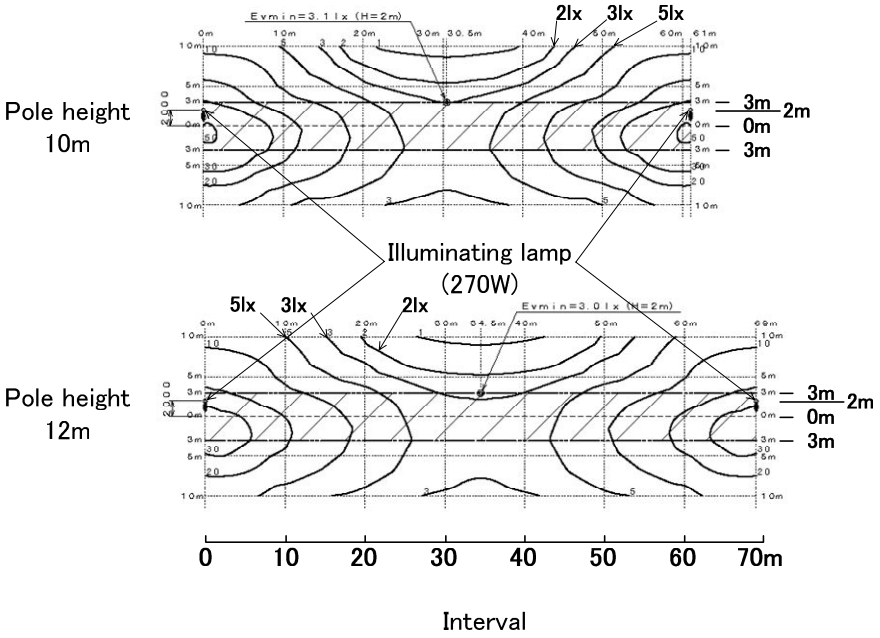


Figure 15-2-4-2 Illuminance Distribution under a Series of 270-Watt Lights

63. To prevent any attempt to make use of a lighting pole (as by using a ladder) to climb over the fence, the poles must be installed apart from the fencing. According to the above figure, a distance of 2 m from the fencing is considered optimum and economical because of the long interval of poles installed.

64. For the surveillance of the piers and yard, the yard work lights should be lighted as required depending on the using conditions of the piers and yard. Any deficiency in illuminance must be supplemented by the installation of additional lighting. It is recommended to separate the circuits for the surveillance lighting from other lighting.

65. With the gate lighting, to secure the illuminance level for the inspection of documents for access control, spot lighting must be provided at the position of document inspections. JIS (Japanese Industrial Standards) states that an illuminance of 30-50 lux will be sufficient for reading 10 point (approximately 3.5 mm) characters almost normally.

66. A 270-watt high-voltage sodium light from a height of 12 m can provide the illuminance of 50 lux in a spot. However, the height of 10 m provides a larger area of illuminance of 50 lux or over. Shown below is the illuminance distribution for the case of 270-watt light from the height of 10m and 12 m. The figure shows that, when a high illuminance (in this case 20 lux or over) is required, the low lamp height of 10 meters provides wider illuminance range than with the height of 12 meters due to the shorter distance from the light to the ground.

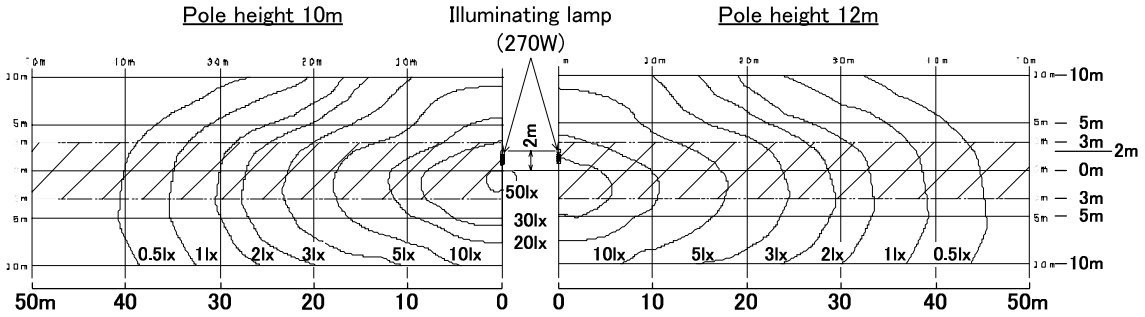


Figure 15-2-4-3 Illuminance Distribution under a Single 270 W Light

67. Security lights shall be arranged in consideration of the fact that dark spots tend to occur where cargoes are held.

(d) Reference

68. Installation policy on lighting system is as follows:

1) Lighting system has to provide enough brightness for security guards to monitor suspicious persons with naked eye or CCTV camera in harmony with site condition.
2) Lighting system has to provide enough brightness for security guards to check identification documents at a gate.

69. Lighting poles are disposed to ensure the brightness of 3 lux within 3 m of outside and inside the clear zone around the fence. The following figure represents a sample layout of 270 W road lighting poles with a light height of 12 meters for illuminating the boundary area so the illuminance of 3 lux may be secured for the width of 3 meters in the clear zone of the boundary both inside and outside the fencing. The lighting poles must be installed inside the boundary to shed the light outward to the fence from within the boundary.

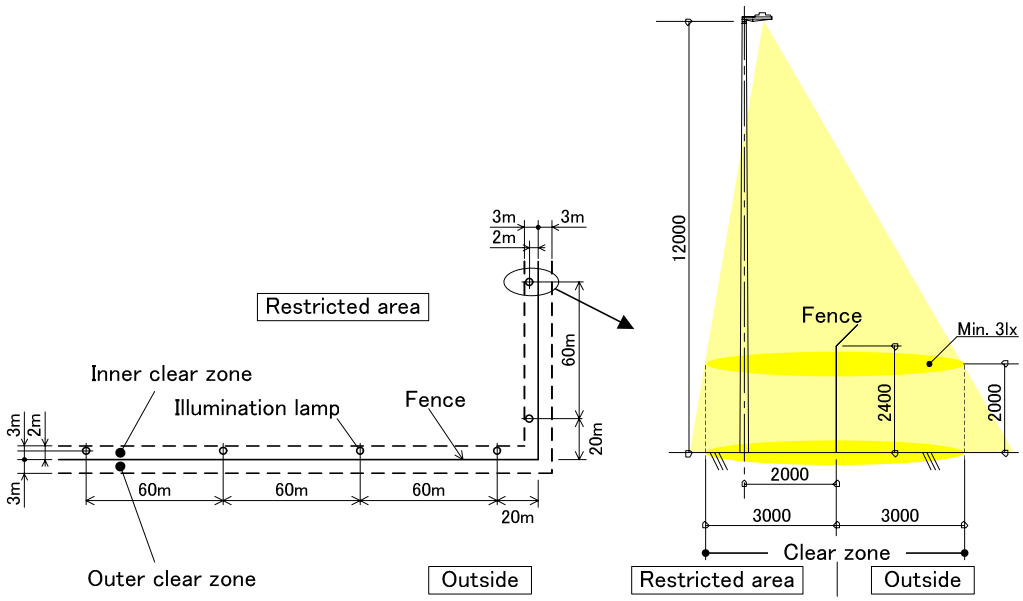


Figure 15-2-4-4 Example Layout of 270 w Lighting Poles along the Boundary

70. As an example of lighting lamps along the boundary, 270 W street lamp with a height of 12 meters is shown below.

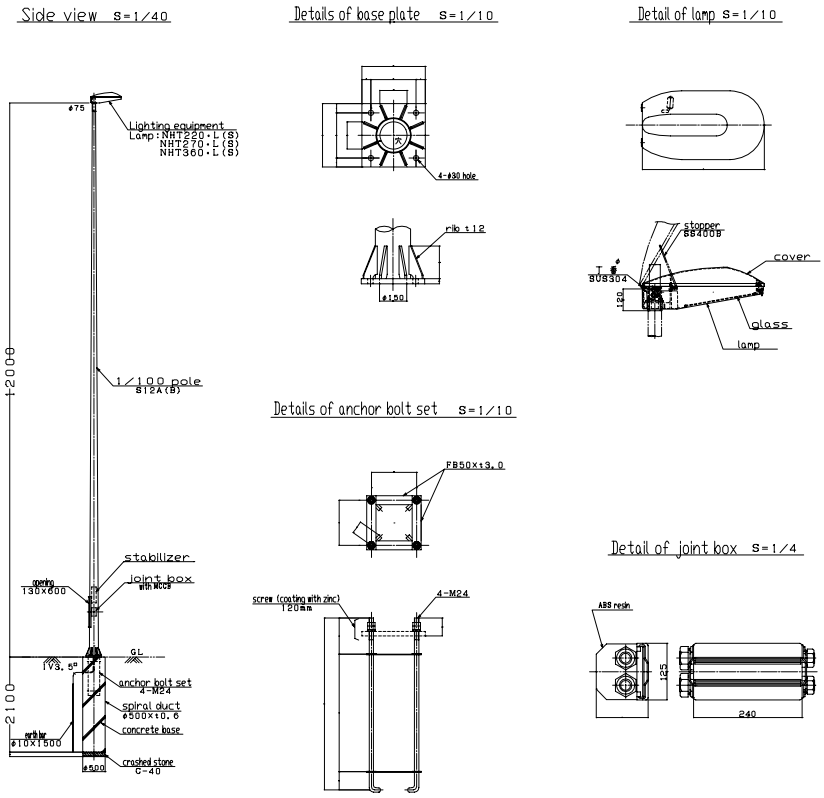


Figure 15-2-4-5 270 W Street Lamps

Photo 15-2-4-1 Site Condition of Lighting Lamps along the Boundary

Above ↑
Lighting lamp on the wall of warehouse

Left ←
Lighting lamps along the boundary face outside of the yard to illuminate the boundary. A lighting lamp points inside of yard to illuminate the yard.

71. Considerations for floodlight for the wharf are as follows:

1) The installation of lighting poles in the yard and apron is not allowed because it obstructs cargo handling. Thus, lighting lamps illuminate the yard and apron from the back of the yard and the edge of the apron respectively.

2) The following figure shows an example layout of three 970 W floodlights with a height of 15 m. In the actual layout, the capacity, its number and setting height of floodlights should be examined considering the site condition.

3) In addition, it is recommendable that shield plate or hood be installed on the floodlight to prevent interference with vessels navigating offshore.

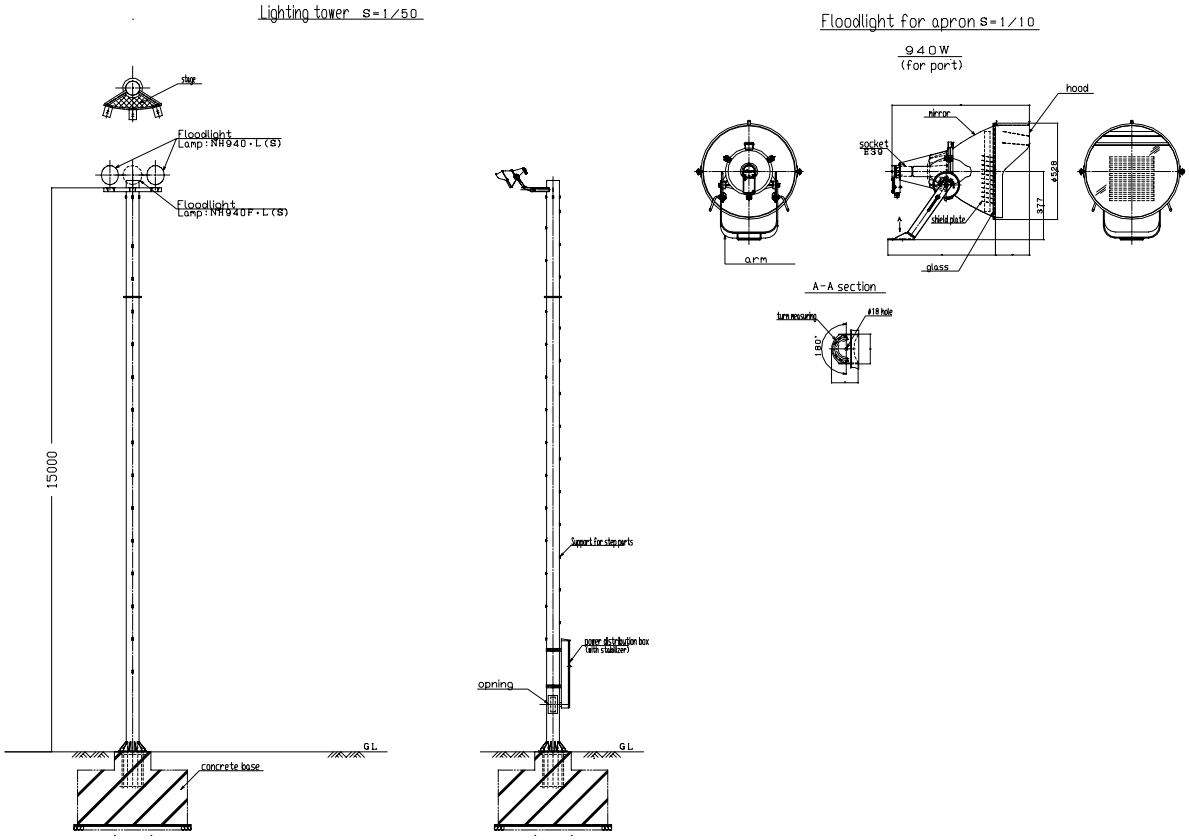


Figure 15-2-4-6 Floodlight for the Wharf

Photo 15-2-4-2 Floodlight Equipped with Shield Plate and Hood

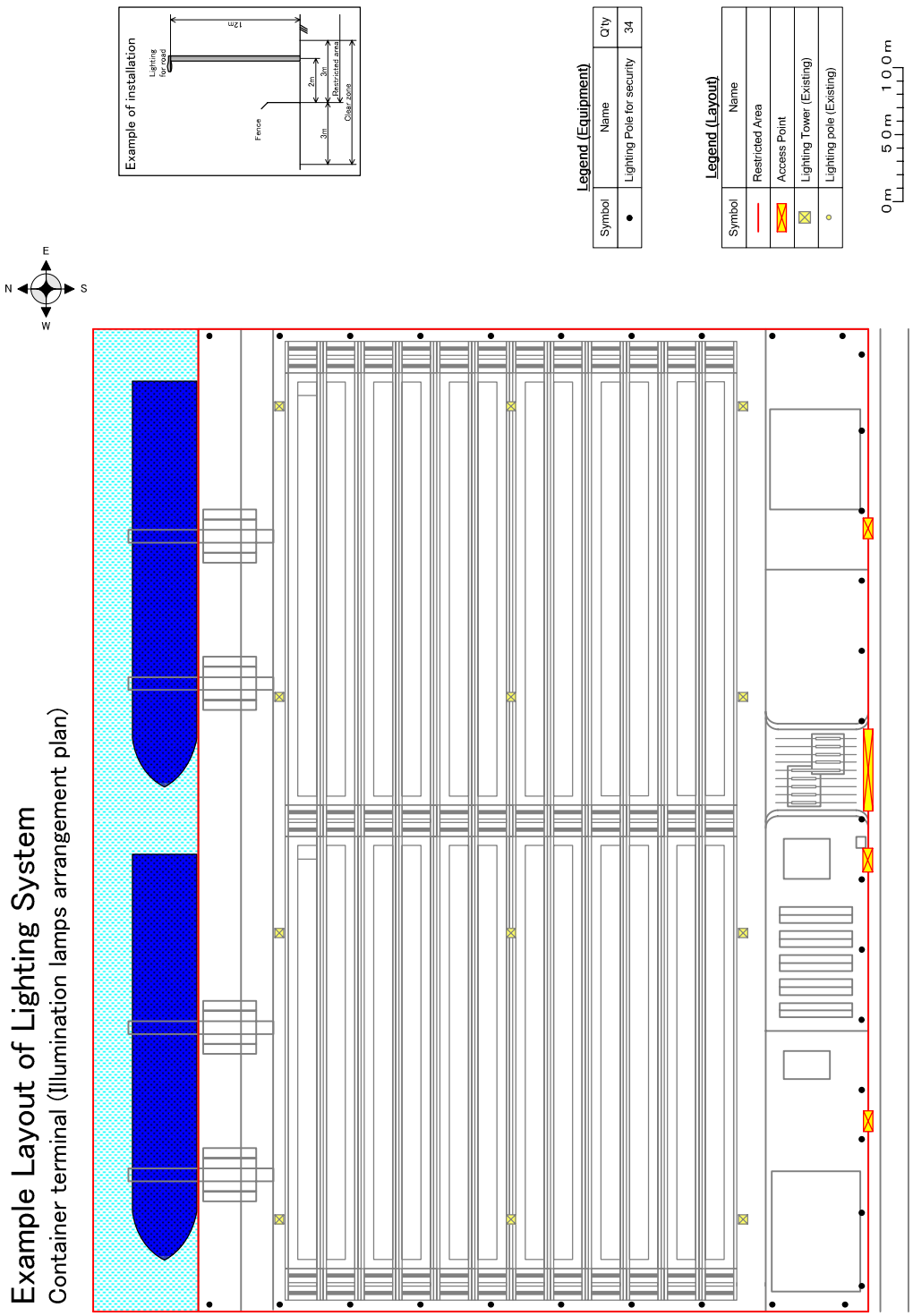


Figure 15-2-4-7 Examples Layout of Lighting System

15-2-5 Surveillance Camera Unit

(a) Functional requirements

72. Shown below are functional requirements for the surveillance camera unit.

- It must be able to cover all boundary areas of the restricted area for surveillance.
- It must be able to watch any particular area in the camera operating range within the restricted area.
- With the combination of surveillance equipment and lighting equipment, it must be possible to identify specific actions of any suspicious person when such person's intrusion or tampering with the fence is underway.
- Camera images must be recorded for a certain period of time.
- The functionality of the surveillance equipment must be maintained for a certain period of time upon any power outage.

(b) Standard functional requirements of the camera system

73. Shown below are standard functional requirements of the camera system.

- It must have the place and time of the shooting recorded at the same time.
- The frame rate of the recorded images must satisfy the surveillance camera requirements.
- Preventive measures must be provided against any potential functional disorder resulting from electromagnetic interference.
- Where there are network connections with the outside, preventive measures must be implemented against any virus infection, network troubles, unauthorized access etc.
- It must be able to do automatic sequential surveillance in a preset sequence.
- It must be able to prevent any diversionary actions by coordinated action with other cameras than the one shooting the detected point.
- It must be able to monitor multiple areas at the same time.
- It must be able to turn at speeds that will not constitute any obstacle to the detection of an intruder.
- Measures shall be provided against any condensation, ingress of raindrops, lightning and salt damage.

(c) Standard specifications

74. Shown below are standard specifications for the surveillance camera unit.

- Group A facilities shall be provided with surveillance cameras. With Group B facilities, it is recommended to install surveillance cameras depending on the using conditions.
- In the assumed illuminance of 3 lux at night, the camera and lens shall be of the specifications that enable to identify the motions of a person in black clothes at the largest shooting range.
- Pier cameras must be installed at such positions as at the end of apron that will not interfere with the loading / unloading operations. The maximum range covered by a single camera shall be 50 - 350 m from the ordinary extension of a pier in consideration of common pier extentions. (The optimum range is to be determined depending on the specifications of the pier for the camera installation.)
- The surveillance cameras used in buildings, such as passenger terminal, shall be

of specifications that allow the monitoring of major traffic lines in the environment within such buildings.

- Surveillance images shall be preserved for the period of transportation to the destination plus about one week or over.
- There shall be ability provided to capture image data from the preserved surveillance images for transferring to external media.
- Images shall be in color.
- Monitor screen shall be 20 inches or over.
- There shall be telescopic function and auto-focusing function (any object in the scope of the camera gets automatically in focus irrespective of night or day) provided.
- The turning range shall allow surveillance of the pier, boundary areas and the inside of the yard.
- In order to turn the camera to one of the preset observation points based on a report (or alarm from the intrusion detection sensors) and to zoom in on any suspicious person, the standard preset turning speed shall be 180 deg /second or over horizontally and 60 deg /second or over vertically. The turning speed under manual operation shall allow the tracking of a running person.
- For coordinate action with the intrusion detection sensor signals at the boundary areas and for the fixed point observation within the yard, the points must be preset. The number of preset points is selected as required for the observation.
- The surveillance cameras used at the port shall be of a robust and highly reliable outdoor oriented construction that will withstand long period of service, with sufficient consideration of salt damage, weather etc.
- In consideration of winds, rain, humidity and temperature changes, the cameras should be equipped with wiper, defroster and other devices for securing visibility or be of the construction that allows equipment of such devices.
- Sufficient consideration shall be given against any lightning strike.

(d) Interpretations

75. The higher illuminance setting required for the surveillance means increased running costs for the installation of lighting equipment and electric power cost. Therefore, it is better to select cameras that can conduct surveillance under existing lighting conditions. Despite any high price level, the selection of cameras that have the capacity of surveillance under a low illuminance level will be more economical overall.

76. Generally speaking, the minimum illuminance level shown on the camera catalog very often will not provide sufficient vision in the port surveillance application that is characterized by the surveillance of wide range under low illuminance levels. Considering the practical application for the port facilities, key criteria for the selection would be the ability to locate in the image a person dressed in black and also the ability to track the motions both under a low illuminance condition. For that reason, use of real equipment is recommended for the confirmation of visibility before making the selection.

77. Where making surveillance of an area with a side of 50 - 350 m, the number of cameras will tend to increase. From the economic point of view, use of long shooting range cameras with powered turning capability for wider surveillance range will be advantageous because it can reduce the number of cameras. However, if the shooting range increases beyond 350 m, the price of the surveillance camera will rise sharply. Therefore, it is desired to limit the shooting range to about 350 m.

78. Besides cost reasons, when comparing the use of a single 1 km shooting range camera with three 350 m range cameras for the surveillance of 1 km range, if the 1 km range camera fails,

the camera surveillance for the entire range fails. On the other hand, if one of the three 350 m range cameras fails, there are still 2 remaining cameras. Furthermore, it may be possible to use rest of the cameras for surveillance by turning to cover the failed camera's surveillance range. Therefore, the use of three 350 m range cameras is desired for security reasons. The above-mentioned conditions should be considered in determining the specifications and arrangement of the cameras.

79. Port surveillance cameras must sufficiently satisfy the fundamental requirements of visibility, resistance to environment and durability. All things considered, for the port surveillance cameras that need to conduct surveillance under low illuminance night time conditions, it will be effective and economical to use high performance cameras with a long shooting range that can work under low illuminance and to contain them in camera housings that are integral with frames and have a high resistance to environment. Shown below is a surveillance camera selection table for reference.. While type A is selected for a long range use under low illuminance, if the illuminance is 15 lux or over and range 200 m or less, type B may also be selected.

Table 15-2-5-1 Selection of Camera Required to Meet Resistance to Environment and Low Illuminance Requirements

Illuminance (lux)	Visibility (m)			
	50	100	200	350
25	B	B	B	A
15	B	B	B	A
10	A	A	A	A
5	A	A	A	A
3	A	A	A	A

A: Single plate high sensitivity camera integral with frame (color, 1/2-in CCD, maximum focal distance of 120 mm) or equivalent
B: Single plate high sensitivity camera integral with frame (color, 1/3-in CCD, maximum focal distance of 60 mm) or equivalent

80. Cameras installed in the passenger terminal have significantly different surveillance conditions than those for the surveillance of ports as, for example, they are used at fixed positions under high illuminance conditions to watch the flow of passengers. Any surveillance cameras to be used for particular locations should be selected for that particular purpose. However, in consideration of maintenance and replacement in case of any fault, it is recommended to use the same type or reduce the number of types whenever practical.

81. The brightness of lens is an important factor in the selection of surveillance cameras that are used for surveillance under low nighttime illuminance levels. Generally, the brightness of a lens is represented by the F number, and the smaller the number the brighter the lens. However, the F number is based on the assumption that the transmittance of the lens is 100 %. Practically, since individual lenses vary in transmittance, lenses of the same F number may have different brightnesses. To avoid such inconvenience, T number represents the brightness in consideration of both the F number and the transmittance. The relationship between the F number and the T number is represented by the following expressions:

F number = f/d
T number = (F number / $\sqrt{\text{transmittance}}$) × 10
f: focal length
d: effective diameter (diameter of entrance pupil)

82. The lens of a camera used for nighttime surveillance under low illuminance should be of smaller F number and of smaller T number if the F number is the same.

83. For the retention of the surveillance image records of a ship, in addition to the period requirement of transportation period to major destination plus one week, it is recommended to add the period that the cargoes to be loaded onto the ship are stored in the port facilities since they are brought into such facilities.

84. The locations of border surveillance cameras must be determined in consideration of the various conditions of the facilities so there will be no blind corner created. The following photos show how the area around the fencing is shown when the camera is installed close to the fence. When watching on the fence line, or almost parallel to the fencing, with a surveillance camera installed inside and close to the fencing, the fencing is seen as if it were a wall, producing a blind area outside the fencing. The fencing in each of the photos is provided with straight spikes.

Photo 15-2-5-1 Camera Surveillance Image

Installation conditions (0.5 m inside the fencing, at a height of 5 m)

The lower outside part of the fencing is a blind area and only the person's head is visible.

Installation conditions (0.5 m inside the fencing, at a height of 10 m)

The lower outside part of the fencing is visible and the motions of the person may be observed.

85. Fencing of the standard specifications has an outward angled spike. Since the spike itself is seen as a wall, assuming the tolerated camera blind area width of approximately 0.5 m, the location of the camera is desired when it is directly over the fencing at the height of 10 m. From the above discussions:

1) The boundary surveillance cameras should be positioned with their bodies directly over the fencing so both inside and outside of the fencing may be observed.
2) Increasing the installed height to 10 meters decreases the blind area directly on the outside of the fencing. However, any height beyond 10 meters will narrow the range of vision as shown in the next item.

86. However, when deciding the camera position, it is recommended to use a height working vehicle or any other equipment at the site to check the visibility. In addition, the following are considerations to be given when installing surveillance cameras.

1) Where the camera is installed on a camera pole, the higher the pole the more disadvantageous to shaking. The strength of the camera pole must reflect considerations against shaking.

2) When installing a loudspeaker on the camera pole, sufficient considerations should be given to avoid any blind area for the camera as by selecting a proper position or a position higher than the camera.

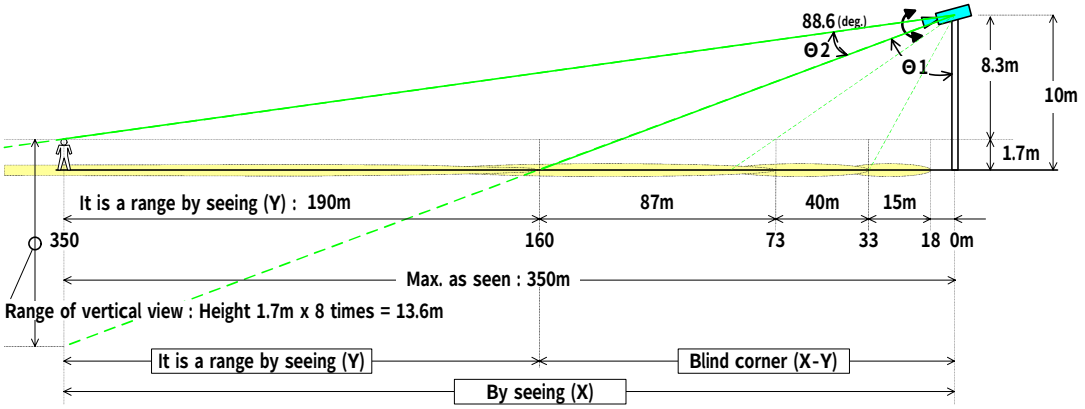
3) Since the camera pole and camera inspection deck will produce a blind area for the camera surveillance, their positions must be determined with sufficient considerations of the relative positions of camera range of vision, camera pole, inspection deck etc.

4) The local control panel for the surveillance camera must be installed in the vicinity of the camera pole or the camera. (Some cameras may not require any local control panel.)

87. The surveillance camera locations and preset positions[*3] are determined as follows:

1) The surveillance cameras should be located so the entire boundary areas and any positions in the yard may be observed. In addition, since the area under a camera tends to be a blind area, the camera locations should be determined to cover such area with other cameras.

2) The picture range of a surveillance camera positioned at a point may be obtained from an equation that is expressed by the shooting range of the camera, height installed and angle. With the equation, the surveillance camera's preset positions and number of positions may be determined so the entire boundary areas and any point in the yard can be watched. However, to ensure that the theoretical values obtained by the equation can be really captured in the pictures, the actual arrangement of fencing and gates must be examined.



By seeing X (m)	It is a range by seeing : Y (m)	Blind corner X – Y (m)	Angle Θ1 (deg.)	Viewing angle Θ2 (deg.)	Preset angle (deg.)
350	190	160	86.4	2.2	87.5
160	87	73	82.2	4.8	84.6
73	40	33	73.3	10.2	78.4
33	15	18	56.4	19.5	66.2
18	8	10	39.4	25.8	52.3
10	4.6	5.4	24.5	25.8	37.4

Preset angle = Angle(Θ1) + Viewing angle(Θ2) x 1/2

Figure 15-2-5-1 Sample Calculation of Vision Range

3) The standard size of a person in the camera image displayed on the monitor should be about one eighth of the vertical size of the monitor to ensure the recognition of that person. Shown below is an example of vision range calculation for a person of 1.7 meter in height at a distance of 350 meters from the camera who is zoomed in to a size of one eighth of the vision range.

4) When presetting the surveillance points on the boundary line, the preset points should be selected so the ends of the vision ranges of neighboring preset points slightly overlap each other.

*3:By presetting the points where the camera automatically turns to a stop, selecting a number or operating switches at any time will cause the camera to automatically move and zoom in on the selected point.

88. The camera must be of a color type because the distinguishment of color (distinguishment of fire or revolving lights) is necessary to correctly recognize the situation.

89. The monitor screen must be 20 inch or over in order to meet the requirement of identifying the behaviors of a person at the longest distance in combination with the camera functionality.

90. In order to prevent any damage of equipment or any propagation effects to other equipment by direct lightning hit or lightning surge, the following measures must be taken:

1) Install lightning resistant transformer or arrestor on the power circuits and signal circuits to reduce the risk of lightning surges propagating to other equipment and circuits or being affected through other equipment. If possible, use optic fiber in conjunction with lightning resistant transformer.

2) Lightning rods must be installed on separate structures than the camera poles because the rods lure lightening to prevent any direct hit of the lightning. Since, however, the zone that is likely to be protected by a lightning rod stays within a 60 degree angle cone from its top end, install a lightning rod only when there is a tall lightning pole or similar structure in the vicinity of the camera pole and it can be used for the installation.

91. Common measures against lightning are shown below:

1) Protector + lightning resistant transformer

The protector and lightning resistant transformer control the flow to the equipment of surge current that occur at the coaxial cables and control cables and at the power line, respectively.
The surge current to the coaxial cables and control cables may be restrained by the protector but still the effects on the equipment are unavoidable. The combination is suited for short cable lengths (approximately less than 100 m).

2) Optic fiber + lightning resistant transformer

The very generation of surge current is avoided on the cable by the use of non-conducting optic fiber for the transmission of image and control signals. The lightning resistant transformer restrains the flow of surge current to the equipment that occurs on the power cable.
Since there is no surge current generated due to the use of optic fiber, the equipment is not affected by such current through the image and control cables. However, although the surge current that occurs on the power cable may be restrained but still the effects on the equipment will be unavoidable.

3) Lightning rod

For the protection of the buildings and human life, the rod lures lightning and leads the lightning current to the ground.
Any lightning hit on the rod or on the area around it will generate a surge current that will cause significant effects on the equipment and be dangerous. Therefore, it is improper to have a lightning rod close to a camera because it is likely to lure the lightning. Lightning rod must be installed apart from the camera and at a height that will avoid a lightning hit on the camera.
The lightning rod is intended to prevent any lightning hit on the camera and cannot control the surge current that occurs on cables. Therefore, with the lightning rod installed, protectors and lightning resistant transformer still need to be installed.

92. Since the surveillance cameras are high priced equipment, provisions should be made as required against any theft or destructive action as by installing a fence on the camera mounting poles to prevent any climbing.

93. Surveillance equipment must be protected against extreme temperatures and humidity.

The security and surveillance equipment must be protected against high temperatures to avoid any shortened service life or fault arising from degradation of electronic components. In addition, control panels must be enclosed to prevent any ingress of rainwater and insects or condensation and resultant faults.

1) Measures against high temperatures

In order to prevent any extreme temperature increase inside control panels attributable to direct sunlight, sun shields should be provided on the control panels that are installed at the site. The installation of a panel cooler should also be considered on any panel with significant heat generation from the internal equipment contained.
Since the surveillance equipment control panels that are installed indoors have relatively high generation of heat, the installation of a panel cooler should be considered.
Air conditioning must be provided in the surveillance room or in the room for containing surveillance control panels to control the room temperatures.

2) Measures against humidity

Panel doors must be sealed with packing, eliminating any gap, to prevent any ingress of rainwater or any other foreign material into the panel.
The cable introducing ports of control panels must be designed for sealing as with putty.
To prevent any condensation and clouding, the equipment and panels should be provided with space heater as necessary.
Panel doors must always be provided with locks to prevent any person other than the responsible personnel from opening them.

(e) Reference

94. Shown below are installation policies on CCTV camera system

1) CCTV cameras should be disposed with an interval in-between which CCTV cameras can monitor the motion of a suspicious person under 3 lux during the night time. Considering the capacity, number, monitoring area and the target (yard, passenger terminal, etc) of CCTV camera, the layout of CCTV cameras should be determined.

2) The layout should ensure that there is no blind spot by warehouses and stacking

cargo to CCTV cameras and CCTV cameras can monitor the main route in the yard.

3) In the wharf, the layout should ensure that CCTV cameras do not obstruct cargo handling and there is no blind spot by cranes and handling cargo to CCTV cameras.

4) The setting level of CCTV camera should be determined to minimize the blind spot around the fence and by stacking cargo with considering the ease of the maintenance.

95. Shown below are various kinds of CCTV cameras.

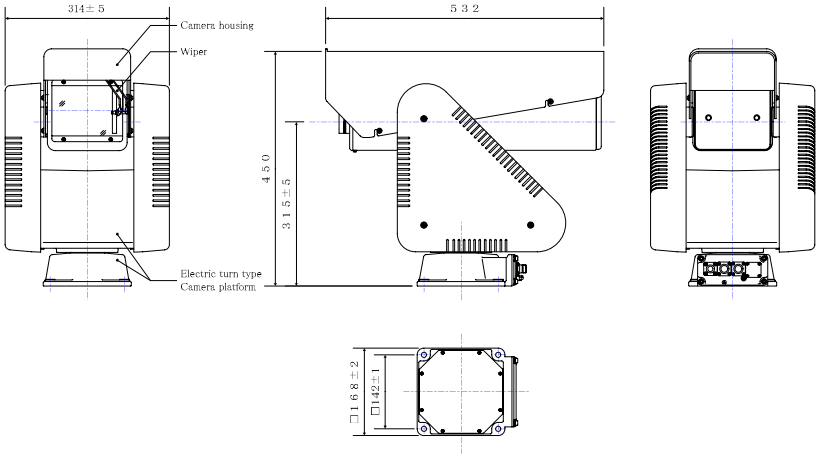
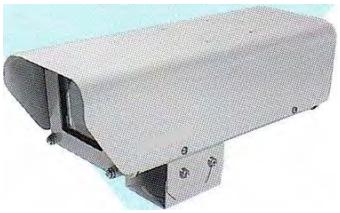


Figure 15-2-5-2 Turning Type CCTV Camera (Monitoring Capacity within 350 m or more)
314(W) x 450(H) x 532(D) mm

Photo 15-2-5-2 Reference Photograph of CCTV Camera

Turning type CCTV camera
(monitoring capacity within 350 m)
430(W) x 460(H) x 450(D) mm



Fixed type CCTV camera (monitoring
capacity within 80 m)
153(W) x 202(H) x 425(D) mm

Dome shape CCTV camera for inside the building

96. Examples of installation of CCTV camera is shown blow. Control panel is also set on the pole.

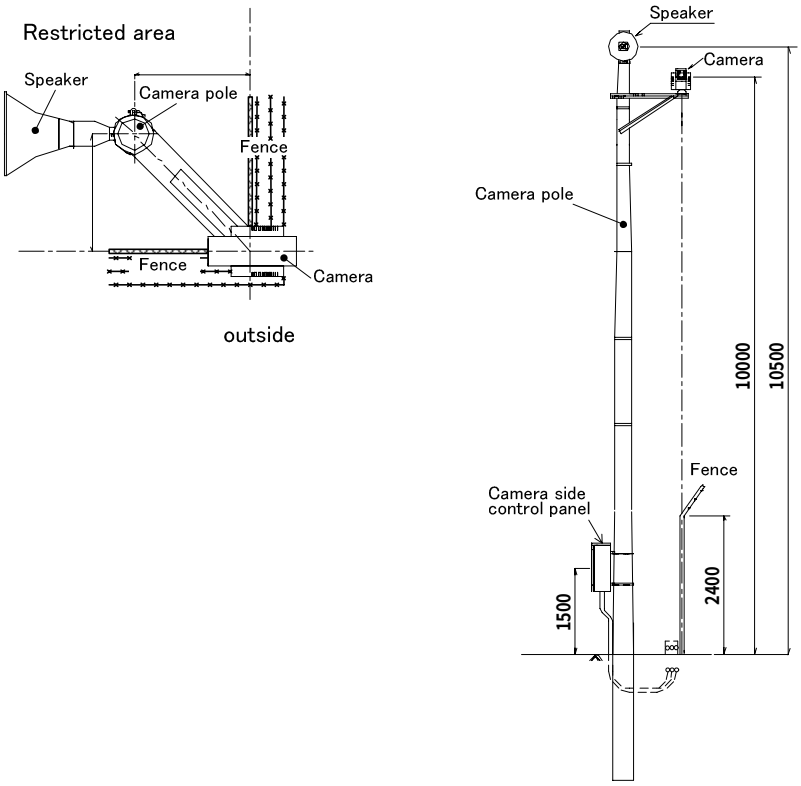


Figure 15-2-5-3 Example of Installation of CCTV Camera

97. Lightning protection measures are as follows:

1) The following are photos of lightning resistant transformers and arrestors for reference.

Photo 15-2-5-3 Examples of Arrestors

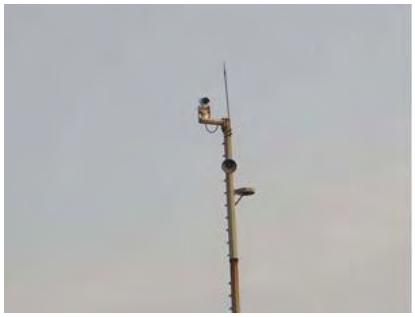
For coaxial cable protection

For signal circuits protection

Lightning resistant transformer

2) Lightning rods shall be installed only where structures separate from camera poles are available for their installation, such as tall lighting poles in the vicinity of camera poles.

Photo 15-2-5-4 Lightning Rod



In the photo on the left, since the camera is positioned close to the lightning rod, it is easily predicted that any lightning hit on the rod will affect the camera and the resulting surge current will cause significant damage to the camera. Therefore, lightning rods should be installed on separate structures than camera poles.

98. Prevention measures against theft and damage are important. If security equipment is installed along the road in the yard, security equipment should be guarded by a protector like a guard rail. The following photos show examples of the installation of guard rail and theft prevention device.

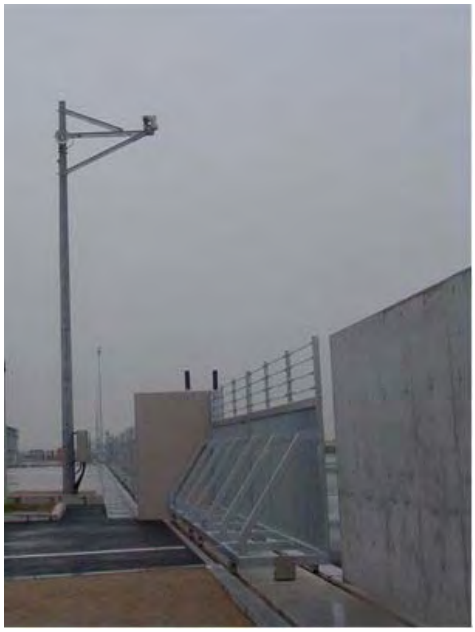
Photo 15-2-5-5 Site Condition of Protector for Security Equipment

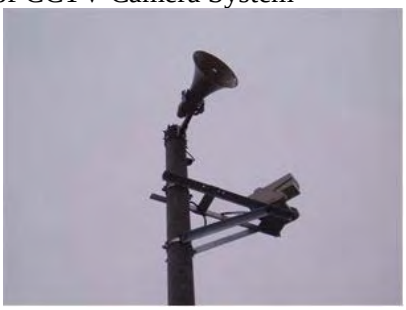
Guard rail is in position to protect the security equipment from rushing vehicles. (Guard rail is covering the control panel in the left of photo and the pole.)

Protection device against theft on the CCTV camera pole

99. Examples of installed CCTV camera are shown below.

Photo 15-2-5-6 Site Condition of CCTV Camera System





Above ↑
Speaker is also on the CCTV camera pole.

Left ←
The arm was utilized to set CCTV camera over the fence.
The control panel is on the lower part of the pole.

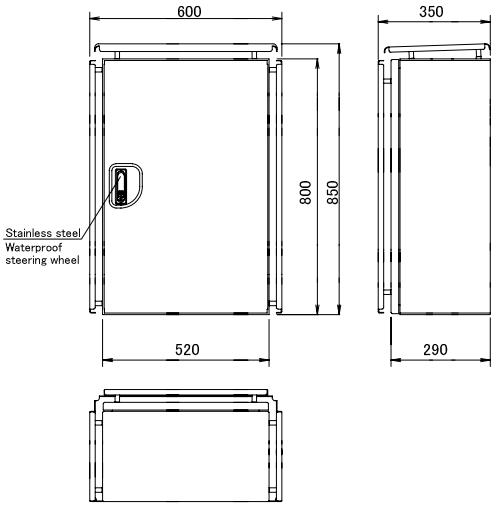
Above ↑
CCTV camera is on the lighting tower.

Left ←
CCTV camera and speaker are on the lighting tower.

Right →
CCTV camera and speakers are on the wall of an administration building. (Speakers are directly fixed on the wall.)

100. Measures against extreme temperature and moisture must be taken. The following photos and figure show monitoring equipment which has been weatherproofed.

Photo 15-2-5-7 Weatherproof Monitoring Equipment

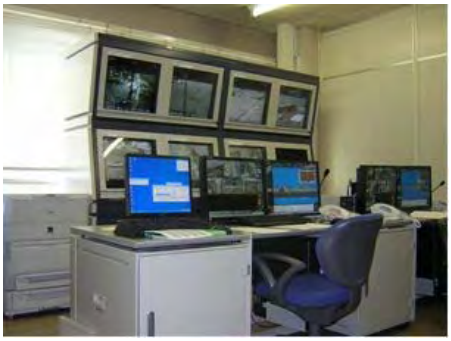


Control panel with shield plates

CCTV cameras with hood

Left ←
Control panel with air conditioner (An air conditioner is on the ceiling.)

Below↓ Monitoring room equipped with air conditioner



Central monitoring room

Monitoring room in the port

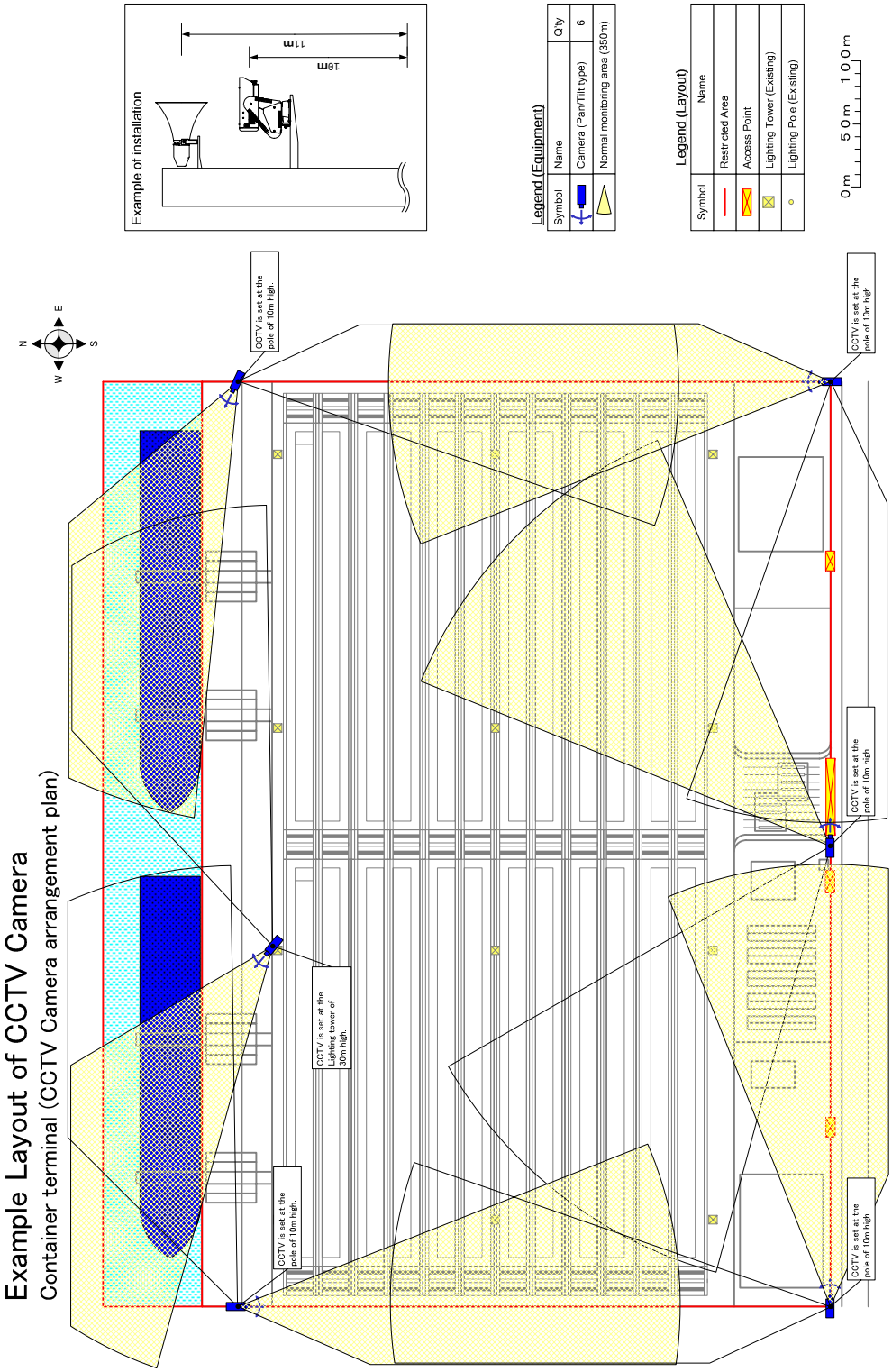


Figure 15-2-5-4 Example Layout of CCTV Camera

15-2-6 Intrusion Detection Sensors

(1) Fence Sensor

(a) Functional requirements

101. Shown below are functional requirements for the intrusion detection sensors.

1) It must always be able to monitor any intrusion from the periphery of the restricted area and any tampering with the fence (by the provision of automatic detection functionality) and to notify the sentinel.
2) The intrusion detection sensors to be installed on the barriers (fencing etc.) must be fit and reliable for the detection of possible assumed scenarios, including intrusions by crossing over, cutting, and clashing in and tampering with the barriers.
3) Where surveillance cameras are provided, the alert areas should be divided into sections of a length (width) that can be observed at a single preset point of a camera so the entire section of the fencing reported is contained in the visual range of the camera. In addition, such functions must be designed to be performed in coordination with the motions of the surveillance cameras.

(b) Standard specifications

102. Shown below are standard specifications for the intrusion detection sensors.

1) Fence sensors should be installed when they are necessary for any particular purpose. They are not essential conditions for the security facilities.
2) Candidates shall be vibration sensor (coaxial cable-type or optic fiber type), tension sensor, infrared ray sensor, electric field sensor, and image sensor, among which selection is to be made based on the criteria of adaptability, reliability in detection performance, serviceability, ease of installation and economic efficiency.

(c) Interpretations

103. Vibration sensors and tension sensors are suited for the installation on the fencing and infrared sensors for the installation over the fencing.With the vibration sensors, optic fiber type costs more than coaxial cable type.Electric field sensors and image sensors are inferior in reliability.

104. The sensing zone of a sensor shall be determined to stay within the preset ranges of vision of the surveillance camera so the sensor reported position can be captured in coordination with the camera. The number and positions of preset ranges of the surveillance camera shall be determined to eliminate any blind corner. The following are items that should be considered when setting the fencing sensor sections.

1) When there is no boundary surveillance camera installed, the division into sections should be conducted in a manner that will facilitate the identification of the sensor reported point.
2) When installing the fence sensors with a fence boundary surveillance camera positioned in between, the sensor sections should be divided at the camera.

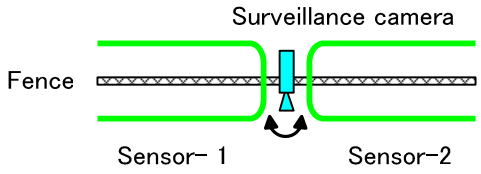


Figure 15-2-6-1 Sensor Section Division where a Surveillance Camera is Positioned in between

3) Where there are both the boundary surveillance cameras and fence sensors installed, the division into sections should be conducted so each of the fence sensor sections may be contained in a visual range of a surveillance camera for a single preset point. The zooming out of the camera lens should be determined so a 1.7 m tall person is shown a size of one eighth of the vertical visual range. (See "9 Determining the surveillance camera locations and preset positions" of "5 Surveillance Camera Equipment".)

4) X1 of the following figure shows the maximum zoomed out image on the monitor and X2 the image of 1.7 m tall person zoomed in to a size of one eighth of the vertical visual range. With the visual range of X1, the fence that is seen in the range of Z1 and Z2 is not shown in the image zoomed in to a visual range of X2.

5) Therefore, the maximum fence sensor section size should be the visual range of X2. With Z1 and Z2 ranges, they should be set one by one so each of them may be contained in other fence sensor sections.

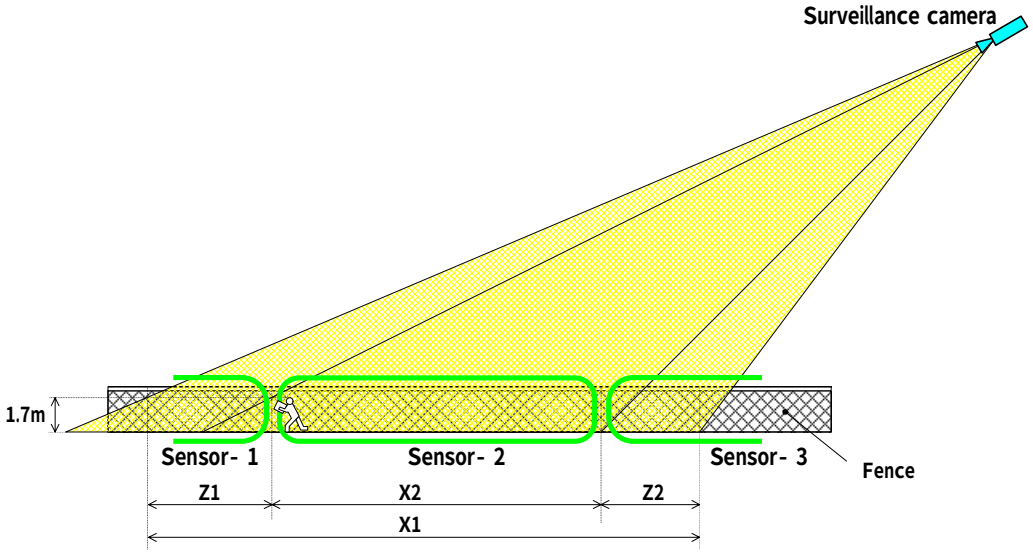


Figure 15-2-6-2 Division into Sensor Sections based on Surveillance Camera Ranges of Vision

105. Shown below are examples of sensor installation on the fencing

1) Since tension sensors cannot detect on fence surfaces, sensor wires are installed in a pitch of 220 mm in the direction of the height of the fencing so no human can pass between the sensor wires.

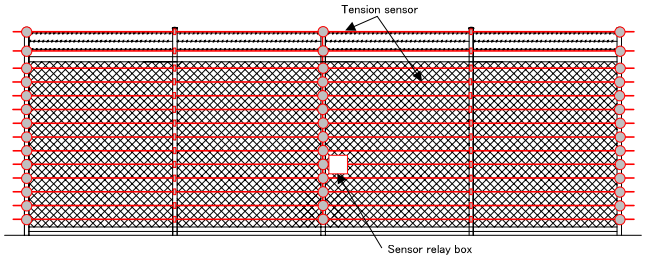


Figure 15-2-6-3 Example of Tension Sensor Installation

2) Since vibration sensors detect on the face of the fencing, a sensor wire is installed on the fence surface and tension sensors are installed on the spike where there is no mesh.

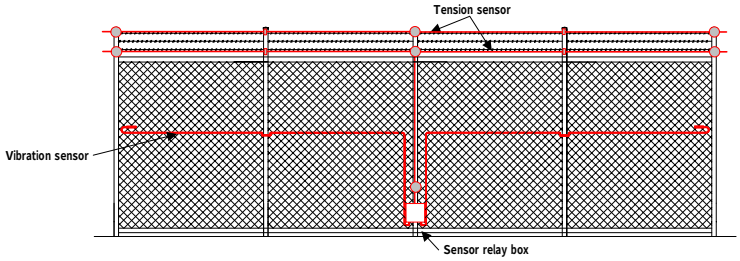


Figure 15-2-6-4 Example of Vibration Sensor + Tension Sensor Installation

(d) Reference

106. Shown below are examples of fence Sensor (Vibration Sensor).

1) Example of installation of fence sensor

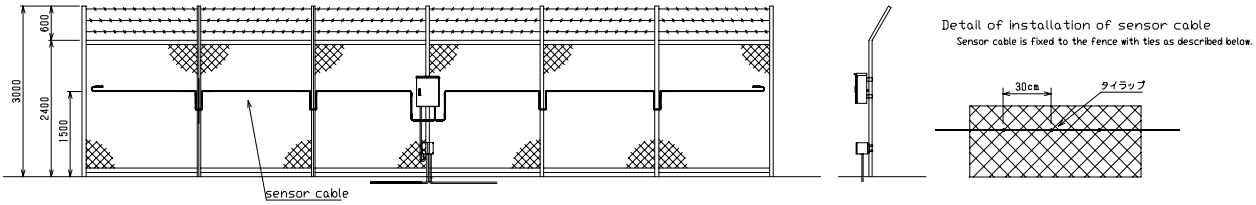


Figure 15-2-6-5 Example of Installation of Fence Sensor (Vibration Sensor)

2) Site condition of fence sensor

Photo 15-2-6-1 Fence Sensor

- Relay box for the fence sensor is in the center of the left photo.
- Black lines which connect to the relay box are sensor cables. (indicated by red arrows)

(2) Gate Sensor

(a) Functional requirements

107. Shown below are functional requirements for the gate sensor.

1) It must have automatic detection functionality to detect any suspicious person and have the capability to report the detection to the sentinel.
2) The intrusion detection sensors to be installed on the gates must be fit and reliable for the detection of possible assumed scenarios, including intrusions by crossing over, cutting, and clashing in and tampering with the gates.
3) The gate sensor must be provided with a key switch box so the security personnel can either set or release the alert mode of the gate sensor at the site depending on how the gate are being used. The system must be designed to preclude any possibility of non-alert mode while the gate is closed.

(b) Standard specifications

108. Shown below are standard specifications for the gate sensor.

1) Gate sensors should be installed when they are necessary for any particular purpose. They are not essential conditions for the security facilities.
2) Candidates shall be tension sensor, infrared ray sensor and image sensor, among which selection is to be made based on the criteria of adaptability, reliability in detection performance, serviceability, ease of installation and economic efficiency.

(c) Interpretations

109. Tension sensors and infrared sensors are suited for the opening and closing of gates. Image sensors are inferior in reliability.

110. The following are examples of sensor installation on gates.

1) Since gates of mesh construction have a risk of being cut or clash-broken, infrared sensors are installed at the lower part of the gate. They are also installed on the upper part of the gate for a risk of being crossed over. To avoid the possibility of erroneous detection of any person inadvertently coming close to the gate, the sensors at the lower part of the gate are installed on the inside of the gate. The sensors on the upper part of the gate are installed on the outside so any attempt of intrusion may be detected in advance of the entry into the restricted area.

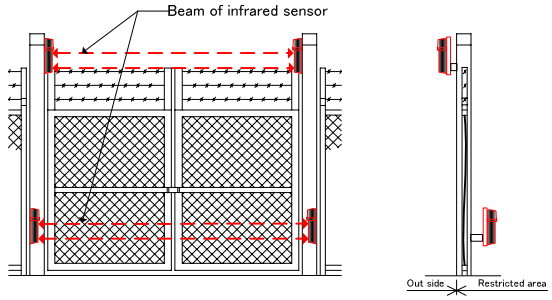


Figure 15-2-6-6 Infrared Sensors Installed on a Mesh-Type Gate

2) Where there is little risk of being cut or clash-broken as on a grid construction gate, the infrared sensors are installed on the upper part of the gate alone. To detect any attempt of intrusion before actual entry into the restricted area, the sensors are installed on the outside of the gate.

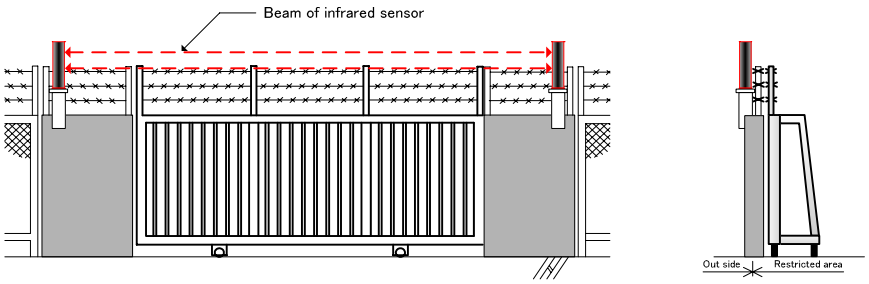


Figure 15-2-6-7 Infrared Sensors Installed on a Grid-Type Gate

3) Tension sensors are applied on mesh-type gates as follows.

a) The same principles apply to the installation of tension sensors. However, a tension sensor has a lot of components, including the sensor body installed on the front surface of the gate doors and is not suited for the application because such components and sensor wires would bulge out on the front surface of the gate doors. Furthermore, it would be difficult to use it for a folding gate because such bulge may cause interference.

b) Use as a cut sensor: To detect any penetration by means of clash-breaking a mesh-type gate, sensor wires may be woven in the mesh of the gate doors. They detect the breakage of the sensor wires upon any clash-breaking of the mesh.

111. Infrared sensors detect persons and vehicles passing the gate even while the gate is open. Therefore, switch is used to shift the mode so the sensor detection signals are processed not to issue any warning while the gate is open. When closing the gate, the operation must be done with care not to allow any non-alert condition to occur due to the timing gap between the closing of the gate and the switching of the detection signal process mode.

(d) Reference

112. Shown below are examples of installation of gate senor.

1) Installation of infrared sensor to the hinge type door

a) Installation of infrared sensor to hinge type gate

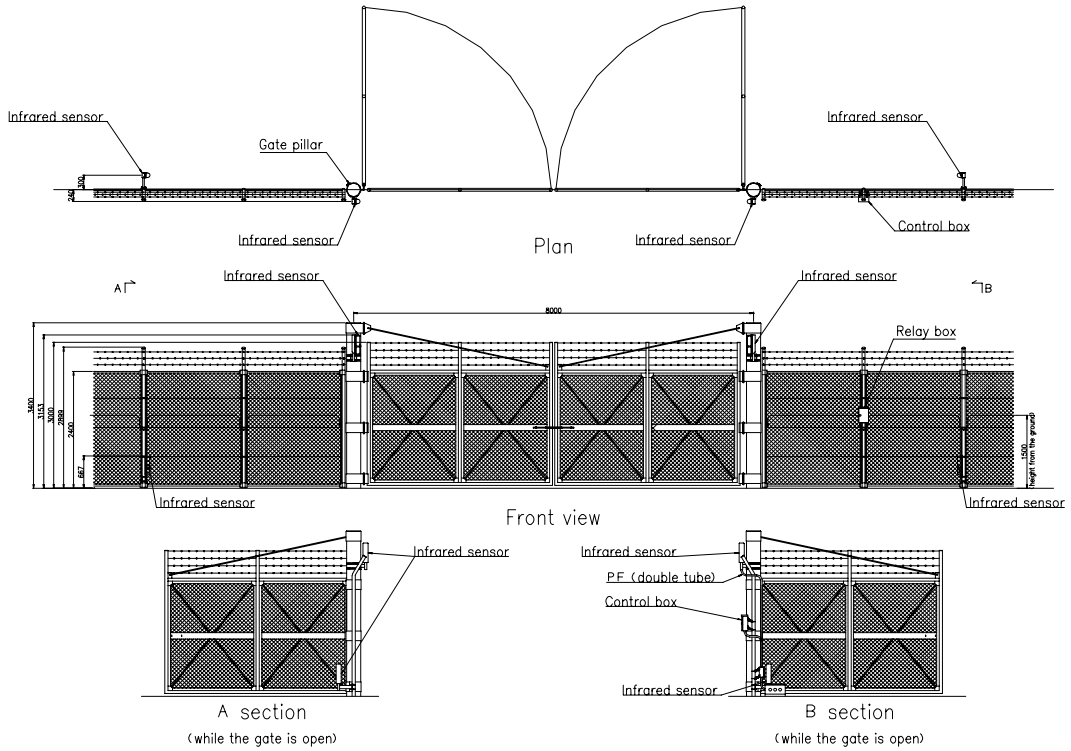


Figure 15-2-6-8 Example of Installation of Infrared Sensor to Hinge Type Gate

b) Installation of infrared sensor to the roller type door

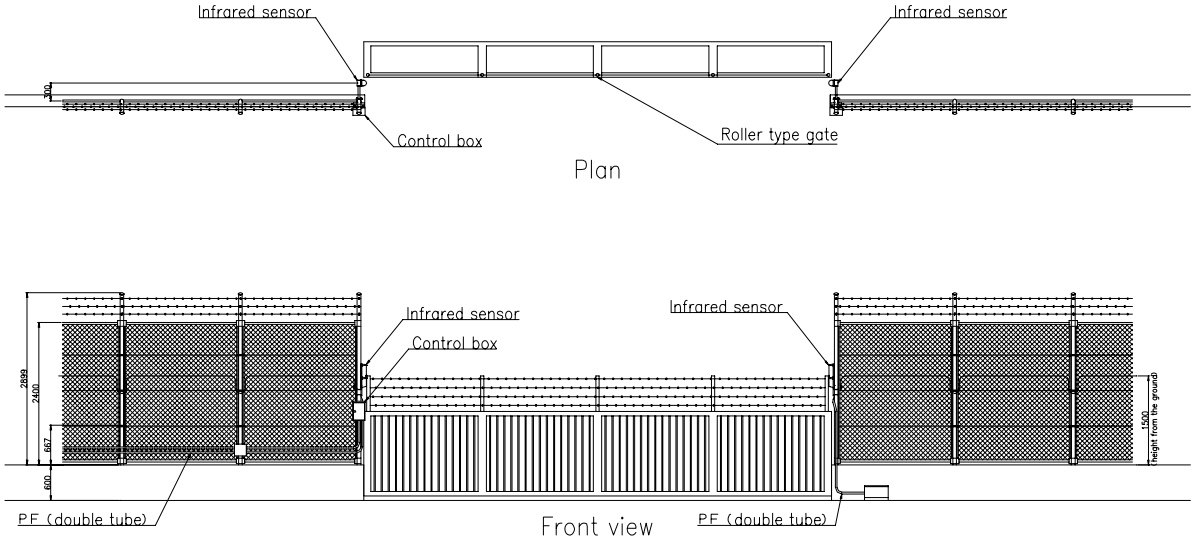


Figure 15-2-6-9 Example of Installation of Infrared Sensor to Roller Type Gate

2) Site condition of gate sensor (infrared sensor)

Photo 15-2-6-2 Gate Sensor

Infrared sensor on the hinge type gate (indicated by red circle)

- Four black devices on the upper and lower parts of each main pillar are infrared sensors.
- Red circle at the right edge indicates the control box.
- When the gate is fully open, sensor devices need to be moved out of reach of gate.

Infrared sensor on the roller type gate (indicated by red circle)

- Two black devices are infrared sensors for the inner roller type gate.
- The second black device from the left is an infrared sensor for near roller type gate and for small gate for person.
- These sensors are set at the middle part of the pole to monitor above the wall.

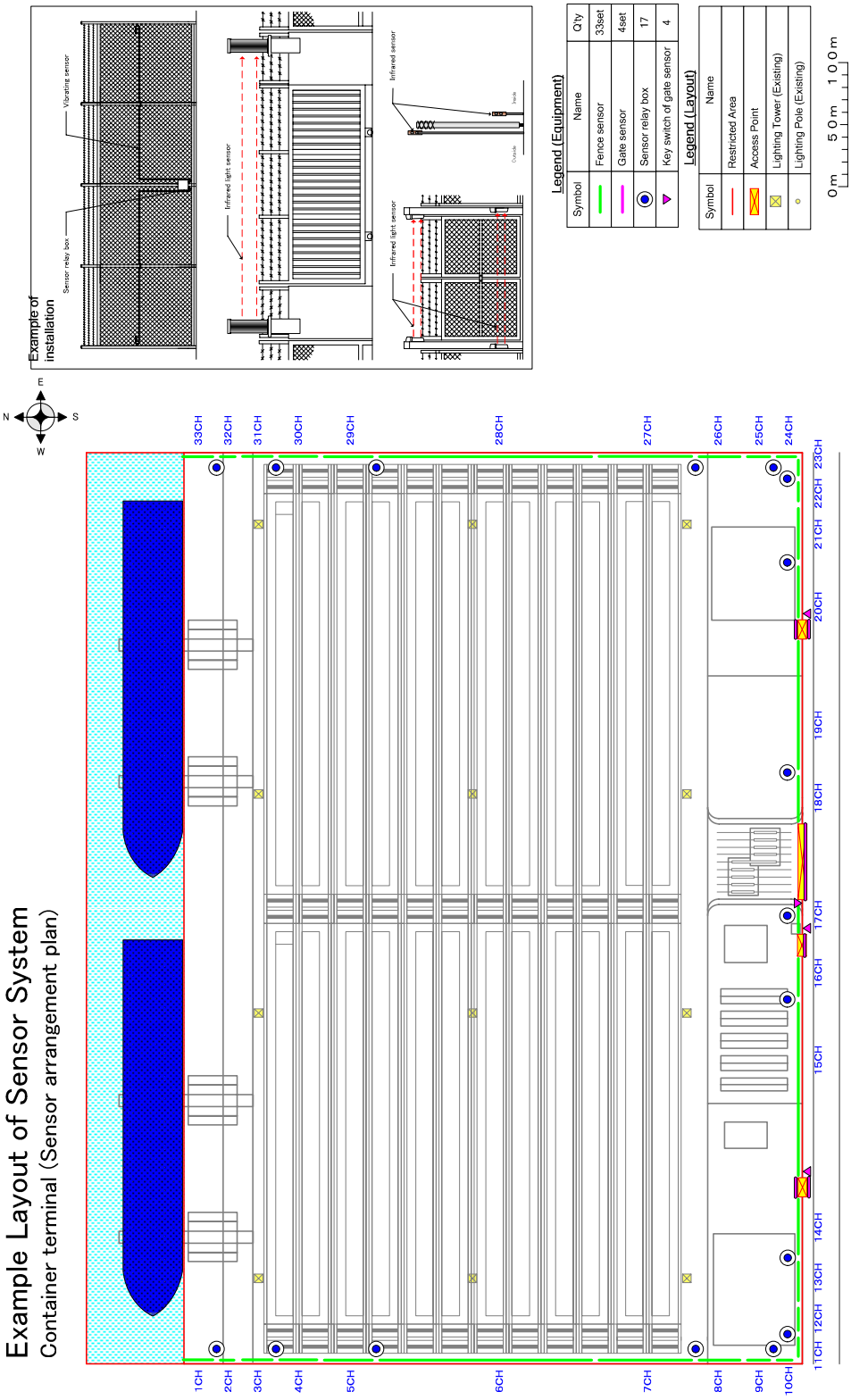


Figure 15-2-6-10 Example Layout of Sensor System

15-2-7 Hand Luggage Inspection Equipment

113. Shown below are functional requirements and standard specifications for the hand luggage inspection equipment.

(a) Functional requirements

114. Shown below are functional requirements for the hand luggage inspection equipment.

1) It must be able to easily detect weapons, explosives and other objects that are prohibited to bring onto the ship.
2) For the inspection of hand luggage, every inspection site must be equipped with a set of X-ray inspection device and portal-type metal detector as well as handheld metal detector.
3) To prevent any concealed carriage of hazardous materials, the inspections of hand luggage must be conducted through the X-ray inspection device simultaneously with the inspection of the person carrying the luggage through the portal-type metal detector. For that purpose, the X-ray inspection device and the portal-type metal detector must be positioned in parallel.
4) Handheld metal detectors must be provided at the inspection site so they can be used at any time as necessary.

(b) Standard specifications

115. It is desired that international passenger facilities that international regular passenger liners routinely come and go and are visited by a lot of passengers be provided with X-ray inspection devices and portal-type metal detectors for the inspection as of hand luggage.

1) X-ray inspection device
   - It must display the entire object being inspected
   - It must have sufficient capacity to distinguish
   - It must have sufficient penetrating power
   - It must be able to obtain information on the material of any explosives or any other hazardous objects
2) Metal detector
   - It must be able to detect metallic objects irrespective of their directions and positions
   - It must be able to detect stainless steel and non-ferrous metals such as aluminum
   - It must be sensitivity adjustable
   - Portal type metal detector and handheld metal detector are used for the inspection of personal effects of the passengers

(c) Interpretations

116. There is a concern that the inspections may often be neglected at facilities with a lot of passengers. To maintain the proper level of inspection, it is recommended to use X-ray inspection device for hand luggage and portal type metal detector for passenger's personal effects. Handheld metal detector should be used at the same time.

117. In the international passenger facilities, inspections are conducted with the hand luggage inspection devices when entering the country (disembarkation), which is primarily intended by

the customs office for finding out any unlawful import. From the port security point of view, the hand luggage inspections should be conducted when departing the country (embarkation). Therefore, the following items must be considered when installing the hand luggage inspection devices.

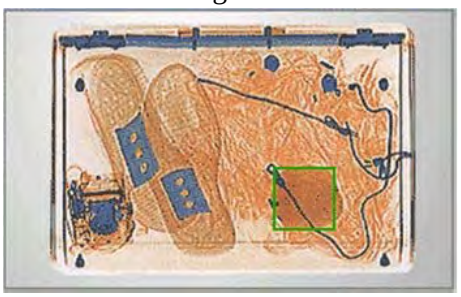
1) For the viewpoint of port security, international passenger facilities for regular liners should be equipped with hand luggage inspection devices on the embarkation side.
2) On the disembarkation side of international passenger facilities, since the inspections are usually conducted by the customs office using the hand luggage inspection devices, it is recommended to cooperate with them to ensure the security on the disembarkation side.
3) For non-regular international passenger facilities, the necessity of hand luggage inspection devices or partial installation of such equipment should be determined individually for each of the port facilities depending on the using conditions of the facility and on the types and frequencies of ships visiting the port.
4) Where the facilities are less frequently used, the possibility of sharing the inspection devices between the embarkation and disembarkation side should be examined in coordination with the customs office.

118. X-ray inspection device must have the function to distinguish the material of explosive or any other hazardous objects. Such additional function is often offered as an option. Since any optional function requires additional cost and may require modification at times, it is necessary to have the necessary function clearly stated as part of the functional requirements and specifications. The following are examples of photos from an X-ray inspection device.

Photo 15-2-7-1 Material Detection Function

Material identified and such identified material shown colored (3 colors)

Photo 15-2-7-2 Suspicious Object Tracking Function



Specific material automatically identified and shown in frame of a color specific to the material (3 colors)

119. The tunnel size of an X-ray inspection device must be determined in consideration of the sizes of hand luggage brought in. The hand luggage includes carry-on luggage that passengers carry on board, luggage that is checked in before embarkation, and luggage that is separately transported. Since such packages vary in size, the tunnel size should be determined in consideration of the operational procedures, such as carry-on luggage and checked-in luggage be inspected on separate X-ray inspection devices or the same device.

120. The inspections of passengers' personal effects should be conducted primarily with a portal-type metal detector through which the passengers pass. In case of any detection, a handheld metal detector is to be used for the re-inspection. Shown below are photos of metal detectors.

Photo 15-2-7-3 Walk-through Type Metal Detector
(Gate dimensions: 2055 x 700 mm)

Photo 15-2-7-4 Handheld Metal Detector
(Outside dimensions: 140 x 400 mm)

121. Arbitrary sensitivity setting must be possible with both the portal-type metal detector and handheld metal detector.

(d) Reference

122. Shown below is an example of inspection system of belongings

Photo 15-2-7-5 Site Condition of Inspection Device of Belongings

- X-ray inspection device is on the right of white box and walk-through metal detector is on the left. They are side by side.
- The white box on the center is a stand to put passenger's metal belongings like watch, mobile phone and keys. As this stand is between the X-ray inspection device and walk-through metal detector, a security guard cannot monitor the belongings. This stand should be moved to the other side so that a security guard can monitor the belongings in front of him.

15-2-8 Telecommunications Equipment

(1) Telecommunications between Ships and Port Facilities

(a) Functional requirements

123. Shown below are functional requirements for the telecommunications equipment.

- It must provide capability for direct communication with ships.

(b) Standard specifications

124. Shown below are standard specifications for the telecommunications equipment.

[Communication means]

- Telephone, fax, and e-mail using INMARSAT telecommunications satellite
- Marine satellite phones (satellite handheld phones via Iridium, Thuraya, Asis etc.)
- International VHF (port operations communication) radio phones
- Other communications media for ships in port, including cellular phone, transceiver and megaphone
- Telecommunications via shipping company or agent
- Voice communications via Maritime Safety Agency
- At ports with a port radio station, VHF communications are used as supplemental communications media.

(c) Interpretations

125. It must always or at times of emergency be provided with the means to exchange information immediately and securely. The security level of ships must be confirmed and the security level of port facilities be reported. Security-related information must be transmitted and received between ships and port facilities.

(2) Communications within Port Facilities

(a) Functional requirements

126. Shown below are functional requirements for the communications within port facilities.

- Security personnel shall be able to make voice calls promptly at times of emergency.
- Upon any occurrence of harmful acts by unlawful intruder(s), the emergency reporting system shall be able to notify the security personnel immediately.
- At times of emergency, the security personnel must be able to inform the workers within the restricted areas and give them instructions.
- There shall be ability to simultaneously transmit the same broadcast to all restricted areas (including bridges of the ships).

(b) Standard specifications

127. Shown below are standard specifications for the communications within port facilities.

1) Communications means between security personnel: (must have any one of the following)
   - Radio telephone for business purpose, or transceiver
   - Cellular phone, or other
2) Communications media at gate (gatekeeper house): (must have at any one of the following)
   - Radio telephone for business purpose, or transceiver
   - Cellular phone
   - Telephone, fax
   - Alarm bell, or other
3) Communications media used for informing and instructing the workers (including those at bridges of the ships):
   - Public address system
   - Megaphone or other

(c) Interpretations

128. There must be means to exchange information immediately and securely at times of emergency. Facilities and equipment must be provided to make it possible for the security personnel or other people of the port facilities to inform or report to the surveillance rooms and competent organizations immediately at the time of detection of any intrusion or harmful acts.

129. It is necessary to have facilities and equipment that provide abilities to inform or instruct the personnel in the restricted areas and ships moored in port about the need for evacuation or any other actions.

(d) Standard specifications of public address facilities

130. Shown below are standard specifications for the public address facilities that can broadcast announcements to the entire restricted area.

- The area to be addressed shall include apron and ships where workers are primarily engaged in operations. In addition, loudspeakers shall be provided at the boundary zones for the purpose of warning any suspicious persons.
- The acoustic pressure requirement shall be 75 dB and an attenuation of 10 dB must be considered that will occur at the bridge walls of ships.
- When determining the locations of loudspeakers, they should be selected to satisfy the above requirements while ensuring no adverse effects on the utilization of the port facilities.

(e) Interpretations

131. The acoustic pressure of 75 dB required for public address facilities is based on the standard value that the Japanese Fire Services Act stipulates. The required pressure level on the outside of the ship bridges should be 85 dB, considering an attenuation by the bridge walls. The following shows the acoustic pressure distribution of a 50 watts, 100 dB loudspeaker.

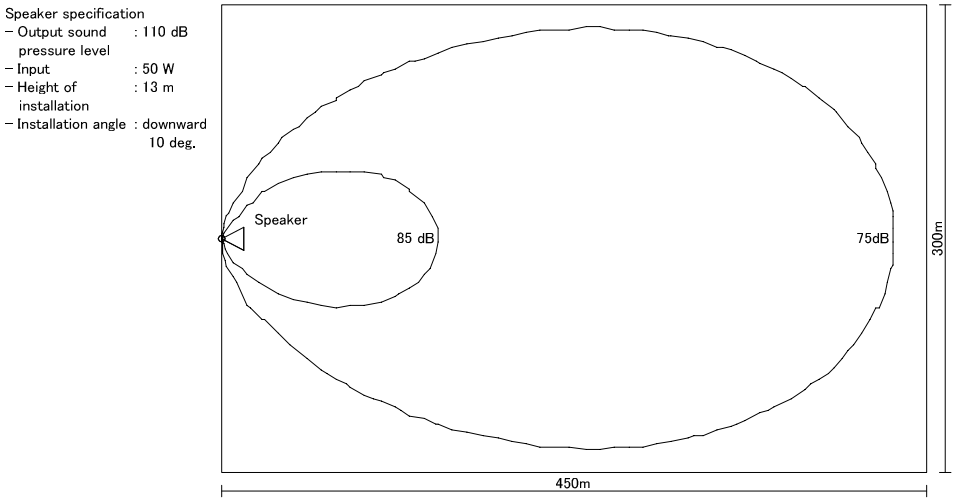


Figure 15-2-8-1 Acoustic Pressure Distribution of a Loudspeaker

132. To avoid any adverse effect on the utilization of the facilities, the loudspeakers must be installed on the camera poles or any other existing structures.

133. The power amplifiers for the public address equipment should be installed either in a broadcasting room or beside the individual loudspeakers. If the loudspeakers are distant from

the power amplifier, it is recommended to install the amplifier in the vicinity of the loudspeakers in order to prevent any degradation of the sound quality.

(f) Reference

134. An example of a speaker is shown in the following figure.

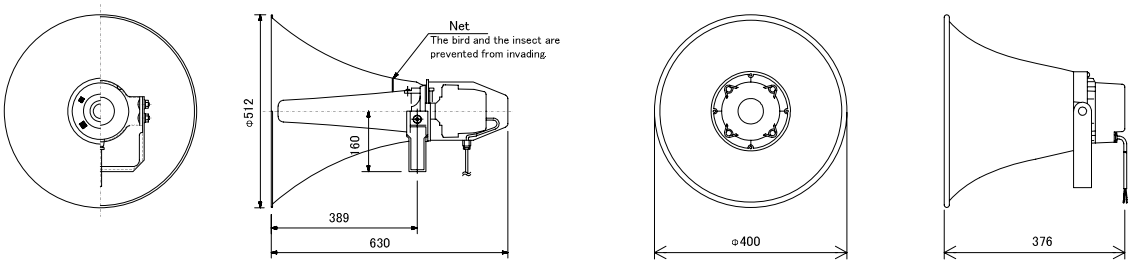


Figure 15-2-8-2 Front View and Side View of 50 W Speaker, 15 W Speaker

135. The following photos show examples of installation of speaker. (The control panel is on the pole equipped with speaker.) Regarding speaker on the CCTV camera pole, please refer to 4. 6) “Site condition of CCTV camera installed”.

Photo 15-2-8-1 Site Condition of Speaker

Above ↑
Guard rail for protector of speaker pole

Left ←
Speaker pole

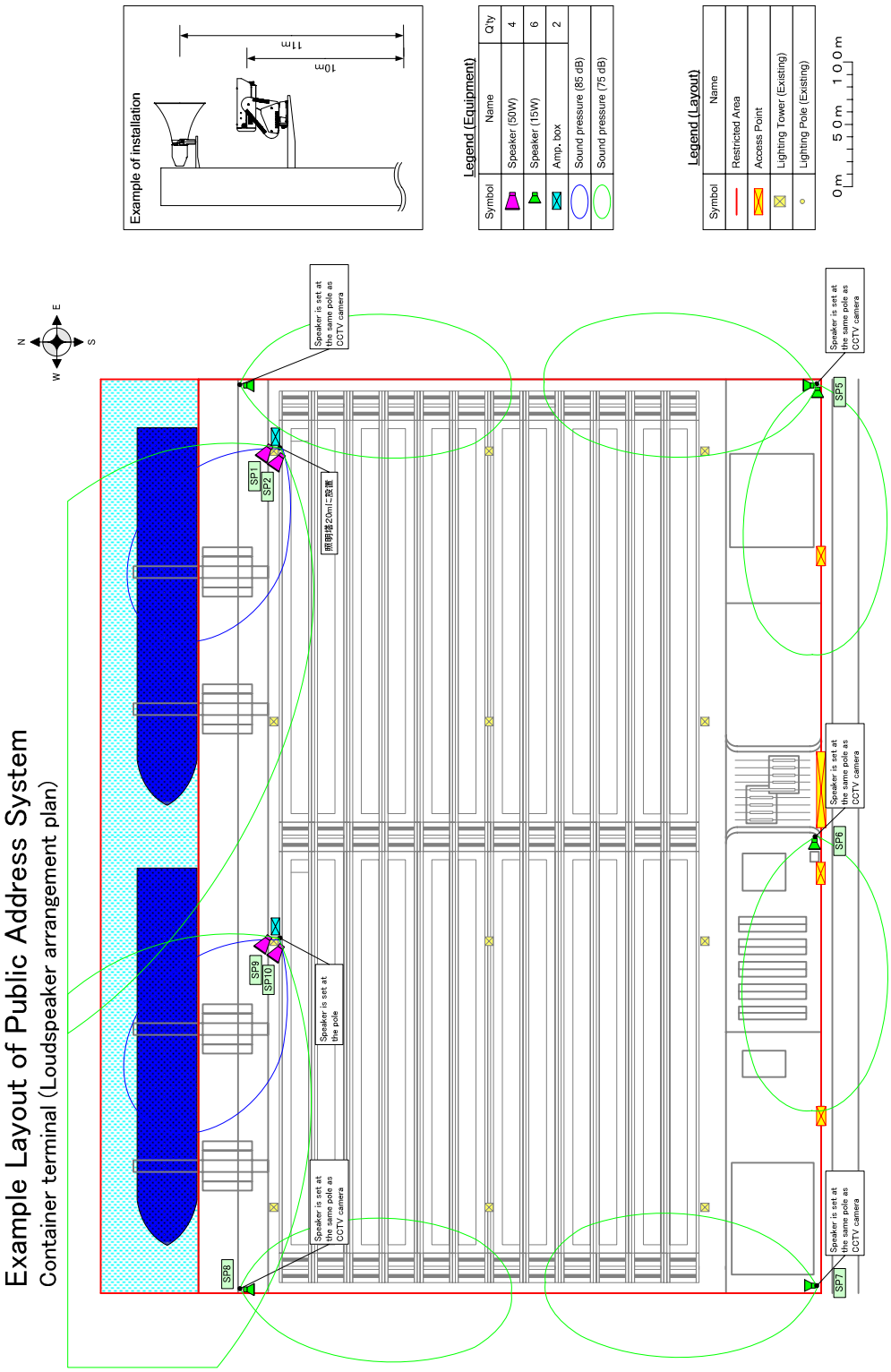


Figure 15-2-8-3 Example Layout of Public Address System

(3) Communications with Police Organizations and Other Security Organizations

(a) Functional requirements

136. Shown below are functional requirements for the communications with police organizations and other security organizations.

- It shall be able to communicate immediately and securely with the relevant organizations (Maritime Security Agency, police, fire defense authority, port management etc.)
- It shall be able to make phone calls immediately and securely at times of emergency as by speed dialing.

(b) Standard specifications

137. Shown below are standard specifications for the communications with police organizations and other security organizations.

[Communications media]

- Telephone, fax
- E-mail
- Cellular phone, or other

(c) Interpretations

138. At the time of any occurrence of harmful acts, police and other relevant organizations must be informed immediately for rescue and assistance actions. It is desired to have dual communications system installed as a backup.

139. Telephones must be of a type that requires no electric power so they can be used during any power outage. Use of multiple lines of telephone is recommended in consideration of line congestion during times of emergency. Fax must be of a type with ability for simultaneous transmissions so it can simultaneously report to multiple organizations.

140. It is recommended to have separate fax units dedicated for transmission and receipt respectively in consideration of line congestion during times of emergency.

15-2-9 Power Supply Facility

(a) Functional requirements

141. Shown below are functional requirements for the power supply facility.

- It must supply consistent and sufficient amount of electric power to the security facilities.
- Even at times of power outage in the emergency situation, power must be supplied to keep the surveillance equipment functional in order to continuously capture the situation of the site while reporting to the police and other relevant organizations.

(b) Standard specifications

142. Shown below are standard specifications for the power supply facility.

1) Group A facilities shall be equipped with uninterruptible power supply (UPS*[4])

devices. The installation of UPS devices is recommended on Group B facilities if there are surveillance cameras installed.

2) Uninterruptible power supply (UPS) system: UPS prevents any functional interruption or fault of security surveillance equipment by any instantaneous power outage as by lightning shock. The device is also used for the emergency power source upon any outage of power.
   - All-time inverter supplied type (instantaneous interruption-free switching type) to avoid any instantaneous power interruption immediately after the outage of primary power and to eliminate the possibility of damage to equipment and data or blackout of security lighting equipment attributable to such instantaneous power outage. Furthermore, all-time power supply will provide the connected equipment with a stable power of consistent quality.
   - The back-up time shall be 10 minutes or over to make it possible to identify the cause of any power outage and to report to the organizations of relevant ministries and international navigating ships. During that time, the system should work as the emergency power supply.
   - Bypass switching circuit shall be provided to allow the immediate switching to the utility power upon any fault of the UPS.
   - Automatic shut-down signal must be issued upon any voltage drop.
   - The equipment to be supported includes the surveillance equipment installed in the security surveillance room, surveillance equipment and security lighting equipment that are installed at the site as well as the communication equipment.

3) Emergency power generation facility: Supplies power to the security surveillance facilities even at the time of extended power outage or during work on the port facilities without power.
   - Stating time shall be 40 seconds or less.
   - The fuel tank shall be of a capacity that will allow 12 hours or more of continuous operation in consideration of potential night-time lighting.
   - The facility shall get started automatically by the power outage signal received from the automatic switching device and stopped also automatically by the power recovery signal.

4) Dual power receiving system: Dual power receiving system shall be used for ensuring backup upon any power outage.

5) Power distribution system: To minimize the effects of any fault, there must be multiple power distribution channels so a local fault will not propagate to the entire system.
   - Separate wiring shall be provided for the lighting equipment, surveillance cameras, intrusion detection sensors etc.
   - It is desired to have an independent wiring for the power supply to the surveillance cameras.

(c) Interpretations

143. The backup time of 10 minutes or over for the UPS and the starting time of 40 seconds or less for the emergency power generation facility are based on the Japanese standards.

144. Since critical security equipment needs to be functional even during any power outage, it is desired to have the emergency power generation facility for the surveillance cameras, security lighting and emergency reporting system.

145. The installation of an uninterruptible power supply system is desired for the equipment that may be damaged or involve data loss by any instantaneous power outage and for the

surveillance cameras, security lighting and emergency reporting system that are required for the maintaining the minimum level of surveillance. Connected equipment that needs to be protected upon any power outage must be automatically shut down based on the shutdown signal received from the UPS.

146. The emergency power generator takes approximately one minute from the detection of power outage and subsequent automatic start to the time that allows 100% load. On the other hand, since lighting equipment (high voltage sodium lights etc.) takes 15 - 20 minutes from the time of energization to the full illumination, considerations should be made about the fact that sufficient illuminance required for security will not be obtained during that time. For that reason, a combination of the emergency power generation facility and UPS is recommended.

147. Instead of using the emergency power generation facility, the batteries of the UPS may be used for the power backup. However, meeting the need for the backup of extended hours will require many batteries, or extremely high costs. It also involves high costs for replacing the batteries. Therefore, a combined use of the emergency power generation facility and UPS will be the most economical.

148. The power capacity of the UPS devices should be roughly up to 20 kW. If any power beyond 20 kW is required, it should be separated by a capacity of about 15 kW. If the capacity exceeds 20 kW, the price may sharply increase because it will likely become outside of general purpose devices. When separating the UPS devices by capacity, the separation should be one for the surveillance equipment and communication equipment and the other for lighting equipment. In order for the UPS devices to be separated from the power line for repair purpose upon any fault, an input-output panel must be installed. The input-output panel shall be designed to bypass the UPS devices to supply power directly to the load. When installing a UPS device that is dedicated for the lighting equipment, the input-output panel may not be installed because the UPS may be repaired during daytime by stopping the power supply to the lighting equipment.

149. When using the dual power receipt system, it must be considered that the power is received from power supply lines of two different transforming stations (or power stations). It should also be considered that, even with dual power receipt, the power switching involves work without power. It should be noted that when the emergency power generation facility is provided, the use of the dual power receipt is not an essential condition.

150. The following is an example of a power supply system. Shown below is examples of power supply systems. When a UPS device alone is installed without any emergency generation equipment, the power should be directly supplied from the power panel to the UPS.

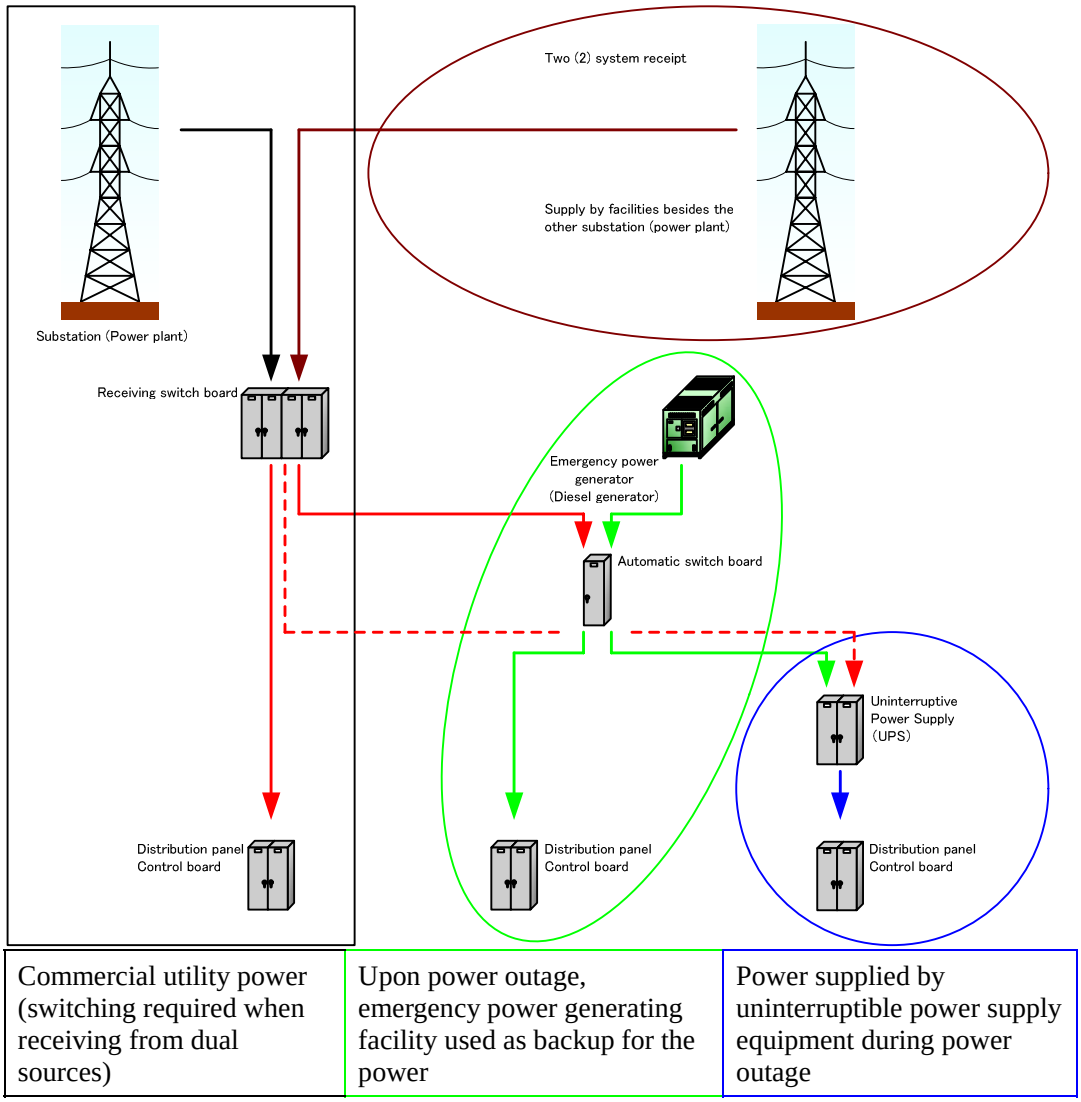
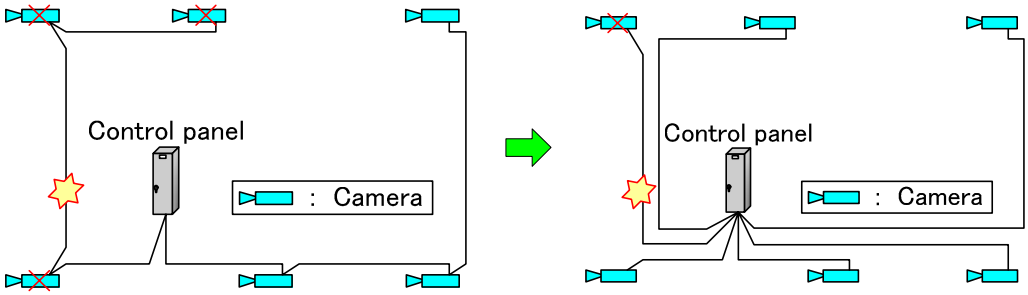


Figure 15-2-9-1 Example of Power Supply System

151. The power supply system to lighting equipment and security equipment such as surveillance cameras must be designed to separate wiring connections so that the propagation of the effect from any local fault may be minimized. Since, however, separating the wiring connections will require increased wiring channel space, decreased workability, and increased equipment costs, the scale of the equipment should be taken into consideration for the design. Shown below are examples of wiring configurations.

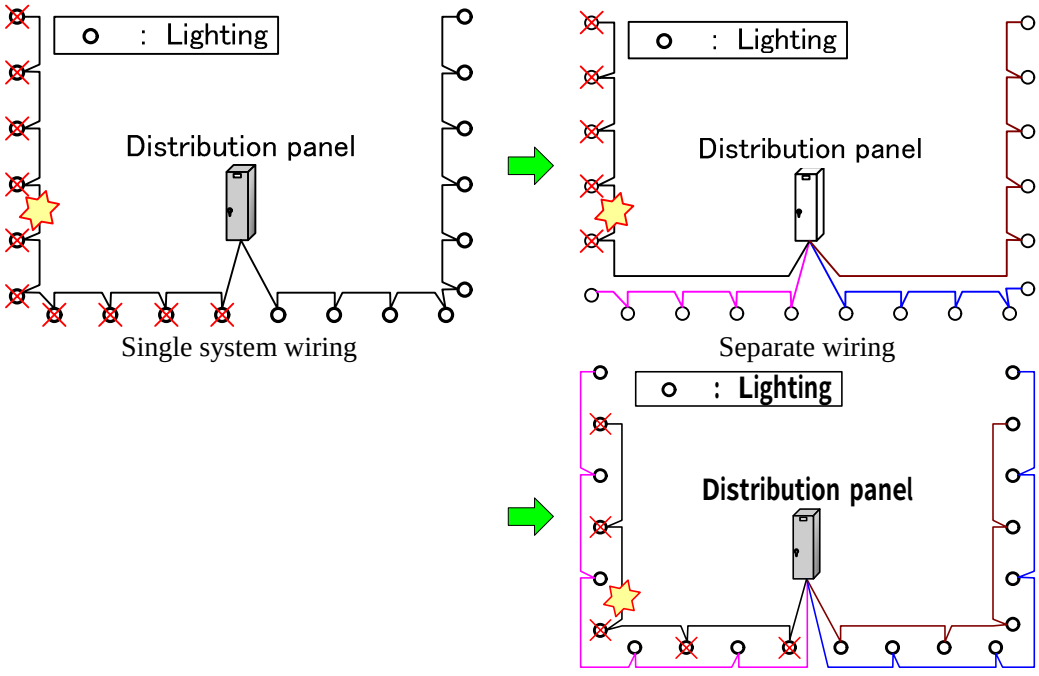
1) With surveillance cameras, any cascade wiring that connects multiple cameras on a single wiring system is very likely to shut down the power to all cameras on the system upon any fault at a single component. To avoid such a situation, star wiring that supplies power individually to each of the cameras is desirable.



Cascade wiring　　Star wiring

Figure 15-2-9-2 Wiring Configurations of Power Supply to Surveillance Cameras

2) The power to the security lighting equipment must be supplied through separate individual wiring systems so any local fault will not shut down the entire lighting power. In addition, to avoid any blackout of the entire area for one wiring system, alternate wiring connection of two power systems should also be considered.



Single system wiring　　Separate wiring

Separate wiring (wiring connection to alternate lights)

Figure 15-2-9-3 Power Supply Wiring Configuration for Security Light

(d) Reference

152. Examples of UPS system are shown in the following figure and table.

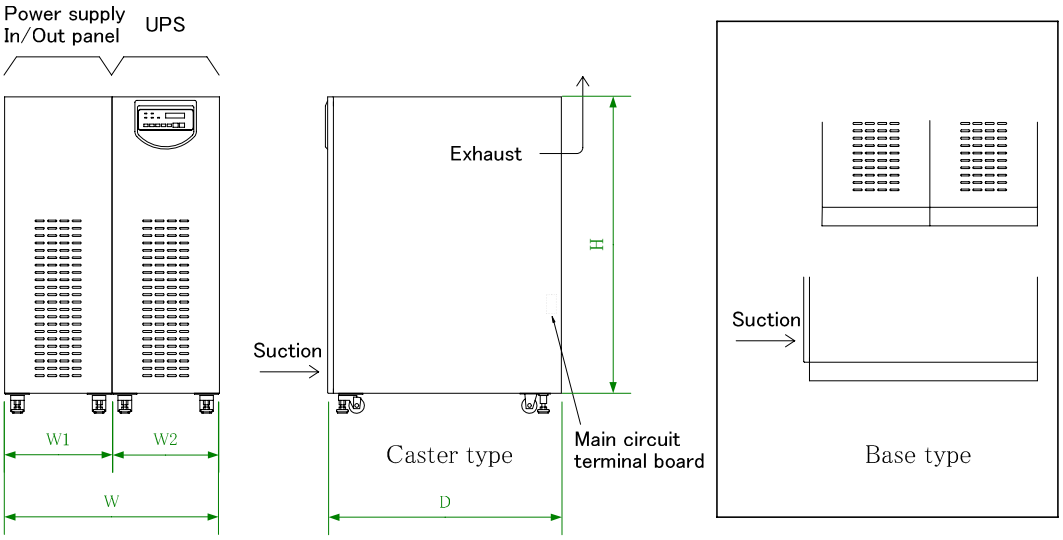


Figure 15-2-9-4 Example Figures of UPS Device within Back-up Time of 10 Minutes

Table 15-2-9-1 Example Tables of UPS Device within Back-up Time of 10 Minutes

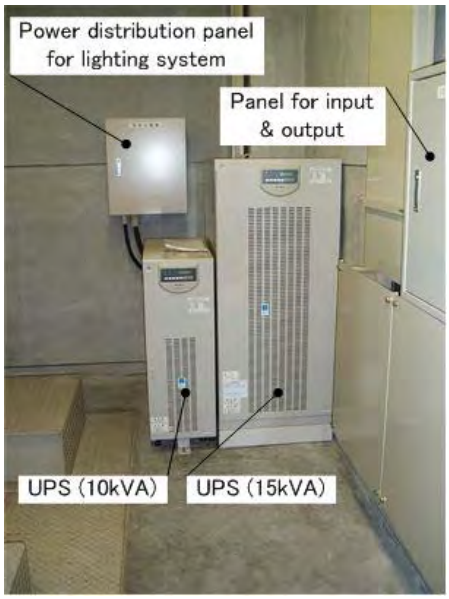
Power		Dimension (mm)	Weight (kg)	Remarks
kVA	kW	(W1+W2) x H x D	(W1+W2)	
20	16	1020 (400, 620) x 1400 x 760	700 (160+540)	Base type
15	12	1020 (400, 620) x 1400 x 760	700 (160+540)	Base type
10	8	1020 (400, 620) x 1400 x 760	700 (160+540)	Caster type
7.5	6	1020 (400, 620) x 1400 x 760	700 (160+540)	Cater type
5.2	4.16	1020 (400, 620) x 1400 x 760	700 (160+540)	Caster type

*1: The above shows UPS device within back-up time of 10 minutes.
*2: The additional sets of battery will be installed in case of over 10 minutes.
*3: If necessary, the panel of input and output will be set up.

153. Site conditions of UPS device are as follows.

Photo 15-2-9-1 UPS Device

- UPS with a capacity of 20kVA, and the panel of input and output for UPS



- UPS with a capacity of 15kVA, and the panel of input and output for monitoring equipment
- UPS with a capacity of 10kVA for lighting system without a panel of input and output (UPS is provided the power from the panel of input and output for monitoring equipment.)

154. The panel of input and output is independent of the UPS, and is not set next to the UPS but on the wall. As the space for the UPS can be smaller, this combination can provide several options of layout plan. However, the cable works connecting between the UPS and the panel of input and output will be required.

15-2-10 Maintenance of Port Security Facilities

(a) Functional requirements

155. In order to properly maintain the functions of port security facilities, inspections and services shall be conducted on a regular basis.

(b) Interpretations

156. Maintenance work for keeping the facilities in proper working conditions includes routine inspections, scheduled inspections and maintenance.

- Inspection: In order to keep the security facilities in proper working conditions, inspections must be conducted on a scheduled basis.
- Maintenance: Once it has been determined that the security facilities are not functioning properly as a result of routine inspections, scheduled inspections or report, maintenance work must be conducted without delay.

157. Shown below is the outline of the maintenance work.

Table 15-2-10-1 Outline of the Maintenance Work

Maintenance category	Purpose	Action
Routine inspection	Visually inspect the equipment for any unusual conditions. Or, check in the course of daily operations for any fault.	・ Check the inspection items and follow the inspection procedures in accordance with the using instructions. ・ Actions by the operators
Scheduled inspection	Check the operating conditions of each piece of the equipment and at the same time conduct the maintenance with the sections that cannot be checked in routine inspections for early detection of any fault and for prevention of fault that may arise as a result of deterioration by ageing.	・ To be conducted based on the scheduled inspection contract. ・ To be conducted by the maintenance service contractors or equipment manufacturers.
Maintenance	Take remedial actions upon any accidental malfunction or fault.	・ To be conducted by on-call maintenance service contracts. ・ To be conducted by the maintenance service contractors or equipment manufacturers.

158. Maintenance plans must be developed in an period of 10 years with the items that should be inspected on a regular basis.

159. Dedicated personnel must be designated in advance for the maintenance and service of the port security facilities and be held responsible for the proper maintenance of the facilities.

1) The personnel must know where to contact the representatives of the maintenance service contractor or maintenance personnel of the equipment manufacturers. Personnel must also know the contents of maintenance work that can be conducted for immediate remedy including the time for those maintenance personnel to arrive at the site.

2) Once it has been made clear that any of the security facilities is not properly maintained, notify the maintenance contractor promptly by telephone for the execution of the maintenance work.

3) It is recommended to have the organization / assignment of employees and education and training programs developed for the execution of some of the scheduled inspections and remedial actions for any accidental fault or malfunction.

160. If it is impossible to take immediate maintenance actions, some provisional actions shall be taken to supplement the functionality until the functions of the relevant security facility are restored.

161. To ensure proper maintenance of port security facilities, it is important to conduct day-to-day maintenance work and scheduled preventive maintenance that is planned from a long term point of view. The following are the actions to that end.

1) The contents and frequencies as well as the service procedures of the routine and scheduled inspections for the security facilities must be developed to ensure proper execution of such work.

2) Long term maintenance plans must be developed to include the frequencies of scheduled inspections, frequencies of consumable parts, overhaul intervals, and equipment renewal intervals.

   - Example of consumable parts: illumination lamps
   - Example of overhaul equipment: surveillance camera
   - Example of equipment to be renewed: surveillance server

3) To ensure prompt fix of any accidental malfunction or fault, it is recommended to keep on hand as spare parts the security devices and parts that cannot be immediately procured.

4) It is possible to enhance the human security efforts as the alternative action until the functionality of the security facilities is restored

162. Shown below are items to be considered when developing maintenance plans.

1) Once it has been made clear that any of the security equipment functions is not properly maintained, do the maintenance work without delay. Leaving it without repair will not maintain the proper level of security. Moreover it will increase the damage to the equipment later on.

2) With light bulbs and other consumable components, develop the replacement plans in accordance with the predicted service lives of individual parts and, based thereupon, replace any components that are close to the planned times of use at the scheduled service time. Since the time of installation is the same, the time of replacement comes at the same time for a lot of components but it is possible to plan the replacement of 20 - 30 percent progressively at each scheduled time of service.

3) Concerning the surveillance cameras and other equipment that require overhaul, develop the overhaul plans based on predicted service life and, based thereupon, progressively conduct the overhaul starting with the components that are close to the schedule time of use. When sending surveillance cameras as to a service station for

the overhaul, the surveillance by camera is not possible for the few days. The surveillance work should be either conducted by human efforts to fill the gap or have replacement cameras (reserved cameras acceptable) ready for the surveillance.

4) Since any renewal of the surveillance server is costly, develop the long term maintenance plans and also develop the renewal plans that involve the renewal every few years in accordance with the predicted service life.

163. Based on the above-mentioned items, the list of maintenance items should be developed for the security equipment. Further detailed routine maintenance and scheduled maintenance work, frequencies and service procedures should also be developed to ensure proper execution.

Table 15-2-10-2 Long Term Scheduled Maintenance List (Summary) (Example)

Category	Device	Maintenance	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	Remarks
Barrier	Fence	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
	Gate	Replacement part											
	Vehicle stopping device	Other											
Security lighting equipment	Lighting equipment	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
	Distribution panel for lighting	Replacement part	Lamp etc.	Lamp etc.	Lamp etc.	Lamp etc.	Lamp etc.	Lamp etc.	Lamp etc.	Lamp etc.	Lamp etc.	Lamp etc.	
		Other											
Surveillance camera equipment	Surveillance camera	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
		Replacement part		Wiper etc.	Wiper etc.	Wiper etc.	Wiper etc.	Wiper etc.	Wiper etc.	Wiper etc.	Wiper etc.	Wiper etc.	
		Overhaul						12 units/year	12 units/year	12 units/year			
		Other											
Instrusion detection sensor	Sensor	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
		Replacement part											
		Other											
	Sensor relay panel	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
		Replacement part		Packing etc.		Packing etc.		Packing etc.		Packing etc.		Packing etc.	
		Other											
Hand luggage inspection devices	X-ray inspection device	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
	Metal detector	Replacement part		X-ray tube etc.	X-ray tube etc.	X-ray tube etc.	X-ray tube etc.	X-ray tube etc.	X-ray tube etc.	X-ray tube etc.	X-ray tube etc.	X-ray tube etc.	
		Other											
PA equipment	Loudspeaker	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
	Power amplifier	Replacement part											
		Other											
Control system	Surveillance control panel	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
	Local control panel	Replacement part		Packing etc.		Packing etc.		Packing etc.		Packing etc.		Packing etc.	
		Other											
	Surveillance control server	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
	Video recording device	Replacement part											
		Device renewal						35%	35%	30%			
		Other											
	Surveillance monitor	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
	Operation terminal	Replacement part											
		Device renewal						35%	35%	30%			
		Other											
Power equipment	UPS	Scheduled inspection	-	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	Once/year	
		Replacement part											
		Battery renewal						1 unit/year	1 unit/year	1 unit/year			
		Other											

1. "Other" includes maintenance expenses (such as repair expenses for any unexpected fault).
2. Surveillance cameras are to be overhauled at a rate of 1 unit a month starting in the sixth year (cycle time of 6 years).
3. Surveillance conntrol servers, video recording devices, surveillance monitors and operation terminals (servers) are to be renewed progressively (30%/year) each year starting in the sixth year.
4. UPS batteries are to be renewed progressively each year (1 unit/year) starting in the sixth year.

164. Since proper maintenance of the security equipment requires running costs and maintenance costs, proper funding should be provided based on the long term maintenance plans. Shown below are sample items that can be referred to when developing the long term maintenance plans.

1) Develop the funding plan for the maintenance costs for the security equipment that include the maintenance costs in accordance with the item (1) as well as the running costs.

2) Fluctuations in annual maintenance costs may be minimized across years by staggered distribution of costly overhauls and equipment renewals in the maintenance plans to avoid any significant overlap.

Table 15-2-10-3 Long Term Maintenance Costs (Summary) (Example)

Item (category)		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	Remarks
Total of scheduled inspection expenses												
Total of replacement part expenses	Scheduled replacement, device renewal etc.											
Total of maintenance expenses	Unscheduled fault remedies											
Communications and running costs	Security communication lines etc.											
Power consumption	Security equipment, security lighting etc.											
Other												
Total expenses												

CHAPTER-16. OUTLINE OF PFSA AND PFSP MANUALS

16-1 PORT SECURITY MEASURES IN INDONESIA

1. The International Convention for Safety of Life at Sea was revised and the ISPS Code was ratified by 122 Contracting Governments in December 2002. The Contracting Governments were obligated to enhance security measures in cooperation with all ports and vessels in the world. Indonesian government also ratified the SOLAS Convention and decided to comply with the ISPS Code.

2. The government nominated DGSC (now DGST: Directorate General of Sea Transportation), Ministry of Communications (now MOT: Ministry of Transportation) as the designated authority by laying down Ministerial Decree (KM33:2003 and KM3:2004).

3. Director General of DGSC gave instruction through a letter to ADPEL/KAMPEL dated March 19, 2004 that ADPEL/KAMPEL shall make the port facility security assessment (PFSA), shall prepare the port facility security plan (PFSP) and shall implement it. In addition, the letter indicated that the port security officer (PSO) shall be designated to manage the port facility security officers (PFSOs) designated for each port facility and that the port security committee (PSC) shall be established for each international public port to exchange information and make decisions related to security measures.

4. The recognized security organization (RSO) is authorized to carry out the port facility security assessment (PFSA) and to prepare and evaluate the port facility security plan (PFSP). At present, there are 25 RSOs in Indonesia, a number which some criticize as being too large. Some RSOs are also criticized for having insufficient knowledge and experience.

5. A port facility security plan (PFSP) is formulated on the basis of a port facility security assessment (PFSA), for each port facility, adequate for the ship/port interface. A PFSP prepared by a RSO is examined and approved by DGST. Security measures are implemented according to the PFSP.

16-2 OUTLINE OF PFSA MANUAL

16-2-1 General

6. The Port Facility Security Assessment (PFSA) is the initial step of implementing port facilities security measures and is an essential and integral part of the process of developing and upgrading the port facility security plan. The PFSA must correspond to the provisions of Chapter XI-2 of the SOLAS Convention and ISPS Code.

7. Basically, the PFSA shall be carried out by the Contracting Government within whose territory the port facility is located. Alternatively, the Contracting Government can delegate a recognized security organization (RSO) to carry out the PFSA and then review and approve it for compliance with the ISPS Code. In Indonesia, the latter is adopted. The preparation of PFSA and the subsequent procedures are shown in Figure 16-2-1-1

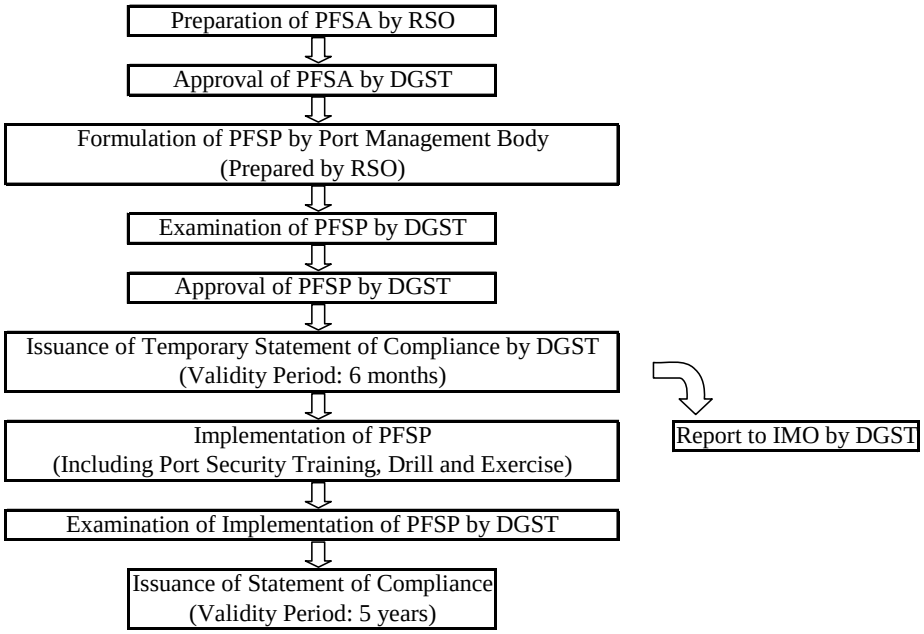


Figure 16-2-1-1 Procedure Chart

8. The PFSA shall periodically be reviewed and updated, taking account of changing threats and/or minor changes in the port facility and shall always be reviewed and updated when major changes to the port facility take place.

9. According to the ISPS Code, the PFSA shall include, at least, the following elements:

1) Identification and evaluation of important assets and infrastructure it is important to protect;
2) Identification of possible threats to the assets and infrastructure and the likelihood of their occurrence, in order to establish and prioritize security measures;
3) Identification, selection and prioritization of countermeasures and procedural changes and their level of effectiveness in reducing vulnerability; and
4) Identification of weakness, including human factors in the infrastructure, policies and procedure

10. The overall formation flow of PFSA is as follows;

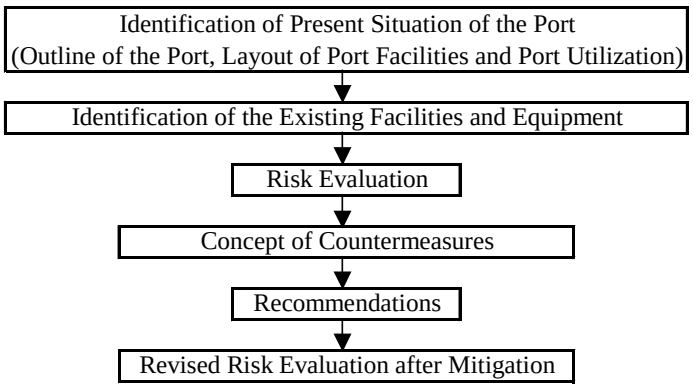


Figure 16-2-1-2 Formation Flow of PFSA

11. The framework of PFSA is as follows;

1) Present situation of the port
2) Identification of the existing facilities and equipment
3) Risk evaluation
4) Concept of Countermeasures
5) Recommendations
6) Revised risk evaluation after mitigation

16-2-2 Present Situation of the Port

12. Outline of the port, layout of port facilities and port utilization shall be described in this section.

13. General information such as history of the port, situation of circumstances and outline of port activities shall be described. Location of the port in Indonesia shall be described using map. Figure of layout of the port shall be shown and dimensions of the facilities such as international wharves and equipment such as cranes shall be described. The number of ship calls, volume of cargo, container and passenger handled in the port etc. shall be described.

16-2-3 Identification of the Existing Port Facilities

14. As in the below table, the situation of all existing facilities, equipment and neighboring area shall be identified and described in this section.

Table 16-2-3-1 Example of Envisaged Facilities and Equipment

Channel	Cargo handling equipment	Power Plant	Electricity, city gas and water supply
Anchorage area	Passenger terminal	Bunker point (Fuel)	Pipeline
Wharf	Control center	Storage tank	Service boat
Storage and handling area	Port office	Fresh water supply point	Road, railway and bridge
Warehouse and shed	Substation (Distributer)	Fresh water supply tank	Neighboring area

16-2-4 Risk Evaluation

15. Generally, Risk can be represented as the product of the probability and impact of a given security incident as follows:

$$\mathbf{R = P \times I}$$

Where

R = risk score for a given security incident
P = probability – probability of a security incident. The probability of a security incident can further be defined as the product of likelihood of threat occurrence (**L**) and vulnerability (**V**).
I = impact – the sum of possible impacts associated with a successful security incident. Impact may be based on impacts to life, economic security, symbolic value, and national defense.

16. Risk evaluation is conducted according to the following procedures.

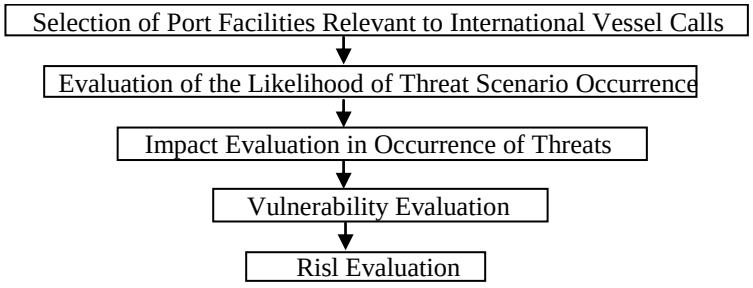


Figure 16-2-4-1 Flow of Risk Evaluation

(1) Port Facilities Relevant to International Vessel Calls

17. Facilities and equipment that are relevant to international vessel calls shall be identified.

(2) Envisaged Threat Scenario

18. The following nine scenarios which are defined in ISPS Code, B 15.11 shall be considered as envisaged threat scenarios.

Table 16-2-4-1 Envisaged Threat Scenario

	Scenario
1	Attack by explosive devices, arson or sabotage
2	Hijacking or seizure
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities
5	Smuggling weapons or equipment
6	Use of the ship to carry terrorists and their weapons
7	Use of the ship itself as a weapon
8	Blockage of port entrances, channels etc.
9	Nuclear, biological and chemical attack

(3) Evaluation of the Likelihood of Threat Scenario Occurrence

19. In this section, the likelihood of threat scenario occurrence shall be evaluated. Firstly, the threat motives shall be evaluated as a basic idea for evaluation of the likelihood of threat scenario occurrence using the following table. Considering the circumstances of the region where the port is located, the item of "possibility" shall be evaluated by ticking off a column among three levels: High, Middle and Low.

20. Based on the above result of "Evaluation of the threat motive", the likelihood of occurrence of each scenario shall be evaluated using the following table and three steps: A (High), B (Middle) and C (Low). Likelihood value is a quantified numeric of the likelihood of occurrence, A: 3, B: 2 and C: 1.

Table 16-2-4-2 Threat Motive Priorities

No	Motive	Threat	Main Actor	Possibility			Remarks
				Low	Middle	High	
1	Politics	Bombing	Outsider				
		Sabotage	Insider				
		Destruction	Insider				
		Piracy	Outsider				
		Smuggling	Insider				
		Ship Indirect Dealing	Outsider				
		Espionage	Outsider				
		Illegal Immigrant	Outsider				
2	Symbolic	Bombing	Outsider				
		Sabotage	Insider				
		Piracy	Outsider				
		Espionage	Outsider				
		Blockade	Outsider				
3	Economic	Sabotage	Insider				
		Destruction	Insider				
		Armed Robbery	Outsider				
		Looting	Outsider				
		Theft	Outsider				
		Piracy	Outsider				
		Smuggling	Insider				
		Stowaways	Outsider				
		Espionage	Outsider				
4	Fear	Bombing	Outsider				
		Sabotage	Insider				
		Piracy	Outsider				

Table 16-2-4-3 Likelihood of Threat Scenario Occurrence

No	Scenario (ISPS Code, B 15.11)	Assessment	Likelihood of Occurrence	Likelihood Value
1	Attack by explosive devices, arson or sabotage			
2	Hijacking or seizure			
3	Tampering with cargo, essential ship equipment or systems or ship's stores			
4	Unauthorized access of stowaways or unauthorized use of port facilities			
5	Smuggling weapons or equipment			
6	Use of the ship to carry terrorists and their weapons			
7	Use of the ship itself as a weapon			
8	Blockage of port channels etc.			
9	Nuclear, biological and chemical attack			

(4) Impact Evaluation in Occurrence of Threats

21. In this section, the impact in occurrence of threats shall be evaluated.

22. Impact in the event that port facilities and equipment are influenced by threat scenarios is evaluated using numeric value and Table 16-2-4-8. Evaluation items of impact consist of "social", "economic"," environment" and "symbolic" points. Impact value is obtained from the following formula using the total of these four items.

Social point;	degree of effects on casualty toll in case that facilities and equipment are influenced by threat scenarios (Three scoring steps: 1-3)
Economic point;	degree of economic loss in case that facilities and equipment are influenced by threat scenarios (Three scoring steps: 1-3)
Environment point;	degree of natural and social environment impact incase that facilities and equipment are influenced by threat scenarios (Three scoring steps: 1-3)
Symbolic point;	degree of symbolic loss in case that facilities and equipment are influenced by threat scenarios (Three scoring steps: 1-3)

Total score = (social point) + (economic point) + (environment point) + (symbolic point)
Maximum; 12, Minimum; 4

Impact value = 3 (Total score: 12 – 10)
2 (Total score: 9 – 7)
1 (Total score: 6 – 4)

Table 16-2-4-4 Social Point

3	Numerous deaths
2	Some loss of life
1	Little loss of life or injury

Table 16-2-4-5 Economic Point

3	National or long term economic loss due to interference with port activities
2	Local or short term economic loss due to interference with port activities
1	Little economic loss due to interference with port activities

Table 16-2-4-6 Environment Point

3	Complete destruction of a natural environment and social environment over a large area
2	Long term damage to part of a natural environment and social environment
1	Very limited or small scale damage to part of a natural environment and social environment

Table 16-2-4-7 Symbolic Point

3	High symbolic effect
2	Middle symbolic effect
1	Low symbolic effect

23. The facilities and equipment corresponding to the impact evaluation in the port shall be selected from the below table.

Table 16-2-4-8 Impact Value

Port facilities		Impact items				Total score	Impact value
		Social	Economic	Environment	Symbolic		
Channel	One channel only						
	One channel only; a small number of international ship sailings						
	Number of channels						
	River						
	River; a small number of international ship sailings						
Anchorage and basin	For loading and unloading						
	For berthing only						
Wharf	One berth only; for hazardous cargo, container and passenger						
	One berth only; except for Hazardous cargo, container and passenger						
	Number of berths; for Hazardous cargo, container and Passenger						
	Number of berths; except for hazardous cargo, container and passenger						
Storage and handling area	For hazardous cargo, container and passenger						
	Except for hazardous cargo, container and passenger						
Warehouse							
Cargo handling equipment	For hazardous cargo and container						
	Except for hazardous cargo and container						
Passenger terminal							
Control center	Tower						
	Except for tower						
Port office							
Substation (Distributor)							
Power plant within port area							
Bunker point (Fuel)							
Storage tank	For hazardous cargo						
	Except for hazardous cargo						
Fresh water supply point							
Fresh water supply tank							
Electricity, city gas and water supply							
Pipeline	For hazardous cargo						
	Except for hazardous cargo						
International ship	For hazardous cargo						
	For container						
	For passenger						
	Except for the above ships (excluding service boat)						
Service boat (Tugboat, pilot boat)							
Road, railway and bridge	Connecting between wharves						
	Except for the above						
Neighboring Area	Urban facilities						
	Plant						
	Water area etc.						

(5) Vulnerability Evaluation

24. In this section, the vulnerability of facilities and equipment shall be evaluated. In advance of vulnerability evaluation, the issues related to the current security measures at port facilities shall be identified and resolved.

25. Based on the issues on current security measures, the vulnerability against threat is evaluated using 5 scoring steps (2-6) and Table 16-2-4-11. Evaluation items of vulnerability consist of "Accessibility" and "Organic security" points. Vulnerability value is the total of these two items.

Accessibility point; degree of accessibility of the facilities and equipment to the threat incidents (This relates to physical and geographic barriers that deter the threat independently of organic security.) (Three scoring steps: 1-3)

Organic security point; degree of the ability of the security personnel to deter the threat incidents, which includes having in place security capability, guard force, intrusion detection systems, and timeliness of outside law enforcement to prevent threat incidents (Three scoring steps: 1-3)

Vulnerability value = (Accessibility point) + (Organic security point)
Maximum; 6, Minimum; 2

Table 16-2-4-9 Accessibility Point

3	No deterrence (ex. unrestricted access to vessel, unrestricted internal movement and facilities and equipment not to withstand specific attack)
2	Good deterrence (ex. single substantial barrier, unrestricted access to within some short distance from vessel and facilities and equipment to withstand specific attack)
1	Excellent deterrence (expected to deter attack, access restricted within some long distance from vessel, multiple physical/geographical barriers and facilities and equipment to withstand specific attack well)

Table 16-2-4-10 Organic Security Point

3	No deterrence capability (ex. no security plan, no guard force, no emergency communication, outside law enforcement not available for timely prevention, no detection capability)
2	Good deterrence capability (ex. minimal security plan, some communications, armed guard force of limited size relative to the vessel, outside law enforcement not available for timely prevention, limited detection systems)
1	Excellent deterrence capability (expected to deter attack, covert security elements that represent additional elements not visible or apparent)

Table 16-2-4-11 Vulnerability Value

Port facilities	Vulnerability items		Vulnerability value
	Accessibility	Organic security	
(1) Channel			
(2) Anchorage and basin			
(3) Wharf			
(4) Storage and handling area			
(5) Warehouse			
(6) Cargo handling equipment			
(7) Passenger terminal			
(8) Control center			
(9) Port office			
(10) Substation (Distributor)			
(11) Power plant			
(12) Bunker point			
(13) Storage tank			
(14) Fresh water supply point			
(15) Fresh water supply tank			
(16) Electricity, city gas and water supply			
(17) Pipe line			
(18) International ship			
(19) Service boat (Tugboat, Pilot boat)			
(20) Road, railway and bridge			
(21) Neighboring Area			

(6) Risk Evaluation

26. In this section, the risk for each threat scenario shall be evaluated. Risk for each threat scenario is evaluated as the product of the likelihood value, impact value and vulnerability value using the following formula.

$$\text{Risk value} = (\text{Likelihood value}) \times (\text{Impact value}) \times (\text{Vulnerability value})$$

27. Risk ranks consist of 3 categories for grouping of risk values.

M: Mitigate (protective measures and/or procedures to reduce risk for those scenarios are needed) (Risk values: 54-30)
C: Consider (Scenario should be considered and protective measures should be developed on a case-by-case basis) (Risk values: 29-15)
D: Document (Scenario may not need a protective measure at this time and therefore needs only to be documented) (Risk values: 14-2)

28. The risk evaluation for each scenario shall be conducted as in the following table.

Table 16-2-4-12 Scenario1: Attack by Explosive Devices, Arson or Sabotage on Ships or Port Facilities

Port facilities	Likelihood value	Impact value	Vulnerability value	Risk value	Risk rank
(1) Channel					
(2) Anchorage and basin					
(3) Wharf					

(4) Storage and handling area					
(5) Warehouse					
(6) Cargo handling equipment					
(7) Passenger terminal					
(8) Control center					
(9) Port office					
(10) Substation (Distributor)					
(11) Power plant					
(12) Bunker point					
(13) Storage tank					
(14) Fresh water supply point					
(15) Fresh water supply tank					
(16) Electricity, city gas and water supply					
(17) Pipeline					
(18) International ship					
(19) Service boat (Tugboat, Pilot boat)					
(20) Road, railway and bridge					
(21) Neighboring area					

29. After the risk evaluation for each scenario, the summary of risk evaluation shall be prepared in a manner which makes it easy to identify the weakness of facilities and equipment as in the following table.

Table 16-2-4-13 Summary of Risk Evaluation

Threat Scenario No. / Port Facilities	1	2	3	4	5	6	7	8	9	Max
(1) Channel										
(2) Anchorage and basin										
(3) Wharf										
(4) Storage and handling area										
(5) Warehouse										
(6) Cargo handling equipment										
(7) Passenger terminal										
(8) Control center										
(9) Port office										
(10) Substation (Distributor)										
(11) Power plant										
(12) Bunker point										
(13) Storage tank										
(14) Fresh water supply point										
(15) Fresh water supply tank										
(16) Electricity, city gas and water supply										
(17) Pipeline										
(18) International ship										
(19) Service boat (Tugboat, Pilot boat)										
(20) Road, railway and bridge										
(21) Neighboring area										
Max										

16-2-5 Concept of Countermeasures

30. The concepts of countermeasures for each scenario are described in the following table. Countermeasures may be recommended referring to the following table.

Table 16-2-5-1 Concept of Countermeasures

No	Scenario	Max Risk Rank	Concept of Countermeasures
1	Attack by explosive devices, arson or sabotage		-To implement intensive access control to prohibit terrorists with weapons and vehicles and cargoes concealing weapons from passing gates. -To monitor along fence to prevent intrusions -To implement monitoring and patrol of water area to prevent attack from seaside.
2	Hijacking or seizure		-To implement intensive access control and monitor fence and its surrounding area to prohibit boarding of potential hijackers. -To intensively implement patrol in water area and near wharves and monitor in water area for a ship not to be seized from water area.
3	Tampering with cargo or ship's store and unauthorized remodeling of important equipment, machinery or systems		-To implement intensive access control and monitor cargo storing area to prevent tampering and unauthorized remodeling in the terminal area. -To implement intensive access control to prevent weapons from creeping into ship's store and equipment.
4	Interference with port activities by unauthorized access of stowaways or unauthorized use of port facilities		-To implement intensive access control at gates and monitor fence area and storage area against stowaways -To intensively monitor cargo storing area against unauthorized use
5	Smuggling weapons or equipment		-To implement intensive access control at gates and intensively monitor cargo storing area against smuggling in the restricted area Customs are basically responsible for smuggling check.
6	Use of the ship to carry terrorists and their weapons		-To implement intensive access control at gates. -To intensively monitor cargo storing area
7	Use of the ship itself as a weapon		-To implement offshore patrol to prevent sea hijacking and seizure as well as attack by small boats including hijacked tugboats, pilot boats or traffic boats. -Patrol boats are must be furnished with communication equipment.
8	Blockage of port entrances, channels etc.		-To take measures mentioned in scenario No. 2 and 7 to prevent a ship colliding with and sinking a large ship in port entrances and channels -To take measures mentioned in scenario No.1 and 3 to prevent sinking of a ship by detonation of explosives illegally loaded into it.
9	Nuclear, biological and chemical attack		-To take measures mentioned in scenario No. 1 (To replace "explosives" with "nuclear, biological and chemical weapon".)

16-2-6 Recommendations on Port Security Measures

31. Based on the risk evaluation, security measures shall be recommended along the following lines at least in order to improve "M (Mitigate)" to "C (Consider)".

- Restricted area and important facilities to be protected
- Installation of security facilities and equipment
- Access control
- Monitoring terminal area
- Monitoring water area
- Communication with related organizations
- Response to emergency
- Training
- Others

16-2-7 Revised Risk Evaluation after Mitigation

32. Based on the above recommended security measures, risk for each scenario is reevaluated in this section. Basically, vulnerability can be improved by the implementation of the above recommended security measures. In principle, scores for accessibility or organic security can be reduced one point as a result of security measures.

Table 16-2-7-1 Revised Vulnerability Value

Port facilities	Revised Vulnerability items		Revised Vulnerability value
	Revised Accessibility	Revised Organic security	
(1) Channel			
(2) Anchorage and basin			
(3) Wharf			
(4) Storage and handling area			
(5) Warehouse			
(6) Cargo handling equipment			
(7) Passenger terminal			
(8) Control center			
(9) Port office			
(10) Substation (Distributor)			
(11) Power plant			
(12) Bunker point			
(13) Storage tank			
(14) Fresh water supply point			
(15) Fresh water supply tank			
(16) Electricity, city gas and water supply			
(17) Pipe line			
(18) International ship			
(19) Service boat (Tugboat, Pilot boat)			
(20) Road, railway and bridge			
(21) Neighboring Area			

33. Using the revised vulnerability value, the risk reevaluation for each scenario shall be conducted as in the following table.

Table 16-2-7-2 Scenario1: Attack by Explosive Devices, Arson or Sabotage on Ships or Port Facilities

Port facilities	Likelihood value	Impact value	Revised Vulnerability value	Revised Risk value	Revised Risk rank
(1) Channel					
(2) Anchorage and basin					
(3) Wharf					
(4) Storage and handling area					
(5) Warehouse					
(6) Cargo handling equipment					
(7) Passenger terminal					
(8) Control center					
(9) Port office					
(10) Substation (Distributor)					
(11) Power plant					
(12) Bunker point					
(13) Storage tank					
(14) Fresh water supply point					
(15) Fresh water supply tank					
(16) Electricity, city gas and water supply					
(17) Pipeline					
(18) International ship					
(19) Service boat (Tugboat, Pilot boat)					
(20) Road, railway and bridge					
(21) Neighboring area					

34. After the risk reevaluation for each scenario, the summary of risk reevaluation shall be prepared. It shall be identified that all “M (Mitigate)” are improved to “C (Consider)”.

Table 16-2-7-3 Summary of Risk Reevaluation

Threat Scenario No. / Port Facilities	1	2	3	4	5	6	7	8	9	Max
(1) Channel										
(2) Anchorage and basin										
(3) Wharf										
(4) Storage and handling area										
(5) Warehouse										
(6) Cargo handling equipment										
(7) Passenger terminal										
(8) Control center										
(9) Port office										
(10) Substation (Distributor)										
(11) Power plant										
(12) Bunker point										
(13) Storage tank										
(14) Fresh water supply point										
(15) Fresh water supply tank										
(16) Electricity, city gas and water supply										
(17) Pipeline										
(18) International ship										
(19) Service boat (Tugboat, Pilot boat)										

(20) Road, railway and bridge										
(21) Neighboring area										
Max										

16-3 PORT FACILITY SECURITY PLAN

16-3-1 Objective of PFSP

35. According to Part A of the ISPS Code, the Port Facility Security Plan (PFSP) means a plan developed to ensure the application of measures designed to protect the port facility and ships, persons, cargo, cargo transport unit and ship's stores within the port facility where there are risks of a security incident. The PFSP is prepared for port facilities serving the following ships engaged on international voyages.

1) Passenger ships, including high-speed passenger craft
2) Cargo ships, including high-speed craft, of 500 gross tonnage and upwards
3) Mobile offshore drilling units

36. The PFSP shall be in the working language of the port facility (Bahasa Indonesia) and shall address, at least, the following:

1) Measures designed to prevent weapons or any other dangerous substances and devices intended for use against persons, ships or ports and the carriage of which is not authorized, from being introduced into the port facility or on board a ship;
2) Measures designed to prevent unauthorized access to the port facility, to ships moored at the facility, and to restricted areas of the facility;
3) Procedures for responding to security threats or breaches of security, including provisions for maintaining critical operations of the port facility or ship/port interface;
4) Procedures for responding to any security instructions the Contracting Government (the government of Indonesia), in whose territory the port facility is located, may give at security level 3;
5) Procedures for evacuation in case of security threats or breaches of security;
6) Duties of port facility personnel assigned security responsibilities and of other facility personnel on security aspects;
7) Procedures for interfacing with ship security activities;
8) Procedures for the periodic review of the plan and updating;
9) Procedures for reporting security incidents;
10) Identification of the port facility security officer including 24-hour contact details;
11) Measures to ensure the security of the information contained in the plan;
12) Measures designed to ensure effective security of cargo and the cargo handling equipment at the port facility;
13) Procedures for auditing the port facility security plan;
14) Procedures for responding in case the ship security alert system of a ship at the port facility has been activated; and

15) Procedures for facilitating shore leave for ship's personnel or personnel changes, as well as access of visitors to the ship including representatives of seafarers' welfare and labour organizations.

16-3-2 PFSP Form

37. Each individual PFSP varies depending on the circumstances of a port facility or port facilities, possible threats and the likelihood of their occurrence, weakness including human factors in the infrastructure, policies and procedures, etc. However, the minimum contents which should be included in a PFSP are prescribed in the ISPS Code as mentioned above. Moreover, port security measures to be employed are limited. Therefore, a PFSP can be standardized and the standard form is shown in Part 2.

38. When an inexperienced person tries to formulate a PFSP or a person in charge prepares or examines many PFSPs, a PFSP form is quite useful for avoiding omissions. This form can be used by an RSO who formulates a PFSP, members of a Port Security Committee who examine it as an outsourcer or a responsible person and DGST officials who examine it as an official of a designated authority.

39. A person who wants to formulate a PFSP follows the procedures below:

1) Cover page: Replace phrases written in red letters including XXX with suitable phrases

2) Main part: Replace phrases written in red letters including XXX with suitable phrases
Unnecessary items are deleted.

3) Supplementary Figures:
   a) Location of the Facility
      Indicate a port facility or port facilities in a port layout map.
   b) Location of the Restricted Area
      Indicate the restricted area in a port facility layout.
      The restricted area shall be decided according to the technical standards and its commentaries.
   c) Layout Plan of the Facility
      Indicate main port security facilities and equipment in the port facility layout. Necessary facilities and equipment are decided based on a PFSA.
   d) Security Organization
      Indicate the security organization.

4) Appendices
   a) Procedure of Security Measures during Interim Period
      Replace phrases written in red letters including XXX with suitable phrases
   b) Procedures of Access Control for Personnel and Cargo
      Basically describe without modification.
   c) Procedures of Monitoring Security
      Described items may change according to a port facility group. For example, CCTV system is not required for a group B port facility.
   d) Procedure of Maintenance Works for Port Security Facilities
      Described items may change according to a port facility group. Unnecessary items are deleted. Specifications of each item are decided according to the technical standards and its commentaries.

Fill in required quantities.

e) Document Management Rules

Basically describe without modification.

Replace phrases written in red letters including XXX with suitable phrases

f) Procedures of Emergency Management Plan

g) Procedures of Declaration of Security

h) Evacuation Route

After deciding appropriate evacuation routes, indicate them on the port facility layout.

5) Annexes

a) Composition of the Port Security Committee

Fill in the name of the PSC chairman on the column of PSC, and fill in the name of the PSC members on the right hand column of PSC.

Fill the names of PSO, PFSOs and Deputy PFSOs on other columns.

b) Emergency Contact List

Fill in each column of Organization/Title, Name, Tel. and Remarks (if necessary) using sample form.

c) Format of a Declaration of Security

Describe without modification. This format is the same as that shown in the ISPS Code.

d) Format of the Security Log

Describe without modification.

e) Contrast Chart for ISPS Code and PFSP

Describe without modification.

16-3-3 Contents of PFSP Manual

40. The following contents shall be included in the manual

- General Provisions
- Port Facility Security Measures Pegged to Security Level
- Installation and Maintenance of Port Security Facility
- Designation of Port Facility Security Officer
- Training, Drills and Exercises on Port Facility Security
- Audit Regarding Works for Ensuring Security of Port Facilities
- Information Management Method Regarding Security of International Port Facilities
- Response to Occurrence of Security Hazard
- Amendment of PFSP
- Contrast Chart for ISPS code and PFSP

(1) General Provisions

41. At the introduction of the PFSP, general matters of the facility such as “name of a facility and its general outline”, “name of a port administrator and a port operator” and “name of a port facility security officer (PFSO) and his/her contact address’ shall be described. And definitions of words also shall be listed

(2) Port Facility Security Measures Pegged to Security Level

42. Establishment and management of the restricted area shall be described here. Procedures such as "Access Control", "Monitoring and Patrolling", "Cargo Control" and "Communication Procedures" shall be described.

(a) Procedures of Access Control for Personnel and Cargo

43. Detailed procedure for each category of entrance shall be described here. Samples of categories are as follows:

- Category of Entrance
- Port User (by foot or otherwise)
- Container Truck
- Construction/Maintenance Vehicle
- Ships Stores/Equipment
- Ships Crew's exit and return entry
- Taxi
- Emergency Service Vehicle

(b) Procedures of Monitoring Security

44. Monitoring security shall be conducted either by personnel or by equipment (see the following table).

Table 16-3-3-1 Procedures of Monitoring Security

Security Level	Level 1	Level 2	Level 3
By manpower: mutual monitoring (security guard and workers in the restricted area)	(method) • monitoring hours: • monitoring location: (items) • fence and boundary: • gate: • within the yard: • alongside the quay:		
By equipment (CCTV system)	(method) • monitoring hours: • monitoring location: (items) • set up for equipment: • boundary: • gate: • within the yard: • alongside the quay:		

(3) Installation and Maintenance of Port Security Facility

45. Basic performance and specifications of the port security facilities shall be described. On the border of the restricted area, a fence or other physical barriers that are of sufficient height, strength and structure shall be erected to ensure that intruders cannot enter easily.

46. Sufficient brightness shall be provided to allow monitoring of the activities of suspicious persons either by using CCTV system or by guards' visual inspection.

47. PA system that provides communication in all the restricted area so that security personnel can talk with others during emergency shall be installed in the restricted area. In case

of emergency, communication with police agency and other relevant security organizations shall be secured

48. The port security facilities installed at the restricted area shall be regularly and properly inspected and maintained. Procedures of maintenance works shall be described below.

49. Specification of each facility shall be described to make a maintenance plan.

Table 16-3-3-2 Specification of the Facilities

Description	Specification	Quantity
Fence and Gate		
Security Light		
CCTV Camera		
Fence Sensor (vibration sensor)		
Fence Sensor (tension sensor)		
Gate Sensor (infrared sensor)		
Loud Speaker		

50. Procedures for both daily and periodical inspections shall be described.

Table 16-3-3-3 Inspection Procedure

Description	Items to be Checked	Daily Inspection	Periodical Inspection
Fence and Gate			
Security Light	Road light		
Monitoring System	CCTV camera and monitor		
Communication System	VHF radio, telephone, fax		

Designation of Port Facility Security Officer

(4) Designation of Port Facility Security Officer

51. In accordance with article 17 port facility security officer, ISPS Code part A, a port facility security officer shall be designated for each port facility. In addition to name and contact address of a PFSO, duties of PFSO shall be described here.

(5) Training, Drills and Exercises on Port Facility Security

52. Detailed items on training, drills and exercises on port facility security are described.

53. As to training, details of training program for personnel with security duties and security awareness training program shall be described. Records of all security training should be kept for a certain period specified by the Designated Authority.

54. Security drills and exercises are designed to ensure that all personnel are proficient in all assigned security duties and at all security levels. Pursuant to the ISPS Code, it is described that drills shall be conducted at least every three months. The specific timing of drills is determined taking into account changes of port facility personnel, the type of berthing ships and the operations conducted at the port facility by the PFSO.

55. Exercises in conjunction with relevant control authorities, company security officers or ship security officers if available shall be carried out at least once each calendar year with no more than 18 months between exercises. Mode of exercises and types of security incidents which should be covered in an exercise shall be described here.

(6) Audit Regarding Works for Ensuring Security of Port Facilities

56. Items on internal audit and security check are described. Internal audit on required security measures shall be conducted to confirm or maintain compatibility of the PFSP. Timing, responsible person, record of result and information management shall be explained and described.

(7) Information Management Method Regarding Security of International Port Facilities

57. The importance of information management on port security is described. It is necessary for PFSO to properly manage the detailed items pertaining to the PFSP and other security measures, based on the document management rule and prevent unauthorized persons from gaining access to sensitive information.

(a) Document Management Rules

58. "Document management rules" is formulated and included in the PFSP. The objective of this rule is to lay down the items necessary for maintaining confidentiality of documents and information regarding port facility security measures. In the rules, scope to which the rule is applied and establishment of document management organization are described.

59. The administrator of the facility appoints relevant officials to carry out duties related to maintaining the confidentiality of documents. A sample is shown below.

Table 16-3-3-4 Designation of Relevant Staff

Appointer：

Name of appointee	Affiliation and Title	Responsibility	Appointment and Resignation		Remarks
			Appointed Date	Resigned Date	

60. An appointed official who receives a confidential document shall report to the custodian after making an entry in the receipt and custody registry. A sample of the receipt and custody sheet is shown below.

Table 16-3-3-5 Receipt and Custody Sheet

Reference No.			
Name (Subject)			
Receipt	Date Received		
	Receipt Procedure		
	Name/Signature of Recipient		
	Name/Signature of Officer		
Duplication	No. of Copies	Set(s)（pieces per set ）	Set(s)（pieces per set ）
	Reason of Duplication		
	Application No. (Date)		
	Permission No. (Date)		
	Duplication Date		
	Name/Signature of Officer		
Delivery	No. of Copies	Set(s)（pieces per set ）	Set(s)（pieces per set ）
	Deliver to		
	Application No. (Date)		
	Permission No. (Date)		
	Delivery Date		
	Delivery Procedure		
	Name/Signature of Recipient		
Destruction	No. of Copies	Set(s)（pieces per set ）	Set(s)（pieces per set ）
	Procedure of Destruction (Date)		
	Notice/Report No.		
	Name/Signature of Officer		
Custody	As of (DD MM YY)		
	No. of Copies	Set(s)（pieces per set ）	Set(s)（pieces per set ）
	Depository		
	Name/Signature of Officer		
Name/Signature of Management Representative			
Remarks			

(8) Response to Occurrence of Security Hazard

61. In case that a security hazard has occurred or may occur, the PFSO shall swiftly secure the emergency communication means and systems, report to organizations concerned, communicate with officials in charge and get out of danger. Three samples of procedures to be followed in case of emergency are shown in subsequent pages.

(a) Procedures of Emergency Management Plan

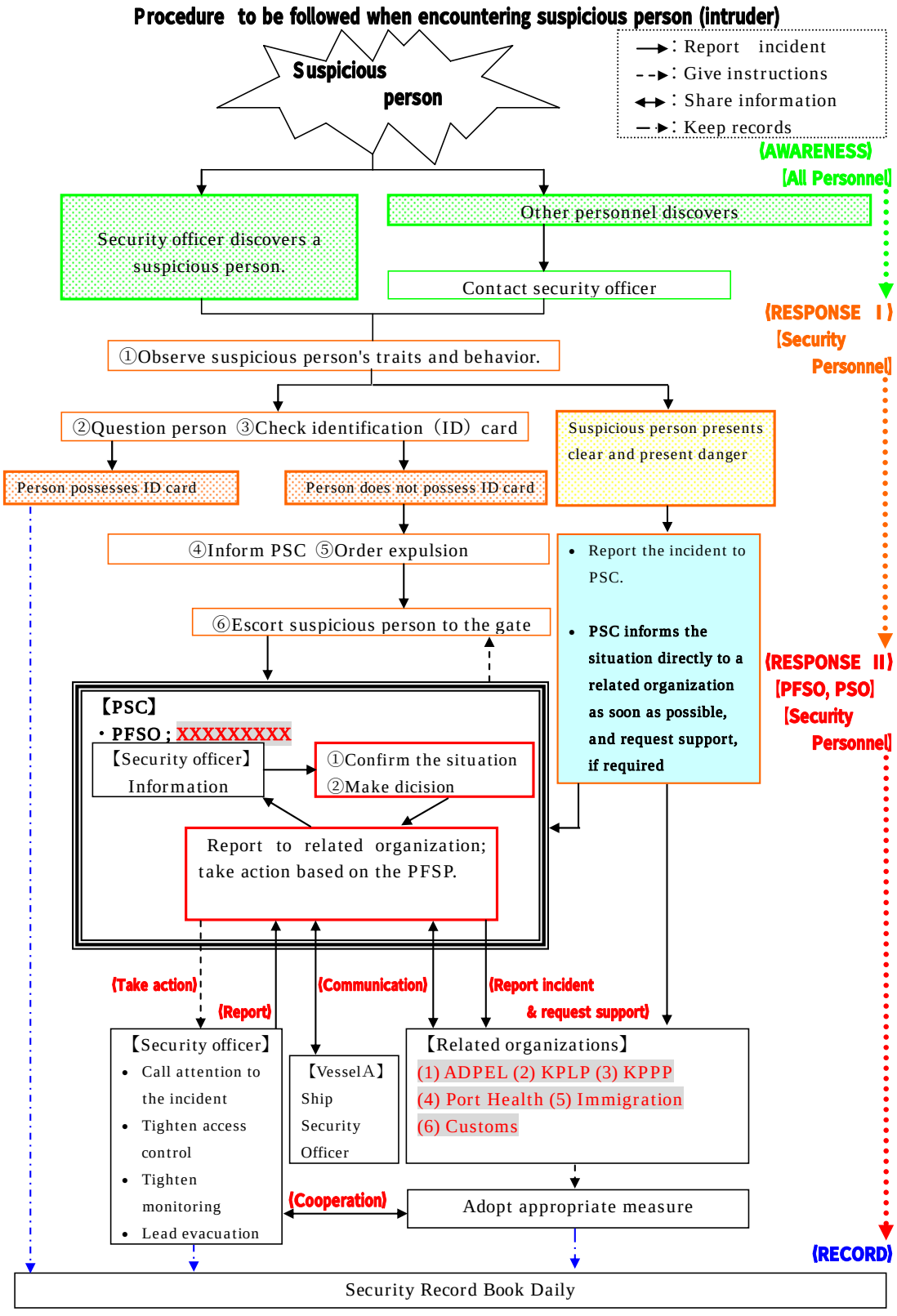


Figure 16-3-3-1 Encountering Suspicious Person

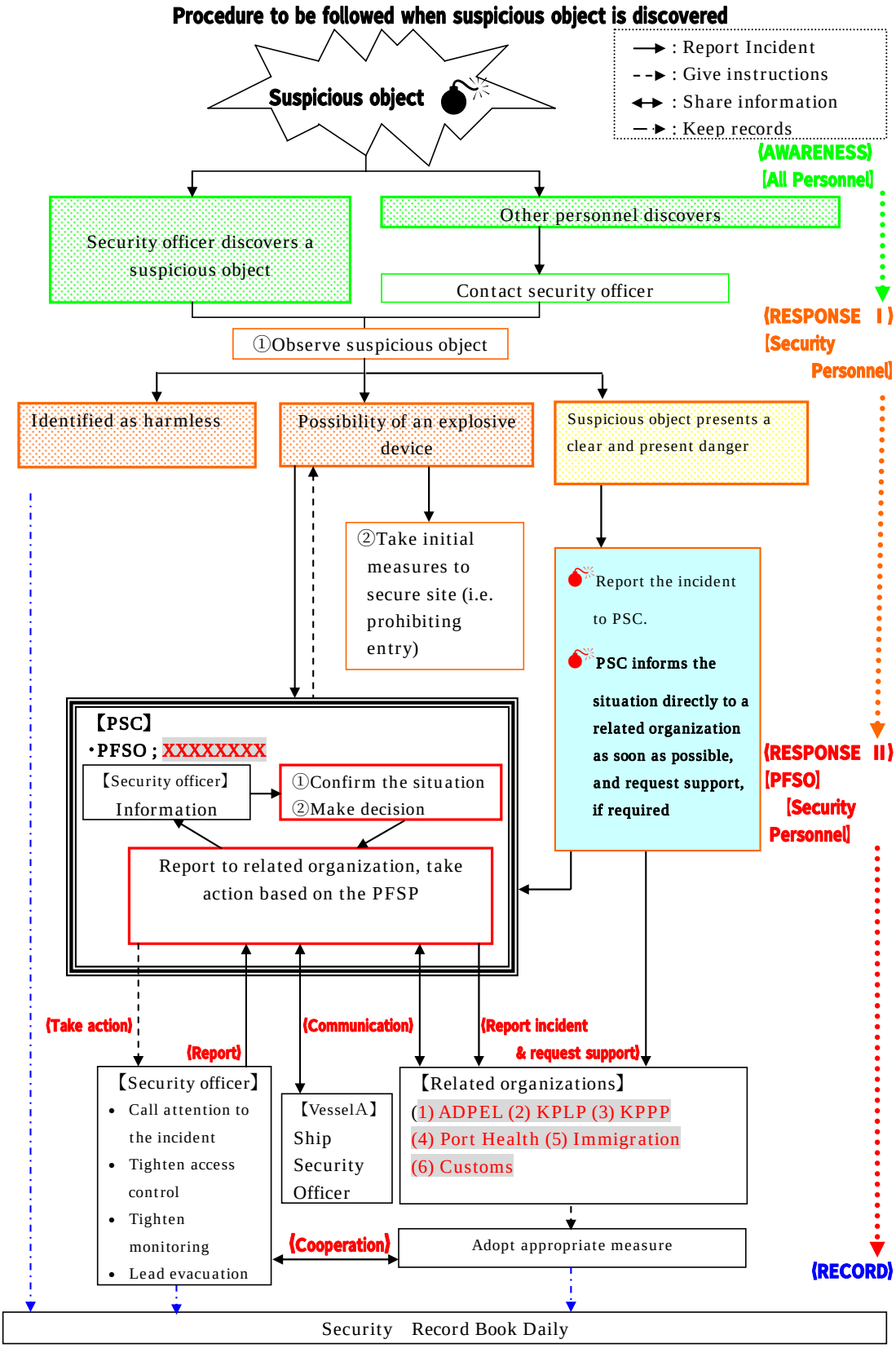


Figure 16-3-3-2 Encountering Suspicious Object

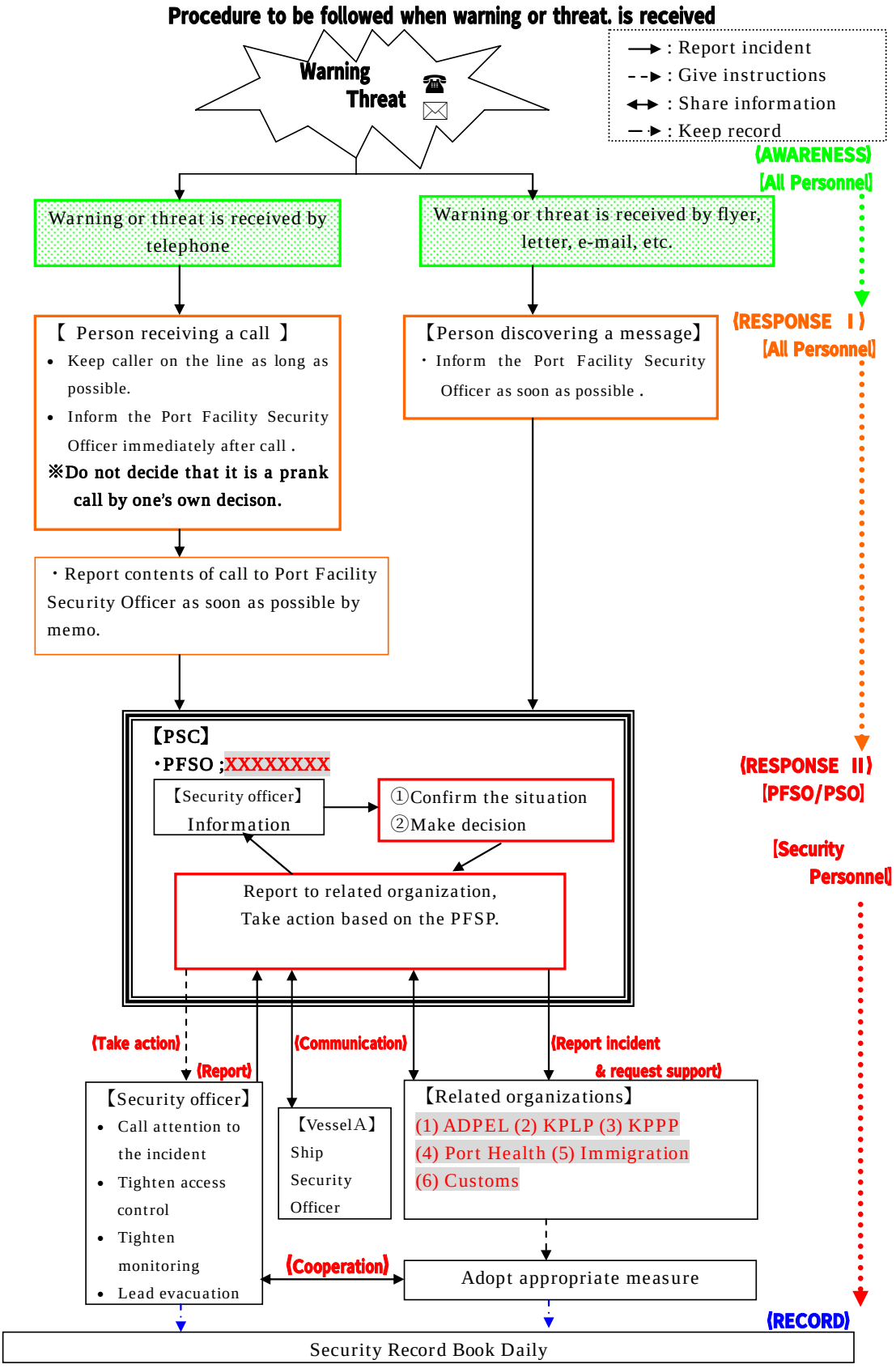


Figure 16-3-3-3 Receipt of Warning or Threat

(b) Emergency Contact List

62. The PFSO shall respond to an emergency situation according to the "Procedures of Emergency Management Plan." This table below shall help with communicating with relevant organizations in case of emergency.

Table 16-3-3-6 Emergency Contact List

Security Officer

Organization/Title	Tel.	Name	Remarks
PFSO			
Deputy PFSO			

Port of xx

Organization/Title	Tel.	Name	Remarks

Other Related Organization

	Organization/Title	Tel.	Name	Remarks
Member of Port Security Committee				
Others				

(c) Format of the Security Log

63. Various formats of the security log are shown below. Records shall be kept in accordance with the "Document Management Rule."

Table 16-3-3-7 Test, Maintenance & Breakdown Record for Security Equipment and Devices

Date	Classification	Outline of Occurrence (details to be attached)	Countermeasure (details to be attached)	Recorded by
	1.Test 2.Maintenance 3.Breakdown			
	1.Test 2.Maintenance 3.Breakdown			

	1.Test 2.Maintenance 3.Breakdown			

Table 16-3-3-8 Security Threats and Security Incidents

Date	Classification	Outline of Occurrence	Countermeasure	Recorded by
	1.Threats 2.Incidents			
	1.Threats 2.Incidents			
	1.Threats 2.Incidents			

Table 16-3-3-9 Training Drills and Exercises

Date	Classification	Outline (details to be attached)	Recorded by
	1.Training 2.Drills 3.Exercises		
	1.Training 2.Drills 3.Exercises		
	1.Training 2.Drills 3.Exercises		

Table 16-3-3-10 Change in Security Level

Date	Classification	Outline (details to be attached)	Recorded by
	from Level ( ) to Level ( )		
	from Level ( ) to Level ( )		
	from Level ( ) to Level ( )		

Table 16-3-3-11 Completion of DoS

Date	Classification	Name of Ship (details to be attached)	Contents (details to be attached)	Recorded by
	Requested 1. by a ship 2. to a ship			
	Requested 1. by a ship 2. to a ship			
	Requested 1. by a ship 2. to a ship			

Table 16-3-3-12 ISPS Inapplicable Ship Calling at the Port and Security Measures Conducted

Date	Description of the Case (details to be attached)	Additional Countermeasures Conducted (details to be attached)	Recorded by

Table 16-3-3-13 Enforcement of Audit

Date	Contents and Result (details to be attached)	Name of Participants (details to be attached)	Recorded by

(9) Amendment of PFSP

64. The PFSP should be reviewed at the direction of the PFSO. In what cases the PFSP should be amended are described here.

(10) Contrast Chart for ISPS Code and PFSP

65. As mentioned previously, the PFSP must correspond to "the Port Facility Security Plan" described in chapter XI-2 of the SOLAS Convention and Part A of the ISPS Code. Therefore this contrast chart must be attached in the PFSP to fulfill the requirement of ISPS Code.

Table 16-3-3-14 Contrast Chart for ISPS Code and PFSP

ISPS Code No.	ISPS Code	PFSP
Part A		
16.1	General	1.1 Feature of the Plan
16.2	Approval of the Plan	(duty of the Contracting Government)
16.3	Contents to be included in the Plan	2.2 Establishment and management of ~ 2.4 Control of cargo etc. to be loaded ship~ 4.1 Designation of PFSO 4.2 Duties of the PFSO 6 Audit regarding works for ensuring ~ 7 Information management method ~ 8 Response to occurrence of security ~ 9 Amendment of PFSP
16.4	Combined with port security plan	Not applicable
16.5	Change to the PFSP determined by the Contracting Government	(duty of the Contracting Government)
16.6	Format and protection of the Plan	7 Information management method ~
16.7	Protection from unauthorized access	Same as above
16.8	PFSP for more than one port facility	1.2 Application
17.1	Designation of PFSO	4.1 Designation of PFSO
17.2	Duties and responsibilities of PFSO	Same as above
17.3	PFSO support	Same as above
18	Training Drills & Exercises	5 Training, drills and exercises on port ~
Part B		
16.1	PFSO's responsibility to prepare PFSP	4.2 Duties of the PFSO
16.2	PFSA and PFSP	1.1 Feature of the Plan

16.3	Contents of the Plan	Fig.4 Security organization 2.5 Communication and coordination ~ Appendices 1&2 Procedures of access control for ~ 6 Audit regarding works for ensuring ~ 9 Amendment of PFSP
16.4	Preparation of an effective PFSP	1 General provisions
16.5	Approval and requirements of the Contracting Government	(duty of the Contracting Government)
16.6	Alternative temporary security measure	2.1 General provisions Appendix 1 Procedures of access control ~
16.7	Use of firearms	Not applicable
16.8	Organization and performance of port facility security duties	Annex 1 Composition of the port ~ 4.2 Duties of the PFSO 2.5 communication and coordination ~ Appendix 5 Document management ~ 3.7 Maintenance and inspection of ~ Appendix 2 Procedures of access control ~ Appendix 3 Procedures of monitoring ~ Appendix 6 Procedures of emergency ~ Annex 4 Format of security log 2.2 Establishment and management of~ 2.3 Monitoring and patrolling within ~ 2.9 Handling unaccompanied baggage
16.9		
16.10	Security measures covering means of access	Appendix 2 Procedures of access control ~
16.11	Locations of access restrictions	Same as above
16.12	Means of identification	Same as above
16.13	Unwilling to identify	Same as above
16.14	Locations for search	2.2 Establishment and management of~ 3.2 Gate
16.15	Separate locations for checked and unchecked	Same as above
16.16	Frequency of application of access control	Appendix 2 Procedures of access control ~
16.17	Access control at security level 1	2.2 Establishment and management of ~ Appendix 2 Procedures of access control ~
16.18		
16.19	Access control at security level 2	Same as above
16.20	Access control at security level 3	8 Response to occurrence of security ~
16.21	Restricted area (general)	2 Port facility Security measures ~
16.22	Restricted area (security control)	Appendix 1 Procedures of access control ~ Appendix 2 Procedures of access control ~
16.23	Signboard	2.2 Establishment and management of ~ 3.1 Fences and other physical barriers
16.24	Automatic intrusion detection device	Appendix 4 Procedures of maintenance ~
16.25	Areas for restricted area	Fig. 2 Location of the restricted area
16.26	Extension of security measures	Same as above
16.27	Restricted area at security level 1	3.1 Fences and other physical barriers 3.2 Gate Appendix 3 Procedures of monitoring ~
16.28	Restricted area at security level 2	Same as above
16.29	Restricted area at security level 3	Appendix 3 Procedures of monitoring ~ 8 Response to occurrence of security ~
16.30	Handling of cargo	2.4 Control of cargo etc. to be loaded ship~
16.31	Inventory control procedures	Appendix 2 Procedures of access control ~
16.32	Cargo handling at security level 1	Appendix 2 Procedures of access control ~
16.33		2.4 Control of cargo etc. to be loaded ship~

16.34		
16.35	Cargo handling at security level 2	Same as above
16.36		
16.37	Cargo handling at security level 3	Appendix 3 Procedures of monitoring ~ 8 Response to occurrence of security ~
16.38	Delivery of ship's store	Appendix 2 Procedures of access control ~
16.39	Establish procedure for handling	Same as above
16.40	Delivery of ship's store at security level 1	Same as above
16.41		
16.42	Delivery of ship's store at security level 2	Same as above
16.43		
16.44	Delivery of ship's store at security level 3	Appendix 3 Procedures of monitoring ~ 8 Response to occurrence of security ~
16.45	Handling unaccompanied baggage	Appendix 6 Procedures of emergency 2.7 Handling unaccompanied baggage
16.46	Handling unaccompanied baggage at security level 1	Same as above
16.47	Handling unaccompanied baggage at security level 2	Same as above
16.48	Handling unaccompanied baggage at security level 3	Appendix 6 Procedures of emergency 8 Response to occurrence of security ~
16.49	Monitoring the security of the port facility	2.3 Monitoring and patrolling within~ 3.3 Security lighting equipment 3.4 Monitoring equipment
16.50	Automatic intrusion devices	Appendix 4 Procedures of maintenance ~
16.51	Procedures and equipment needed at each level	3.7 Maintenance and inspection of port ~ Appendix 3 Procedures of monitoring ~ Appendix 4 Procedures of maintenance ~
16.52	Monitoring the security of the PF at security level 1	2.3 Monitoring and patrolling within and ~ Appendix 3 Procedures of monitoring ~
16.53	Monitoring the security of the PF at security level 2	Same as above
16.54	Monitoring the security of the PF at security level 3	Appendix 3 Procedures of monitoring ~ 8 Response to occurrence of security ~
16.55	Differing security level	2.1 General provisions
16.56	Activities not covered by the Code	2.5 Communication and coordination ~
16.57	Declarations of security	Annex 4 Format of a Declaration of ~
16.58	Audit, review and amendment	6.1 Internal audits 9 Amendment of PFSP
16.59		
16.60		
16.61	Approval of PFSP	(duty of the Contracting Government)
16.62	Statement of Compliance of a Port Facility (SoCPF)	(duty of the Contracting Government)
16.63		

CHAPTER-17. PORT SECURITY REGULATIONS AND OTHER SUPPORTING TOOLS

17-1 PORT SECURITY REGULATIONS

17-1-1 Existing Port Security Regulations

1. The Directorate-General of Sea Transportation (DGST) has the responsibilities to ensure that port security regulations are promulgated and executed based on the regulations stipulated in the ministerial decree and/or the decree by Directorate-General of Sea Transportation. The roles and responsibilities for the various office/appointment holders can be found in the reference list of the ISPS Code manual produced by Sub-Directorate of Port Safety and Security, Directorate of Sea and Coast Guard, DGST. DGST is also nominated as the Designated Authority (DA) in Indonesia for ISPS Code.

2. The ISPS Code complements the existing security policy and regulation in port. The Port Administration office is responsible to implement and execute the port security regulation. The Port Administrator (ADPEL) is also the Chairman of the Port Security Committee (PSC). He is assisted by the Port Security Officer (PSO) who is the head of Security for the Port Area. Although the PSO is overall in charge of security in port areas, he is the main coordinator to liaise with the various agencies for port security. The list of agencies are:

- District Attorney in case of the criminal acts
- Defense and Security Agency for security support
- Indonesian Police (KPPP) for enforcement of law and order in public area around the port working area
- Customs Office for smuggling cases
- Immigration Office for stowaways
- Port Health for violation of the Quarantine Law
- Fisheries Department of offenses related to illegal fishing
- Security Guard Agency for SATPAM related matters
- Department of Labor for safety of workers
- Other institution that related with port activities

3. The port security regulations that have been established in Indonesia until now are as follows.

1) Ministerial Decrees (KM33: 2003 and KM3: 2004) prescribed the following items.
   - International Convention for the Safety of Life at Sea (SOLAS), 1974/ISPS Code in Indonesia is effective in July 1, 2004.
   - DGST (DGSC) is appointed as Designated Authority (DA).
   - The following policies to implement International Convention for the Safety of Life at sea (SOLAS), 1974/ ISPS Code are decided by DGST (DGSC)
   - The DGST (DGSC) is responsible for supervising implementation of the Decree.
2) Circular Letter of Director General of DGST (DGSC) dated March 19, 2004 prescribed the following items.
   - ADPEL/KAMPEL shall make the port facility security assessment (PFSA),

shall prepare the port facility security plan (PFSP) and shall implement it.
- The port security officer (PSO) who manages the port facility security officers (PFSOs) designated for each port facility shall be designated
- The port security committee (PSC) shall be established for each international public port to exchange information and make decisions on security measures.

4. At SECURITY LEVEL 1, the PFSO will be responsible for the daily security activity in the port facility. The PFSO is responsible for in-house security guards (SATPAM). He will liaise with the PSO for any security related activity that is within the port area. The PSO as the main security coordinator in the port will record and report any security incidents to the Chairman of PSC. Any ships that calls into the port facility before schedule has to report to the Port Administrator. A 24 hours notice before arrival to be given/fax to ADPEL using the forms provided.

5. At SECURITY Level 2 and 3, the guard force will be under the command of the PSC. The PSO and PFSO will act as per instructed by the PSC and in accordance with the Port Facility Security Plan. They will report and update the PSC. PSO will instruct security personnel to increase security. At Security Level 3, the PFSO will make preparation for evacuation while the PSO will receive instructions from PSC. All port activities will be halted.

17-1-2 Port Security Regulations and Procedures to Be Established to Ensure the Implementation of Port Security Measures

6. In addition to the abovementioned regulations, the Study Team proposes the port security regulation that should be established to ensure the implementation of port security measures (see "Port Security Regulation for Implementation of Port Security Measures" in the following page).

7. The following procedures should also be established for the effective implementation of port security measures.

- Procedure for internal audit conducted by port management body (PMB) staff other than PFSO
- Procedure for external audit conducted by DGST Headquarters staff or ADPEL staff other than PSO
- Procedure for drills and exercises involving related organizations
- Procedure for management of security measure for river ports

Port Security Regulation for Implementation of Port Security Measures (Draft)

Chapter 1: General Regulations

(Purpose)

Article 1

The purpose of this Regulation is to prescribe measures that should be adopted by owners and others as necessary for the security of international port facility, and thereby prevent conduct hazardous to such installations. In addition, the Regulation prescribes measures related to restrictions on entry into Indonesian ports of international vessels whose security measures cannot be accurately ascertained, and thereby prevent danger to port installations caused by hazardous conduct on the part of international vessels. These measures in combination assure implementation of international obligations, and are intended to protect human life, person and property.

(Definitions)

Article 2

1. In this Regulation, "international vessels" means those crossing from one country's ports to those of another, and the same applies hereinafter. Accordingly, such vessels are passenger ships including high-speed passenger craft, cargo ships including high-speed craft with a gross tonnage exceeding 500 tons and mobile offshore drilling unit.
   Note: In Japanese Regulation, passenger ships are confined to those accommodating 13 or more passengers.
2. In this Regulation, "international port facility" means international wharf and water facilities.
3. In this Regulation, "international wharf" means quays for mooring of international vessels and other berthing facilities (including cargo handling installations appended to the wharves for loading or discharge of cargo, or facilities for embarkation and debarkation of passengers) and this also includes quays and other berthing facilities which receive not only international vessels but also domestic vessels.
4. In this Regulation, "international water facilities" means an area where international vessels can anchor and other water facilities including channels.
5. In this Regulation, "hazardous conduct" means activities that damage or destroy vessels or port facility, bringing illegal explosives into ships or installations, creating marked obstacles to the security of ships and installations, or where Ministerial ordinance determines there is concern about such activities.
6. In this Regulation, "security level" means indicators established to show the extent of measures needed for the security of international vessels and port facility.
   Note: In the ISPS Code, it is prescribed that security level means the qualification of the degree of risk that a security incident will be attempted or will occur.

(Setting of Security Levels)

Article 3

1. Directorate General of Sea Transportation shall establish or change and disclose publicly security levels of all Indonesian ports, taking the following matters into consideration.
   (1) Content of hazardous conduct feared for international vessels and port facilities
   (2) Areas where dangerous activities are feared for international vessels and port facilities
   (3) Degree of dangerous activities feared for international vessels and port facilities
2. When a port security committee (hereinafter referred as “the PSC”) of an individual port deems

it necessary to change security level, the chairman of the PSC has to consult with DGST and then the PSC decides to change the security level of the port or a port facility(s) in the port.

3. When the PSC deems to take back the security level, the chairman of the PSC and the PSC has to take the same procedure mentioned in item 2.

Chapter 2: Security of International Port Facility

(Measures Necessary for the Security of International Port Facility)

Article 4

To prevent feared activities dangerous to international port facilities, Port Administration Office (ADPEL) or Port Office (KAMPEL) and port owners including PELINDO of all international port facilities in international hub ports and international ports and international port facilities in national ports which fall under any of the following items (hereinafter referred as "the International Port Facility Organization") shall adopt measures for their security as prescribed by Articles 5 through 19.

(1) The calling number of passenger ships engaged on international voyages is more than one a year.

(2) The calling numbers of ships other than one mentioned in (1) is more than 12 a year. (These numbers do not include berthing for refugee during rough weather, berthing during construction or repair of the ship and berthing without loading/unloading or boarding/alighting)

(Measures corresponding to Security Levels)

Article 5

1. The International Port Facility Organization shall implement measures corresponding to security levels (establishment and control of the restricted area as necessary for port security, internal and external monitoring of the port facility, management of cargo being loaded to an international ship and other security measures).
2. According to the technical standards prescribed by DGST, the International Port Facility Organization shall establish and maintain facilities equipment necessary for measures corresponding to security levels.
3. When measures corresponding security levels are implemented, the International Port Facility Organization shall cooperate with each other by providing information and other necessary assistance.

Article 6

1 The measures corresponding to security levels prescribed Article 5 are as follows:

(1) Security level 1
   a) To designate the restricted area
   b) To take measures including ID check in order to prevent unauthorized persons or vehicles from entering the restricted area
   c) To check cargo, ship stores and other materials bringing to the restricted area (hereinafter referred as "the Cargo, etc." in this article)
   d) To patrol and monitor the international port facility
   e) To monitor the restricted area on the water
   f) To communicate and coordinate with the relevant organizations
   g) To take security measures which DGST directs

(2) Security level 2
   a) To designate the restricted area

b) To take strict measures including ID check in order to prevent unauthorized persons or vehicles from entering the restricted area
c) To strictly check the Cargo, etc. bringing to the restricted area
d) To strictly patrol and monitor the international port facility
e) To strictly monitor the restricted area on the water
f) To communicate and coordinate with the relevant organizations
g) To take security measures which DGST directs

(3) Security level 3
a) To designate the restricted area
b) To prevent any persons or vehicles except those related to port security from entering the restricted area
c) To stop bringing the Cargo, etc. to the restricted area
d) To constantly monitor the international port facility
e) To constantly monitor the restricted area on the water
f) To communicate and coordinate with the relevant organizations
g) To take security measures which DGST directs

2 In case that an international ship enters the port which has no security measures corresponding to security levels, Declaration of Security (DoS) is completed and security measures are taken according to the DoS.

3 In the case of the DoS prescribed in the preceding paragraph, a signer of the port is the head of KPLP.

4 DoS shall be retained for three years from the date of completion.

5 Once a DoS is completed, if international ship comes to the port facility many times within the valid duration, consultation on the security measures is not needed. The valid durations are as follows:

(1) Security level 1 90 days
(2) Security level 2 30 days
(3) Security level 3 only one time

If the security level changes during the above period, DoS becomes invalid.

(Technical Standards on Port Security)

Article 7

The technical standards on port security facilities and equipment are as follows. Detailed technical standards and its commentaries are prepared separately by DGST.

(1) The restricted area shall be clearly separated by barriers including fence and wall and signs which indicate that persons and vehicles are prohibited from entering the restricted area without warrant shall be put at easily viewable positions.
(2) Barriers shall have enough height and structure to prevent persons from easily entering. Barriers shall have top guard, structure to prevent from slipping through from the under part and anti-corrosion measures and shall bear the wind load.
(3) Entrance gates shall have a key and lock which does not allow easy removal, replacement, replication or destruction.
(4) Lighting with sufficient illumination intensity shall be installed to monitor inside and outside of the international port facility.
(5) Vehicle stopping equipment shall be placed to prevent vehicles from easily entering the restricted area.
(6) The following monitoring equipment which can be remote-controlled shall be installed at international container wharves, international passenger terminal and hazardous material wharves.

a) Equipment which can monitor inside and outside of the international container wharves and hazardous material wharves
b) Equipment which can monitor the restricted area of the international passenger terminal
c) Equipment shall have the function to preserve a set period of time

(Port Security Committee (PSC))

Article 8

1. Port Administrator of ADPEL or KAMPEL shall organize the port security committee in case that international ships are to call the port where ADPEL or CAMPEL exists.
2. When selecting the members of the PSC, the port administrator shall inform the name of the members, their organizations and positions and the selected dates to DGST without delay. When the members are changed, the same procedures shall be taken.

(Port Security Officer (PSO))

Article 9

When organizing PSC, Port Administrator of ADPEL or KAMPEL shall appoint the head of KPLP as PSO and shall the name of the PSO and the appointed date to DGST without delay. When the PSO is changed, the same procedure shall be taken.

(Port Facility Security Officer (PFSO))

Article 10

1. When organizing PSC, Port Administrator of ADPEL or KAMPEL shall direct a port owner including PELINDO to appoint PFSOs for the port facility which receives international ships. The port owner shall report the names of the PFSO, their position and the appointed date to DGST through the Port Administrator without delay. When the PFSO is changed, the same procedure shall be taken.
2. PFSO shall have the following knowledge and capabilities:
   (1) This regulation and the ISPS Code
   (2) Security measures corresponding to security levels
   (3) Port security facilities and equipment
   (4) Training, drills and exercises related to port security
   (5) Port facility security assessment and port facility security plan
   (6) Weapons, explosives and other hazardous materials which might be used in destructive acts
   (7) Countermeasures to be taken when a destructive act occurs
   (8) Information management on port security
   (9) Ship operations
   (10) Port facility management
3. PFSOs shall carry out their duties faithfully.
4. If a PFSO violates this regulation, Port Administrator can order the port owner to dismiss him/her.
5. Persons inside international port facilities shall follow the directions of the PFSO which are issued based on this regulation and a port facility security plan.

(Drills and Exercises)

Article 11

1. The International Port Facility Organization shall conduct drills and exercises necessary for port security for persons who are in charge of port security measures in the port.
2. To ensure the effective implementation of the provisions of the port facility security plan, drills shall be conducted at least every three month.
3. Various types of exercises in conjunction with the relevant organizations shall be carried out at

least once each calendar year with no more than 18 months between the exercises.

(Port Facility Security Plan)

Article 12

1. The International Port Facility shall formulate a port facility security plan (PFSP).
2. The port facility security plan shall include the following items:
   (1) Implementation of security measures corresponding security levels
   (2) Installation and maintenance of port security facilities and equipment
   (3) Appointment of PFSO
   (4) Implementation of training, drills and exercises
   (5) Duties and organizations of persons who are in charge of port security
   (6) Audit of the works related to the port security of international port facilities
   (7) Information management related to the port security of international port facilities
   (8) Countermeasures to be taken when a destructive act occurs
   (9) Other items which DGST requests
3. In case that there are multiple international port facilities in a port, PFSPs for these ports can be integrated into one PFSP.
4. The International Port Facility shall implement adequately the provisions of the PFSP.
5. After approving the PFSP, DGST shall issue temporary statement of compliance of which validity period is six months. During six months DGST shall examine the implementation of the PFSP and can order change or revise the PFSP to the International Port Facility. After giving final approval to the PFSP, DGST issues the statement of compliance of which validity period is five years. The same applies to amendment. However, in case of the following minor revisions, the International Port Facility only informs DGST of them.
   (1) Revisions related to communication and coordination with relevant parties when implementing training, drills and exercises
   (2) Revisions related to appointments of PFSOs
   (3) Items which DGST deems has little effect on port security
6. The PFSP shall be formulated based on the port facility security assessment (PFSA) approved by DGST.
7. When DGST determines that the PFSP is insufficient for the security of the international port facility, DGST shall not give the approval prescribed in paragraph 5.
8. When DGST determines the need for change of the PFSP from the viewpoint of security of the international port facility, DGST can order the change to the International Port Facility.
9. When any of the following is found, DGST can cancel the approval the PFSP.
   (1) When the International Port Facility violate the provisions of this regulation.
   (2) When the International Port Facility has obtained the approval under Paragraph 5 by improper means.
10. When DGST has approved or cancelled the PFSP, or DGST shall make a public notice to that effect.

(Revision of the PFSP)

Article 13

When the International Port Facility which has received approval for the PFSP applies to revise the PFSP, he/she submits the PFSP revision application with the section(s) of the PFSP to be revised.

(Measures Necessary for the Security of International Port Facilities other than Those Prescribed in Article 4)

Article 14

Port Administration Office (ADPEL) or Port Office (KAMPEL) and port owners including PELINDO of international port facility other than that prescribed in Article 4 can formulate PFSP of the facility which contains items related to implementation of measures corresponding to security levels, installation and maintenance of port security facilities and equipment, appointment of PFSO, implementation of training, drills and exercises, and other necessary port security measures, and can gain approval from DGST.

(Improvement Advice)

Article 15

1 When DGST recognizes that an international port facility falls under any of the following items DGST can recommend the International Port Facility Organization to take measures prescribed in the relevant item(s) and other necessary measures.

(1) Measures corresponding security levels in Article 5 and 6 are not implemented according to Article 5 and 6.
(2) Port security facilities and equipment are not established and maintained according to the technical standards prescribed in Article 7.
(3) A PFSO is not appointed as prescribed in Article 10.
(4) Training, drills and exercises are not implemented as prescribed in Article11.
(5) A PFSP is not formulated as prescribed in Article 12, or is not approved as prescribed in Article 12-5.
(6) Other items prescribed in the above PFSP are not implemented.

2 If the International Port Facility Organization does not follow the above-mentioned recommendations and DGST deems it necessary for port security, DGST can order the Organization to take the measures prescribed above.

(Reports)

Article 16

To the extent necessary for implementation of port security, DGST can have the International Port Facility Organization which has gained approval of a PFSP submit a report on port facility security.

(On-site Inspection)

Article 17

To the extent necessary for implementation of port security, DGST can dispatch its officials to the site where necessary security measures should be taken and have them check whether necessary security measures are properly taken or not and ask persons who are in charge of port security works and other related persons.

(Measures Necessary for the Security of International Water Area)

Article 18

1 Measures necessary for the security of international water area shall be decided with those necessary for the security of an international port facility.

2 PFSP for international water area shall be integrated into that for the international port facility.

3 Articles which are applied to the international port facility shall be applied to the international water area.

(International Water Area Patrol and Monitor)

Article 19

1 KPLP is responsible for international water area patrol by boat for port security and KPLP can request port owners to bear a part of fuel cost of patrol boats for port security.

2 All small boats which are to contact an international ship in the international water area shall inform KPLP of name of the boat, contact time and purposes before approaching to the international ship.

3 In case that it is difficult to patrol vast or long international water area including channels, KPLP can delegate patrol and monitoring works to a security guard or guards boarding on a barge or small vessel for transshipment after checking a barge or vessel. Qualification of the security guard shall be preliminary examined by KPLP.

17-2 DECLARATION OF SECURITY (DOS)

17-2-1 General

8. According to the revised SOLAS Convention Chapter XI-2, declaration of security means an agreement reached between a ship and either a port facility or another ship with which it interfaces specifying the security measures each will implement.

9. ISPS Code prescribes that a Contracting Government shall determine when a Declaration of Security is required by assessing the risk the ship/port interface or ship to ship activity pose to persons, property or the environment. It prescribes that a ship can request completion of a Declaration of Security when:

1) the ship is operating at a higher security level than the port facility or another ship with which it is going to interface;
3) there is an agreement on a Declaration of Security between Contracting Governments covering certain international voyages or specific ships on those voyages;
4) there has been a security threat or a security incident involving the ship or involving the port facility, as applicable;
5) the ship is at a port which is not required to have and implement an approved port facility security plan; or
6) the ship is conducting ship to ship activities with another ship not required to have and implement an approved ship security plan.

10. In Japan, the PFSO is obliged to request a DoS to a passenger tramper ship engaging in international voyage which will be berthed at an international port facility.

11. To maintain appropriate security measures, cooperation between ships and port facilities in terms of security measures is needed. Therefore, both sides confirm each security measure and document the measures as DoS for clarification of cooperative relationship.

12. Details on security measures are considered to be highly confidential information. Therefore ships and port facilities are requested to pay attention to prevent leakage of such information.

17-2-2 Procedures in Indonesia

13. Implementation procedures of DoS are directed by the letter dated June 30, 2004 from Director of Guard and Rescue. (KL. 933/3.7/DV-04) The letter reads as follows:

14. DoS Implementation

- In case that a ship entering a port demands that a DoS be completed, Port Administrator as the chairman of Port Security Committee who administers a port/port facility which complies with the ISPS Code has to immediately coordinate with all Port Facility Security Officers (PFSOs).
- The ISPS Code Part A 5.2 stipulates that a ship can request completion of DoS in the following five cases. Minister of Communications Decree KM No.33 explains that case 1 and 4 can happen after July 1, 2004. A PFSO may initiate a DoS in case that PFSA is approved and a port facility is in the process of obtaining SoCPF (Part B 5.3).

1) Case 1: Ship is operating at a higher security level
   - Port Administrator as the chairman of Port Security Committee immediately orders PSO (Head of Guard and Rescue) to coordinate with PFSO who is responsible for the port facility where an international ship berths and declares security level considering the situation.
   - PSO immediately coordinates with PFSO and both have to prepare security measures mentioned in the DoS and PSO reports their activities to PSC.
   - PSC orders PFSO to communicate with a ship master/captain or SSO regarding the agreement to complete a DoS requested from the ship with some conditions attached in DoS format. PSO is directed to immediately have security personnel (KPLP) prepare for taking security measures such as patrolling around the port, helping access control to the port and cargo handling area, and coordinating with relevant organizations in the port (Police/Navy) to implement security works outside the port.
   - Both parties, a ship master/captain, SSO (ship side) and PFSO, PSC (port/port facility side) then fill and sign the DoS form with expiry date.
   - If the condition described in the "activity" column which is requested from a ship master/captain or SSO is beyond the authority of PFSO, PFSO reports it to PSC.
   - PSC has the authority to decide whether to accept or to reject ship's arrival.

7) Case 2: Ship is at a non-compliant port/ port facility
   - Port Administrator as the chairman of Port Security Committee who administers a non-compliant port/port facility follows the procedure of case 1 mentioned above.
   - Since a non-compliant port does not have PFSO, PSC and PSO directly handle DoS requested from the ship. They coordinate with relevant organizations (Police /Navy) to implement duties beyond their authorities and revise DoS form to match the situation. PSO write his/her signature in the DoS on behalf of PFSO.

15. Basic procedures of completing DoS have already been established in Indonesia. In a port which complies with the ISPS Code, PSO and PFSO must have good knowledge of DoS because DoS in included in PFSP; all PFSOs have attended the PFSO training course. On the other hand, DoS is requested even in a port which has not complied with the ISPS Code. In such ports, it is difficult for the Port Administrator and PSO to understand the ISPS Code and security measures in the port, complete the DoS and take security measures only by reading the procedures mentioned above. More detailed procedures and training are needed.

17-2-3 Procedure to Complete DoS at a Port which is not Compliant with the ISPS Code

16. Usually these ports receive very few international vessels, and international ships and domestic ships use the same berth. In addition, there are few officials who have sufficient knowledge and experience on port security and DoS in the port, because PFSP has not been formulated.

17. Advance preparation items are as follows:

1) It is necessary to establish port security system which has to be initiated when DoS is completed.
   a) A signer of DoS in a port is the Head of KPLP when DoS is requested from a ship. This fact shall be notified to all relevant organizations.
   b) It is suggested that the Head of KPLP be trained on the duties of PFSO.
   c) A responsible official shall be selected from a port management body such as PELINDO for implementing port security tasks after completing DoS. This official should be an official responsible for the wharf which the international ship berths at and also be assumed to be a PFSO in the future. This fact also shall be notified to all relevant organizations.
   d) ADPEL/KAMPEL has to learn how to set out the security level.

2) Location of the wharf where an international ship berths and the restricted area where unauthorized vehicles and persons are prohibited from entering shall be set out. It is advisable to set out the restricted area so that there is enough space to load/unload and place international cargo and so that neighboring domestic cargo handling is not affected. Details are found in the technical standards.

3) Mobile fence to partition the restricted area from other areas and simplified gates to conduct access control of entering vehicles and persons shall be prepared (2a+b). They should be able to be used at any time.

   Note: If enough security guards are stationed in the restricted area, even mobile fence can be omitted. Containers and other structures can be proxy for mobile fence.

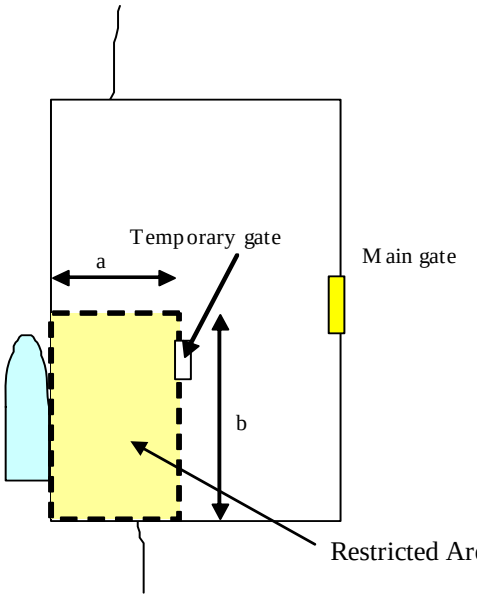


Figure 17-2-3-1 Restricted Area and Mobile Fence

4) Officials to implement security works when an international ship enters a port shall be nominated. In case that security guards are employed from an outside company, a

contract shall be preliminarily made with the company. It is preferable that these security guards have been trained for port security. The above mentioned officials and security guards are obligated to bring a communication tool including mobile phone with them to communicate with the relevant persons described in item 5. Required number of officials and/or security guards is decided considering the extent of the restricted area. Minimum of three shall always stay in the restricted area.

5) Communication network shall be formulated for the time when an emergency or a question arises. It shall be printed and tacked so that all relevant persons can see it.

18. DoS completion procedures are as follows:

1) A ship submits a pre-arrival notification of ship security to ADPEL/KAMPEL at least 24 hours in advance. In addition, SSO requests the port side to conclude DoS, if necessary. In case that an international passenger ship berths at a wharf and that security facilities such as X-ray device are requested for checking passenger's baggage, an earlier request is needed.

2) SSO sends the DoS form to the port side in which "Name of Ship", "Port of Registry", "IMO Number", "Security level for the Ship" and "Security measures implemented by the Ship) are described. As to the last item, SSO writes his/her signature in the columns which describe the security measures the ship implements. In addition, SSO indicates the items to be confirmed or coordinated, if necessary.

3) The port side indicates "Name of port facility", "Security level for the Port" and "Security measures implemented by the Port". The port side writes his/her signature in the columns which describe the security measures the port implements and puts "–" in the columns if no measures will be implemented. The port side also confirms any points raised by SSO. In addition, the port side indicates the items to be confirmed or coordinated. Then the form is sent to SSO.

4) After confirmation, both sides conclude DoS. The final signatures are exchanged through an agent or FAX, or both sides meet and exchange signatures after the ship arrives.

19. Items implemented before an international ship berths at a wharf are as follows:

1) Mobile fence and simplified gates are placed on the border of the restricted area.

2) The officials and/or security guards patrol in and around the restricted area and check whether suspicious goods are placed in the area or not.

3) Access control of vehicles and persons is conducted.

4) Ability to communicate with the ship is confirmed.

20. Items implemented while an international ship is berthing at the wharf are as follows. Official and/or security guards take the following security measures:

1) To check vehicles and persons entering the restricted area by looking at IDs or cargo documents.

2) To monitor suspicious vehicles and persons and ensure they do not to approach the ship

3) To monitor cargo handling

4) To check ship's stores at the gate

5) In the case of an international passenger ship, to check passengers and their

belongings including baggage by metal detector to prevent dangerous goods from being brought onto a ship

6) In the case of an international passenger ship, to prevent passengers from entering other areas through monitoring

Table 17-2-3-1 Pre-Arrival Notification Form (1)

PRE-ARRIVAL NOTIFICATION OF SHIP SECURITY
PEMBERITAHUANAWAL KEDATANGAN KEAMANAN KAPAL

1) Name of Ship Nama Kapal	2) IMO No. No. IMO	3) Call Sign: Tanda Panggil
4) Type of Ship Tipe Kapal	5) GT: Berat Kotor	6) Flag: Bendera
7) No. of Crew Jumlah Kru	8) Estimated Time Arrival Perkiraan Waktu Tiba	
9) Purpose of Call: Loading/Discharging/Bunkering/Shipyard/Others Maksud kedatangan: Muat/Bongkar/Bunker/Docking/lainnya If others, please specify purpose: ---------- Jika lainnya, tuliskan maksudnya		
10) Name of Anchorage or Port Facility your ship is bound for: Nama daerah lego jangkar atau Fasilitas Pelabuhan tempat kapal anda akan berada ----------		
11) Name of Agent in Indonesia Nama agen di Indonesia Telp: ---------- Fax: ----------		
12) Does your ship possess a valid International Ship Security Certificate (ISSC)? YES / NO Apakh kapal anda memiliki International Ship Security Certificate (ISSC) If "YES" give detailes in Q12 and Q13 Jika "YA", berikan rincian pada pertanyaan 12 dan 13		
13) Date of expiry of the ISSC: ---------- Masa akhir berlaku ISSC		
14) Name of issuing authority for the ISSC: ---------- Nama instasi berwenangyang mengeluarkan ISSC		
15) Current Security level of the ship: ---------- Tingkat keamanan kapal saat ini		

16) Last 10 ports of call (w.e.f. from 1 July 04), including arrival/departure, dates and the security level at which the ship operated at these ports where it has conducted a ship/port interface.
10 pelabuhan terakhir yang dikunjungi (terhitung sejak tanggaal 1 Juli 04), termasuk tanggal kedatangan/ Keberangkatan dan tingkat keamanan saat kapal dioperasikan pada port tersebut dimana telah terjada interaksi kapal/pelabuhan

Port Pelabuhan	Arrival Kedatangan	Departure Keberangkatan	Security Level Tingkat Keamanan
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Table 17-2-3-2 Pre-Arrival Notification Form (2)

17) Were there any special or additional security measures taken during any ship/port interface at the ports mentioned in Q16? YES / NO
Apakah ada tindakan keamanan khusus atau tambahan yang diambil selama interaksi pada Pelabuhan sebagaimana dimaksud pada pertanyaan 16? YA / TIDA
If "YES", give details:
Jaka "YA" jelaskan

---

18) Were there appropriate ship security measures maintained during any ship-to-ship activity interface at the ports mentioned in Q16? YES / NO
Apakah ada tidakan keamanan yang pantas digunakan selama kegiatan interaksi kapal-kapal pada pelabuhan
If "YES", give details:
Jaka "YA" jelaskan

SIGNATURE OF OWNER / AGENT / MASTER / CSO
TANDATANGAN NAKHODA / PEMILIK / AGEN / NAKHODA / CSO

NAME OF MASTER / OWNER / AGENT / MASTER / CSO
NAMA NAKHODA / PEMILIK / AGEN / NAKHODA / CSO

TANGGAL _____. TIME: _____.
TANGGAL WAKTU

PRESENT POSITION (Latitude) _____ N/S (Longitude) _____ E
POSISI SEKARANG

A.N. DIREKTUR JENDERAL PERHUBUNGAN LAUT
DIREKTUR PENJAGAAN DAN PENYELAMATAN
ttd,

IR. SOEHARTO
NIP. 120 088 343

Table 17-2-3-3 Form of DoS (1)

DECLARATION OF SECURITY
PERNYATAAN KEAMANAN

Name of ship *Nama kapaal*	:	
Port of registry *Pelabuhan pendaftaran*	:	
IMO number *Nomor IMO*	:	
Name of port facility *Nama facilitas pelabuhan*	:	

This Declaration of Security is valid from until for the following activities.
Pernyataan Keamanan ini berlaku dari sampai dengan untuk kegaiatan berikut ini:

under the following security levels
sesuai dengan tingkat keamanan dibarwah ini

Security level for the ship *Tinkat keamanan untuk kapal*
Security level for the port facility *Tingkat keamanan untuk fasilitas pelabuh*

The port facility and ship agree to the following security measures and responsibilities to ensure compliance with the requirements of part A of the International Code for the Security of Ships and of Port Facilities
Facilitas pelabuhan dankapal setuju untuk langkah keamanan dibawah ini dan bertanggungjawab untuk menjamu pemenuhan dengan persyaratan part A. Koda Internasinal untuk Keamanan Kapal dan Facilitas Pelabuhan.

Activity *Kegiatan*	The Port facility *Facilitas Pelabuhan*	The ship *Kapal*
Ensuring the performance of all security duties *Menjamin pelaksanaan semua tugas-tugas keamanan*		
Monitoring restricted area to ensure that only authorized personnel have access *Pengawasan daerah terbatas untuk menjamin bahwa hanya personel yang memiliki kewenangan yang dapat masuk*		
Controlling access to the port facility *Pemeriksaan akses ke facilitas pelabuhan*		
Controlling access to the ship *Pemeriksaan akses ke kapal*		
Monitoring of the port facility, including berthing areas and areas surrounding the ship *Pengawasan facilitas pelabuhan, termasuk area dermaga dan area sekitar kapal*		
Monitoring of the ship, including berhting areas and areas surrounding the ship *Pengawasan kapal termasuk area dermaga dan area sekitar kapal*		
Handling of cargo *Penanganan barang*		
Delivery of ship store *Pengiriman barang-barang kapal*		
Handling unaccompanied baggage *Penanganan barang yang tidak jelas kepemilikan*		
Controlling the embarkation of persons and their effects *Permiriksaan embarkasi orang dan bawaannya*		
Ensuring that security communication is readily available between the ship and the port facility *Memastikan bahwa komunikasi keamanan dalam kondisi siap dan tersedia antara kapal dan facilitas pelabuhan*		

Table 17-2-3-4 Form of DoS (2)

The signatories to the agreement certify that securitymeasures and arrangements for both the port facility and the ship during the specified activities meet the provisions of Chapter XI-2 and part A of Code that will be implemented in accordance with the provisions already stipulated in their approved plan or the specific arrangements agreed to and set out in the attached annex. *Penandatangan kesepakatan ini menyatakan bahwa langkah pengamanan dan kesepakatan-kesepakatan untuk keduanya facilitas dan kapal selamakegiatantersebut harvs memenuhi syarat Bab XI-2 dan akan dilaksanakan sesuai dengan ketentuan yang telah tercantum dalam Perencanaanatau perangkat khusus lain yang telah disetujui.*

Signed for and behalf of Tandantangan untuk dan atas nama	
The Port Facility *Facilitas Pelabuhan* (Signature) *(Tandatangan)*	The Ship *Kapal* (Signature of Master or SSO) *(Tandatangan Nakhoda atau SSO)*

Name and title of person who signed *Nama dan titel petugas yang tandatangan*	
Name (Port side) *Nama (Pelabuhan)*	Name (Ship side) *Nama (Kapal*
Title *Titel*	Title *Titel*

Contact Details (to be completed as appropriate) (indicate the telephone numbers or the raio channel or frequencies to be used) Detail Kontak Point lainna (delengakpi jika dibutuhkan) (cantumkan nomor telepon atau chanel radio atau frekwensi yang digunakan)	
for the port facility untuk facilitas pelabuhan	for the ship untuk kapal
PELINDO ADPEL	Master *Nakhoda* SSO Company *Perusahaan* CSO

21. Items implemented after an international ship leaves the port are as follows:

1) Mobile fence and simplified gates are taken away.
2) The responsible person belonging to the port management body has custody of the signed DoS for the predetermined period and also records the completion of DoS in the log.

22. According to the ISPS Code (A5.6), Contracting Governments shall specify, bearing in mind the provision XI-2/9.2.3, the minimum period for which Declarations of Security shall be kept by the port facilities located within their territory. It is proposed that DoS shall be retained for three years from the date of completion.

23. In principle, a DoS should be documented every time an international ship is berthed at the port facility. The Japanese government has decided valid durations of DoS to be as follows. Once a DoS is completed, if the ship comes to the port facility many times within the valid duration, consultation on the security measures is not needed.

a) Security level 1: 90 days
b) Security level 2: 30 days
c) Security level 3: only one time

If the security level changes during the above periods, DoS becomes invalid.

17-3 AUDIT

24. In Indonesia, the intermediate audit to examine whether various measures for port security including PFSP and its implementation are being appropriately conducted is scheduled to start from December 2006. The ISPS Code stipulates that each Contracting Government shall communicate to IMO a revised and updated list showing all the approved PFSPs at five year intervals. The time coincides with the halfway point of 5 years.

25. Descriptions of the audit in the ISPS Code are as follows:

- Part A 16.3
  The plan (PFSP) shall address, at least, the following:13. procedures for auditing the port facility security plan;
- Part A 16.3.1
  Personnel conducting internal audits of the security activities specified in the plan or evaluating its implementation shall be independent of the activities being audited unless this is impractical due to the size and the nature of the port facility.
- Part B 16.3
  All PFSPs should: 5. provide for regular review, or audit, of the PFSP and for its amendment in response to experience or changing circumstances;
- Part B 16.5
  Contracting Government should approve the PFSPs of the port facilities under their jurisdiction. Contracting Governments should develop procedures to assess the continuing effectiveness of each PFSP and may require amendment of the PFSP prior to its initial approval or subsequent to its approval. The PFSP should make provision for the retention of records of security incidents and threats, review, audits, training, drills and exercises as evidence of compliance with those requirements.
- Part B 16.58

The PFSP should establish how the PFSO intends to audit the continued effectiveness of the PFSP and the procedure to be followed to review, update or amend the PFSP

- Part B 16.59
  The PFSP should be reviewed at the discretion of the PFSO. In addition it should be reviewed:
  2. if an independent audit of the PFSP or the Contracting Government's testing of the port facility security organization identifies failings in the organization or questions the continuing relevance of significant element of the approved PFSP;
- Part B 16.61
  PFSPs have to be approved by the relevant Contracting Government which should establish appropriate procedures to provide for:
  3. the approval of PFSP's, with or without amendments;
  4. consideration of amendments submitted after approval; and
  5. procedures for inspecting or auditing the continuing relevance of the approved PFSP.

26. According to the ISPS Code, audits are implemented for the following targets:

- To check whether PFSP responds to changes of a port
- To check whether security measures implemented at a port complies with PFSP
- To check whether PFSP complies with the ISPS Code

27. In addition to the above, the following can be targets. In a certain country, they were actually audited.

- To check whether PFSA complies with the ISPS Code
- To check whether PFSP is formulated based on PFSA
- To check whether laws and regulations on port security comply with the ISPS Code
- To check whether central government's tasks on port security comply with the ISPS Code

28. There are two kinds of audits: internal audit and external one. In case of the internal audit, members who implement audit are nominated from the same organization which is responsible for port security measures, while in case of the external audit, members are selected from other organizations. Until now, in many cases internal audits have been carried out because there are no personnel who are familiar with the ISPS Code and port security. Personnel who implement internal audits shall be independent of the activities being audited.

29. The ISPS Code does not stipulate the frequency or interval of the audit. However, it is recognized that the audit will have to be carried out before the Contracting Government will communicate to IMO a revised and updated list at 5 year intervals. The next time will be July 1, 2009. However, it seems that each country conducts or is to conduct audits at different times. For example, Ministry of Land, Infrastructure and Transport in Japan conducts audits to check daily security activities in the ISPS compliant ports every year.

30. Main audit items to be checked are as follows:

1) Security measures
   a) Physical security measures (security equipment)
      - Fence, gate and car stopper are working.
      - Mobile fence is working.
      - No one without ID or permission to enter is found in the restricted area.

- No vehicle without sticker or permission to enter is found in the restricted area.
- Clear zone along fence is preserved. (No cargo is placed there and bushes are cut.)
- Lighting is working.
- Alert system and communication system including VHF radio are working.
- CCTV camera and sensor are working.

b) Organic security measures

- Security guards properly conduct access control with mirror and/or other detective devices
- Security guards patrol along the fence and in the restricted area according to PFSP.
- Patrol boat patrols the restricted water area in a port.
- Documents regarding DoS, communication chart, evidence of approval and other security confidential information are properly stored.
- Port Security Committee appropriately functions.

2) PFSP

- PFSP is compliant with the ISPS Code.
- PFSP is formulated based on PFSA. (Recommendations of PFSA are reflected to PFSP.)
- PFSP is revised in response to change of the port.
- PFSP should be in the working language of the port facility. (Part A 16.2)
- Part A 16.3 item 1 to 15
- Part A 16.6 and 16.7
- PFSP is protected from unauthorized access or disclosure
- The duties and responsibilities of PFSO are appropriately performed. (Part A 17.2)
- Training, drills and exercises are properly conducted. (Part A 18)
- PFSO and security personnel have received training.
- PFSO participates in exercises.

3) PFSA

- PFSA is periodically reviewed and updated. (Part A 15.4)
  PFSA includes, at least, the following elements. (Part A 15.5)
  1. identification and evaluation of important assets and infrastructure it is important to protect;
  2. identification of possible threat to the assets and infrastructure and the likelihood of their occurrence, in order to establish and prioritize security measures;
  3. identification, selection and prioritization of countermeasures and procedural changes and their level of effectiveness in reducing vulnerability; and
  4. identification of weaknesses, including human factors in the infrastructure, policies and procedures.
- A report is prepared which includes a summary of how the assessment was conducted and descriptions of each vulnerability and countermeasure. (Part A 15.7)

4) Contracting Government and Designated Authority

- Laws and regulations comply with the ISPS Code.
- Contracting Government and Designated Authority carry out their duties on port security stipulated in the ISPS Code.
- Contracting Government sets security level and informs to the port facility. (Chapter XI-2 Regulation 3)
- Contracting Government decides the extent of application of this chapter and of

the relevant sections of Part A to the port facilities which are occasionally required to serve international vessels. (Chapter XI-2 Regulation 2)

- Contracting Government communicates to IMO a list.

31. Before conducting the audit, an audit plan has to be prepared and explained to organizations who receive the audit. The plan contains at least the following items:

- Audit reference number
- Audit date (Schedule)
- Organization and members of Audit team
- Organization who receives audit
- Objectives of the audit
- Scope of the audit
- Guide post of the audit

17-4 PORT SECURITY COMMUNICATION SYSTEM AND PROCEDURE

32. The communication systems for port security are classified into the following three types; communications between ships and port facilities, communications within port facilities and communications with PSC, police and other security organizations. Immediate and assured procedures shall be required in all cases.

1) Communications between ships and port facilities
   - Ordinary international VHF radiophone or telephone and fax using INMARSAT telecommunication satellite are often used for communications between land and ships on a voyage. On the other hand, while ships are berthing, walkie-talkie or mobile phone is often used. In case of emergency, same procedures shall be adopted.
2) Communications within port facilities
   - Most of the port facility security personnel use walkie-talkie or mobile phone as the primary communication device. Alternatively the radio set installed at each of the security post can be used. Public Address (PA) System is very effective to announce to the workers inside the restricted area or deck of the ship in case of emergency.
3) Communications with PSC, police and other security organizations
   - At the time incident occurs, it is very important to communicate with PSC, police and/or fire department, etc. immediately. It is necessary to prepare communication devices which can contact those relevant organizations immediately and securely.

33. The port and port facilities have communication systems and procedure. They have the standard communication equipment. However, the PA system is needed to complement the existing systems.

34. A guide to designing the PA system is given below.

- Establishment of the extent of the areas to be covered by loudspeakers
- The number of speaker zones needs to be established.
- If all of the speakers are always addressed together, this is an “all-call” or “single-zone” system, and so only a single amplifier, typically a mixer amplifier, is required to drive the speakers
- If some speakers are addressed some of the time, and others at other times, it is

a "multi-zone" and in addition to an amplifier, some kind of switching and routing system, typically a system pre-amplifier and call-station, is required.

- Speaker selection is largely defined by the location of the speakers - in warehouses and port berthing area sound projectors are used.
- Noisy environments usually require horn speakers, as do outdoor locations.
- The number of microphones in the system will need to be determined, and in the case of multi-zone systems it will need to be established whether each microphone will need to address one zone, all zones, or different combinations of zones.
- Determine which type and how many loudspeakers are required
- Selection of the amplifier – this depends on the power required for driving the loudspeakers
- Selection of the microphone(s) - this is influenced by both the application requirements and desired functionality

CHAPTER-18. PORT SECURITY DEVELOPMENT PLAN

18-1 GENERAL

1. The Study Team has implemented the study on the port security enhancement program for 26 ports on which the agreement was reached with DGST. The 26 ports consist of the 25 strategic ports in Indonesia with the exception of Lhokseumae and the ports of Kendari and Cilacap.

2. This port security development plan is composed of the development plan for port security facilities and equipment and the development plan of port security human resources including education and training.

3. The development plan for port security facilities and equipment is prepared as follows. Since 12 ports among total 26 ports have already complied with the ISPS Code, the Study Team surveyed the state of implementation of their PFSPs and pointed out matters in question. Based on the survey, the development plan for port security facilities and equipment which are needed for more reliable security measures is drafted.

4. The remaining 14 ports have not complied with the ISPS Code. The Study Team conducted a site survey for 10 ports, carried out PFSAs and formulated PFSPs. In the process, port security facilities and equipment which are thought to be required to make the ports comply with the ISPS Code were proposed and integrated into the development plan. Since the Study Team could not conduct site surveys for the other 4 ports in Maluku and Papua, the Study Team delegated them to RSOs and carried out only PFSA based on the documents prepared by RSOs. Therefore the development plan for these 4 ports has not been formulated.

5. When discussing port security facilities and equipment, the Study Team classified the ports receiving international ships into two groups, Group A and B, and proposed the facilities and equipment which is thought to be required for each group.

- Group A Container wharf, passenger wharf and hazardous material wharf
- Group B Other wharves

6. As to Group A ports, advanced security measures including CCTV camera are taken. In addition, it is proposed that an X-ray device to check baggage be installed in passenger terminals.

7. The Study Team submitted to DGST the Urgent Security Development Plan for the application to 2006 yen-loan package last summer in the middle of whole schedule of the Study. The Urgent Security Development Plan is composed of the improvement of existing security facilities and installation of new security facilities and equipment such as CCTV camera motoring system for seven public ports i.e. Belawan, Dumai, Palembang, Banjarmasin, Samarinda, Bitung and Makassar based on the request of DGST (see Appendix I). However, DGST did not submit the above Urgent Plan to BAPPENAS for the application last year because the coordination between relevant organizations such as PELINDO had not yet been completed. Therefore, the Study Team included the above Urgent Plan in the Port Security Development Plan.

8. This port security development plan will be implemented by both Indonesia's own finance and foreign aid including grant and loan. Moreover the plan includes not only facilities and equipment to be urgently developed but also those to be developed in the future.

9. As to the development plan of port security human resources, the plan is formulated based on the proposal on education and training proposed in Chapter 15.

18-2 OUTLINE OF DEVELOPMENT IN EACH PORT

18-2-1 Port Security Facilities and Equipment

(1) Belawan Port

10. Outline of the development in Belawan Port is shown below.

1) Conventional terminal
   - To repair the gate which has no boom for stopping vehicles.

2) Passenger terminal
   - To install an X-ray inspection apparatus to check passenger baggage as liner passenger vessels go into service to/from Singapore and elsewhere.
   - To replace temporary fence with permanent fixed fence.
   - To install 2 CCTV cameras with UPS (Uninterrupted Power Supply) and emergency generator.
   - To increase lighting for CCTV camera

3) Container terminal
   - To repair the gate which has no boom for stopping vehicles.
   - To move the fence on the boundary with the neighboring marina 3 meters further inside to prevent persons from intruding across the fence. (350m)
   - To repair the fence on the boundary with the domestic container terminal. (350m)
   - To install 7 CCTV cameras with UPS (Uninterrupted Power Supply) and emergency generator.
   - To increase lighting for CCTV camera

(2) Dumai Port

11. Outline of the development in Dumai Port is shown below.

1) Multipurpose wharf
   - To increase lighting for patrols at night
   - To install equipment for emergency public address.

2) General cargo wharf
   - To construct two new gates at the restricted area.
   - To demolish deteriorated fence with outrigger which is angled to the inner side (opposite side), and install new fence. (230m)
   - To install new fence surrounding the restricted area. (44m)
   - To install equipment for emergency public address.

3) Passenger wharf
   - To install 2 CCTV cameras at the pontoon and 4 CCTV cameras in the passenger terminal. (Including UPS (Uninterrupted Power Supply) and

emergency generator)
- To install an X-ray inspection apparatus to check passenger baggage and a portal metal detector in the passenger terminal, because liner passenger vessels go into service to/from Malaysia etc.
- To install equipment for emergency public address.

(3) Pekanbaru Port

12. In Pekanbaru port, no port security facilities and equipment are proposed because only a few international ship comes to the port and the port is scheduled to move to another place.

(4) Tanjung Pinang Port

13. Outline of the development in Tanjung Pinang Port is shown below.

- To install an X-ray inspection apparatus to check passenger baggage as liner passenger vessels go into service to/from Singapore and elsewhere.
- To install 6 CCTV cameras with UPS (Uninterrupted Power Supply) and emergency generator.

(5) Batam Port

14. Batam Port has three port areas: Batu Ampar, Batam Center and Sekupang. Outline of the development in Batam Port is shown below.

1) Batu Ampar Port
   - To demolish the existing fence which is low in height and declining, and has no outrigger (230m) and to install a new fence including extension. (276m)
   - To rehabilitate the gate in front of the basin for small vessels.
   - To install a mobile fence on the border with the domestic cargo terminal where no fence is built. (24m)
   - To increase lighting along the fence.
2) Batam Center Port and Sekupang Port
   - Both ports have liner passenger routes with Singapore etc. and port security facilities and equipment are under development.

(6) Teluk Bayur Port

15. Outline of the development in Teluk Bayur Port is shown below.

- To repair damaged outrigger and holes of the concrete fence. (50m)
- To install 2 CCTV cameras in the container yard with UPS (Uninterrupted Power Supply) and emergency generator

(7) Palembang Port

16. Outline of the development in Palembang Port is shown below.

1) Conventional terminal
   - To repair two gates which are low in height and have no outrigger.
   - To demolish deteriorated fence near the boundary with the container terminal and build a new fence.

2) Container terminal
- To repair a gate which is low in height and has no outrigger.
- To reinforce eastside fence which is low in height and has no outrigger. (70m)
- To install 4 CCTV cameras with UPS (Uninterrupted Power Supply) and emergency generator.
- To increase lighting for CCTV camera.

(8) Panjang Port

17. Outline of the development in Palembang Port is shown below.

- To repair 2 parts of the fence at the terminal area. (5m)
- Development of the port security facilities and equipment has been completed and basically no new development is needed. Some defective parts of the fence will be repaired during maintenance work.

(9) Tanjung Priok Port

18. Port security facilities and equipment including CCTV cameras have been installed. Tg.Priok Port basically does not need further development except an X-ray scanner in the container terminal which is thought to be needed in the future. Some defective parts of the fence will be repaired during maintenance work.

(10) Pontianak Port

19. Outline of the development in Pontianak Port is shown below.

1) Container terminal
- To build a new gate at Gate 6 to the Conventional terminal which has only a boom for stopping vehicles.
- To reinforce the fence on the border which is low in height and has no outrigger. (520m)
- To install 4 CCTV cameras with UPS (Uninterrupted Power Supply) and emergency generator.
- To increase lighting for CCTV camera.
- To install public address system for cautionary notice to suspicious persons and direction of ships.

2) Conventional terminal
- No security measures are needed because it is for domestic use only.

(11) Banten Port

20. Outline of the development in Banten Port is shown below.

- To build a new gate at the Multi-purpose terminal which handles foreign and domestic cargo including container.
- To repair the fence which has no outrigger. (180m)
- To prepare a mobile fence for an international ship at the Multi-purpose terminal. (60m)

(12) Cilacap Port

21. Outline of the development in Cilacap Port is shown below.

- To repair damaged part of the fence. (90m)
- To build a new fence for the part where there is no fence.
- To increase lighting because it is dark along the fence.

(13) Tanjung Emas Port

22. In Tanjung Emas Port, port security facilities and equipment are in good condition with the exception of the fence. The fence on the boundary with the domestic passenger terminal has 2m gap at the wharf face line and persons easily come and go. Therefore it is proposed to build a new fence here with overhang to the sea. (4m)

(14) Tanjung Perak Port

23. Port security facilities and equipment including CCTV cameras have been installed. Tg.Perak Port basically does not need further development except an X-ray scanner in the container terminal which is thought to be needed in the future. Some defective parts of the fence will be repaired during maintenance work.

(15) Benoa Port

24. Outline of the development in Benoa Port is shown below.

- To repair the existing fence. (120m)
- To place a mobile fence on the border with the area for domestic cargo and passenger vessels when an international passenger ship enters the port. (35m)
- To repair the three existing gates in conjunction with the existing fence. (15m)
- To install an X-ray inspection apparatus and a portal metal detector to check passengers' baggage and belongings when an international passenger ship enters the port.

(16) Tenau Port

25. Very few international ships currently call at the container terminal in Tenau Port. However there is a plan to develop a container liner service with Australia and thus PFSP is prepared as a Group A port. Outline of developments is shown below. These developments will be needed when container liners come into service.

- To build two new gates as the access point to the restricted area.
- To reinforce the existing fence along the south port road which is low in height and has no outrigger.
- To build new fence facing the river. (200m)
- To install 4 CCTV cameras with UPS (Uninterrupted Power Supply) and emergency generator.
- To increase lighting for CCTV camera

(17) Banjarmasin Port

26. Outline of Development in Banjarmasin Port is shown below.

1) Conventional Terminal
   - To prepare a mobile fence at the wharf where an international ship berths. (70m)
2) Coal terminal
   - To repair a gate which is low in height and has no outrigger.

- To reinforce the fence on the boundary which is low in height and has no outrigger. (530m)
- To build a new fence on the revetment. (200m)
- To install a barrier on the belt conveyor in the south of the terminal.
- To increase lighting along the fence.

(18) Samarinda Port

27. In Samarinda Port, a mobile fence for the time when an international ship berths at the wharf is prepared. (180m)

(19) Balikpapan Port

28. Outline of the development in Balikpapan Port is shown below.

- To prepare a mobile fence to indicate the restricted area and to implement access control. (31m)
- The existing lighting is made use of for port security. Some defectivelighting will be repaired during maintenance work.

(20) Bitung Port

29. In Bitung Port, lighting is increased at 6 points and a communication system for public address is installed.

(21) Kendari Port

30. In Kendari Port, a mobile fence for the time when an international ship berths at the wharf is prepared. (20m)

(22) Makassar Port

31. Outline of the development in makassar Port is shown below.

1) Hatta Container Terminal
   - To repair thel fence which has no outrigger.
   - To install 6 CCTV cameras in the container yard with UPS (Uninterrupted Power Supply) and emergency generator.
   - To install a communication system for emergency public address.
2) International Cargo Terminal
   - To repair a gate which has no outrigger.
   - To install a communication system for emergency public address.
3) Passenger Terminal
   - To prepare a mobile fence for an international passenger ship. (20m)

18-2-2 Patrol Boat

32. According to the JICA study on maritime safety plan concerning search and rescue prepared in 1989, 164 patrol boats should be stationed at 45 major ports in Indonesia. However not all the required patrol boats have been stationed yet. For the ports which receive international ships, at least two patrol boats should be stationed. It is proposed that new patrol boats be stationed at the following ports:

- Pekanbaru, Batam, Banten and Kupang 1 patrol boat
- Kendari 2 patrol boats

33. In case of the international port which has more than two patrol boats but no patrol boat of which age is less than 20 years, it is proposed that at least one patrol boat be replaced.

- Dumai, Teluk Bayur, Pontianak, Samarinda and Makassar 1 patrol boat

34. For Batam Port which has three separate port areas, it is proposed that one patrol boat be stationed in each port area.

- Batam 1 additional boat

35. Therefore, a total 12 of patrol boats is required to be newly built.

18-3 DEVELOPMENT COST

18-3-1 Procurement and Installation Methods

36. The port security facilities and equipment which are not available in Indonesia have to be procured from foreign countries including Japan, while international bidding will be applied for the supply and installation of the port security facilities and equipment financed by the foreign aid. One contract package will be adopted for the supply and installation project.

37. The power required for the facilities and equipment will be supplied from the existing public power source. As for CCTV cameras, electric power will be supplied directly from the monitoring room in principle in order to secure uninterrupted power supply.

38. The facilities and equipment are installed under the supervision of the consulting engineers. Construction and installation works are:

- Construction method and schedule for the hand hole and underground works should carefully be set in due consultation with the relevant agencies or companies to avoid idling time.
- Construction and installation works are mainly conducted by humans due to limited work space and the work during port operation.
- Workable days should be carefully studied and be reflected to the construction schedule.
- Excavator equipped with a breaker and air hand breaker is used for the excavation works.
- K-300 class ready mixed concrete is used for the concrete works.
- The items described in Chapter 3 10.3.3 have to be considered before and during the construction works.

39. Since specialized techniques are necessary for installation and adjustment of equipment such as the X-ray device and explosive detection system, manufacturers or agents are required to dispatch technicians when equipment is installed. Locally employed electrician can assist in the installation and adjustment. General workers are also locally hired for installation works. Many electrical contractors are available in Indonesia. Their capability and manpower should be utilized for the installation works as much as possible.

40. Staff education and training on security control system are required in order to improve their capabilities. In this project, guidance and advice for improvement of security measures are required in addition to necessary equipment supply under the development plan.

41. Regular reporting system to the CCTV monitoring room has to be prepared under the supervision of the consultant to efficiently operate the security system. The password of the central monitoring TV operation must be limited to the key staff of the CCTV monitoring room. Dust prevention is important especially for the CCTV camera.

42. Clear understanding and coordination is important not only for the executing agency but also for the contract companies and other relevant agencies to execute site works smoothly. Indonesian language manuals have to be provided by the contractor.

18-3-2 Cost Estimate

43. The cost is estimated here at the preliminary feasibility study level. The exchange rate applied for the cost estimate adopts the buying rate of PT Bank Mandiri (PERSERO) Tbk Cabang Jakarta Menara Thamrin dated 1st August 2005 as:

US$ 1.0 = Rp. 9,770 JY 1.0=Rp. 86.79

44. No price contingency was factored in due to the short implementation period. For the cost estimates of the port security facilities and equipment, current market prices in Japan, quotations collected at Jakarta in the study and tendered prices of similar type of projects are adopted.

45. The following materials are utilized in this cost estimate stage.

- Analysis of unit construction cost, construction materials unit prices and labor charges, issued by PELINDO IV Cabang Bitung-Manado, for year 2006
- Analysis of unit construction cost, construction materials unit prices, labor charges and rental cost of equipment, issued by PELINDO IV Cabang Makassar, for year 2005
- Analysis of unit construction cost, construction materials unit prices, labor charges and rental cost of equipment, issued by PELINDO III Cabang Tanjung Emas-Semarang, for year 2005
- Analysis of unit construction cost, construction materials unit prices, labor charges and rental cost of equipment, issued by PELINDO III Cabang Tanjung Perak-Surabaya, for January to June 2005
- Journal of building construction and interior material prices, Edition XXIII Year XII 2005

46. The following prices and costs were surveyed and collected in Japan and Indonesia.

- Unit price of port security facilities and equipment (Procurement cost + Installation cost)
- Breakdown of unit price for port security facilities and equipment (Procurement cost and Installation cost)
- Unit construction cost
- Unit price of construction materials
- Equipment rental cost
- Labor charges for major items for installation works for the facilities and equipment

18-3-3 Burden Share of Development Cost

47. In the development of port security facilities and equipment, it is proposed that repair of fence and gate be purchased by Indonesia's own finance while others by foreign aid including grant and loan. The latter includes new fence and gate, CCTV camera, X-ray device and scanner, lighting, portal type metal detector, communication system (microphone), uninterrupted power supply, emergency generator and their relevant cost including installation cost.

48. It is expected that patrol boats be purchased using foreign aid.

18-3-4 Development Cost for Facilities and Equipment

49. An overview of the development direct cost for facilities and equipment and patrol boats is shown in Table 18-3-4-1 and detailed direct cost for facilities and equipment is shown in Table 18-3-4-2.

Table 18-3-4-1 Development Direct Cost

Unit:US$

	Port	Facilities and Equipment	Patrol Boat	Total
I	Belawan	2,780,000		2,780,000
	Dumai	1,211,000	722,000	1,933,000
	Pekanbaru		722,000	722,000
	Tg.Pinang	724,000		724,000
	sub total	4,715,000	1,444,000	6,159,000
BDA	Batam	244,000	1,444,000	1,688,000
II	Teluk Bayur	855,000	722,000	1,577,000
	Palembang	1,416,000		1,416,000
	Panjang	1,000		1,000
	Tg.Priok	4,100,000		4,100,000
	Pontianak	1,054,000	722,000	1,776,000
	Banten	61,000	722,000	783,000
	sub total	7,487,000	2,166,000	9,653,000
III	Cilacap	254,000		254,000
	Tg.Emas	1,000		1,000
	Tg.Perak	4,100,000		4,100,000
	Benoa	123,000		123,000
	Kupang	1,438,000	722,000	2,160,000
	Banjarmasin	501,000		501,000
	sub total	6,417,000	722,000	7,139,000
IV	Samarinda	44,000	722,000	766,000
	Balikpapan	7,000		7,000
	Bitung	269,000		269,000
	Kendari	5,000	1,444,000	1,449,000
	Makassar	1,660,000	722,000	2,382,000
	sub total	1,985,000	2,888,000	4,873,000
Total		20,848,000	8,664,000	29,512,000

Source:JICA Study team

Table 18-3-4-2 Detailed Direct Cost for Facilities and Equipment

Unit: US$

	Name of Port	Gate and Fence		CCTV Camera System	X-ray System	Lighting System	Communi-cation System	Hand Hole Wiring	Miscella-neous	Total
		New	Repair							
1	Belawan	7,500	94,500	1,390,000	87,000	200,000	87,000	914,000		2,780,000
2	Dumai	113,000	13,300	506,600	87,000	150,300	87,000	243,800	10,000	1,211,000
3	Pekanbaru									0
4	Tg. Pinang			515,000	87,000			122,000		724,000
5	Batam	97,700	13,400			70,000		62,900		244,000
6	Teluk Bayur		6,600	679,400				169,000		855,000
7	Palembang	32,100	19,100	641,000		230,300	87,000	406,500		1,416,000
8	Panjang	1,000								1,000
9	Tg. Priok				4,100,000					4,100,000
10	Pontianak	56,300	67,900	640,900		90,100	87,000	111,800		1,054,000
11	Banten	37,400	23,600							61,000
12	Cilacap	110,000	12,600			50,100		81,300		254,000
13	Tg. Emas	1,000								1,000
14	Tg. Perak				4,100,000					4,100,000
15	Benoa	8,600	17,600		87,000				9,800	123,000
16	Kupang	102,000	31,400	641,000		170,200	87,000	406,400		1,438,000
17	Banjarmasin	66,800	70,100			160,500		203,600		501,000
18	Samarinda	44,000								44,000
19	Balikpapan	7,000								7,000
20	Bitung					60,100	87,000	121,900		269,000
21	Kendari	5,000								5,000
22	Makassar	4,900	203,200	755,100			87,000	609,800		1,660,000
	Total	694,300	573,300	5,769,000	8,548,000	1,181,600	609,000	3,453,000	19,800	20,848,000

Source: JICA Study Team

50. The total development cost for facilities and equipment and patrol boats is estimated and tabulated in Table 18-3-4-3.

Table 18-3-4-3 Total Development Cost

Unit:thousand US$

	Cost Items	Amount
1	Direct cost *1	29,512
2	Traning cost of operators for facilities and equipment by experts from manufactures or agents *2	240
3	Land acquisition and Compensation cost (1% of 1)	295
4	Administration expenses (2% of 1)	590
5	Engineering service cost (20% of 1) *3	5,902
	Total	36,540

Notes *1 Including spare parts cost of 5% of the direct cost for 2 years operation
*2 Assuming 4 man-months by two experts for the objective ports (US$ 30,000/person/month)
*3 Consulting Services to review the feasibility study, execute detailed design including tender documents preparation, conduct and coordinate the procurement, supervisory services for installation works, advising and training PELINDO, KPLP on management and other incidental engineering services.

Source: JICA Study Team

18-3-5 Development Cost for Human Resources

51. The cost for human resource development such as training on port security in Indonesia is estimated assuming maximum number of participants, duration of training and the trainers cost. Almost same cost will be needed every two years.

52. An overview of the development cost for human resources is shown below.

Table 18-3-5-1 Cost for Human Resource Development

Unit: US$

Security Related Human Resource Development Program	Unit	Quantity	Unit cost	Amount
Cost for participants				
1 ISPS auditor training for port security	persons	138	700	96,600
2 Training, drills and exercises	port facility	25	8,000	200,000
3 Maritime security training of trainers	persons	28	600	16,800
4 Port facility security officer training	persons	30	600	18,000
5 Port facility security awareness course	persons	26	90	2,340
6 Facility security management in port area	persons	78	600	46,800
7 Code of practice for port security in the supply chain	persons	202	800	161,600
8 Bomb incident management for non security personnel	persons	81	90	7,290
9 Port state control	persons	128	600	76,800
Cost for trainer				132,000
Total				758,230

Source: JICA Study Team

18-4 IMPLEMENTATION SCHEDULE

53. The development for port security facilities and equipment will start as soon as possible and will be completed within two years, although this time frame could change depending on the financial situation of port management bodies.

54. In case that the development is implemented by foreign aid, it usually takes a long time to start a project. To take Japanese Yen loan as an example, it takes about two years for the feasibility study, Exchange of Notes between two countries, Loan Agreement, selection of a consultant, detailed design and contract procedures. Then it also takes one year to complete the construction work. Therefore a total of 3 years is needed from the beginning to completion. In case of emergency grant aid, it may take almost two years for completion. The following schedule is for the case of yen loan. Training on the installed equipment will be carried out within the above duration.

Table 18-4-1 Schedule of Development Plan

Year	2006	2007	2008	2009
Phasing	Phase I	Phase II		Phase III
Pre-feasibility Study				
Structural Measures				
Non-structural Measures				
Key Milestone : Report to IMO after 5 year interval				

Source: JICA Study Team

55. The development of human resources needs endless education and training because Port Administrators, PSOs and PFSOs change by personnel movement and newcomers have to be educated and trained. Therefore, as regards the schedule, training is proposed until 2009 when the Contracting Government will have to submit a revised plan to IMO.

18-5 MAINTENANCE AND RENEWAL

56. The following table outlines the maintenance work for the introduced port security facilities and equipment. The operation cost is mainly the salaries of staff for operation.

Table 18-5-1 Outline of Maintenance Works for Port Security Facilities and Equipment

Maintenance category	Purpose	Action
Routine inspection	Visually inspect the equipment for any unusual conditions, and check in the course of daily operation for any fault.	- Check the inspection items and follow the inspection procedures using instruction manuals. - Action by the operators
Scheduled inspection	Check the operating conditions of each piece of the equipment and at the same time conduct the maintenance with the sections that cannot be checked in routine inspections for early detection of any fault and for prevention of fault that may arise as a result of deterioration by ageing.	- To be conducted based on the scheduled inspection contract. - To be conducted by the maintenance service contractors or equipment manufacturers.
Maintenance	Take remedial actions upon any accidental malfunction or fault.	- To be conducted by on-call maintenance service contracts. - To be conducted by the maintenance service contractors or equipment manufacturers.

Source: JICA Study Team

57. Annual operation and maintenance cost for the port security facilities and equipment is estimated at 5% of the direct cost including procurement and installation cost. Cost for periodic check and cleaning and periodic renewal parts ranges from 1.2% to 5.8% of the initial direct cost and is 3.3% on average as shown in Table 18-5-2. In addition, cost for change parts which are needed when equipment is broken by accidental force (1.2%), its fixing expenses (0.3%) and other necessary cost for port security substituted by security guard during check, cleaning, repair, etc. (0.5%) have to be allocated. In Japan, maintenance cost for port security equipment is from 1.8% to 5.8%. (See Table 18-5-3). Accordingly, an annual operation and maintenance cost of 5% is reasonable.

58. The economic lifetime of the port facilities and equipment is 15 years. The facilities and equipment will be replaced in the year 2023 assuming that their installation will be completed in 2008.

Table 18-5-2 Percentage of Maintenance Cost to Initial Direct Cost

Unit: %

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	Ave.
CCTV Camera System																	
Monitoring room equipment				0.5		10.9			0.5		19.7			0.5		32.0	
CCTV camera			1.0		9.0		1.0	4.6	9.0		7.4		9.0		5.5	46.4	
Periodic check and cleaning	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	9.0	
Total	0.6	0.6	1.6	1.1	9.6	11.5	1.6	5.2	10.1	0.6	27.7	0.6	9.6	1.1	6.1	87.5	5.8
Communication System																	
Public address equipment											13.3					13.3	
Peridic check and cleaning	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4.5	
Total	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	13.6	0.3	0.3	0.3	0.3	17.8	1.2
X-ray Inspection System																	
X-ray inspection equipment							25.3							25.3		50.6	
Periodic check and cleaning	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	9	
Total	0.6	0.6	0.6	0.6	0.6	0.6	25.9	0.6	0.6	0.6	0.6	0.6	0.6	25.9	0.6	59.6	3.0
Simple average																	3.3

Source: JICA Study Team

Table 18-5-3 Port Security Equipment Maintenance Cost in Japan

Unit: thousand yen

Port	Initial Direct Cost	Maintenance Cost		Cost for Security Personnel	
A	970,000	32,000	3.3%	30,000	3.1%
B	860,000	50,000	5.8%	40,000	4.7%
C	1,140,000	-	-	300,000	26.3%
D	249,000	4,500	1.8%	20,000	8.0%

Source: JICA Study Team

18-6 URGENT PORT SECURITY DEVELOPMENT PLAN FOR STRATEGIC MAJOR PUBLIC PORTS

59. Among the ports in the above-mentioned port security development plan, the Study Team has proposed the urgent port security development plan for the 9 strategic major public ports with large population centers i.e. Belawan, Dumai, Tanjung Pinang, Teluk Bayur, Palembang, Pontianak, Benoa, Bitung, Makassar in the major islands of Sumatra, Kalimantan, Bali and Sulawesi in order to ensure the sound development of the economy and society throughout Indonesia.

60. Belawan Port, Dumai Port, Tanjung Pinang Port and Palembang Port face the Malacca Strait in which many serious piracy incidents occur every year, while Pontianak Port, which faces the Karimata Strait connecting to the Malacca Strait, is one of the biggest international ports in Kalimantan Island. Teluk Bayur Port, which faces the Indian Sea, is an important international port in the west coast of Sumatra Island. Benoa Port is the only international port in Bali and very important for tourism. Bitung Port faces Mindanao Island of the Philippines where terrorists are active behind the scenes. Makassar Port is the biggest international port in the eastern part of Indonesia but its security measures lag behind other major international ports such as Tanjung Priok and Tanjung Perak.

61. These ports play important roles in Indonesia and implementation of this project contributes to maintaining or advancing current physical distribution system in Indonesia and regional balanced growth of the Indonesian economy.

18-6-1 Port Security Facilities and Equipment for Urgent Port Security Development Plan

62. The urgent port security development plan is composed of the development plan for the following new port security facilities and equipment which shall be developed within 2-3 years.

- New gate for access control
- New fence surrounding the restricted area
- CCTV camera monitoring system
- New lighting system
- X-ray inspection system
- Walk-through type metal detector
- Communication system (Public announce system)

The details of the port security facilities and equipment which shall be developed in each port are shown in Table 18-6-1-1.

Table 18-6-1-1 Port Security Facilities and Equipment to be Developed in 9 Ports

Name of Port	Security Facilities/ Equipment	Unit	Quantity
Belawan	New fixed fence	m	30
	CCTV camera, outdoor(1) (Visibility: 350m)	unit	7
	CCTV camera, outdoor(2) (Visibility: 100m)	unit	4
	CCTV camera, indoor (Visibility: 80m)	unit	3
	CCTV monitoring system, large type	unit	2
	X-ray inspection apparatus, pasenger terminal	unit	1
	Lighting system	unit	20
	Communication system	lot	1
	UPS (10min, 10kVA)	unit	2
	Emergency generator (2/30kVA, 1-hour)	unit	2
	Hand hole, undergraound pipe and cable	m	4,500
Dumai	New gate for access control (6m/1-gate)	m	12
	New fixed fence	m	275
	CCTV camera, outdoor(2) (Visibility: 100m)	unit	2
	CCTV camera, indoor (Visibility: 80m)	unit	4
	CCTV monitoring system, large type	unit	1
	X-ray inspection apparatus, pasenger terminal	unit	1
	Lighting system	unit	15
	Walk through type metal detector	unit	1
	Communication system	lot	1
	UPS (10min, 10kVA)	unit	1
	Hand hole, undergraound pipe and cable	m	1,200
Tanjung Pinang	CCTV camera, outdoor(2) (Visibility: 100m)	unit	1
	CCTV camera, indoor (Visibility: 80m)	unit	5
	CCTV monitoring system, large type	unit	1
	X-ray inspection apparatus, pasenger terminal	unit	1
	UPS (10min, 10kVA)	unit	1
	Emergency generator (2/30kVA, 1-hour)	unit	1
	Hand hole, undergraound pipe and cable	m	600
Teluk Bayur	CCTV camera, outdoor(1) (Visibility: 350m)	unit	4
	CCTV monitoring system, large type	unit	1
	UPS (10min, 10kVA)	unit	1
	Emergency generator (2/30kVA, 1-hour)	unit	1
	Hand hole, undergraound pipe and cable	m	830
Palembang	New fixed fence	m	130
	CCTV camera, outdoor(1) (Visibility: 350m)	unit	4
	CCTV monitoring system, large type	unit	1
	Lighting system	unit	23
	Communication system	lot	1
	UPS (10min, 10kVA)	unit	1
	Hand hole, undergraound pipe and cable	m	2,000
Pontianak	New gate for access control (6m/1-gate)	m	15
	CCTV camera, outdoor(1) (Visibility: 350m)	unit	4
	CCTV monitoring system, large type	unit	1
	Lighting system	unit	9
	Communication system	lot	1
	UPS (10min, 10kVA)	unit	1
	Hand hole, undergraound pipe and cable	m	550
Benoa	X-ray inspection apparatus, pasenger terminal	unit	1
	Walk though type metal detector	unit	1
Bitung	Lighting system	unit	6
	Communication system	lot	1
	Hand hole, undergraound pipe and cable	m	600
Makassar	CCTV camera, outdoor(1) (Visibility: 350m)	unit	6
	CCTV monitoring system, large type	unit	1
	Communication system	lot	1
	UPS (10min, 10kVA)	unit	1
	Hand hole, undergraound pipe and cable	m	3,000

Source: JICA Study Team

18-6-2 Development Cost for Urgent Port Security Development Plan

63. An overview of the development direct cost for security facilities and equipment is shown in Table 18-6-2-1.

Table 18-6-2-1 Direct Cost for Security Facilities and Equipment in Urgent Port Security Development Plan

Unit: US$

Name of Port		New Gate and Fence	CCTV Camera System	X-ray System	Walk-through type Metal Detector	Lighting System	Communi-cation System	Hand Hole Wiring	Total
1	Belawan	7,500	1,390,000	87,000		200,000	87,000	914,000	2,685,500
2	Dumai	113,000	506,600	87,000	10,000	150,300	87,000	243,800	1,197,700
3	Tg. Pinang		515,000	87,000				122,000	724,000
4	Teluk Bayur		679,400					169,000	848,400
5	Palembang	32,100	641,000			230,300	87,000	406,500	1,396,900
6	Pontianak	56,300	640,900			90,100	87,000	111,800	986,100
7	Benoa	8,600		87,000	9,800				105,400
8	Bitung					60,100	87,000	121,900	269,000
9	Makassar	4,900	755,100				87,000	609,800	1,456,800
Total		222,400	5,128,000	348,000	19,800	730,800	522,000	2,698,800	9,669,800

Source: JICA Study Team

64. The total development cost for security facilities and equipment is estimated and tabulated in Table 18-6-2-2.

Table 18-6-2-2 Total Development Cost for Urgent Port Security Development Plan

Unit:thousand US$

Cost Items		Amount
1	Direct cost *1	9,670
2	Traning cost of operators for facilities and equipment by experts from manufactures or agents *2	78
3	Land acquisition and Compensation cost (1% of 1)	97
4	Administration expenses (2% of 1)	193
5	Engineering service cost (20% of 1) *3	1,934
Total		11,972

Notes *1 Including spare parts cost of 5% of the direct cost for 2 years operation
*2 Assuming 1.3 man-months by two experts for the objective ports (US$ 30,000/person/month)
*3 Consulting Services to review the feasibility study, execute detailed design including tender documents preparation, conduct and coordinate the procurement, supervisory services for installation works, advising and training PELINDO, KPLP on management and other incidental engineering services.

Source: JICA Study Team

CHAPTER-19. FEASIBILITY OF THE PORT SECURITY DEVELOPMENT PROJECT

19-1 PRESUPPOSED CONDITION

1. Foreign Trade Vessels are only able to call ports which comply with the ISPS Code. Whenever a foreign trade vessel calls a port which has not complied with the ISPS Code, it is necessary to enter into DoS. Procedure of DoS conclusion is very intricate but the general consensus is that ports which require DoS are not secure enough. As a result foreign trade vessels will stop calling those ports. Consequently, foreign trade activities are carried out only at ISPS compliant ports while other ports are assumed to become domestic feeder ports of the ISPS compliant ports.

2. The basic measures to comply with the ISPS Code include setting up movable fence with guards. This is minimum requirement. Installation of CCTV camera at container terminal and installation of X-Ray inspection apparatus are also adopted in general. Therefore, required capital expenditure is not large compared with port facility investment.

3. In the case of a port facility development project, large capital investment is required. However, new facilities activate port business and create a large benefit by increasing vessel calls and cargo volumes as well as increasing revenue.

4. On the other hand, as to port security facility development for ISPS code compliance, main benefit is to prevent the loss of damage caused by ISPS code incompliant. Before the introduction of ISPS code, all foreign trade vessels can call all ports, however, foreign trade vessel will not call port which has not complied ISPS code after the introduction of ISPS code.

5. The benefit of complying with the ISPS Code is to maintain normal foreign trade activity with all foreign counties. Ports which do not comply with the ISPS Code will suffer large revenue losses due to a decrease in foreign trade vessel calls.

19-2 ECONOMIC ANALYSIS

19-2-1 Purpose and Methodology of Economic Analysis

6. The purpose of the economic analysis is to appraise the economic feasibilities of the Development Plan from the viewpoint of the national economy. The economic analysis is conducted to study the economic benefits as well as the economic costs arising from this project, and to evaluate whether the benefits of the project exceed those that could be obtained from other investment opportunities in Indonesia.

7. Economic analysis will be carried out according to the following method. The port security facility development plans will be defined and they will be compared to the "Without the project" case (hereinafter referred to as the "Without" case). All benefits and costs in market price of the difference between "With the project" case (hereinafter referred to as the "With" case) and "Without" case will be calculated and it will be converted to economic price. All benefits and costs are evaluated using economic prices.

8. In this study, the economic internal rate of return (EIRR) is used to appraise the feasibility of the project. The EIRR is a discount rate which makes the costs and the benefits of the project during the project life equal.

9. 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 = 30 years)
Bi : Benefits in i-th year
Ci : Costs in i-th year
r : Discount rate

19-2-2 Prerequisites for Economic Analysis

(1) Project Life

10. Considering the long-term loans and service lives of the port facilities, the project life in the economic analysis is assumed to be 30 years from the initial operation year 2006. The Study Team assumes the durability of equipment is 15 years. It is necessary to renew some parts of equipment every 15 years. Neither inflation nor an increase in nominal wages is considered during the project life. Table 19-2-2-1 shows project activity schedule.

Table 19-2-2-1 Activity Schedule

Activity	Year
Project Implementation	2006
Interest Payment start	2007
Principal Repayment start	2016
Equipment Renewal	2024

(2) Foreign Exchange Rate

11. The exchange rate adopted for this analysis is US$ 1.00 = 9,770 Rupiahs, the same rate as used in the cost estimation.

(3) "With Case" and "Without Case"

12. As a cost-benefit analysis is conducted on the difference between the "With" case (where security measures are taken and a port facility complies with the ISPS Code) and the "Without" case (where security measures are not taken and the port facility does not comply with the ISPS Code).

13. If a target port fails to fully comply with the ISPS Code, port may lose its international trade function. However, port users will continue to use the target port, because alternative ports are quite far away. In this case, international cargo is transported to the target port which is Compliant with the ISPS Code and then the cargo is transported to the target port as domestic shipment. Alternative ports with sufficient cargo handling capacity would be Tg. Priok port and Tg.Perak port. However, maritime transportation time becomes longer and cost becomes higher.

(4) Benefits of the Project

14. In case of a port which handles international cargo, benefit of project is the difference in the maritime transportation cost and working capital interest of cargo owners between the "With case" and "Without case". Additional domestic transport cost would be accrued for international cargo that must be shifted to an alternative port in compliance with the ISPS Code. In addition, cargo owners have to bear the additional working capital interest when maritime transportation time increases due to the need to use an alternative port that is in compliance with the ISPS Code.

15. On the other hand, in case of a port which receives international cruise vessels, project benefit is impact which passengers of an international cruise vessel gives to local economy, or amount of money which they use in the port and neighboring towns.

16. Project benefits are summarized below.

1) Ports handling international cargo
   - Savings in sea transportation cost
   - Savings in working capital interest of cargo owners
2) Ports receiving international cruise vessels
   - Impact which passengers of an international cruise vessel gives to local economy

(5) Study Ports

(a) Port handling International Cargo

17. The Study Team analyzes the feasibility of the projects in the development plan of port security facilities and equipment for three standard models of container terminal, Belawan port, Dumai port, Palembang port, Pontianak port, Kupang port, Banjarmasin port, Bitung port and Makassar port as a port which handles international cargo.

(b) Port receiving International Cruise Vessels

18. The Study Team analyzes the feasibility of the projects in the development plan of port security facilities and equipment for Benoa port as a port which receives international cruise vessels.

19-3 FINANCIAL ANALYSIS

19-3-1 Purpose and Methodology of Financial Analysis

19. The purpose of the financial analysis is to evaluate the financial feasibility of the project. The analysis focuses on the financial soundness of the management body during the project life.

20. The foreign trade capability will not be fully realized if a port fails to comply with ISPS code. As a result, port revenues obtained from service to foreign vessels would decline. In most port facility development projects, FIRR (Financial Internal Rate of Return) is used to calculate the increase in port revenue as a result of the investment in facilities. In this case, however, investment in port security facilities is to prevent revenue reduction, not to increase revenue. Therefore, the FIRR calculation is not appropriate to prove the viability of a port facility security development project.

21. In the study, financial soundness is appraised with its projected financial statements (income statement, cash flow statement and balance sheet). The appraisal is made in terms of loan repayment capacity using the following ratios.

Loan repayment capacity

$$Debt\ Service\ Coverage\ Ratio = \frac{Net\ Operating\ Income\ before\ \text{Depreciation}}{Repayment\ of\ Principal\ and\ Interest\ on\ Long\text{-}Term\ Loan} \times 100\%$$

22. Debt service coverage ratio shows whether the operating income can cover the repayment of principal and interest on long-term loans. The ratio must be higher than 1.0 and World Bank requires more than 1.75.

(1) Project Term and Condition

23. The Study Team adopts the fixed amount of operating revenue and expense for the financial statements calculation through the examination period. Adopted amount of operating revenue and expense are average value for the past few years in each port. Annual 5% of initial direct cost is applied for maintenance. The Study Team assumes the durability of equipment is 15 years. It is necessary to renew some parts of equipment every 15 years.

(2) Fund Raising for Port Facility Security Development

24. Fund raising is divided into foreign and equity. In this study, referring to funding conditions of soft loan by international financial institutes, the upper limit of finance for foreign funds is assumed to be the total amount of 75% of initial investment costs. The remaining initial investment costs (25%) and all renewal investment are assumed to be raised by equity of self-fund. Conditions of loans are assumed as follows.

Foreign fund	
Amount:	75% of total initial cost
Loan period:	30years, including a grace period of 10 years
Interest rate:	1.5%
Repayment :	Fixed amount repayment of principal
Equity (self-fund)	
Amount:	25% of initial cost
Weighted average interest rate	1.5%×0.75 = 1.125%

(3) Study Ports

25. Study ports of the financial analysis are the same as those other than the three standard models of the economic analysis.

19-4 MODEL CASES OF CONTAINER TERMINAL

19-4-1 Standard Model of Container Terminal

26. The Study Team sets up three standard container terminals, large scale, medium scale and small scale to judge the pre-feasibility of port security facilities. Table19-2-1-1 shows the size and handling capacity of each container berth model. Figure19-2-1-1 shows port security facilities layout plan of large and medium size container berth models. To closely monitor the boundary on land side, four CCTV cameras are installed at each corner and security lights are installed in 60m intervals to provide enough brightness for CCTV.

Table 19-4-1-1 Size and Handling Capacity of each Container Berth Model

	Large Scale	Medium Scale	Small Scale
Wharf Length (m)	350	275	200
Wharf depth (m)	14	12	10
Container Yard Area (m²)	122,500	62,500	40,000
Annual Handling Capacity (TEU)	250,000	150,000	100,000

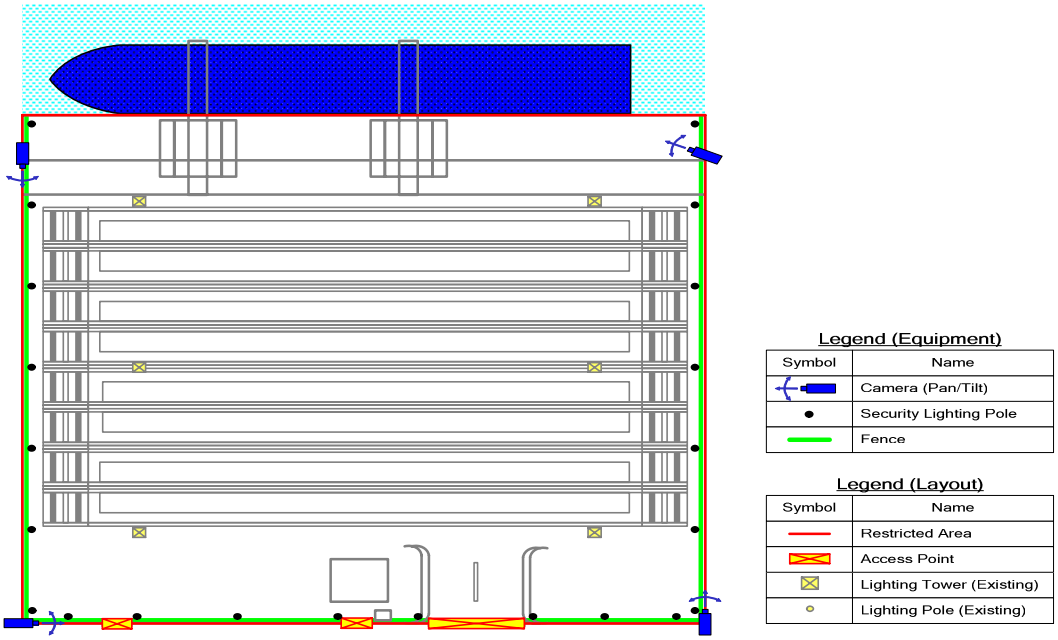
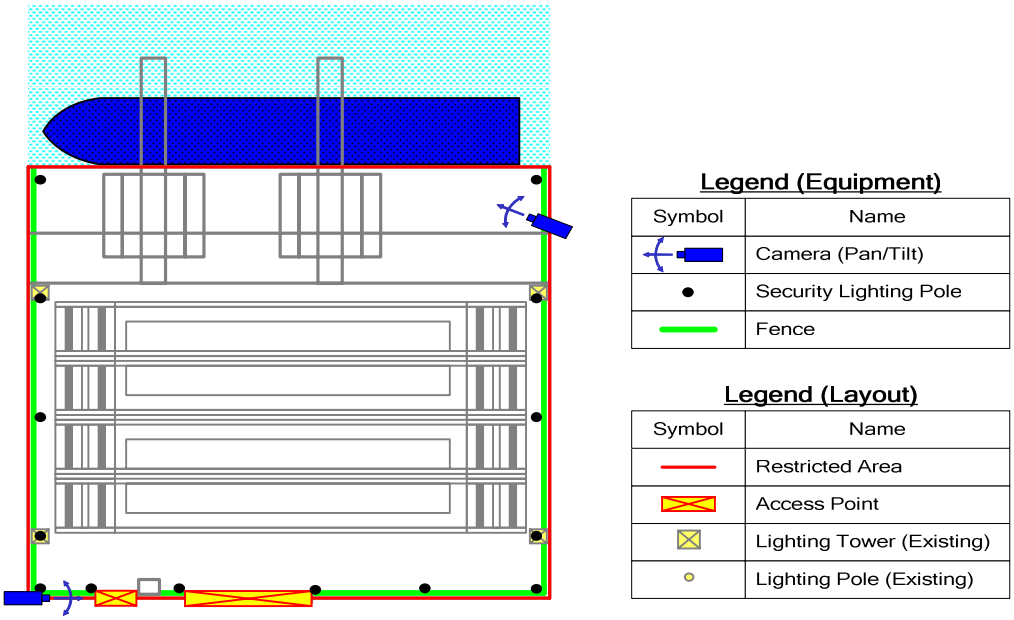


Figure 19-4-1-1 Port Security Facilities Layout Plan for Large and Medium Size Container Terminal

27. Figure19-2-1-2 shows the layout plan of a small size container terminal. Two CCTV cameras are installed diagonally so that each CCTV can monitor two boundary lines and security lights are installed in 60m interval to provide enough brightness for CCTV.



28. Figure 19-4-1-2 Port Security Facilities Layout Plan for Small Size Container Terminal

29. If a terminal fails to fully comply with the ISPS code, the port may lose some part of its international trade function. However, port users will continue to use the same port, because alternative ports are quite far away for land transportation. Some containers may be transported by domestic coastal vessel to an alternative port and put on the international trade route from there.

30. The Study Team assumes a reduction in the number of calling foreign vessels if an Indonesian port fails to comply with the ISPS code as follows. International vessels on European and North American routes would likely stop calling the port. The decrease in vessel calls would be in proportion to the trade value with those countries. The average share of import volume and export volume in the total trade value with US and EU countries from 1989 -2003 has been almost 10%. Therefore, the Study Team assumes that some part of the of international container cargo trade with the US and EU countries could potentially be diverted elsewhere if it fails to comply with the ISPS code. Accordingly, 10% of the international container cargo with the US and EU countries would have to be transported by domestic coastal vessel between the port and an alternative port.

31. The Study Team applies the data of Belawan port as typical data for standard model ports in the pre-feasibility analysis.

19-4-2 Large Scale Container Terminal

(1) Calculation of Benefits

(a) Saving in Working Capital Interest of Cargo Owners

32. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

33. To estimate cargo value of standard model port, the Study Team refers to container cargo throughput data of Belawan port. Table 19-4-2-1 shows international cargo volume and value at Belawan port from 1999 to 2004.

19-4-2-1 Average Value of International Cargo at Belawan Port from 1999 to 2004

Year		1999	2000	2001	2002	2003	2004	Total
Export	million US$	2,277.0	1,962.9	1,896.6	2,434.0	2,217.1	3,648.2	14,435.8
	thousand ton	4,441.3	4,149.2	4,467.9	5,581.5	4,440.8	6,579.2	29,659.9
	US$/ton	512.7	473.1	424.5	436.1	499.3	554.5	486.7
Import	million US$	618.9	647.1	662.0	621.3	584.0	832.7	3,966.0
	thousand ton	2,288.2	2,158.6	2,348.1	2,270.4	1,934.9	2,742.6	13,742.8
	US$/ton	270.5	299.8	281.9	273.7	301.8	303.6	288.6

Source: BPS

34. The average unit values of export cargo and import cargo from 1999 to 2004 are 486.7 US$/ton and 288.6 US$/ton respectively. Average unit rate of foreign trade cargo is 424 US$/ton. 486.7x 29,659.9/(29,659.9+13,742.8)+288.6x13,742.8/ (29,659.9+13,742.8) = 424.0 US$/tons

(ii) Increase in Transport Time

35. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS code.

Cargo unloading from foreign trade vessel at alternative port		1 day
Waiting time for domestic trade vessel		1 day
Cargo loading to domestic trade vessel at alternative port		1 day
transportation time from alternative port to Belawan 802 mile / 15 knot/h	=	2.2 days
Total		5.2 days

(iii) Increase of Additional Interest

36. In Indonesia, the annual interest rate on a bank loan is generally 15%. Additional interest is calculated as: 15%/year × 5.2 days ÷ 365 days = 0.21%

(iv) Affected cargo volume in Without case

37. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. The Study Team assumes that 10% of the trade cargo with the United States and EU countries will be affected in case the port fails to comply with the ISPS code.

38. Table 19-4-2-2 shows Increase of Working Capital Interest of Foreign Trade Cargo Owners at standard model port. Increase of Working Capital Interest is calculated by multiplying the projected cargo volume and additional interest.

19-4-2-2 Increase of Working Capital Interest of Cargo Owners at Large Scale Standard Model Port

	Foreign Cargo Volum	Cargo Value	Total interest
	ton	Rp	Rp
2005	**25,000**	103,562,000,000	217,480,200
2006	**25,000**	103,562,000,000	217,480,200
2007	**25,000**	103,562,000,000	217,480,200
2008	**25,000**	103,562,000,000	217,480,200
2009	**25,000**	103,562,000,000	217,480,200
2010	**25,000**	103,562,000,000	217,480,200
2011	**25,000**	103,562,000,000	217,480,200
2012	**25,000**	103,562,000,000	217,480,200
2013	**25,000**	103,562,000,000	217,480,200
2014	**25,000**	103,562,000,000	217,480,200
2015	**25,000**	103,562,000,000	217,480,200
2016	**25,000**	103,562,000,000	217,480,200
2017	**25,000**	103,562,000,000	217,480,200
2018	**25,000**	103,562,000,000	217,480,200
2019	**25,000**	103,562,000,000	217,480,200
2020	**25,000**	103,562,000,000	217,480,200
2021	**25,000**	103,562,000,000	217,480,200
2022	**25,000**	103,562,000,000	217,480,200
2023	**25,000**	103,562,000,000	217,480,200
2024	**25,000**	103,562,000,000	217,480,200
2025	**25,000**	103,562,000,000	217,480,200
2026	**25,000**	103,562,000,000	217,480,200
2027	**25,000**	103,562,000,000	217,480,200
2028	**25,000**	103,562,000,000	217,480,200
2029	**25,000**	103,562,000,000	217,480,200
2030	**25,000**	103,562,000,000	217,480,200
2031	**25,000**	103,562,000,000	217,480,200
2032	**25,000**	103,562,000,000	217,480,200
2033	**25,000**	103,562,000,000	217,480,200
2034	**25,000**	103,562,000,000	217,480,200
2035	**25,000**	103,562,000,000	217,480,200

Source:JICA Study team

(b) Savings in Sea Transportation Cost

(i) Examination of Domestic Ocean Freight

39. The ocean freight between the standard model port and an alternative port is calculated in the following way.

- From the correlation between domestic ocean freights and distance of existing trade route in Indonesia, study team estimates each ocean freight between the target port and an alternative port.
- Ocean freight rates of general cargo and container cargo are estimated respectively

- Weighted average ocean freight rate is calculated using the foreign cargo volume ratio of general cargo and container cargo

40. The Study Team applies the transport distance of 802 miles from Belawan port to Tg.Priok port to estimate ocean freight to an alternative port. From the result of calculation, the weighted average ocean freight between Belawan port and alternative port (Tg.Priok port) is 263,000 rupiahs/ton.

(ii) Increase of Ocean Freight

41. Table 19-4-2-3 shows the increase of ocean freight between a large scale terminal port and an alternative port in case port fails to meet standard security port facility development.

19-4-2-3 Increase of Ocean Freight between Model Port and Alternative Port

	Cargo Volume ton	Ocean freight Rp/ton	Total freight Rp
2005	62,052	263,000	16,319,792,158
2006	66,826	263,000	17,575,225,727
2007	71,599	263,000	18,830,659,295
2008	76,373	263,000	20,086,092,863
2009	81,146	263,000	21,341,526,432
2010	85,920	263,000	22,596,960,000
2011	89,932	263,000	23,652,116,000
2012	93,944	263,000	24,707,272,000
2013	97,956	263,000	25,762,428,000
2014	101,968	263,000	26,817,584,000
2015	105,980	263,000	27,872,740,000
2016	109,992	263,000	28,927,896,000
2017	114,004	263,000	29,983,052,000
2018	118,016	263,000	31,038,208,000
2019	122,028	263,000	32,093,364,000
2020	126,040	263,000	33,148,520,000
2021	130,054	263,000	34,204,202,000
2022	134,068	263,000	35,259,884,000
2023	138,082	263,000	36,315,566,000
2024	142,096	263,000	37,371,248,000
2025	146,110	263,000	38,426,930,000
2026	150,073	263,000	39,469,286,667
2027	154,037	263,000	40,511,643,333
2028	158,000	263,000	41,554,000,000

42. Source:JICA Study team

(c) Total Benefit

43. Table 19-4-2-4 shows annual total benefit of Large Scale Terminal to comply with ISPS code.

19-4-2-4 Annual Total Benefit of Large Scale Terminal to Comply with ISPS Code

	Foreign Cargo Volum ton	Total Benefit Rp
2005	**25.000**	6.792.480.200
2006	**25.000**	6.792.480.200
2007	**25.000**	6,792,480,200
2008	**25.000**	6,792,480,200
2009	**25.000**	6.792.480.200
2010	**25.000**	6.792.480.200
2011	**25.000**	6,792,480,200
2012	**25.000**	6.792.480.200
2013	**25.000**	6.792.480.200
2014	**25.000**	6,792,480,200
2015	**25.000**	6,792,480,200
2016	**25.000**	6.792.480.200
2017	**25.000**	6.792.480.200
2018	**25.000**	6,792,480,200
2019	**25.000**	6,792,480,200
2020	**25.000**	6.792.480.200
2021	**25.000**	6.792.480.200
2022	**25.000**	6,792,480,200
2023	**25.000**	6,792,480,200
2024	**25.000**	6.792.480.200
2025	**25.000**	6.792.480.200
2026	**25.000**	6,792,480,200
2027	**25.000**	6,792,480,200
2028	**25.000**	6.792.480.200
2029	**25.000**	6,792,480,200
2030	**25.000**	6,792,480,200
2031	**25.000**	6.792.480.200
2032	**25.000**	6.792.480.200
2033	**25.000**	6,792,480,200
2034	**25.000**	6,792,480,200
2035	**25.000**	6,792,480,200

Source:JICA Study team

(2) Implementation Cost

44. Implementation cost is composed of initial investment cost and maintenance cost. Maintenance cost is assumed as 5% of initial direct cost per annum. The Study Team assumes the durability of equipment is 15 years. Accordingly, it is necessary to renew some parts of equipment every 15 years. Table 19-2-2-5 shows initial investment and maintenance cost for port security facility development at Belawan port.

19-4-2-5 Investment Cost of Port Security Facilities at Large Scale Terminal

	US$
Direct Cost	1,265,264
Indirect Cost	632,632
Total	1,897,896

45. Table 19-4-2-6 shows initial investment cost and maintenance cost during the project period.

Table 19-4-2-6 Initial Investment and Maintenance Cost for Port Security Facility Development at Large Scale Terminal

	cost (Rupiah)			
Year	Ininitial investment	Maintenance	Renewal	total
2006	7,416,977,568			7,416,977,568
2007	11,125,466,352			11,125,466,352
2008		618,081,464		618,081,464
2009		618,081,464		618,081,464
2010		618,081,464		618,081,464
2011		618,081,464		618,081,464
2012		618,081,464		618,081,464
2013		618,081,464		618,081,464
2014		618,081,464		618,081,464
2015		618,081,464		618,081,464
2016		618,081,464		618,081,464
2017		618,081,464		618,081,464
2018		618,081,464		618,081,464
2019		618,081,464		618,081,464
2020		618,081,464		618,081,464
2021		618,081,464		618,081,464
2022		618,081,464	7,971,147,600	8,589,229,064
2023		618,081,464		618,081,464
2024		618,081,464		618,081,464
2025		618,081,464		618,081,464
2026		618,081,464		618,081,464
2027		618,081,464		618,081,464
2028		618,081,464		618,081,464
2029		618,081,464		618,081,464
2030		618,081,464		618,081,464
2031		618,081,464		618,081,464
2032		618,081,464		618,081,464
2033		618,081,464		618,081,464
2034		618,081,464		618,081,464
2035		618,081,464		618,081,464

Source:JICA Study team

(3) Calculation of EIRR

46. Table 19-4-2-7 shows result of EIRR calculation, and it shows result is feasible in the view point of national economy.

Table 19-4-2-7 EIRR Calculation Result of Large Scale Terminal

Rupiah

	Benefit	Cost				Difference	Net Present Value		
Year	(1)	Investment	Maintenance	Renewal	Total	(1)-(2)	Benefit	Cost	Difference
2006		7,416,977,568			7,416,977,568	-7,416,977,568	0	7,416,977,568	-7,416,977,568
2007		11,125,466,352			11,125,466,352	-11,125,466,352	0	8,589,376,881	-8,589,376,881
2008	6,792,480,200		618,081,464		618,081,464	6,174,398,736	4,048,696,758	368,410,999	3,680,285,758
2009	6,792,480,200		618,081,464		618,081,464	6,174,398,736	3,125,781,988	284,430,407	2,841,351,581
2010	6,792,480,200		618,081,464		618,081,464	6,174,398,736	2,413,248,910	219,593,488	2,193,655,422
2011	6,792,480,200		618,081,464		618,081,464	6,174,398,736	1,863,140,271	169,536,374	1,693,603,897
2012	6,792,480,200		618,081,464		618,081,464	6,174,398,736	1,438,430,845	130,889,957	1,307,540,888
2013	6,792,480,200		618,081,464		618,081,464	6,174,398,736	1,110,535,438	101,053,128	1,009,482,310
2014	6,792,480,200		618,081,464		618,081,464	6,174,398,736	857,384,951	78,017,709	779,367,241
2015	6,792,480,200		618,081,464		618,081,464	6,174,398,736	661,941,013	60,233,296	601,707,717
2016	6,792,480,200		618,081,464		618,081,464	6,174,398,736	511,049,214	46,502,903	464,546,311
2017	6,792,480,200		618,081,464		618,081,464	6,174,398,736	394,553,735	35,902,401	358,651,334
2018	6,792,480,200		618,081,464		618,081,464	6,174,398,736	304,613,814	27,718,322	276,895,492
2019	6,792,480,200		618,081,464		618,081,464	6,174,398,736	235,176,016	21,399,832	213,776,183
2020	6,792,480,200		618,081,464		618,081,464	6,174,398,736	181,566,810	16,521,665	165,045,145
2021	6,792,480,200		618,081,464		618,081,464	6,174,398,736	140,178,012	12,755,493	127,422,519
2022	6,792,480,200		618,081,464	7,971,147,600	8,589,229,064	-1,796,748,864	108,223,938	136,851,365	-28,627,428
2023	6,792,480,200		618,081,464		618,081,464	6,174,398,736	83,553,908	7,602,984	75,950,923
2024	6,792,480,200		618,081,464		618,081,464	6,174,398,736	64,507,498	5,869,857	58,637,641
2025	6,792,480,200		618,081,464		618,081,464	6,174,398,736	49,802,786	4,531,802	45,270,983
2026	6,792,480,200		618,081,464		618,081,464	6,174,398,736	38,450,064	3,498,762	34,951,302
2027	6,792,480,200		618,081,464		618,081,464	6,174,398,736	29,685,236	2,701,207	26,984,029
2028	6,792,480,200		618,081,464		618,081,464	6,174,398,736	22,918,381	2,085,457	20,832,924
2029	6,792,480,200		618,081,464		618,081,464	6,174,398,736	17,694,055	1,610,070	16,083,985
2030	6,792,480,200		618,081,464		618,081,464	6,174,398,736	13,660,632	1,243,049	12,417,584
2031	6,792,480,200		618,081,464		618,081,464	6,174,398,736	10,546,643	959,691	9,586,952
2032	6,792,480,200		618,081,464		618,081,464	6,174,398,736	8,142,498	740,926	7,401,572
2033	6,792,480,200		618,081,464		618,081,464	6,174,398,736	6,286,387	572,030	5,714,357
2034	6,792,480,200		618,081,464		618,081,464	6,174,398,736	4,853,383	441,633	4,411,749
2035	6,792,480,200		618,081,464		618,081,464	6,174,398,736	3,747,037	340,961	3,406,075
Total	190,189,445,600	18,542,443,920	17,306,280,992	7,971,147,600	43,819,872,512	146,369,573,088	17,748,370,220	17,748,370,220	0

EIRR= 29.53%

19-4-3 Medium Scale Container Terminal

(1) Calculation of Benefits

(a) Saving in working capital interest of cargo owners

47. Result of same calculation method of Large Scale Terminal, annual benefit in working capital interest of cargo owners is 130 million rupiahs.

(b) Savings in sea transportation cost

48. Result of same calculation method of Large Scale Terminal, annual benefit in sea transportation cost is 3,945million rupiahs.

(c) Total Benefit

49. Annual total benefit is 4,075 million rupiahs.

(2) Implementation Cost

50. Implementation cost is composed of initial investment cost and maintenance cost. Maintenance cost is assumed as 5% of initial direct cost per annum. The Study Team assumes the durability of equipment is 15 years. Accordingly, it is necessary to renew some parts of equipment every 15 years. Table 19-4-3-1 shows initial investment and maintenance cost for port security facility development at Medium Scale Terminal.

Table 19-4-3-1 Investment Cost of Port Security Facilities at Medium Scale Terminal

	US$
Direct Cost	1,084,889
Indirect Cost	542,445
Total	1,627,334

(3) Calculation of EIRR

51. Table 19-4-3-2 shows result of EIRR calculation, and it shows result is feasible in the view point of national economy.

Table 19-4-3-2 EIRR Calculation Result of Medium Scale Terminal

Rupiah

Year	Benefit (1)	Cost				Difference (1)-(2)	Net Present Value		
		Investment	Maintenance	Renewal	Total		Benefit	Cost	Difference
2006		6,359,621,272			6,359,621,272	-6,359,621,272	0	6,359,621,272	-6,359,621,272
2007		9,539,431,908			9,539,431,908	-9,539,431,908	0	7,950,403,090	-7,950,403,090
2008	4,075,488,120		529,968,277		529,968,277	3,545,519,844	2,830,824,223	368,114,687	2,462,709,536
2009	4,075,488,120		529,968,277		529,968,277	3,545,519,844	2,359,280,287	306,796,062	2,052,484,225
2010	4,075,488,120		529,968,277		529,968,277	3,545,519,844	1,966,283,681	255,691,574	1,710,592,106
2011	4,075,488,120		529,968,277		529,968,277	3,545,519,844	1,638,750,399	213,099,805	1,425,650,594
2012	4,075,488,120		529,968,277		529,968,277	3,545,519,844	1,365,775,904	177,602,751	1,188,173,153
2013	4,075,488,120		529,968,277		529,968,277	3,545,519,844	1,138,272,077	148,018,611	990,253,466
2014	4,075,488,120		529,968,277		529,968,277	3,545,519,844	948,664,650	123,362,443	825,302,208
2015	4,075,488,120		529,968,277		529,968,277	3,545,519,844	790,641,040	102,813,370	687,827,670
2016	4,075,488,120		529,968,277		529,968,277	3,545,519,844	658,940,179	85,687,255	573,252,924
2017	4,075,488,120		529,968,277		529,968,277	3,545,519,844	549,177,361	71,413,919	477,763,441
2018	4,075,488,120		529,968,277		529,968,277	3,545,519,844	457,698,260	59,518,161	398,180,099
2019	4,075,488,120		529,968,277		529,968,277	3,545,519,844	381,457,271	49,603,936	331,853,335
2020	4,075,488,120		529,968,277		529,968,277	3,545,519,844	317,916,108	41,341,171	276,574,937
2021	4,075,488,120		529,968,277		529,968,277	3,545,519,844	264,959,301	34,454,774	230,504,526
2022	4,075,488,120		529,968,277	7,094,778,600	7,624,746,877	-3,549,258,757	220,823,762	413,134,633	-192,310,871
2023	4,075,488,120		529,968,277		529,968,277	3,545,519,844	184,040,091	23,932,203	160,107,888
2024	4,075,488,120		529,968,277		529,968,277	3,545,519,844	153,383,653	19,945,702	133,437,951
2025	4,075,488,120		529,968,277		529,968,277	3,545,519,844	127,833,804	16,623,251	111,210,553
2026	4,075,488,120		529,968,277		529,968,277	3,545,519,844	106,539,915	13,854,236	92,685,679
2027	4,075,488,120		529,968,277		529,968,277	3,545,519,844	88,793,052	11,546,470	77,246,582
2028	4,075,488,120		529,968,277		529,968,277	3,545,519,844	74,002,368	9,623,119	64,379,249
2029	4,075,488,120		529,968,277		529,968,277	3,545,519,844	61,675,440	8,020,150	53,655,290
2030	4,075,488,120		529,968,277		529,968,277	3,545,519,844	51,401,867	6,684,195	44,717,671
2031	4,075,488,120		529,968,277		529,968,277	3,545,519,844	42,839,612	5,570,777	37,268,835
2032	4,075,488,120		529,968,277		529,968,277	3,545,519,844	35,703,613	4,642,826	31,060,787
2033	4,075,488,120		529,968,277		529,968,277	3,545,519,844	29,756,291	3,869,448	25,886,843
2034	4,075,488,120		529,968,277		529,968,277	3,545,519,844	24,799,643	3,224,896	21,574,748
2035	4,075,488,120		529,968,277		529,968,277	3,545,519,844	20,668,648	2,687,709	17,980,939
Total	114,113,667,360	15,899,053,180	14,839,111,742	7,094,778,600	37,832,943,522	76,280,723,838	16,890,902,499	16,890,902,499	0
					EIRR=	**19.99%**			

19-4-4 Small Scale Container Terminal

(1) Calculation of Benefits

(a) Saving in working capital interest of cargo owners

52. Result of same calculation method of Large Scale Terminal, annual benefit in working capital interest of cargo owners is 87 million rupiahs.

(b) Savings in sea transportation cost

53. Result of same calculation method of Large Scale Terminal, annual benefit in sea transportation cost is 2,360 million rupiahs.

(c) Total Benefit

54. Annual total benefit is 2,447 million rupiahs.

(2) Implementation Cost

55. Implementation cost is composed of initial investment cost and maintenance cost. Maintenance cost is assumed as 5% of initial direct cost per annum. The Study Team assumes the durability of equipment is 15 years. Accordingly, it is necessary to renew some parts of equipment every 15 years. Table 19-4-4-1 shows initial investment and maintenance cost for port security facility development at Medium Scale Terminal.

Table 19-4-4-1 Investment Cost of Port Security Facilities at Small Scale Terminal

	US$
Direct Cost	910,234
Indirect Cost	455,117
Total	1,365,351

(3) Calculation of EIRR

56. Table 19-4-4-2 shows result of EIRR calculation, and it shows result is feasible in the view point of national economy.

Table 19-4-4-2 EIRR Calculation Result of Small Scale Terminal

Rupiah

Year	Benefit	Cost				Difference	Net Present Value		
	(1)	Investment	Maintenance	Renewal	Total	(1)-(2)	Benefit	Cost	Difference
2006		5,335,791,708			5,335,791,708	-5,335,791,708	0	5,335,791,708	-5,335,791,708
2007		8,003,687,562			8,003,687,562	-8,003,687,562	0	6,964,210,453	-6,964,210,453
2008	2,716,992,080		444,649,309		444,649,309	2,272,342,771	2,057,083,365	336,651,955	1,720,431,409
2009	2,716,992,080		444,649,309		444,649,309	2,272,342,771	1,789,920,129	292,929,359	1,496,990,770
2010	2,716,992,080		444,649,309		444,649,309	2,272,342,771	1,557,454,658	254,885,225	1,302,569,433
2011	2,716,992,080		444,649,309		444,649,309	2,272,342,771	1,355,180,587	221,782,064	1,133,398,523
2012	2,716,992,080		444,649,309		444,649,309	2,272,342,771	1,179,176,815	192,978,169	986,198,646
2013	2,716,992,080		444,649,309		444,649,309	2,272,342,771	1,026,031,493	167,915,173	858,116,321
2014	2,716,992,080		444,649,309		444,649,309	2,272,342,771	892,775,886	146,107,228	746,668,658
2015	2,716,992,080		444,649,309		444,649,309	2,272,342,771	776,826,820	127,131,585	649,695,235
2016	2,716,992,080		444,649,309		444,649,309	2,272,342,771	675,936,613	110,620,399	565,316,214
2017	2,716,992,080		444,649,309		444,649,309	2,272,342,771	588,149,498	96,253,600	491,895,898
2018	2,716,992,080		444,649,309		444,649,309	2,272,342,771	511,763,715	83,752,685	428,011,030
2019	2,716,992,080		444,649,309		444,649,309	2,272,342,771	445,298,519	72,875,324	372,423,195
2020	2,716,992,080		444,649,309		444,649,309	2,272,342,771	387,465,474	63,410,658	324,054,817
2021	2,716,992,080		444,649,309		444,649,309	2,272,342,771	337,143,484	55,175,213	281,968,271
2022	2,716,992,080		444,649,309	6,274,294,000	6,718,943,309	-4,001,951,229	293,357,050	725,452,755	-432,095,705
2023	2,716,992,080		444,649,309		444,649,309	2,272,342,771	255,257,370	41,774,142	213,483,228
2024	2,716,992,080		444,649,309		444,649,309	2,272,342,771	222,105,877	36,348,735	185,757,142
2025	2,716,992,080		444,649,309		444,649,309	2,272,342,771	193,259,926	31,627,951	161,631,975
2026	2,716,992,080		444,649,309		444,649,309	2,272,342,771	168,160,337	27,520,278	140,640,059
2027	2,716,992,080		444,649,309		444,649,309	2,272,342,771	146,320,551	23,946,088	122,374,463
2028	2,716,992,080		444,649,309		444,649,309	2,272,342,771	127,317,203	20,836,095	106,481,108
2029	2,716,992,080		444,649,309		444,649,309	2,272,342,771	110,781,910	18,130,012	92,651,898
2030	2,716,992,080		444,649,309		444,649,309	2,272,342,771	96,394,135	15,775,381	80,618,754
2031	2,716,992,080		444,649,309		444,649,309	2,272,342,771	83,874,968	13,726,557	70,148,411
2032	2,716,992,080		444,649,309		444,649,309	2,272,342,771	72,981,726	11,943,824	61,037,902
2033	2,716,992,080		444,649,309		444,649,309	2,272,342,771	63,503,241	10,392,622	53,110,618
2034	2,716,992,080		444,649,309		444,649,309	2,272,342,771	55,255,772	9,042,883	46,212,889
2035	2,716,992,080		444,649,309		444,649,309	2,272,342,771	48,079,441	7,868,440	40,211,000
Total	76,075,778,240	13,339,479,270	12,450,180,652	6,274,294,000	32,063,953,922	44,011,824,318	15,516,856,561	15,516,856,561	0

EIRR= 14.93%

19-4-5 Summary of Analysis Result

57. Table shows result of Economic Analysis for Large Scale Container Terminal, Medium Scale Container Terminal and Small Scale Container Terminal. Three type of model shows that port security facility development project is feasible, however, there is a tendency that EIRR becomes small as following terminal scale change.

Table 19-4-5-1 EIRR Calculation Result of Standard Model Ports

	EIRR (%)
Large Scale Container Terminal	29.53
Medium Scale Container Terminal	19.99
Small Scale Container Terminal	14.93

19-5 BELAWAN PORT

19-5-1 Demand Forecast

(1) Foreign Trade Cargo volume

58. Table 19-5-1-1 shows foreign trade cargo volume throughput at Belawan port.

Table 19-5-1-1 Foreign Trade Cargo Volume Throughput at Belawan Port 2000-2004

Unit:ton

	2000	2001	2002	2003	2004
Import	1,533,722	1,620,437	1,821,771	1,549,805	1,197,823
Export	2,830,044	3,187,903	3,665,220	3,828,293	4,530,070
total	4,363,766	4,808,340	5,486,991	5,378,098	5,727,893

(2) Estimation of Foreign Trade Cargo Volume Handling Capacity

59. Belawan Port operates around clock. The Study Team estimates annual cargo handling capacity of the Conventional Wharf and International Container Terminal, the two foreign trade wharves at Belawan port. Conventional berth is has a total length 1,195 m and water depth of 9m.

60. According to Lloyd's List on Ports of the World 2003, hourly general cargo handling capacity, hourly liquid bulk cargo handling capacity and hourly dry bulk cargo handling capacity are 20t/h, 200t/h, and 200t/h respectively. Table 19-5-1-2 shows annual cargo handling capacity of Conventional Berth at Belawan Port.

Table 19-5-1-2 Annual Cargo Handling Capacity of Conventional Berth at Belawan Port

Cargo type	Handling capacity	Work hours	Gangs	Efficiency	Working days	Annual capacity
	ton/hour/gang	hours/day			day/year	ton
Liquid Bulk Cargo	200	24	2	0.7	350	2,352,000
Dry Bulk Cargo	200	24	2	0.7	350	2,352,000
General Cargo	20	24	2	0.7	350	235,200
Total						4,939,200

61. International Container Terminal has a total length of 500m and depth of 10.5m. Estimated annual cargo handling capacity is 3.6 million tons.

62. Total annual cargo handling capacity for foreign trade cargo is 8.6 million tons.

(3) Demand Forecast of Future Foreign Trade Cargo Volume

63. Figure 19-5-1-1 shows correlation between total foreign trade cargo handling volume of Belawan port and National GDP (at 1993 constant prices) from 2000 to 2004. There is a moderate correlation between total cargo volume and national GDP.

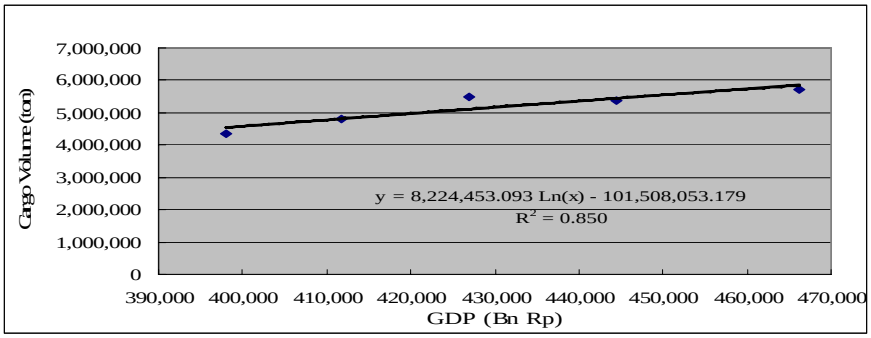


Figure 19-5-1-1 Correlation between Total Foreign Trade Cargo Volume and National GDP at Belawan Port

64. To project the future cargo volume, study team adopts the GDP growth rate forecasted by the World Bank which is 6% per annum from 2006 to 2009. The Study Team projects the annual average growth rate will slow down to 5% from 2010 until 2020. Figure19-5-1-2 shows the result of foreign trade cargo volume projection at Belawan port. Table 19-5-1-3 shows annual foreign trade cargo volume handling capacity of Belawan port. Annual foreign trade cargo volume will reach its annual handling capacity of 8.6 million tons in the year 2010.

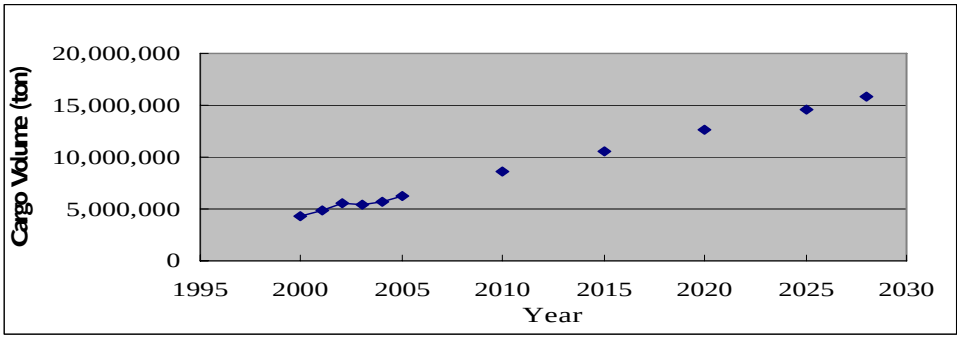


Figure 19-5-1-2 Future Foreign Trade Cargo Volume Projection at Belawan Port

Table 19-5-1-3 Annual Foreign Trade Cargo Volume Handling Capacity at Belawan Port

Year	Cargo Volume (ton)
2010	8,600,000

19-5-2 Economic Analysis

(1) Calculation of Benefits

(a) Savings in working capital interest of cargo owners

65. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

66. Table 19-5-2-1 shows international cargo volume and value at Belawan port from 1999 to 2004.

Table 19-5-2-1 Average Value of International Cargo at Belawan Port 1999 -2004

	unit	1999	2000	2001	2002	2003	2004	total
Export ave.value	US$/ton	512.7	473.1	424.5	436.1	499.3	554.5	486.7
Import ave.value	US$/ton	270.5	299.8	281.9	273.7	301.8	303.6	288.6

Source:BPS

67. The average unit values of export cargo and import cargo from 1999 to 2004 are 486.7 US$/ton and 288.6 US$/ton respectively. Average unit rate of foreign trade cargo is 424 US$/ton.

(ii) Increase in transport time

68. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS Code.

Cargo unloading from foreign trade vessel at alternative port		1 day
Waiting time for domestic trade vessel		1 day
Cargo loading to domestic trade vessel at alternative port		1 day
Transportation time from alternative port to Belawan 802 mile / 15 knot/h	=	2.2 days
Total		5.2 days

(iii) Increase of additional interest

69. In Indonesia, the annual interest rate on a bank loan is generally 15%. Additional interest is calculated as: 15%/year × 5.2 days ÷ 365 days = 0.21%

(iv) Affected cargo volume in Without case

70. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. The Study Team assumes that 10% of the trade cargo with the United States and EU countries will be affected in case the port fails to comply with the ISPS Code.

71. Table 19-5-2-2 shows Increase of working capital interest of foreign trade cargo owners at Belawan Port. Increase of working capital interest is calculated by multiplying the projected cargo volume and additional interest.

Table 19-5-2-2 Increase of Working Capital Interest of Cargo Owners at Belawan Port

	Foreign Cargo Volume	Cargo Value	Total interest
	ton	Rp	Rp
2005	62,052	257,050,998,555	539,807,097
2006	66,826	276,825,175,164	581,332,868
2007	71,599	296,599,351,773	622,858,639
2008	76,373	316,373,528,382	664,384,410
2009	81,146	336,147,704,991	705,910,180
2010	86,000	356,253,280,000	748,131,888

Source:JICA Study team

(b) Savings in sea transportation cost

(i) Examination of Domestic Ocean Freight

72. The ocean freight between the target port and an alternative port is calculated in the following way.

- From the correlation between domestic ocean freights and distance of existing trade route, study team estimates the each ocean freight between target ports and an alternative port.
- Ocean freight rates of general cargo and container cargo are estimated respectively
- Weighted average ocean freight rate is calculated using the foreign cargo volume ratio of general cargo and container cargo

73. Table 19-5-2-3 shows container cargo volume share throughput in foreign trade cargo volume at Belawan port.

Table 19-5-2-3 Container Cargo Volume Share Throughput in Foreign Trade Cargo Volume at Belawan Port

	2000	2001	2002	2003	2004	Total
Total Cargo						
Import (ton)	1,533,722	1,620,437	1,821,771	1,549,805	1,197,823	7,723,558
Export (ton)	2,830,044	3,187,903	3,665,220	3,828,293	4,530,070	18,041,530
total (ton)	4,363,766	4,808,340	5,486,991	5,378,098	5,727,893	25,765,088
Container Cargo						
Import (ton)	644,104	599,112	677,648	695,926	1,044,021	3,660,811
Export (ton)	1,244,318	1,414,546	1,351,428	1,407,572	1,871,593	7,289,457
total (ton)	1,888,422	2,013,658	2,029,076	2,103,498	2,915,614	10,950,268
Container cargo share	0.433	0.419	0.370	0.391	0.509	0.425

Source:Pelindo

74. From the result of calculation, the weighted average ocean freight between Belawan port and an alternative port (Tg.Priok port) is 263 thousand rupiahs/ton.

(ii) Increase of ocean freight

75. Table 19-5-2-4 shows the annual increase of ocean freight between Belawan port and an alternative port in case Belawan port fails to meet standard security port facility development.

Table 19-5-2-4 Annual Increase of Ocean Freight between Belawan Port and Alternative Port

	Cargo Volume	Ocean freight	Total freight
	ton	Rp/ton	Rp
2005	62,052	263,000	16,319,792,158
2006	66,826	263,000	17,575,225,727
2007	71,599	263,000	18,830,659,295
2008	76,373	263,000	20,086,092,863
2009	81,146	263,000	21,341,526,432
2010	86,000	263,000	22,618,000,000

Source:JICA Study team

(c) Total Benefit

76. Table 19-5-2-5 shows annual total benefit of Belawan port to comply with ISPS code.

Table 19-5-2-5 Annual Total Benefit of Belawan Port to Comply with ISPS Code

	Total Benefit
	Rp
2005	16,859,599,255
2006	18,156,558,595
2007	19,453,517,934
2008	20,750,477,273
2009	22,047,436,612
2010	23,366,131,888

Source:JICA Study team

(2) Implementation Cost

77. Implementation cost is composed of initial cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost per annum. Table 19-5-2-6 shows implementation cost for port security facility at Belawan port.

Table 19-5-2-6 Implementation Cost for Port Security Facility Development at Belawan

year	Initial Investment	Maintenance	Renewal	Total
2006	379,603,401			379,603,401
2007	9,490,085,025			9,490,085,025
2008	18,600,566,649			18,600,566,649
2009	9,490,085,025			9,490,085,025
2010		2,855,047,825		2,855,047,825
2011		2,855,047,825		2,855,047,825
2012		2,855,047,825		2,855,047,825
2013		2,855,047,825		2,855,047,825
2014		2,855,047,825		2,855,047,825
2015		2,855,047,825		2,855,047,825
2016		2,855,047,825		2,855,047,825
2017		2,855,047,825		2,855,047,825
2018		2,855,047,825		2,855,047,825
2019		2,855,047,825		2,855,047,825
2020		2,855,047,825		2,855,047,825
2021		2,855,047,825		2,855,047,825
2022		2,855,047,825		2,855,047,825
2023		2,855,047,825		2,855,047,825
2024		2,855,047,825	6,785,509,250	9,640,557,075
2025		2,855,047,825		2,855,047,825
2026		2,855,047,825		2,855,047,825
2027		2,855,047,825		2,855,047,825
2028		2,855,047,825		2,855,047,825
2029		2,855,047,825		2,855,047,825
2030		2,855,047,825		2,855,047,825
2031		2,855,047,825		2,855,047,825
2032		2,855,047,825		2,855,047,825
2033		2,855,047,825		2,855,047,825
2034		2,855,047,825		2,855,047,825
2035		2,855,047,825		2,855,047,825

Source:JICA Study Team

(3) Evaluation of Projects

78. The result of the EIRR calculation is shown in Table 19-5-2-7, and indicates that the project is feasible.

Table 19-5-2-7 EIRR Calculation Result of Belawan Port

Rupiah

Year	Benefit (1)	Cost(2) Investment	Maintenance	Renewal	Total	Difference (1)-(2)	Net Present Value Benefit	Cost	Difference
2006		379,603,401			379,603,401	-379,603,401	0	379,603,401	-379,603,401
2007		9,490,085,025			9,490,085,025	-9,490,085,025	0	6,938,282,382	-6,938,282,382
2008		18,600,566,649			18,600,566,649	-18,600,566,649	0	9,942,369,757	-9,942,369,757
2009		9,490,085,025			9,490,085,025	-9,490,085,025	0	3,708,648,786	-3,708,648,786
2010	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	6,462,218,990	815,719,527	5,646,499,463
2011	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	4,724,583,610	596,379,528	4,128,204,083
2012	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	3,454,183,513	436,018,177	3,018,165,336
2013	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	2,525,383,129	318,776,621	2,206,606,508
2014	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	1,846,329,219	233,060,316	1,613,268,903
2015	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	1,349,867,094	170,392,391	1,179,474,702
2016	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	986,899,385	124,575,336	862,324,049
2017	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	721,530,587	91,078,094	630,452,493
2018	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	527,517,187	66,587,974	460,929,213
2019	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	385,672,330	48,683,038	336,989,293
2020	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	281,968,341	35,592,586	246,375,756
2021	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	206,149,468	26,022,044	180,127,424
2022	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	150,717,640	19,024,939	131,692,701
2023	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	110,190,957	13,909,296	96,281,661
2024	22,618,000,000		2,855,047,825	6,785,509,250	9,640,557,075	12,977,442,925	80,561,551	34,338,060	46,223,492
2025	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	58,899,240	7,434,793	51,464,447
2026	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	43,061,738	5,435,641	37,626,098
2027	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	31,482,805	3,974,043	27,508,762
2028	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	23,017,348	2,905,457	20,111,891
2029	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	16,828,180	2,124,205	14,703,976
2030	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	12,303,227	1,553,024	10,750,203
2031	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	8,994,994	1,135,429	7,859,565
2032	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	6,576,317	830,122	5,746,195
2033	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	4,808,002	606,909	4,201,093
2034	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	3,515,171	443,717	3,071,455
2035	22,618,000,000		2,855,047,825		2,855,047,825	19,762,952,175	2,569,972	324,405	2,245,567
Total	588,068,000,000	37,960,340,099	74,231,243,450	6,785,509,250	118,977,092,799	469,090,907,201	24,025,829,998	24,025,829,998	0

EIRR= 36.78%

19-5-3 Financial Analysis

(1) Revenue and Expense

79. The Study Team adopts the fixed amount of operating revenue and expense for the financial statements calculation through the examination period. Adopted amount of operating revenue and expense are average value for the past few years in each port.

(2) Loan repayment capacity

80. Projected financial statement is shown in Table 19-5-3-1. Debt service coverage ratio is more than 20 though the repayment period. Therefore, Belawan port has enough financial capacity for loan repayment of port security facility development.

Table 19-5-3-1 Projected Financial Statement of Belawan Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570
Operating Expenses	84,512,669	84,512,669	84,512,669	84,512,669	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657
Personnel & Administration	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669
Maintenance					1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723
Depreciation					1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266
Net Operating Income	-84,512,669	-84,512,669	-84,512,669	-84,512,669	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913
Interest on Long-term Loans		4,271	111,034	320,290	427,054	427,054	427,054	427,054	427,054	427,054	427,054	427,054	411,039	395,025
Net Surplus	-84,512,669	-84,516,939	-84,623,703	-84,832,959	30,237,859	30,237,859	30,237,859	30,237,859	30,237,859	30,237,859	30,237,859	30,237,859	30,253,874	30,269,888
Accumulated Earnings	-84,512,669	-169,029,608	-253,653,311	-338,486,271	-308,248,412	-278,010,553	-247,772,693	-217,534,834	-187,296,975	-157,059,116	-126,821,257	-96,583,398	-66,329,524	-36,059,636

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-84,512,669	-169,029,608	-253,653,311	-338,486,271	-307,044,146	-275,602,021	-244,159,897	-212,717,772	-181,275,647	-149,833,522	-119,814,910	-89,796,298	-59,761,672
Cash Inflow	-84,133,066	-75,022,584	-65,912,102	-75,022,584	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179
Net Operating Income	-84,512,669	-84,512,669	-84,512,669	-84,512,669	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913
Depreciation					1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266
Capital	94,901	2,372,521	4,650,142	2,372,521										
Long-term Loans	284,703	7,117,564	13,950,425	7,117,564										
Cash Outflow	379,603	9,494,356	18,711,601	9,810,375	427,054	427,054	427,054	427,054	427,054	427,054	1,850,567	1,850,567	1,834,552	1,818,538
Investment	379,603	9,490,085	18,600,567	9,490,085										
Repayment of principal											1,423,513	1,423,513	1,423,513	1,423,513
Interest on Long-term Loans		4,271	111,034	320,290	427,054	427,054	427,054	427,054	427,054	427,054	427,054	427,054	411,039	395,025
Cash Balance	-84,512,669	-84,516,939	-84,623,703	-84,832,959	31,442,125	31,442,125	31,442,125	31,442,125	31,442,125	31,442,125	30,018,612	30,018,612	30,034,627	30,050,641
Cash Ending	-84,512,669	-169,029,608	-253,653,311	-338,486,271	-307,044,146	-275,602,021	-244,159,897	-212,717,772	-181,275,647	-149,833,522	-119,814,910	-89,796,298	-59,761,672	-29,711,031

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-84,512,669	-169,029,608	-253,653,311	-338,486,271	-307,044,146	-275,602,021	-244,159,897	-212,717,772	-181,275,647	-149,833,522	-119,814,910	-89,796,298	-59,761,672	-29,711,031
Cash & Deposit	-84,512,669	-169,029,608	-253,653,311	-338,486,271	-307,044,146	-275,602,021	-244,159,897	-212,717,772	-181,275,647	-149,833,522	-119,814,910	-89,796,298	-59,761,672	-29,711,031
Fixed Assets	379,603	9,869,688	28,470,255	37,960,340	36,756,074	35,551,809	34,347,543	33,143,278	31,939,012	30,734,746	29,530,481	28,326,215	27,121,949	25,917,684
Total Assets	-84,133,066	-159,159,920	-225,183,056	-300,525,931	-270,288,072	-240,050,212	-209,812,353	-179,574,494	-149,336,635	-119,098,776	-90,284,430	-61,470,083	-32,639,722	-3,793,347
Liabilities	379,603	9,869,688	28,470,255	37,960,340	37,960,340	37,960,340	37,960,340	37,960,340	37,960,340	37,960,340	36,536,827	35,113,315	33,689,802	32,266,289
Capital	94,901	2,467,422	7,117,564	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085
Long-term Loans	284,703	7,402,266	21,352,691	28,470,255	28,470,255	28,470,255	28,470,255	28,470,255	28,470,255	28,470,255	27,046,742	25,623,230	24,199,717	22,776,204
Net Worth	-84,512,669	-169,029,608	-253,653,311	-338,486,271	-308,248,412	-278,010,553	-247,772,693	-217,534,834	-187,296,975	-157,059,116	-126,821,257	-96,583,398	-66,329,524	-36,059,636
Total Liabilities & Net Worth	-84,133,066	-159,159,920	-225,183,056	-300,525,931	-270,288,072	-240,050,212	-209,812,353	-179,574,494	-149,336,635	-119,098,776	-90,284,430	-61,470,083	-32,639,722	-3,793,347

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					83.4%	86.3%	89.3%	92.5%	96.0%	99.8%	103.8%	108.3%	113.1%	118.3%
Debt Service Coverage Ratio					74.63	74.63	74.63	74.63	74.63	74.63	17.22	17.22	17.37	17.52
Operating Ratio					73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%
Working Ratio					72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570	117,592,570
86,927,657	86,927,657	86,927,657	93,713,167	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657	86,927,657
84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669	84,512,669
1,210,723	1,210,723	1,210,723	7,996,232	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723	1,210,723
1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266
30,664,913	30,664,913	30,664,913	23,879,404	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913
379,010	362,996	346,981	330,967	314,952	298,938	282,923	266,909	250,894	234,880	218,865	202,851	186,836	170,822	154,807	138,792
30,285,903	30,301,917	30,317,932	23,548,437	30,349,961	30,365,975	30,381,990	30,398,004	30,414,019	30,430,033	30,446,048	30,462,062	30,478,077	30,494,091	30,510,106	30,526,120
-5,773,733	24,528,184	54,846,115	78,394,552	108,744,513	139,110,488	169,492,478	199,890,482	230,304,501	260,734,534	291,180,582	321,642,645	352,120,722	382,614,813	413,124,919	443,651,039

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-29,711,031	355,625	30,438,295	60,536,979	83,866,169	108,777,260	138,923,988	169,086,731	199,265,488	229,460,260	259,671,046	289,897,847	320,140,662	350,399,492	380,674,336	410,965,195
31,869,179	31,869,179	31,869,179	25,083,669	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179	31,869,179
30,664,913	30,664,913	30,664,913	23,879,404	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913	30,664,913
1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266	1,204,266
1,802,523	1,786,509	1,770,494	1,754,479	6,958,087	1,722,450	1,706,436	1,690,421	1,674,407	1,658,392	1,642,378	1,626,363	1,610,349	1,594,334	1,578,320	1,562,305
				5,219,623											
1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513	1,423,513
379,010	362,996	346,981	330,967	314,952	298,938	282,923	266,909	250,894	234,880	218,865	202,851	186,836	170,822	154,807	138,792
30,066,656	30,082,670	30,098,685	23,329,190	24,911,091	30,146,728	30,162,743	30,178,757	30,194,772	30,210,786	30,226,801	30,242,815	30,258,830	30,274,844	30,290,859	30,306,873
355,625	30,438,295	60,536,979	83,866,169	108,777,260	138,923,988	169,086,731	199,265,488	229,460,260	259,671,046	289,897,847	320,140,662	350,399,492	380,674,336	410,965,195	441,272,068

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
355,625	30,438,295	60,536,979	83,866,169	108,777,260	138,923,988	169,086,731	199,265,488	229,460,260	259,671,046	289,897,847	320,140,662	350,399,492	380,674,336	410,965,195	441,272,068
355,625	30,438,295	60,536,979	83,866,169	108,777,260	138,923,988	169,086,731	199,265,488	229,460,260	259,671,046	289,897,847	320,140,662	350,399,492	380,674,336	410,965,195	441,272,068
24,713,418	23,509,152	22,304,887	21,100,621	25,115,978	23,911,712	22,707,447	21,503,181	20,298,916	19,094,650	17,890,384	16,686,119	15,481,853	14,277,587	13,073,322	11,869,056
25,069,043	53,947,447	82,841,866	104,966,790	133,893,238	162,835,701	191,794,178	220,768,669	249,759,175	278,765,696	307,788,231	336,826,781	365,881,345	394,951,924	424,038,517	453,141,124
30,842,776	29,419,264	27,995,751	26,572,238	25,148,725	23,725,213	22,301,700	20,878,187	19,454,674	18,031,162	16,607,649	15,184,136	13,760,623	12,337,111	10,913,598	9,490,085
9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085	9,490,085
21,352,691	19,929,179	18,505,666	17,082,153	15,658,640	14,235,128	12,811,615	11,388,102	9,964,589	8,541,077	7,117,564	5,694,051	4,270,538	2,847,026	1,423,513	-
-5,773,733	24,528,184	54,846,115	78,394,552	108,744,513	139,110,488	169,492,478	199,890,482	230,304,501	260,734,534	291,180,582	321,642,645	352,120,722	382,614,813	413,124,919	443,651,039
25,069,043	53,947,447	82,841,866	104,966,790	133,893,238	162,835,701	191,794,178	220,768,669	249,759,175	278,765,696	307,788,231	336,826,781	365,881,345	394,951,924	424,038,517	453,141,124

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
124.1%	130.4%	137.5%	113.2%	122.1%	128.2%	135.0%	142.6%	151.1%	160.6%	171.4%	183.8%	198.1%	214.8%	234.6%	258.4%
17.68	17.84	18.00	14.30	18.33	18.50	18.68	18.85	19.03	19.22	19.40	19.60	19.79	19.99	20.19	20.40
73.9%	73.9%	73.9%	79.7%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%	73.9%
72.9%	72.9%	72.9%	78.7%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%	72.9%

19-5-4 Feasibility of the Project

81. Project is quite feasible in both view points of national economy and port management body.

19-6 DUMAI PORT

19-6-1 Demand Forecast

(1) Foreign Trade Cargo volume

82. Table 19-6-1-1 shows foreign trade cargo volume throughput at Dumai port.

Table 19-6-1-1 Foreign Trade Cargo Volume Throughput at Dumai Port 2000-2004

Unit:ton

	2000	2001	2002	2003	2004
Import	329,957.0	278,678.0	365,133.0	387,907.0	387,398.0
Export	2,393,399.0	2,756,918.0	3,144,644.0	3,858,016.0	4,130,476.0
total	2,723,356.0	3,035,596.0	3,509,777.0	4,245,923.0	4,517,874.0

(2) Estimation of Foreign Trade Cargo Volume Handling Capacity

83. Dumai Port operates around the clock. The Study Team estimates annual cargo handling capacity of the Multipurpose Wharf and General Cargo Wharf , the two foreign trade wharves at Dumai port.

- Multi-Purpose Wharf has a total length of Berth 400 m and water depth of 10m.
- General cargo Wharf (Lama) has a total length of 350 m and water depth of 9m.

84. According to Lloyd's List on Ports of the World 2003, daily general cargo handling capacity is 250t/day and hourly liquid bulk cargo handling capacity is 300t/hour. Table 19-6-1-2 and 19-6-1-3 shows estimate annual cargo handling capacity of Multi-Purpose Wharf and General Cargo Wharf (Lama) at Dumai Port. Total annual cargo handling capacity for foreign trade cargo is 8 million tons.

Table 19-6-1-2 Annual Cargo Handling Capacity of Multi-Purpose Wharf at Dumai Port

Cargo type	Handling capacity	Work hours	Gangs	Efficiency	Working days	Annual capacity
	ton/hour/gang	hours/day			day/year	ton
Liquid Bulk Cargo	300	24	2	0.7	350	3,528,000
Dry Bulk Cargo	100	24	2	0.7	350	1,176,000
Total						4,704,000

Table 19-6-1-3 Annual Cargo Handling Capacity of General Cargo Wharf (Lama) at Dumai Port

Cargo type	Handling capacity	Work hours	Gangs	Efficiency	Working days	Annual capacity
	ton/hour/gang	hours/day			day/year	ton
Liquid Bulk Cargo	300	24	1	0.7	350	1,764,000
General Cargo	250	24	1	0.7	350	1,470,000
Total						3,234,000

(3) Demand Forecast of Future Foreign Trade Cargo Volume

85. Figure 19-6-1-1 shows correlation between total foreign trade cargo handling volume of Dumain port and National GDP (at 1993 constant prices) from 2000 to 2004. There is a moderate correlation between total cargo volume and national GDP.

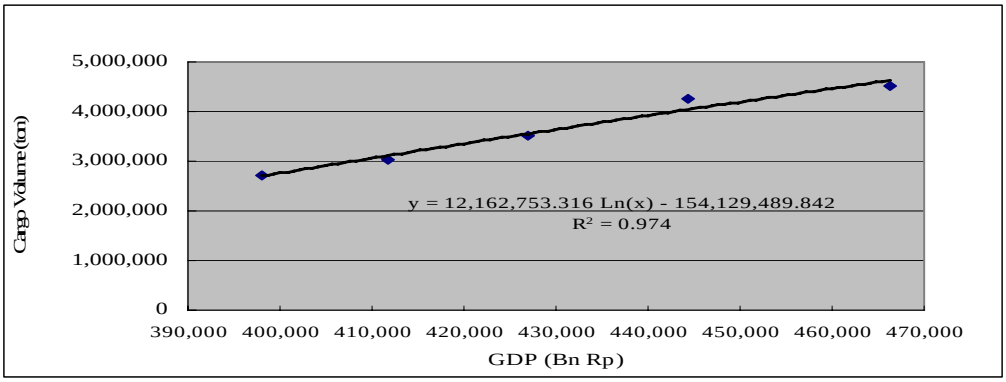


Figure 19-6-1-1 Correlation between Total Foreign Trade Cargo Volume and National GDP at Dumai Port

86. To project the future cargo volume, the Study Team adopts the GDP growth rate forecasted by the World Bank which is 6% per annum from 2006 to 2009. The Study Team projects the annual average growth rate will slow down to 5% from 2010 until 2020. Figure 19-6-1-2 shows the result of foreign trade cargo volume projection at Dumai port. Table 19-6-4-1 shows annual foreign cargo handling capacity of Dumai port. Annual foreign trade cargo volume will reach its annual handling capacity of 8 million tons in the year 2010.

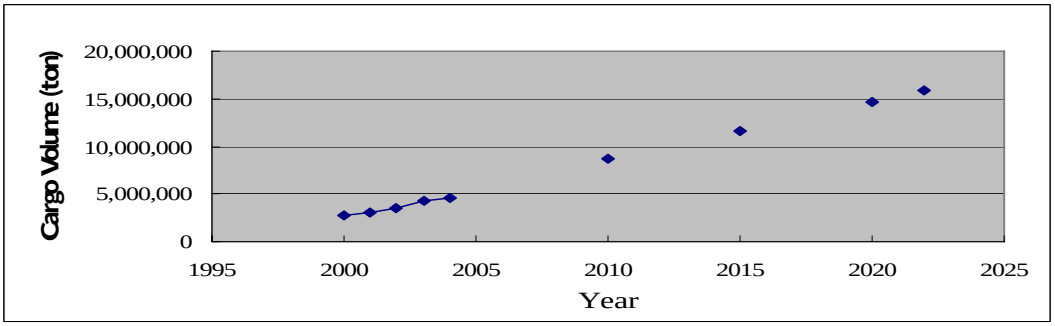


Figure 19-6-1-2 Future Foreign Trade Cargo Volume Projection at Dumai Port

Table 19-6-1-4 Annual Foreign Trade Cargo Volume Handling Capacity at Dumai Port

year	Cargo Volume (ton)
2010	8,000,000

19-6-2 Economic Analysis

(1) Calculation of Benefits for

(a) Saving in working capital interest of cargo owners

87. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

88. Table 19-6-2-1 shows international cargo volume and value at Dumai port from 1999 to 2004. As export cargo value data is not available, the Study Team assumes the average unit values of export cargo is equal to import cargo value. Average unit rate of foreign trade cargo is 320 US$/ton.

Table 19-6-2-1 Average Value of International Cargo at Dumai Port from 1999 to 2004

	unit	1999	2000	2001	2002	2003	2004	Average
Import ave.value	US$/ton	508.0	418.2	306.3	223.5	252.5	300.3	319.9

Source:BPS

(ii) Increase in transport time

89. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS Code.

Cargo unloading from foreign trade vessel at alternative port	1 day
Waiting time for domestic trade vessel	1 day
Cargo loading to domestic trade vessel at alternative port	1 day
Transportation time from alternative port to Dumai 600 mile / 15 knot/h =	1.7 days
Total	4.7 days

(iii) Increase of additional interest

90. In Indonesia, the annual interest rate on a bank loan is generally 15%. Additional interest is calculated as: 15%/year × 4.7 days ÷ 365 days = 0.19%

(iv) Affected cargo volume in Without case

91. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. The Study Team assumes that 10% of the trade cargo with the United States and EU countries will be affected in case the port fails to comply with the ISPS Code.

92. Table 19-6-2-2 shows Increase of Working Capital Interest of Foreign Trade Cargo Owners at Dumai Port. Increase of Working Capital Interest is calculated by multiplying the projected cargo volume and additional interest.

Table 19-6-2-2 Increase of Working Capital Interest of Foreign Trade Cargo Owners at Dumai Port

	Foreign Cargo Volume ton	Cargo Value Rp	Total interest Rp
2005	52,136	162,996,791,947	309,693,905
2006	59,092	184,746,771,157	351,018,865
2007	66,049	206,496,750,368	392,343,826
2008	73,006	228,246,729,579	433,668,786
2009	79,963	249,996,708,789	474,993,747
2010	80,000	250,112,000,000	475,212,800

Source:JICA Study team

(b) Savings in sea transportation cost

(i) Examination of Domestic Ocean Freight

93. The ocean freight between Dumai port and alternative port is calculated as same method of Belawn port. From the result of calculation, the weighted average ocean freight between Dumai port and an alternative port (Belawan port) is 142 thousand rupiahs/ton.

(ii) Increase of ocean freight

94. Table 19-6-2-3 shows the annual increase of ocean freight between Dumai port and an alternative port in case Dumai port fails to meet standard port security facility development.

Table 19-6-2-3 Increase of Ocean Freight between Dumai Port and Alternative Port

	Cargo Volume ton	Ocean freight Rp/ton	Total freight Rp
2005	52,136	142,000	7,403,257,567
2006	59,092	142,000	8,391,134,053
2007	66,049	142,000	9,379,010,540
2008	73,006	142,000	10,366,887,027
2009	79,963	142,000	11,354,763,513
2010	80,000	142,000	11,360,000,000

Source:JICA Study team

(c) Total Benefit

95. Table 19-6-2-4 shows annual total benefit of Dumai port to comply with ISPS code.

Table 19-6-2-4 Annual Total Benefit of Dumai Port to Comply with ISPS Code

	Total Benefit Rp
2005	7,712,951,471
2006	8,742,152,919
2007	9,771,354,366
2008	10,800,555,813
2009	11,829,757,260
2010	11,835,212,800

Source:JICA Study team

(2) Implementation Cost

96. Implementation cost is composed of capital cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost per annum. Table 19-6-2-5 shows implementation cost for port security facility development at Dumai port.

Table 19-6-2-5 Implementation Cost for Port Security Facility Development at Dumai Port

Unit:Rupiah

year	Initial Investment	Maintenance	Renewal	Total
2006	167,995,163			167,995,163
2007	4,199,879,065			4,199,879,065
2008	8,231,762,968			8,231,762,968
2009	4,199,879,065			4,199,879,065
2010		1,466,560,737		1,466,560,737
2011		1,466,560,737		1,466,560,737
2012		1,466,560,737		1,466,560,737
2013		1,466,560,737		1,466,560,737
2014		1,466,560,737		1,466,560,737
2015		1,466,560,737		1,466,560,737
2016		1,466,560,737		1,466,560,737
2017		1,466,560,737		1,466,560,737
2018		1,466,560,737		1,466,560,737
2019		1,466,560,737		1,466,560,737
2020		1,466,560,737		1,466,560,737
2021		1,466,560,737		1,466,560,737
2022		1,466,560,737		1,466,560,737
2023		1,466,560,737		1,466,560,737
2024		1,466,560,737	2,979,019,550	4,445,580,287
2025		1,466,560,737		1,466,560,737
2026		1,466,560,737		1,466,560,737
2027		1,466,560,737		1,466,560,737
2028		1,466,560,737		1,466,560,737
2029		1,466,560,737		1,466,560,737
2030		1,466,560,737		1,466,560,737
2031		1,466,560,737		1,466,560,737
2032		1,466,560,737		1,466,560,737
2033		1,466,560,737		1,466,560,737
2034		1,466,560,737		1,466,560,737
2035		1,466,560,737		1,466,560,737

(3) Evaluation of Projects

97. The result of the EIRR calculation is shown in Table 19-6-2-6, and indicates that the project is feasible.

Table 19-6-2-6 EIRR Calculation for Dumai Port

Rupiah

Year	Benefit (1)	Cost(2) Investment	Maintenance	Renewal	Total	Difference (1)-(2)	Net Present Value Benefit	Cost	Difference
2006		167,995,163			167,995,163	-167,995,163	0	238,197,153	-238,197,153
2007		4,199,879,065			4,199,879,065	-4,199,879,065	0	5,954,928,837	-5,954,928,837
2008		8,231,762,968			8,231,762,968	-8,231,762,968	0	11,671,660,520	-11,671,660,520
2009		4,199,879,065			4,199,879,065	-4,199,879,065	0	5,954,928,837	-5,954,928,837
2010	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2011	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2012	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2013	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2014	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2015	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2016	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2017	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2018	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2019	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2020	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2021	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2022	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2023	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2024	11,835,212,800		1,466,560,737	2,979,019,550	4,445,580,287	7,389,632,514	16,780,923,664	6,303,303,936	10,477,619,728
2025	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2026	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2027	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2028	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2029	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2030	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2031	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2032	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2033	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2034	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
2035	11,835,212,800		1,466,560,737		1,466,560,737	10,368,652,064	16,780,923,664	2,079,408,641	14,701,515,023
Total	307,715,532,800	16,799,516,261	38,130,579,149	2,979,019,550	57,909,114,960	249,806,417,840	436,304,015,266	82,108,235,316	354,195,779,950

EIRR= 41.79%

19-6-3 Financial Analysis

(1) Loan Repayment Capacity

98. Projected financial statement is shown in Table 19-6-3-1. Debt service coverage ratio is more than 50 through the repayment period. Therefore, Dumai port has enough financial capacity for loan repayment of port security facility development.

Table 19-6-3-1 Projected Financial Statement of Dumai Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212
Operating Expenses	39,153,934	39,153,934	39,153,934	39,153,934	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698
Personnel & Administration	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934
Maintenance					535,811	535,811	535,811	535,811	535,811	535,811	535,811	535,811	535,811	535,811
Depreciation					532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953
Net Operating Income	-39,153,934	-39,153,934	-39,153,934	-39,153,934	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513
Interest on Long-term Loans		1,890	49,139	141,746	188,995	188,995	188,995	188,995	188,995	188,995	188,995	188,995	179,545	170,095
Net Surplus	-39,153,934	-39,155,824	-39,203,073	-39,295,680	32,146,519	32,146,519	32,146,519	32,146,519	32,146,519	32,146,519	32,146,519	32,146,519	32,155,968	32,165,418
Accumulated Earnings	-39,153,934	-78,309,759	-117,512,832	-156,808,512	-124,661,994	-92,515,475	-60,368,956	-28,222,438	3,924,081	36,070,600	68,217,118	100,363,637	132,519,606	164,685,024

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-39,153,934	-78,309,759	-117,512,832	-156,808,512	-124,129,041	-91,449,569	-58,770,097	-26,090,625	6,588,846	39,268,318	71,317,808	103,367,298	135,426,237
Cash Inflow	-38,985,939	-34,954,055	-30,922,172	-34,954,055	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466
Net Operating Income	-39,153,934	-39,153,934	-39,153,934	-39,153,934	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513
Depreciation					532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953
Capital	41,999	1,049,970	2,057,941	1,049,970										
Long-term Loans	125,996	3,149,909	6,173,822	3,149,909										
Cash Outflow	167,995	4,201,769	8,280,902	4,341,625	188,995	188,995	188,995	188,995	188,995	188,995	818,977	818,977	809,527	800,077
Investment	167,995	4,199,879	8,231,763	4,199,879										
Repayment of principal											629,982	629,982	629,982	629,982
Interest on Long-term Loans		1,890	49,139	141,746	188,995	188,995	188,995	188,995	188,995	188,995	188,995	188,995	179,545	170,095
Cash Balance	-39,153,934	-39,155,824	-39,203,073	-39,295,680	32,679,472	32,679,472	32,679,472	32,679,472	32,679,472	32,679,472	32,049,490	32,049,490	32,058,940	32,068,389
Cash Ending	-39,153,934	-78,309,759	-117,512,832	-156,808,512	-124,129,041	-91,449,569	-58,770,097	-26,090,625	6,588,846	39,268,318	71,317,808	103,367,298	135,426,237	167,494,626

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-39,153,934	-78,309,759	-117,512,832	-156,808,512	-124,129,041	-91,449,569	-58,770,097	-26,090,625	6,588,846	39,268,318	71,317,808	103,367,298	135,426,237	167,494,626
Cash & Deposit	-39,153,934	-78,309,759	-117,512,832	-156,808,512	-124,129,041	-91,449,569	-58,770,097	-26,090,625	6,588,846	39,268,318	71,317,808	103,367,298	135,426,237	167,494,626
Fixed Assets	167,995	4,367,874	12,599,637	16,799,516	16,266,563	15,733,610	15,200,657	14,667,704	14,134,751	13,601,798	13,068,845	12,535,892	12,002,939	11,469,985
Total Assets	-38,985,939	-73,941,885	-104,913,195	-140,008,996	-107,862,477	-75,715,959	-43,569,440	-11,422,921	20,723,597	52,870,116	84,386,653	115,903,189	147,429,176	178,964,612
Liabilities	167,995	4,367,874	12,599,637	16,799,516	16,799,516	16,799,516	16,799,516	16,799,516	16,799,516	16,799,516	16,169,534	15,539,552	14,909,570	14,279,588
Capital	41,999	1,091,969	3,149,909	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879
Long-term Loans	125,996	3,275,906	9,449,728	12,599,637	12,599,637	12,599,637	12,599,637	12,599,637	12,599,637	12,599,637	11,969,655	11,339,673	10,709,691	10,079,709
Net Worth	-39,153,934	-78,309,759	-117,512,832	-156,808,512	-124,661,994	-92,515,475	-60,368,956	-28,222,438	3,924,081	36,070,600	68,217,118	100,363,637	132,519,606	164,685,024
Total Liabilities & Net Worth	-38,985,939	-73,941,885	-104,913,195	-140,008,996	-107,862,477	-75,715,959	-43,569,440	-11,422,921	20,723,597	52,870,116	84,386,653	115,903,189	147,429,176	178,964,612

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					198.8%	205.5%	212.7%	220.5%	228.8%	237.7%	247.4%	257.9%	269.4%	281.9%
Debt Service Coverage Ratio					173.91	173.91	173.91	173.91	173.91	173.91	40.13	40.13	40.60	41.08
Operating Ratio					55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%
Working Ratio					54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212	72,558,212
40,222,698	40,222,698	40,222,698	43,201,718	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698	40,222,698
39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934	39,153,934
535,811	535,811	535,811	3,514,830	535,811	535,811	535,811	535,811	535,811	535,811	535,811	535,811	535,811	535,811	535,811	535,811
532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953
32,335,513	32,335,513	32,335,513	29,356,494	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513
160,645	151,196	141,746	132,296	122,846	113,397	103,947	94,497	85,048	75,598	66,148	56,698	47,249	37,799	28,349	18,899
32,174,868	32,184,318	32,193,767	29,224,198	32,212,667	32,222,117	32,231,566	32,241,016	32,250,466	32,259,915	32,269,365	32,278,815	32,288,265	32,297,714	32,307,164	32,316,614
196,859,892	229,044,209	261,237,977	290,462,174	322,674,841	354,896,957	387,128,524	419,369,540	451,620,005	483,879,921	516,149,286	548,428,101	580,716,365	613,014,080	645,321,244	677,637,858

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
167,494,626	199,572,465	231,659,754	263,756,493	292,883,661	322,707,746	354,832,833	386,967,370	419,111,357	451,264,794	483,427,681	515,600,017	547,781,803	579,973,039	612,173,724	644,383,859
32,868,466	32,868,466	32,868,466	29,889,447	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466	32,868,466
32,335,513	32,335,513	32,335,513	29,356,494	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513	32,335,513
532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953	532,953
790,627	781,178	771,728	762,278	3,044,382 2,291,554	743,379	733,929	724,479	715,030	705,580	696,130	686,680	677,231	667,781	658,331	648,881
629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982	629,982
160,645	151,196	141,746	132,296	122,846	113,397	103,947	94,497	85,048	75,598	66,148	56,698	47,249	37,799	28,349	18,899
32,077,839	32,087,289	32,096,738	29,127,169	29,824,084	32,125,088	32,134,537	32,143,987	32,153,437	32,162,887	32,172,336	32,181,786	32,191,236	32,200,685	32,210,135	32,219,585
199,572,465	231,659,754	263,756,493	292,883,661	322,707,746	354,832,833	386,967,370	419,111,357	451,264,794	483,427,681	515,600,017	547,781,803	579,973,039	612,173,724	644,383,859	676,603,444

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
199,572,465	231,659,754	263,756,493	292,883,661	322,707,746	354,832,833	386,967,370	419,111,357	451,264,794	483,427,681	515,600,017	547,781,803	579,973,039	612,173,724	644,383,859	676,603,444
199,572,465	231,659,754	263,756,493	292,883,661	322,707,746	354,832,833	386,967,370	419,111,357	451,264,794	483,427,681	515,600,017	547,781,803	579,973,039	612,173,724	644,383,859	676,603,444
10,937,032	10,404,079	9,871,126	9,338,173	11,096,774	10,563,820	10,030,867	9,497,914	8,964,961	8,432,008	7,899,055	7,366,102	6,833,149	6,300,196	5,767,243	5,234,290
210,509,498	242,063,833	273,627,619	302,221,834	333,804,519	365,396,654	396,998,238	428,609,272	460,229,756	491,859,689	523,499,072	555,147,905	586,806,188	618,473,920	650,151,102	681,837,734
13,649,606	13,019,624	12,389,642	11,759,660	11,129,678	10,499,696	9,869,714	9,239,732	8,609,750	7,979,768	7,349,786	6,719,804	6,089,822	5,459,840	4,829,858	4,199,876
4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879	4,199,879
9,449,727	8,819,745	8,189,763	7,559,781	6,929,799	6,299,817	5,669,835	5,039,853	4,409,871	3,779,889	3,149,907	2,519,925	1,889,943	1,259,961	629,979	-3
196,859,892	229,044,209	261,237,977	290,462,174	322,674,841	354,896,957	387,128,524	419,369,540	451,620,005	483,879,921	516,149,286	548,428,101	580,716,365	613,014,080	645,321,244	677,637,858
210,509,498	242,063,833	273,627,619	302,221,834	333,804,519	365,396,654	396,998,238	428,609,272	460,229,756	491,859,689	523,499,072	555,147,905	586,806,188	618,473,920	650,151,102	681,837,734

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
295.7%	310.8%	327.6%	314.4%	291.4%	306.1%	322.4%	340.4%	360.7%	383.5%	409.4%	439.0%	473.2%	513.2%	560.7%	617.8%
41.57	42.08	42.59	39.21	43.66	44.21	44.78	45.37	45.97	46.58	47.22	47.87	48.53	49.22	49.93	50.65
55.4%	55.4%	55.4%	59.5%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%	55.4%
54.7%	54.7%	54.7%	58.8%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%

19-6-4 Feasibility of the Project

99. Project is quite feasible in both view points of national economy and port management body.

19-7 PALEMBANG PORT

19-7-1 Demand Forecast

(1) Foreign Trade Cargo Volume

100. Table 19-7-1-1 shows foreign trade cargo volume throughput at Palembang port.

Table 19-7-1-1 Foreign Trade Cargo Volume Throughput at Palembang Port 2000 -2004

Unit:ton

	1999	2000	2001	2002	2003	2004
Import	383,907	328,980	282,211	329,218	197,525	141,344
Export	975,642	1,194,815	1,371,558	1,292,315	1,232,884	1,551,303
total	1,359,549	1,523,795	1,653,769	1,621,533	1,430,409	1,692,647

(2) Estimation of Foreign Trade Cargo Volume Handling Capacity

101. Palembang Port operates 14 hours in a day. Study team estimates annual cargo handling capacity of the Baru Conventional Wharf and Boon Baru Container Wharf , the two foreign trade wharves at Palembang port.

102. Boon Baru Conventional Wharf : Total length of Berth is 475 m and its water depth is 7m.

103. According to Lloyd's List on Ports of the World, hourly general cargo handling capacity and hourly container boxes are 17 t/h and 10 box/h respectively. Table 18-6-1-2 shows annual cargo handling capacity of Boon Baru Conventional Wharf at Palembang Port.

Table 19-7-1-2 Annual Cargo Handling Capacity of Boon Baru Conventional Wharf at Palembang Port

Cargo type	Handling capacity	Work hours	Gangs	Efficiency	Working days	Annual capacity
	ton/hour/gang	hours/day			day/year	ton
General Cargo	20	24	12	0.7	350	1,411,200
Total						1,411,200

104. Boon Baru Container Wharf : Total length of Berth is 265 m with water depth of 9.5m. Estimated annual cargo handling capacity is 1.3 million tons.

105. Total annual cargo handling capacity for foreign trade cargo is 2.7 million tons.

(3) Demand Forecast of Future Foreign Trade Cargo Volume

106. Figure 19-7-1-1 shows correlation between total foreign trade cargo handling volume of Palembang port and National GDP (at 1993 constant prices) from 1999 to 2004. There is a moderate correlation between total cargo volume and national GDP.

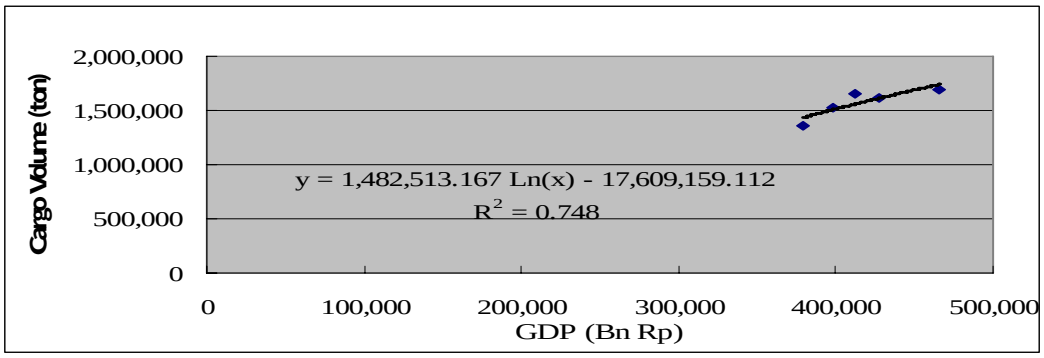


Figure 19-7-1-1 Correlation between Total Foreign Trade Cargo Volume and National GDP at Palembang Port

107. To project the future cargo volume, study team adopts the GDP growth rate forecasted by the World Bank which is 6% per annum from 2006 to 2009. The Study Team projects the annual average growth rate will slow down to 5% from 2010 until 2020. Table18-6-1-3 and Figure 19-7-1-2 shows the result of foreign trade cargo volume projection at Palembang port. Annual foreign trade cargo volume will reach its annual handling capacity of 2.7 million tons in the year 2017.

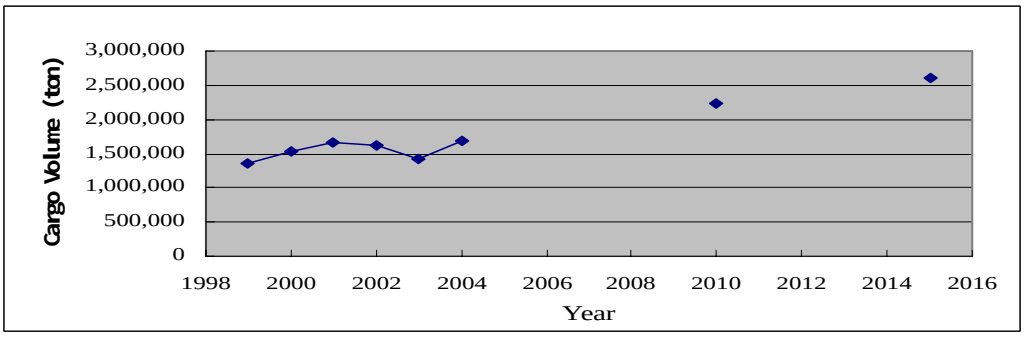


Figure 19-7-1-2 Future Foreign Trade Cargo Volume Projection at Palembang Port

Table 19-7-1-3 Future Foreign Trade Cargo Volume Projection at Palembang Port

year	Cargo Volume (ton)
2010	2,237,000
2015	2,599,000
2017	2,700,000

19-7-2 Economic Analysis

(1) Calculation of Benefits

(a) Saving in working capital interest of cargo owners

108. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

109. Table 19-7-2-1 shows international cargo volume and value at Palembang port from 1999 to 2003. The average unit values of export cargo and import cargo from 1999 to 2003 are 221.4 US$/ton and 351.6 US$/ton respectively. Average unit rate of foreign trade cargo is 319 US$/ton.

Table 19-7-2-1 Average Value of International Cargo at Palembang Port 1999 -2003

	unit	1999	2000	2001	2002	2003	Average
Export ave.value	US$/ton	235.1	274.4	189.8	0.0	29.6	221.4
Import ave.value	US$/ton	315.6	-	-	370.3	362.8	351.6

Source:BPS

(ii) Increase in transport time

110. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS Code.

Cargo unloading from foreign trade vessel at alternative port	1 day
Waiting time for domestic trade vessel	1 day
Cargo loading to domestic trade vessel at alternative port	1 day
transportation time from alternative port to Palembang 600 mile / 15 knot/h	= 0.9 days
Total	3.9 days

(iii) Increase of additional interest

111. In Indonesia, the annual interest rate on a bank is generally 15%. Additional interest is calculated as: 15%/year × 3.9days ÷ 365 days = 0.16%

(iv) Affected cargo volume in Without case

112. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. The Study Team assumes that 10% of the trade cargo with the United States and EU countries will be affected in case the port fails to comply with the ISPS Code.

113. Table19-7-2-2 shows Increase of Working Capital Interest of Foreign Trade Cargo Owners at Palembang Port. Increase of Working Capital Interest is calculated by multiplying the projected cargo volume and additional interest.

Table 19-7-2-2 Increase of Working Capital Interest of Foreign Trade Cargo Owners at Palembang Port

	Foreign Cargo Volume ton	Cargo Value Rp	Total interest Rp
2005	17,834	55,581,122,347	88,929,796
2006	18,741	58,408,700,497	93,453,921
2007	19,648	61,236,278,648	97,978,046
2008	20,555	64,063,856,799	102,502,171
2009	21,463	66,891,434,949	107,026,296
2010	22,370	69,719,013,100	111,550,421
2011	23,094	71,975,453,220	115,160,725
2012	23,818	74,231,893,340	118,771,029
2013	24,542	76,488,333,460	122,381,334
2014	25,266	78,744,773,580	125,991,638
2015	25,990	81,001,213,700	129,601,942
2016	26,712	83,251,420,560	133,202,273
2017	27,000	84,149,010,000	134,638,416

Source:JICA Study team

(b) Savings in sea transportation cost

(i) Examination of Domestic Ocean Freight

114. The ocean freight between Palembang port and alternative port is calculated as same method of Belawn port. From the result of calculation, the weighted average ocean freight between Dumai port and an alternative port (Tg.Priok port) is 161,000 rupiahs/ton.

(ii) Increase of ocean freight

115. Table 19-7-2-3 shows the annual increase of ocean freight between Palembang port and an alternative port in case Palembang port fails to meet standard port security facility development.

Table 19-7-2-3 Increase of Ocean Freight between Palembang Port and Alternative Port

	Cargo Volume ton	Ocean freight Rp/ton	Total freight Rp
2005	17,834	161,000	2,871,229,725
2006	18,741	161,000	3,017,297,780
2007	19,648	161,000	3,163,365,835
2008	20,555	161,000	3,309,433,890
2009	21,463	161,000	3,455,501,945
2010	22,370	161,000	3,601,570,000
2011	23,094	161,000	3,718,134,000
2012	23,818	161,000	3,834,698,000
2013	24,542	161,000	3,951,262,000
2014	25,266	161,000	4,067,826,000
2015	25,990	161,000	4,184,390,000
2016	26,712	161,000	4,300,632,000
2017	27,434	161,000	4,416,874,000

Source:JICA Study team

(c) Total Benefit

116. Table 19-7-2-4 shows annual total benefit of Palembang port to comply with ISPS code.

Table 19-7-2-4 Annual Total Benefit of Palembang Port to Comply with ISPS Code

	Total Benefit Rp
2005	2,960,159,521
2006	3,110,751,701
2007	3,261,343,881
2008	3,411,936,061
2009	3,562,528,241
2010	3,713,120,421
2011	3,833,294,725
2012	3,953,469,029
2013	4,073,643,334
2014	4,193,817,638
2015	4,313,991,942
2016	4,433,834,273
2017	4,551,512,416

Source:JICA Study team

(2) Implementation Cost

117. Implementation cost is composed of capital cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost per annum. Table 19-7-2-5 shows implementation cost for port security facility development at Palembang port.

Table 19-7-2-5 Implementation Cost for Port Security Facility Development at Palembang Port

Unit:Rupiah

year	Initial Investment	Maintenance	Renewal	Total
2006	195,291,166			195,291,166
2007	4,882,279,147			4,882,279,147
2008	9,569,267,128			9,569,267,128
2009	4,882,279,147			4,882,279,147
2010		1,119,269,741		1,119,269,741
2011		1,119,269,741		1,119,269,741
2012		1,119,269,741		1,119,269,741
2013		1,119,269,741		1,119,269,741
2014		1,119,269,741		1,119,269,741
2015		1,119,269,741		1,119,269,741
2016		1,119,269,741		1,119,269,741
2017		1,119,269,741		1,119,269,741
2018		1,119,269,741		1,119,269,741
2019		1,119,269,741		1,119,269,741
2020		1,119,269,741		1,119,269,741
2021		1,119,269,741		1,119,269,741
2022		1,119,269,741		1,119,269,741
2023		1,119,269,741		1,119,269,741
2024		1,119,269,741	3,186,045,850	4,305,315,591
2025		1,119,269,741		1,119,269,741
2026		1,119,269,741		1,119,269,741
2027		1,119,269,741		1,119,269,741
2028		1,119,269,741		1,119,269,741
2029		1,119,269,741		1,119,269,741
2030		1,119,269,741		1,119,269,741
2031		1,119,269,741		1,119,269,741
2032		1,119,269,741		1,119,269,741
2033		1,119,269,741		1,119,269,741
2034		1,119,269,741		1,119,269,741
2035		1,119,269,741		1,119,269,741

(3) Evaluation of Projects

118. The result of the EIRR calculation is shown in Table 19-7-2-6, and indicates that the project is feasible in the view point of national economy.

Table 19-7-2-6 EIRR Calculation for Palembang Port

Rupiah

	Benefit	Cost(2)				Difference	Net Present Value		
Year	(1)	Investment	Maintenance	Renewal	Total	(1)-(2)	Benefit	Cost	Difference
2006		195,291,166			195,291,166	-195,291,166	0	195,291,166	-195,291,166
2007		4,882,279,147			4,882,279,147	-4,882,279,147	0	4,316,070,889	-4,316,070,889
2008		9,569,267,128			9,569,267,128	-9,569,267,128	0	7,478,432,923	-7,478,432,923
2009		4,882,279,147			4,882,279,147	-4,882,279,147	0	3,373,032,250	-3,373,032,250
2010	3,713,120,421		1,119,269,741		1,119,269,741	2,593,850,680	2,267,790,246	683,594,582	1,584,195,664
2011	3,833,294,725		1,119,269,741		1,119,269,741	2,714,024,984	2,069,674,375	604,316,670	1,465,357,706
2012	3,953,469,029		1,119,269,741		1,119,269,741	2,834,199,288	1,887,009,621	534,232,785	1,352,776,836
2013	4,073,643,334		1,119,269,741		1,119,269,741	2,954,373,593	1,718,876,751	472,276,677	1,246,600,074
2014	4,193,817,638		1,119,269,741		1,119,269,741	3,074,547,897	1,564,361,934	417,505,750	1,146,856,185
2015	4,313,991,942		1,119,269,741		1,119,269,741	3,194,722,201	1,422,567,851	369,086,723	1,053,481,127
2016	4,433,834,273		1,119,269,741		1,119,269,741	3,314,564,532	1,292,525,376	326,282,954	966,242,422
2017	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	1,172,954,907	288,443,228	884,511,678
2018	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	1,036,924,840	254,991,856	781,932,985
2019	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	916,670,469	225,419,910	691,250,559
2020	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	810,362,253	199,277,485	611,084,767
2021	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	716,382,825	176,166,853	540,215,972
2022	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	633,302,391	155,736,410	477,565,981
2023	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	559,856,970	137,675,328	422,181,642
2024	4,551,512,416		1,119,269,741	3,186,045,850	4,305,315,591	246,196,825	494,929,171	468,157,852	26,771,319
2025	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	437,531,186	107,593,998	329,937,188
2026	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	386,789,768	95,116,094	291,673,673
2027	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	341,932,939	84,085,279	257,847,660
2028	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	302,278,251	74,333,731	227,944,520
2029	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	267,222,402	65,713,091	201,509,311
2030	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	236,232,054	58,092,204	178,139,849
2031	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	208,835,722	51,355,128	157,480,593
2032	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	184,616,601	45,399,365	139,217,235
2033	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	163,206,222	40,134,305	123,071,917
2034	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	144,278,851	35,479,844	108,799,006
2035	4,551,512,416		1,119,269,741		1,119,269,741	3,432,242,675	127,546,527	31,365,172	96,181,355
Total	114,993,907,266	19,529,116,589	29,101,013,266	3,186,045,850	51,816,175,705	63,177,731,561	21,364,660,501	21,364,660,501	0

EIRR= 13.12%

19-7-3 Financial Analysis

(1) Loan repayment capacity

119. Projected financial statement is shown in Table 19-7-3-1. Debt service coverage ratio is more than 80 through the repayment period. Therefore, Palembang port has enough financial capacity for loan repayment of port security facility development.

Table 19-7-3-1 Projected Financial Statement of Palembang Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932
Operating Expenses	40,090,865	28,589,335	28,589,335	28,589,335	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752
Personnel & Administration	40,090,865	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335
Maintenance					622,870	622,870	622,870	622,870	622,870	622,870	622,870	622,870	622,870	622,870
Depreciation					619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548
Net Operating Income	-40,090,865	-28,589,335	-28,589,335	-28,589,335	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180
Interest on Long-term Loans		2,197	57,123	164,777	219,703	219,703	219,703	219,703	219,703	219,703	219,703	219,703	208,717	197,732
Net Surplus	-40,090,865	-28,591,532	-28,646,457	-28,754,112	28,479,478	28,479,478	28,479,478	28,479,478	28,479,478	28,479,478	28,479,478	28,479,478	28,490,463	28,501,448
Accumulated Earnings	-40,090,865	-68,682,397	-97,328,855	-126,082,966	-97,603,489	-69,124,011	-40,644,534	-12,165,056	16,314,422	44,793,899	73,273,377	101,752,854	130,243,317	158,744,765

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-40,090,865	-68,682,397	-97,328,855	-126,082,966	-96,983,941	-67,884,916	-38,785,890	-9,686,865	19,412,160	48,511,186	76,877,869	105,244,553	133,622,221
Cash Inflow	-39,895,574	-23,707,056	-19,020,068	-23,707,056	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728
Net Operating Income	-40,090,865	-28,589,335	-28,589,335	-28,589,335	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180
Depreciation					619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548
Capital	48,823	1,220,570	2,392,317	1,220,570										
Long-term Loans	146,468	3,661,709	7,176,950	3,661,709										
Cash Outflow	195,291	4,884,476	9,626,390	5,047,056	219,703	219,703	219,703	219,703	219,703	219,703	952,045	952,045	941,059	930,074
Investment	195,291	4,882,279	9,569,267	4,882,279										
Repayment of principal											732,342	732,342	732,342	732,342
Interest on Long-term Loans		2,197	57,123	164,777	219,703	219,703	219,703	219,703	219,703	219,703	219,703	219,703	208,717	197,732
Cash Balance	-40,090,865	-28,591,532	-28,646,457	-28,754,112	29,099,025	29,099,025	29,099,025	29,099,025	29,099,025	29,099,025	28,366,683	28,366,683	28,377,668	28,388,654
Cash Ending	-40,090,865	-68,682,397	-97,328,855	-126,082,966	-96,983,941	-67,884,916	-38,785,890	-9,686,865	19,412,160	48,511,186	76,877,869	105,244,553	133,622,221	162,010,875

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-40,090,865	-68,682,397	-97,328,855	-126,082,966	-96,983,941	-67,884,916	-38,785,890	-9,686,865	19,412,160	48,511,186	76,877,869	105,244,553	133,622,221	162,010,875
Cash & Deposit	-40,090,865	-68,682,397	-97,328,855	-126,082,966	-96,983,941	-67,884,916	-38,785,890	-9,686,865	19,412,160	48,511,186	76,877,869	105,244,553	133,622,221	162,010,875
Fixed Assets	195,291	5,077,570	14,646,837	19,529,117	18,909,569	18,290,021	17,670,473	17,050,926	16,431,378	15,811,830	15,192,282	14,572,734	13,953,187	13,333,639
Total Assets	-39,895,574	-63,604,827	-82,682,017	-106,553,850	-78,074,372	-49,594,895	-21,115,417	7,364,061	35,843,538	64,323,016	92,070,151	119,817,287	147,575,408	175,344,513
Liabilities	195,291	5,077,570	14,646,837	19,529,117	19,529,117	19,529,117	19,529,117	19,529,117	19,529,117	19,529,117	18,796,775	18,064,433	17,332,091	16,599,749
Capital	48,823	1,269,393	3,661,709	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279
Long-term Loans	146,468	3,808,178	10,985,128	14,646,837	14,646,837	14,646,837	14,646,837	14,646,837	14,646,837	14,646,837	13,914,495	13,182,153	12,449,811	11,717,469
Net Worth	-40,090,865	-68,682,397	-97,328,855	-126,082,966	-97,603,489	-69,124,011	-40,644,534	-12,165,056	16,314,422	44,793,899	73,273,377	101,752,854	130,243,317	158,744,765
Total Liabilities & Net Worth	-39,895,574	-63,604,827	-82,682,017	-106,553,850	-78,074,372	-49,594,895	-21,115,417	7,364,061	35,843,538	64,323,016	92,070,151	119,817,287	147,575,408	175,344,513

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					151.8%	156.9%	162.4%	168.3%	174.7%	181.5%	188.9%	196.9%	205.7%	215.2%
Debt Service Coverage Ratio					133.45	133.45	133.45	133.45	133.45	133.45	30.80	30.80	31.16	31.52
Operating Ratio					51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%
Working Ratio					49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932	58,530,932
29,831,752	29,831,752	29,831,752	33,017,798	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752	29,831,752
28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335	28,589,335
622,870	622,870	622,870	3,808,916	622,870	622,870	622,870	622,870	622,870	622,870	622,870	622,870	622,870	622,870	622,870	622,870
619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548
28,699,180	28,699,180	28,699,180	25,513,134	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180
186,747	175,762	164,777	153,792	142,807	131,822	120,836	109,851	98,866	87,881	76,896	65,911	54,926	43,941	32,955	21,970
28,512,433	28,523,418	28,534,403	25,359,342	28,556,373	28,567,359	28,578,344	28,589,329	28,600,314	28,611,299	28,622,284	28,633,269	28,644,254	28,655,240	28,666,225	28,677,210
187,257,198	215,780,616	244,315,019	269,674,362	298,230,735	326,798,094	355,376,437	383,965,766	412,566,080	441,177,379	469,799,664	498,432,933	527,077,188	555,732,427	584,398,652	613,075,862

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
162,010,875	190,410,513	218,821,137	247,242,746	272,489,294	298,482,069	326,936,634	355,402,183	383,878,718	412,366,237	440,864,742	469,374,232	497,894,707	526,426,168	554,968,613	583,522,044
29,318,728	29,318,728	29,318,728	26,132,682	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728	29,318,728
28,699,180	28,699,180	28,699,180	25,513,134	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180	28,699,180
619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548	619,548
919,089	908,104	897,119	886,134	3,325,953	864,164	853,178	842,193	831,208	820,223	809,238	798,253	787,268	776,283	765,297	754,312
732,342	732,342	732,342	732,342	2,450,805 732,342	732,342	732,342	732,342	732,342	732,342	732,342	732,342	732,342	732,342	732,342	732,342
186,747	175,762	164,777	153,792	142,807	131,822	120,836	109,851	98,866	87,881	76,896	65,911	54,926	43,941	32,955	21,970
28,399,639	28,410,624	28,421,609	25,246,548	25,992,775	28,454,564	28,465,549	28,476,535	28,487,520	28,498,505	28,509,490	28,520,475	28,531,460	28,542,445	28,553,431	28,564,416
190,410,513	218,821,137	247,242,746	272,489,294	298,482,069	326,936,634	355,402,183	383,878,718	412,366,237	440,864,742	469,374,232	497,894,707	526,426,168	554,968,613	583,522,044	612,086,459

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
190,410,513	218,821,137	247,242,746	272,489,294	298,482,069	326,936,634	355,402,183	383,878,718	412,366,237	440,864,742	469,374,232	497,894,707	526,426,168	554,968,613	583,522,044	612,086,459
190,410,513	218,821,137	247,242,746	272,489,294	298,482,069	326,936,634	355,402,183	383,878,718	412,366,237	440,864,742	469,374,232	497,894,707	526,426,168	554,968,613	583,522,044	612,086,459
12,714,091	12,094,543	11,474,996	10,855,448	12,686,705	12,067,157	11,447,609	10,828,061	10,208,513	9,588,966	8,969,418	8,349,870	7,730,322	7,110,775	6,491,227	5,871,679
203,124,604	230,915,681	258,717,742	283,344,742	311,168,774	339,003,790	366,849,792	394,706,779	422,574,751	450,453,708	478,343,650	506,244,578	534,156,490	562,079,388	590,013,271	617,958,138
15,867,407	15,135,065	14,402,723	13,670,381	12,938,039	12,205,697	11,473,355	10,741,013	10,008,671	9,276,329	8,543,987	7,811,645	7,079,303	6,346,961	5,614,619	4,882,277
4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279	4,882,279
10,985,127	10,252,785	9,520,443	8,788,101	8,055,759	7,323,417	6,591,075	5,858,733	5,126,391	4,394,049	3,661,707	2,929,365	2,197,023	1,464,681	732,339	-3
187,257,198	215,780,616	244,315,019	269,674,362	298,230,735	326,798,094	355,376,437	383,965,766	412,566,080	441,177,379	469,799,664	498,432,933	527,077,188	555,732,427	584,398,652	613,075,862
203,124,604	230,915,681	258,717,742	283,344,742	311,168,774	339,003,790	366,849,792	394,706,779	422,574,751	450,453,708	478,343,650	506,244,578	534,156,490	562,079,388	590,013,271	617,958,138

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
225.7%	237.3%	250.1%	235.0%	226.2%	237.8%	250.7%	265.0%	281.1%	299.3%	320.0%	343.7%	371.3%	403.6%	442.1%	488.8%
31.90	32.29	32.68	29.49	33.50	33.93	34.36	34.81	35.27	35.74	36.23	36.73	37.24	37.77	38.31	38.87
51.0%	51.0%	51.0%	56.4%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%
49.9%	49.9%	49.9%	55.4%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%	49.9%

19-7-4 Feasibility of the Project

120. Project is feasible in both view points of national economy and port management body.

19-8 PONTIANAK PORT

19-8-1 Demand Forecast

(1) Foreign Trade Cargo volume

121. Table 19-8-1-1 shows foreign trade container cargo volume throughput at Pontianak port. Plywood and rubber are export main commodities of container cargo. Export cargo volume has fluctuated because deforestation restriction came into force from 2004 in its hinterland.

Table 19-8-1-1 Foreign Trade Container Cargo Volume Throughput
at Pontianak Port 2000-2005

		2000	2001	2002	2003	2004	2005
Import	ton	28,314	29,450	36,832	47,910	49,273	67,928
	TEU	11,072	12,728	14,397	18,092	18,876	16,038
Export	ton	218,418	237,743	290,784	351,310	373,244	321,182
	TEU	13,070	13,618	15,450	19,243	19,935	17,432
Total	ton	246,732	267,193	327,616	399,220	422,517	389,110
	TEU	24,142	26,346	29,847	37,335	38,811	33,470

Source:Pelindo2

(2) Estimation of Foreign Trade Cargo Volume Handling Capacity

122. Pontianak Port operates 8 hours in a day. Foreign trade cargo is handled at the International Container Terminal.

123. International Container Terminal has a total length of 205 m and a water depth of 5m. Estimated annual cargo handling capacity is 1 million tons.

(3) Demand Forecast for Future Foreign Trade Cargo Volume

124. Plywood and rubber products are the main export commodity of foreign trade container cargoes, with respective shares of 80% and 20%. However, export volume growth of plywood is not expected for the moment due to the enforcement of the deforestation restriction law in 2004. Export volume of rubber products is expected to grow in proportion to national GDP growth. Import cargo volume is also expected to growth in proportion to national GDP growth. Foreign trade container cargo volume projection is shown in Figure 18-7-1-1and Table 19-8-1-2. Foreign trade container cargo volume is expected to reach the annual handling capacity of terminal.

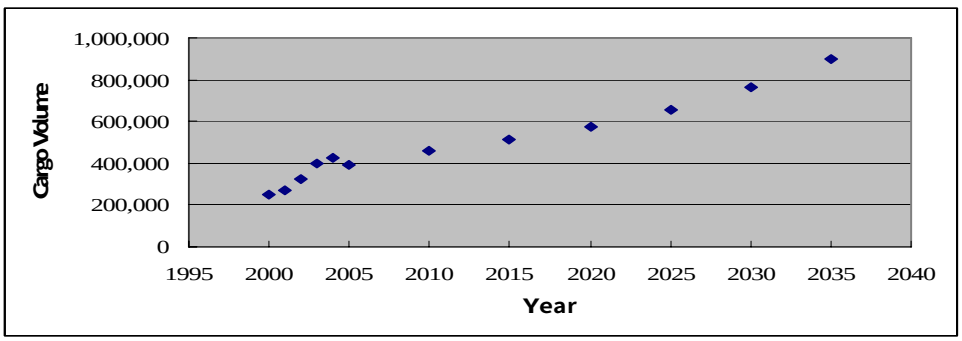


Figure 19-8-1-1 Future Foreign Trade Container Cargo Volume Projection
at Pontianak Port

Table 19-8-1-2 Future Foreign Trade Cargo Volume Projection at Pontianak Port

year	Cargo Volume (ton)
2010	461,000
2011	471,000
2012	481,000
2013	491,000
2014	501,000
2015	512,000
2020	576,000
2025	658,000
2030	763,000
2035	897,000

19-8-2 Economic Analysis

(1) Calculation of Benefits

(a) Saving in working capital interest of cargo owners

125. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

126. Table 19-8-2-1 shows international cargo volume and value at Pontianak port from 1999 to 2004. The average unit values of export cargo and import cargo from 1999 to 2004 are 485.2 US$/ton and 408.1 US$/ton respectively. Average unit rate of foreign trade cargo is 471.6US$/ton.

Table 19-8-2-1 Average Value of International Cargo at Pontianak Port 1999 -2004

	unit	1999	2000	2001	2002	2003	2004	Average
Export	ave.value US$/ton	540.4	517.8	464.7	363.6	554.1	511.4	485.2
Import	ave.value US$/ton	445.7	562.1	472.2	238.2	340.9	331.2	408.1

Source:BPS

(ii) Increase of transport time

127. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS Code.

Cargo unloading from foreign trade vessel at alternative port	1 day
Waiting time for domestic trade vessel	1 day
Cargo loading to domestic trade vessel at alternative port	1 day
transportation time from alternative port to Pontianak 395 mile / 15 knot/h = 1.1 days	
Total	4.1 days

(iii) Increase of additional interest

128. In Indonesia, the annual interest rate on bank loan is generally 15%. Additional interest is calculated as: 15%/year × 4.1days ÷ 365 days = 0.17%

(iv) Affected cargo volume in Without case

129. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. Therefore, the Study Team assumes that 10% of the foreign trade cargo volume will be affected in case the port fails to comply with the ISPS Code.

130. Table 19-8-2-2 shows Increase of Working Capital Interest of Foreign Trade Cargo Owners at Pontianak Port. Increase of Working Capital Interest is calculated by multiplying the projected cargo volume and additional interest.

Table 19-8-2-2 Increase of Working Capital Interest of Foreign Trade Cargo Owners at Pontianak Port

	Foreign Cargo Volume	Cargo Value	Total interest
	ton	Rp	Rp
2005	3,895	17,960,175,368	30,532,298
2006	4,255	19,620,312,192	33,354,531
2007	4,344	20,033,653,983	34,057,212
2008	4,434	20,446,995,774	34,759,893
2009	4,524	20,860,337,565	35,462,574
2010	4,613	21,273,679,356	36,165,255
2011	4,714	21,738,610,358	36,955,638
2012	4,815	22,203,541,360	37,746,020
2013	4,916	22,668,472,363	38,536,403
2014	5,017	23,133,403,365	39,326,786
2015	5,117	23,598,334,367	40,117,168
2016	5,246	24,191,717,233	41,125,919
2017	5,375	24,785,100,099	42,134,670
2018	5,503	25,378,482,965	43,143,421
2019	5,632	25,971,865,831	44,152,172
2020	5,761	26,565,248,698	45,160,923
2021	5,925	27,322,572,309	46,448,373
2022	6,089	28,079,895,920	47,735,823
2023	6,253	28,837,219,532	49,023,273
2024	6,418	29,594,543,143	50,310,723
2025	6,582	30,351,866,755	51,598,173
2026	6,791	31,318,424,917	53,241,322
2027	7,001	32,284,983,079	54,884,471
2028	7,211	33,251,541,241	56,527,620
2029	7,420	34,218,099,404	58,170,769
2030	7,630	35,184,657,566	59,813,918
2031	7,897	36,418,257,927	61,911,038
2032	8,165	37,651,858,289	64,008,159
2033	8,432	38,885,458,650	66,105,280
2034	8,700	40,119,059,011	68,202,400
2035	8,967	41,352,659,373	70,299,521

Source:JICA Study team

(b) Savings in sea transportation cost

(i) Examination of Domestic Ocean Freight

131. The ocean freight between Pontianak port and an alternative port is calculated as same method of Belawn port. Result of calculation, the weighted average ocean freight between Pontianak port and an alternative port (Tg.Priok port) is 176,000 rupiahs/ton.

(ii) Increase of ocean freight

132. Table 19-8-2-3 shows the annual increase of ocean freight between Pontianak port and an alternative port in case Pontianak port fails to meet standard security port facility development.

Table 19-8-2-3 Increase of Ocean Freight between Pontianak Port and Alternative Port

	Cargo Volume	Ocean freight	Total freight
	ton	Rp/ton	Rp
2005	3,895	176,000	685,467,200
2006	4,255	176,000	748,827,903
2007	4,344	176,000	764,603,486
2008	4,434	176,000	780,379,069
2009	4,524	176,000	796,154,653
2010	4,613	176,000	811,930,236
2011	4,714	176,000	829,674,770
2012	4,815	176,000	847,419,305
2013	4,916	176,000	865,163,839
2014	5,017	176,000	882,908,374
2015	5,117	176,000	900,652,909
2016	5,246	176,000	923,299,931
2017	5,375	176,000	945,946,953
2018	5,503	176,000	968,593,975
2019	5,632	176,000	991,240,998
2020	5,761	176,000	1,013,888,020
2021	5,925	176,000	1,042,791,997
2022	6,089	176,000	1,071,695,974
2023	6,253	176,000	1,100,599,951
2024	6,418	176,000	1,129,503,928
2025	6,582	176,000	1,158,407,905
2026	6,791	176,000	1,195,297,518
2027	7,001	176,000	1,232,187,131
2028	7,211	176,000	1,269,076,744
2029	7,420	176,000	1,305,966,357
2030	7,630	176,000	1,342,855,969
2031	7,897	176,000	1,389,937,502
2032	8,165	176,000	1,437,019,035
2033	8,432	176,000	1,484,100,568
2034	8,700	176,000	1,531,182,101
2035	8,967	176,000	1,578,263,633

Source:JICA Study team

(c) Total Benefit

133. Table 18-7-2-4 shows annual total benefit of Pontianak port to comply with ISPS code.

Table 19-8-2-4 Annual Total Benefit of Pontianak Port to Comply with ISPS Code

	Total Benefit Rp
2005	715,999,498
2006	782,182,434
2007	798,660,698
2008	815,138,962
2009	831,617,227
2010	848,095,491
2011	866,630,408
2012	885,165,325
2013	903,700,242
2014	922,235,160
2015	940,770,077
2016	964,425,850
2017	988,081,623
2018	1,011,737,396
2019	1,035,393,170
2020	1,059,048,943
2021	1,089,240,370
2022	1,119,431,797
2023	1,149,623,224
2024	1,179,814,651
2025	1,210,006,078
2026	1,248,538,840
2027	1,287,071,602
2028	1,325,604,364
2029	1,364,137,125
2030	1,402,669,887
2031	1,451,848,541
2032	1,501,027,194
2033	1,550,205,848
2034	1,599,384,501
2035	1,648,563,154

Source:JICA Study team

(2) Implementation Cost

134. Implementation cost is composed of capital cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost in annual. Table 19-8-2-5 shows implementation cost for port security facility development at Pontianak port.

Table 19-8-2-5 Implementation Cost for Port Security Facility Development at Pontianak Port

Unit:Rupiah

year	Initial Investment	Maintenance	Renewal	Total
2006	144.643.530			144.643.530
2007	3.616.088.259			3.616.088.259
2008	7.087.532.988			7.087.532.988
2009	3.616.088.259			3.616.088.259
2010		740.557.073		740.557.073
2011		740.557.073		740.557.073
2012		740.557.073		740.557.073
2013		740.557.073		740.557.073
2014		740.557.073		740.557.073
2015		740.557.073		740.557.073
2016		740.557.073		740.557.073
2017		740.557.073		740.557.073
2018		740.557.073		740.557.073
2019		740.557.073		740.557.073
2020		740.557.073		740.557.073
2021		740.557.073		740.557.073
2022		740.557.073		740.557.073
2023		740.557.073		740.557.073
2024		740.557.073	3.186.045.850	3.926.602.923
2025		740.557.073		740.557.073
2026		740.557.073		740.557.073
2027		740.557.073		740.557.073
2028		740.557.073		740.557.073
2029		740.557.073		740.557.073
2030		740.557.073		740.557.073
2031		740.557.073		740.557.073
2032		740.557.073		740.557.073
2033		740.557.073		740.557.073
2034		740.557.073		740.557.073
2035		740.557.073		740.557.073

(3) Evaluation of Projects

135. The result of the EIRR calculation is shown in Table 19-8-2-6, and indicates that the project is feasible.

Table 19-8-2-6 EIRR Calculation for Pontianak Port

Unit : Rupiah

Year	Benefit (1)	Cost(2) Investment	Maintenance	Renewal	Total	Benefit (1)-(2)	Net Present Value Revenue	Cost	Difference
2006		144,643,530			144,643,530	-144,643,530	0	144,643,530	-144,643,530
2007		3,616,088,259			3,616,088,259	-3,616,088,259	0	3,206,467,751	-3,206,467,751
2008		7,087,532,988			7,087,532,988	-7,087,532,988	0	5,572,765,931	-5,572,765,931
2009		3,616,088,259			3,616,088,259	-3,616,088,259	0	2,521,172,638	-2,521,172,638
2010	2,544,286,472		740,557,073		740,557,073	1,803,729,400	1,572,959,086	457,836,014	1,115,123,072
2011	2,599,891,224		740,557,073		740,557,073	1,859,334,151	1,425,261,159	405,973,612	1,019,287,547
2012	2,655,495,976		740,557,073		740,557,073	1,914,938,903	1,290,841,068	359,986,041	930,855,027
2013	2,711,100,727		740,557,073		740,557,073	1,970,543,655	1,168,585,880	319,207,814	849,378,065
2014	2,766,705,479		740,557,073		740,557,073	2,026,148,407	1,057,464,424	283,048,833	774,415,590
2015	2,822,310,231		740,557,073		740,557,073	2,081,753,158	956,523,049	250,985,842	705,537,207
2016	2,893,277,550		740,557,073		740,557,073	2,152,720,478	869,498,108	222,554,858	646,943,250
2017	2,964,244,870		740,557,073		740,557,073	2,223,687,797	789,915,208	197,344,457	592,570,751
2018	3,035,212,189		740,557,073		740,557,073	2,294,655,117	717,205,003	174,989,821	542,215,182
2019	3,106,179,509		740,557,073		740,557,073	2,365,622,436	650,831,639	155,167,456	495,664,183
2020	3,177,146,828		740,557,073		740,557,073	2,436,589,756	590,292,475	137,590,515	452,701,961
2021	3,267,721,110		740,557,073		740,557,073	2,527,164,037	538,347,623	122,004,641	416,342,982
2022	3,358,295,391		740,557,073		740,557,073	2,617,738,318	490,596,633	108,184,291	382,412,342
2023	3,448,869,672		740,557,073		740,557,073	2,708,312,600	446,755,912	95,929,473	350,826,439
2024	3,539,443,954		740,557,073	3,186,045,850	3,926,602,923	-387,158,969	406,552,297	451,022,663	-44,470,366
2025	3,630,018,235		740,557,073		740,557,073	2,889,461,163	369,724,338	75,427,162	294,297,176
2026	3,745,616,520		740,557,073		740,557,073	3,005,059,448	338,283,176	66,882,981	271,400,195
2027	3,861,214,806		740,557,073		740,557,073	3,120,657,733	309,220,946	59,306,661	249,914,285
2028	3,976,813,091		740,557,073		740,557,073	3,236,256,019	282,402,135	52,588,566	229,813,569
2029	4,092,411,376		740,557,073		740,557,073	3,351,854,304	257,691,406	46,631,478	211,059,927
2030	4,208,009,662		740,557,073		740,557,073	3,467,452,589	234,955,293	41,349,193	193,606,100
2031	4,355,545,622		740,557,073		740,557,073	3,614,988,550	215,644,769	36,665,271	178,979,498
2032	4,503,081,582		740,557,073		740,557,073	3,762,524,510	197,694,246	32,511,930	165,182,316
2033	4,650,617,543		740,557,073		740,557,073	3,910,060,470	181,043,399	28,829,068	152,214,331
2034	4,798,153,503		740,557,073		740,557,073	4,057,596,430	165,628,116	25,563,391	140,064,725
2035	4,945,689,463		740,557,073		740,557,073	4,205,132,391	151,382,133	22,667,640	128,714,493
Total	91,657,352,586	14,464,353,037	19,254,483,885	3,186,045,850	36,904,882,772	54,752,469,814	15,675,299,521	15,675,299,521	0

EIRR= 12.77%

19-8-3 Financial Analysis

(1) Loan repayment capacity

136. Projected financial statement is shown in Table19-8-3-1. Debt service coverage ratio is more than 8 through the repayment period. Therefore, Pontianak port has enough financial capacity for loan repayment of port security facility development.

Table 19-8-3-1 Projected Financial Statement of Pontianak Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287
Operating Expenses	44,390,968	44,390,968	44,390,968	44,390,968	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172
Personnel & Administration	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968
Maintenance					461,332	461,332	461,332	461,332	461,332	461,332	461,332	461,332	461,332	461,332
Depreciation					458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872
Net Operating Income	-44,390,968	-44,390,968	-44,390,968	-44,390,968	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115
Interest on Long-term Loans		1,627	42,308	122,043	162,724	162,724	162,724	162,724	162,724	162,724	162,724	162,724	154,588	146,452
Net Surplus	-44,390,968	-44,392,596	-44,433,277	-44,513,011	8,087,391	8,087,391	8,087,391	8,087,391	8,087,391	8,087,391	8,087,391	8,087,391	8,095,527	8,103,663
Accumulated Earnings	-44,390,968	-88,783,564	-133,216,841	-177,729,852	-169,642,461	-161,555,070	-153,467,679	-145,380,288	-137,292,897	-129,205,506	-121,118,116	-113,030,725	-104,935,198	-96,831,534

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-44,390,968	-88,783,564	-133,216,841	-177,729,852	-169,183,589	-160,637,327	-152,091,064	-143,544,802	-134,998,539	-126,452,277	-118,448,427	-110,444,578	-102,432,592
Cash Inflow	-44,246,325	-40,774,880	-37,303,435	-40,774,880	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987
Net Operating Income	-44,390,968	-44,390,968	-44,390,968	-44,390,968	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115
Depreciation					458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872
Capital	36,161	904,022	1,771,883	904,022										
Long-term Loans	108,483	2,712,066	5,315,650	2,712,066										
Cash Outflow	144,644	3,617,715	7,129,841	3,738,131	162,724	162,724	162,724	162,724	162,724	162,724	705,137	705,137	697,001	688,865
Investment	144,644	3,616,088	7,087,533	3,616,088										
Repayment of principal											542,413	542,413	542,413	542,413
Interest on Long-term Loans		1,627	42,308	122,043	162,724	162,724	162,724	162,724	162,724	162,724	162,724	162,724	154,588	146,452
Cash Balance	-44,390,968	-44,392,596	-44,433,277	-44,513,011	8,546,263	8,546,263	8,546,263	8,546,263	8,546,263	8,546,263	8,003,850	8,003,850	8,011,986	8,020,122
Cash Ending	-44,390,968	-88,783,564	-133,216,841	-177,729,852	-169,183,589	-160,637,327	-152,091,064	-143,544,802	-134,998,539	-126,452,277	-118,448,427	-110,444,578	-102,432,592	-94,412,470

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-44,390,968	-88,783,564	-133,216,841	-177,729,852	-169,183,589	-160,637,327	-152,091,064	-143,544,802	-134,998,539	-126,452,277	-118,448,427	-110,444,578	-102,432,592	-94,412,470
Cash & Deposit	-44,390,968	-88,783,564	-133,216,841	-177,729,852	-169,183,589	-160,637,327	-152,091,064	-143,544,802	-134,998,539	-126,452,277	-118,448,427	-110,444,578	-102,432,592	-94,412,470
Fixed Assets	144,644	3,760,732	10,848,265	14,464,353	14,005,481	13,546,610	13,087,738	12,628,866	12,169,995	11,711,123	11,252,252	10,793,380	10,334,508	9,875,637
Total Assets	-44,246,325	-85,022,832	-122,368,576	-163,265,499	-155,178,108	-147,090,717	-139,003,326	-130,915,935	-122,828,544	-114,741,153	-107,196,176	-99,651,198	-92,098,084	-84,536,833
Liabilities	144,644	3,760,732	10,848,265	14,464,353	14,464,353	14,464,353	14,464,353	14,464,353	14,464,353	14,464,353	13,921,940	13,379,527	12,837,114	12,294,701
Capital	36,161	940,183	2,712,066	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088
Long-term Loans	108,483	2,820,549	8,136,199	10,848,265	10,848,265	10,848,265	10,848,265	10,848,265	10,848,265	10,848,265	10,305,852	9,763,439	9,221,026	8,678,613
Net Worth	-44,390,968	-88,783,564	-133,216,841	-177,729,852	-169,642,461	-161,555,070	-153,467,679	-145,380,288	-137,292,897	-129,205,506	-121,118,116	-113,030,725	-104,935,198	-96,831,534
Total Liabilities & Net Worth	-44,246,325	-85,022,832	-122,368,576	-163,265,499	-155,178,108	-147,090,717	-139,003,326	-130,915,935	-122,828,544	-114,741,153	-107,196,176	-99,651,198	-92,098,084	-84,536,833

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					58.9%	60.9%	63.0%	65.3%	67.8%	70.4%	73.3%	76.4%	79.8%	83.5%
Debt Service Coverage Ratio					53.52	53.52	53.52	53.52	53.52	53.52	12.35	12.35	12.49	12.64
Operating Ratio					84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%
Working Ratio					83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287	53,561,287
45,311,172	45,311,172	45,311,172	48,497,218	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172	45,311,172
44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968	44,390,968
461,332	461,332	461,332	3,647,378	461,332	461,332	461,332	461,332	461,332	461,332	461,332	461,332	461,332	461,332	461,332	461,332
458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872
8,250,115	8,250,115	8,250,115	5,064,069	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115
138,315	130,179	122,043	113,907	105,771	97,634	89,498	81,362	73,226	65,090	56,953	48,817	40,681	32,545	24,409	16,272
8,111,799	8,119,936	8,128,072	4,950,162	8,144,344	8,152,480	8,160,617	8,168,753	8,176,889	8,185,025	8,193,161	8,201,298	8,209,434	8,217,570	8,225,706	8,233,842
-88,719,735	-80,599,799	-72,471,727	-67,521,565	-59,377,221	-51,224,740	-43,064,124	-34,895,371	-26,718,482	-18,533,456	-10,340,295	-2,138,997	6,070,437	14,288,007	22,513,713	30,747,556

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-94,412,470	-86,384,212	-78,347,817	-70,303,287	-65,436,666	-59,826,668	-51,757,729	-43,680,653	-35,595,442	-27,502,094	-19,400,610	-11,290,990	-3,173,234	4,952,659	13,086,688	21,228,853
8,708,987	8,708,987	8,708,987	5,522,941	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987	8,708,987
8,250,115	8,250,115	8,250,115	5,064,069	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115	8,250,115
458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872	458,872
680,728	672,592	664,456	656,320	3,098,988	640,047	631,911	623,775	615,639	607,503	599,366	591,230	583,094	574,958	566,822	558,685
542,413	542,413	542,413	542,413	2,450,805 542,413	542,413	542,413	542,413	542,413	542,413	542,413	542,413	542,413	542,413	542,413	542,413
138,315	130,179	122,043	113,907	105,771	97,634	89,498	81,362	73,226	65,090	56,953	48,817	40,681	32,545	24,409	16,272
8,028,258	8,036,394	8,044,531	4,866,621	5,609,998	8,068,939	8,077,075	8,085,212	8,093,348	8,101,484	8,109,620	8,117,756	8,125,893	8,134,029	8,142,165	8,150,301
-86,384,212	-78,347,817	-70,303,287	-65,436,666	-59,826,668	-51,757,729	-43,680,653	-35,595,442	-27,502,094	-19,400,610	-11,290,990	-3,173,234	4,952,659	13,086,688	21,228,853	29,379,154

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-86,384,212	-78,347,817	-70,303,287	-65,436,666	-59,826,668	-51,757,729	-43,680,653	-35,595,442	-27,502,094	-19,400,610	-11,290,990	-3,173,234	4,952,659	13,086,688	21,228,853	29,379,154
-86,384,212	-78,347,817	-70,303,287	-65,436,666	-59,826,668	-51,757,729	-43,680,653	-35,595,442	-27,502,094	-19,400,610	-11,290,990	-3,173,234	4,952,659	13,086,688	21,228,853	29,379,154
9,416,765	8,957,893	8,499,022	8,040,150	10,032,083	9,573,211	9,114,340	8,655,468	8,196,596	7,737,725	7,278,853	6,819,982	6,361,110	5,902,238	5,443,367	4,984,495
-76,967,447	-69,389,924	-61,804,265	-57,396,516	-49,794,585	-42,184,517	-34,566,313	-26,939,974	-19,305,497	-11,662,885	-4,012,137	3,646,748	11,313,769	18,988,926	26,672,219	34,363,649
11,752,288	11,209,875	10,667,462	10,125,049	9,582,636	9,040,223	8,497,810	7,955,397	7,412,984	6,870,571	6,328,158	5,785,745	5,243,332	4,700,919	4,158,506	3,616,093
3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088	3,616,088
8,136,200	7,593,787	7,051,374	6,508,961	5,966,548	5,424,135	4,881,722	4,339,309	3,796,896	3,254,483	2,712,070	2,169,657	1,627,244	1,084,831	542,418	5
-88,719,735	-80,599,799	-72,471,727	-67,521,565	-59,377,221	-51,224,740	-43,064,124	-34,895,371	-26,718,482	-18,533,456	-10,340,295	-2,138,997	6,070,437	14,288,007	22,513,713	30,747,556
-76,967,447	-69,389,924	-61,804,265	-57,396,516	-49,794,585	-42,184,517	-34,566,313	-26,939,974	-19,305,497	-11,662,885	-4,012,137	3,646,748	11,313,769	18,988,926	26,672,219	34,363,649

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
87.6%	92.1%	97.1%	63.0%	82.2%	86.2%	90.5%	95.3%	100.7%	106.6%	113.3%	121.0%	129.7%	139.8%	151.6%	165.5%
12.79	12.95	13.11	8.42	13.44	13.61	13.78	13.96	14.15	14.34	14.53	14.73	14.94	15.15	15.36	15.59
84.6%	84.6%	84.6%	90.5%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%
83.7%	83.7%	83.7%	89.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%	83.7%

19-8-4 Feasibility of the Project

137. Project is feasible in the view points of national economy.

19-9 BENOA PORT

19-9-1 Demand Forecast

138. Target vessel of port security facilities is international cruise vessels at Benoa port.

(1) International Cruise Passenger Volume

139. Table 19-9-1-1 shows international cruise vessel passengers throughput at Benoa port from1996 to 2004.

Table 19-9-1-1 International Cruise Passenger Volume Throughput at Benoa Port 1996-2004

		1996	1997	1998	1999	2000	2001	2002	2003	2004
Disembarkation		8,441	13,942	4,919	3,621	3,569	1,320	2,943	315	885
Embarkation		4,303	7,506	3,586	3,621	3,569	1,320	2,943	315	885
Total		12,744	21,448	8,505	7,242	7,138	2,640	5,886	630	1,770

140. According to an interview with port management, the number of passengers on an international cruise vessel ranges from 250 to 500. Average length of stay in Benoa port is two days.

141. Before the first bombing incident in 2002, the number of international cruise passengers had shown a decline tendency after peaking in 1997. Monetary crisis in 1997 was one of the main reasons for the decline in passengers. In 2002, there were signs of recovery, however, the bombing incident sparked another decline. According to an interview with Benoa port management, 4 cruise vessels called from this January to March.

142. However, Bali island is still an attractive tourist destination and it is expected that the number of cruise vessel will increase in future. In fact, once the threat of terrorism is lowered as a result of enhanced security, peak numbers can be expected.

143. Figure 19-9-1-1and Table19-9-1-2 show international cruise vessel projection at Benoa port.

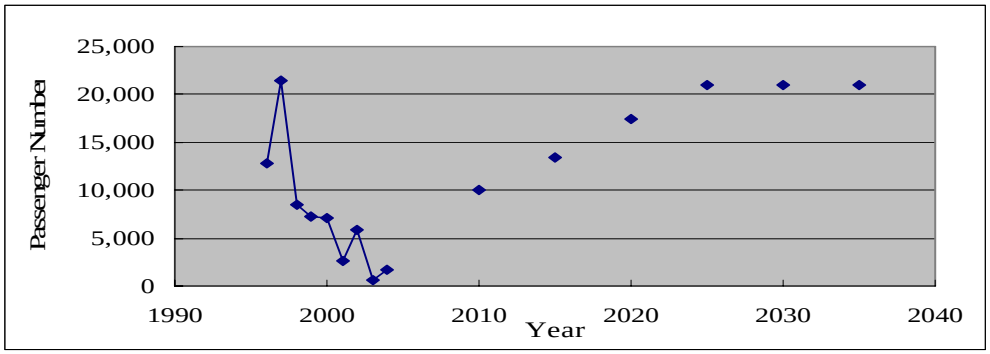


Figure 19-9-1-1 Future Foreign Cruise Passenger Volume Projection at Benoa Port

Table 19-9-1-2 Future Foreign Cruise Passenger Volume Projection at Benoa Port

Year	Passenger
2010	10,000
2015	13,500
2020	17,500
2025	21,000

19-9-2 Economic Analysis

(1) Calculation of Benefits for Economic Impact from Cruise Passenger to local Economy

144. The Study Team adopts expense of passenger in Bali island as regional economic benefit of cruise vessel calls. Study team estimates average expense in Bali is 45US$ per person. Table 19-9-2-1 shows passenger expense projection.

Table 19-9-2-1 Cruise Passenger Expense Projection at Benoa Port

	Foreign Passenger number	Expenses Rp
2005	2,121	932,497,650
2006	3,700	1,626,705,000
2007	5,300	2,330,145,000
2008	6,900	3,033,585,000
2009	8,500	3,737,025,000
2010	10,000	4,396,500,000
2011	10,700	4,704,255,000
2012	11,400	5,012,010,000
2013	12,100	5,319,765,000
2014	12,800	5,627,520,000
2015	13,500	5,935,275,000
2016	14,300	6,286,995,000
2017	15,100	6,638,715,000
2018	15,900	6,990,435,000
2019	16,700	7,342,155,000
2020	17,500	7,693,875,000
2021	18,200	8,001,630,000
2022	18,900	8,309,385,000
2023	19,600	8,617,140,000
2024	20,300	8,924,895,000
2025	21,000	9,232,650,000

(2) Implementation Cost

145. Implementation cost is composed of capital cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost in annual. Table 19-9-2-2 shows implementation cost for port security facility development at Benoa port.

Table 19-9-2-2 Implementation Cost for Port Security Facility Development at Benoa Port

Unit:Rupiah

year	Initial Investment	Maintenance	Renewal	Total
2006	17,283,000			17,283,000
2007	432,069,000			432,069,000
2008	846,855,000			846,855,000
2009	432,069,000			432,069,000
2010		1,451,247,000		1,451,247,000
2011		1,451,247,000		1,451,247,000
2012		1,451,247,000		1,451,247,000
2013		1,451,247,000		1,451,247,000
2014		1,451,247,000		1,451,247,000
2015		1,451,247,000		1,451,247,000
2016		1,451,247,000		1,451,247,000
2017		1,451,247,000		1,451,247,000
2018		1,451,247,000		1,451,247,000
2019		1,451,247,000		1,451,247,000
2020		1,451,247,000		1,451,247,000
2021		1,451,247,000		1,451,247,000
2022		1,451,247,000		1,451,247,000
2023		1,451,247,000		1,451,247,000
2024		1,451,247,000	381,030,000	1,832,277,000
2025		1,451,247,000		1,451,247,000
2026		1,451,247,000		1,451,247,000
2027		1,451,247,000		1,451,247,000
2028		1,451,247,000		1,451,247,000
2029		1,451,247,000		1,451,247,000
2030		1,451,247,000		1,451,247,000
2031		1,451,247,000		1,451,247,000
2032		1,451,247,000		1,451,247,000
2033		1,451,247,000		1,451,247,000
2034		1,451,247,000		1,451,247,000
2035		1,451,247,000		1,451,247,000

(3) Evaluation of Projects

146. The result of the EIRR calculation is shown in Table 19-9-2-3, and indicates that the project is feasible.

Table 19-9-2-3 EIRR Calculation for Benoa Port

Unit : Rupiah

	Benefit	Cost(2)				Benefit	Net Present Value		
Year	(1)	Investment	Maintenance	Renewal	Total	(1)-(2)	Revenue	Cost	Difference
2006		17,283,000			17,283,000	-17,283,000	0	17,283,000	-17,283,000
2007		432,069,000			432,069,000	-432,069,000	0	166,514,688	-166,514,688
2008		846,855,000			846,855,000	-846,855,000	0	125,778,942	-125,778,942
2009		432,069,000			432,069,000	-432,069,000	0	24,731,555	-24,731,555
2010	4,396,500,000		1,451,247,000		1,451,247,000	2,945,253,000	96,985,060	32,013,938	64,971,122
2011	4,704,255,000		1,451,247,000		1,451,247,000	3,253,008,000	39,993,375	12,337,823	27,655,552
2012	5,012,010,000		1,451,247,000		1,451,247,000	3,560,763,000	16,421,339	4,754,863	11,666,476
2013	5,319,765,000		1,451,247,000		1,451,247,000	3,868,518,000	6,717,204	1,832,472	4,884,732
2014	5,627,520,000		1,451,247,000		1,451,247,000	4,176,273,000	2,738,499	706,215	2,032,284
2015	5,935,275,000		1,451,247,000		1,451,247,000	4,484,028,000	1,113,104	272,168	840,937
2016	6,286,995,000		1,451,247,000		1,451,247,000	4,835,748,000	454,399	104,890	349,509
2017	6,638,715,000		1,451,247,000		1,451,247,000	5,187,468,000	184,917	40,424	144,494
2018	6,990,435,000		1,451,247,000		1,451,247,000	5,539,188,000	75,041	15,579	59,462
2019	7,342,155,000		1,451,247,000		1,451,247,000	5,890,908,000	30,375	6,004	24,371
2020	7,693,875,000		1,451,247,000		1,451,247,000	6,242,628,000	12,267	2,314	9,953
2021	8,001,630,000		1,451,247,000		1,451,247,000	6,550,383,000	4,917	892	4,025
2022	8,309,385,000		1,451,247,000		1,451,247,000	6,858,138,000	1,968	344	1,624
2023	8,617,140,000		1,451,247,000		1,451,247,000	7,165,893,000	786	132	654
2024	8,924,895,000		1,451,247,000	381,030,000	1,832,277,000	7,092,618,000	314	64	249
2025	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	125	20	105
2026	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	48	8	41
2027	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	19	3	16
2028	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	7	1	6
2029	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	3	0	2
2030	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	1	0	1
2031	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	0	0	0
2032	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	0	0	0
2033	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	0	0	0
2034	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	0	0	0
2035	9,232,650,000		1,451,247,000		1,451,247,000	7,781,403,000	0	0	0
Total	201,359,700,000	1,728,276,000	37,732,422,000	381,030,000	39,841,728,000	161,517,972,000	164,733,768	386,396,337	-221,662,569

EIRR= 89.10%

19-9-3 Financial Analysis

(1) Loan Repayment Capacity

147. Projected financial statement is shown in Table 19-9-3-1. Debt service coverage ratio is more than 17 through the repayment period. Therefore, Benoa port has enough financial capacity for loan repayment of port security facility development.

Table 19-9-3-1 Projected Financial Statement of Benoa Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324
Operating Expenses	9,343,631	9,343,631	9,343,631	9,343,631	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582
Personnel & Administration	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631
Maintenance					55,122	55,122	55,122	55,122	55,122	55,122	55,122	55,122	55,122	55,122
Depreciation					54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828
Net Operating Income	-9,343,631	-9,343,631	-9,343,631	-9,343,631	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742
Interest on Long-term Loans		194	5,055	14,582	19,443	19,443	19,443	19,443	19,443	19,443	19,443	19,443	18,714	17,985
Net Surplus	-9,343,631	-9,343,825	-9,348,686	-9,358,213	1,702,299	1,702,299	1,702,299	1,702,299	1,702,299	1,702,299	1,702,299	1,702,299	1,703,028	1,703,757
Accumulated Earnings	-9,343,631	-18,687,456	-28,036,142	-37,394,356	-35,692,057	-33,989,758	-32,287,459	-30,585,161	-28,882,862	-27,180,563	-25,478,264	-23,775,965	-22,072,938	-20,369,181

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-9,343,631	-18,687,456	-28,036,142	-37,394,356	-35,637,229	-33,880,101	-32,122,974	-30,365,847	-28,608,720	-26,851,593	-25,159,276	-23,466,959	-21,773,913
Cash Inflow	-9,326,348	-8,911,562	-8,496,776	-8,911,562	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570
Net Operating Income	-9,343,631	-9,343,631	-9,343,631	-9,343,631	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742
Depreciation					54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828
Capital	4,321	108,017	211,714	108,017										
Long-term Loans	12,962	324,052	635,141	324,052										
Cash Outflow	17,283	432,263	851,910	446,651	19,443	19,443	19,443	19,443	19,443	19,443	84,253	84,253	83,524	82,795
Investment	17,283	432,069	846,855	432,069										
Repayment of principal											64,810	64,810	64,810	64,810
Interest on Long-term Loans		194	5,055	14,582	19,443	19,443	19,443	19,443	19,443	19,443	19,443	19,443	18,714	17,985
Cash Balance	-9,343,631	-9,343,825	-9,348,686	-9,358,213	1,757,127	1,757,127	1,757,127	1,757,127	1,757,127	1,757,127	1,692,317	1,692,317	1,693,046	1,693,775
Cash Ending	-9,343,631	-18,687,456	-28,036,142	-37,394,356	-35,637,229	-33,880,101	-32,122,974	-30,365,847	-28,608,720	-26,851,593	-25,159,276	-23,466,959	-21,773,913	-20,080,138

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-9,343,631	-18,687,456	-28,036,142	-37,394,356	-35,637,229	-33,880,101	-32,122,974	-30,365,847	-28,608,720	-26,851,593	-25,159,276	-23,466,959	-21,773,913	-20,080,138
Cash & Deposit	-9,343,631	-18,687,456	-28,036,142	-37,394,356	-35,637,229	-33,880,101	-32,122,974	-30,365,847	-28,608,720	-26,851,593	-25,159,276	-23,466,959	-21,773,913	-20,080,138
Fixed Assets	17,283	449,352	1,296,207	1,728,276	1,673,447	1,618,619	1,563,791	1,508,962	1,454,134	1,399,306	1,344,477	1,289,649	1,234,820	1,179,992
Total Assets	-9,326,348	-18,238,105	-26,739,936	-35,666,080	-33,963,781	-32,261,482	-30,559,184	-28,856,885	-27,154,586	-25,452,287	-23,814,799	-22,177,311	-20,539,093	-18,900,146
Liabilities	17,283	449,353	1,296,207	1,728,276	1,728,276	1,728,276	1,728,276	1,728,276	1,728,276	1,728,276	1,663,465	1,598,655	1,533,845	1,469,034
Capital	4,321	112,338	324,052	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069
Long-term Loans	12,962	337,014	972,155	1,296,207	1,296,207	1,296,207	1,296,207	1,296,207	1,296,207	1,296,207	1,231,396	1,166,586	1,101,776	1,036,965
Net Worth	-9,343,631	-18,687,456	-28,036,142	-37,394,356	-35,692,057	-33,989,758	-32,287,459	-30,585,161	-28,882,862	-27,180,563	-25,478,264	-23,775,965	-22,072,938	-20,369,181
Total Liabilities & Net Worth	-9,326,348	-18,238,105	-26,739,936	-35,666,080	-33,963,781	-32,261,482	-30,559,184	-28,856,885	-27,154,586	-25,452,287	-23,814,799	-22,177,311	-20,539,093	-18,900,146

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					102.9%	106.4%	110.1%	114.1%	118.4%	123.0%	128.1%	133.5%	139.4%	145.9%
Debt Service Coverage Ratio					91.37	91.37	91.37	91.37	91.37	91.37	21.09	21.09	21.27	21.46
Operating Ratio					84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%
Working Ratio					84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324	11,175,324
9,453,582	9,453,582	9,453,582	9,834,612	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582	9,453,582
9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631	9,343,631
55,122	55,122	55,122	436,152	55,122	55,122	55,122	55,122	55,122	55,122	55,122	55,122	55,122	55,122	55,122	55,122
54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828
1,721,742	1,721,742	1,721,742	1,340,712	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742
17,256	16,527	15,798	15,068	14,339	13,610	12,881	12,152	11,423	10,694	9,965	9,235	8,506	7,777	7,048	6,319
1,704,486	1,705,215	1,705,944	1,325,643	1,707,403	1,708,132	1,708,861	1,709,590	1,710,319	1,711,048	1,711,777	1,712,506	1,713,236	1,713,965	1,714,694	1,715,423
-18,664,694	-16,959,479	-15,253,535	-13,927,891	-12,220,489	-10,512,357	-8,803,496	-7,093,906	-5,383,587	-3,672,539	-1,960,762	-248,255	1,464,980	3,178,945	4,893,638	6,609,061

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-20,080,138	-18,385,634	-16,690,401	-14,994,439	-13,678,777	-12,274,457	-10,576,307	-8,877,428	-7,177,820	-5,477,483	-3,776,417	-2,074,621	-372,097	1,331,157	3,035,139	4,739,851
1,776,570	1,776,570	1,776,570	1,395,540	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570	1,776,570
1,721,742	1,721,742	1,721,742	1,340,712	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742	1,721,742
54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828	54,828
82,066	81,337	80,608	79,879	372,250	78,421	77,691	76,962	76,233	75,504	74,775	74,046	73,317	72,588	71,858	71,129
				293,100											
64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810	64,810
17,256	16,527	15,798	15,068	14,339	13,610	12,881	12,152	11,423	10,694	9,965	9,235	8,506	7,777	7,048	6,319
1,694,504	1,695,233	1,695,962	1,315,661	1,404,321	1,698,150	1,698,879	1,699,608	1,700,337	1,701,066	1,701,795	1,702,524	1,703,254	1,703,983	1,704,712	1,705,441
-18,385,634	-16,690,401	-14,994,439	-13,678,777	-12,274,457	-10,576,307	-8,877,428	-7,177,820	-5,477,483	-3,776,417	-2,074,621	-372,097	1,331,157	3,035,139	4,739,851	6,445,292

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-18,385,634	-16,690,401	-14,994,439	-13,678,777	-12,274,457	-10,576,307	-8,877,428	-7,177,820	-5,477,483	-3,776,417	-2,074,621	-372,097	1,331,157	3,035,139	4,739,851	6,445,292
-18,385,634	-16,690,401	-14,994,439	-13,678,777	-12,274,457	-10,576,307	-8,877,428	-7,177,820	-5,477,483	-3,776,417	-2,074,621	-372,097	1,331,157	3,035,139	4,739,851	6,445,292
1,125,164	1,070,335	1,015,507	960,679	1,198,950	1,144,122	1,089,294	1,034,465	979,637	924,809	869,980	815,152	760,324	705,495	650,667	595,838
-17,260,470	-15,620,066	-13,978,932	-12,718,098	-11,075,506	-9,432,185	-7,788,134	-6,143,355	-4,497,846	-2,851,608	-1,204,641	443,055	2,091,480	3,740,634	5,390,518	7,041,130
1,404,224	1,339,414	1,274,603	1,209,793	1,144,983	1,080,172	1,015,362	950,552	885,741	820,931	756,121	691,310	626,500	561,690	496,879	432,069
432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069	432,069
972,155	907,345	842,534	777,724	712,914	648,103	583,293	518,483	453,672	388,862	324,052	259,241	194,431	129,621	64,810	
-18,664,694	-16,959,479	-15,253,535	-13,927,891	-12,220,489	-10,512,357	-8,803,496	-7,093,906	-5,383,587	-3,672,539	-1,960,762	-248,255	1,464,980	3,178,945	4,893,638	6,609,061
-17,260,470	-15,620,066	-13,978,932	-12,718,098	-11,075,506	-9,432,185	-7,788,134	-6,143,355	-4,497,846	-2,851,608	-1,204,641	443,055	2,091,480	3,740,634	5,390,518	7,041,130

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
153.0%	160.9%	169.5%	139.6%	143.6%	150.5%	158.1%	166.4%	175.8%	186.2%	197.9%	211.2%	226.4%	244.0%	264.6%	289.0%
21.65	21.84	22.04	17.47	22.45	22.65	22.87	23.08	23.30	23.53	23.76	23.99	24.23	24.47	24.72	24.98
84.6%	84.6%	84.6%	88.0%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%
84.1%	84.1%	84.1%	87.5%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%

19-9-4 Feasibility of the Project

148. Project is quite feasible in both view points of national economy and port management body.

19-10 KUPANG PORT

19-10-1 Demand Forecast

(1) Foreign Trade Cargo volume

149. Table 19-10-1-1 shows foreign trade cargo volume throughput at Kupang port. Foreign trade cargo volume has fluctuated. There was a big change in socioeconomic structure of Kupang port hinterland in 2002 because of East Timor independence.

Table 19-10-1-1 Foreign Trade Cargo Volume Throughput at Kupang Port 2000-2004

Unit: ton

	2000	2001	2002	2003	2004	Average
Import	41,225	3,400	95,017	12,100	14,450	33,238
Export	977	2,590	1,800		3,471	1,768
Total	42,202	5,990	96,817	12,100	17,921	35,006

(2) Estimation of Foreign Trade Cargo Volume Handling Capacity

150. Kupang Port operates 8 hours in a day. There is Multi-Purpose Berth to handle foreign trade cargo at Kupang port. The Study Team estimates annual foreign trade cargo handling capacity of the wharf as 1.3 million tons.

(3) Demand Forecast for Future Foreign Trade Cargo Volume

151. To project the future cargo volume, study team adopts the GDP growth rate forecasted by the World Bank which is 6% per annum from 2006 to 2009. The Study Team projects the annual average growth rate will slow down to 5% from 2010 until 2020. Table 19-10-1-2 and Figure 19-10-1-2 shows result of foreign trade cargo volume projection at Kupang port.

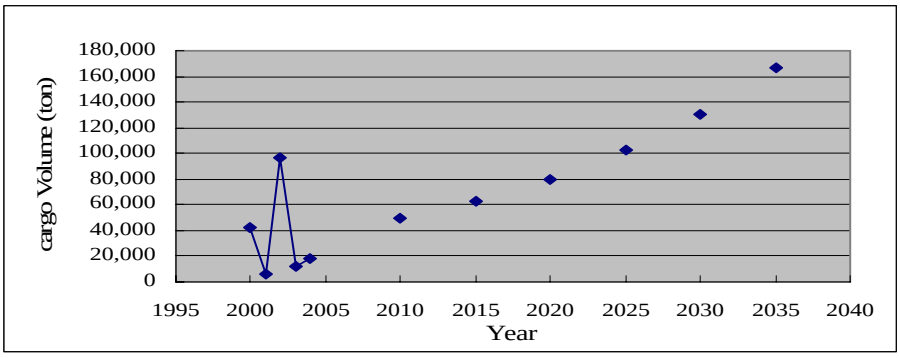


Figure 19-10-1-1 Future Foreign Trade Cargo Volume Projection at Kupang Port

Table 19-10-1-2 Future Foreign Trade Cargo Volume Projection at Kupang Port

Year	Cargo Volume (ton)
2010	93,000
2015	120,000
2020	150,000
2025	190,000
2030	250,000
2035	310,000

19-10-2 Economic Analysis

(1) Calculation of Benefits

(a) Saving in working capital interest of cargo owners

152. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

153. Table 19-10-2-1 shows international cargo volume and value at Kupang port from 1999 to 2004. As import cargo value data is not available, the Study Team assumes the average unit value of import cargo is equal to export cargo value. Average unit rate of foreign trade cargo is 726.3 US$/ton.

Table 19-10-2-1 Average Value of International Cargo at Kupang Port 1999 -2004

	unit	1999	2000	2001	2002	2003	2004	Average
Export ave.value	US$/ton	1,000.0	1,520.0	606.1	250.0	-	-	726.3

Source:BPS

(ii) Increase of transport time

154. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS Code.

Cargo unloading from foreign trade vessel at alternative port	1 day
Waiting time for domestic trade vessel	1 day
Cargo loading to domestic trade vessel at alternative port	1 day
Transportation time from alternative port to Kupang 672 mile / 15 knot/h	= 1.9 days
Total	4.9 days

(iii) Increase of additional interest

155. In Indonesia, the annual interest rate on bank loan is generally 15%. Additional interest is calculated as: 15%/year × 4.9days ÷ 365 days = 0.20%

(iv) Affected cargo volume in Without case

156. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. The Study Team assumes that 10% of the trade cargo volume with the United States and EU countries will be affected in case the port fails to comply with the ISPS Code.

157. Table 19-10-2-2 shows Increase of Working Capital Interest of Foreign Trade Cargo Owners at Kupang Port. Increase of Working Capital Interest is calculated by multiplying the projected cargo volume and additional interest.

Table 19-10-2-2 Increase of Working Capital Interest of Foreign Trade Cargo Owners at Kupang Port

	Foreign Cargo Volume	Cargo Value	Total interest
	ton	Rp	Rp
2005	700	4,967,165,700	9,934,331
2006	742	5,265,195,642	10,530,391
2007	787	5,581,107,381	11,162,215
2008	834	5,915,973,823	11,831,948
2009	884	6,270,932,253	12,541,865
2010	928	6,584,478,865	13,168,958
2011	974	6,913,702,809	13,827,406
2012	1,023	7,259,387,949	14,518,776
2013	1,074	7,622,357,347	15,244,715
2014	1,128	8,003,475,214	16,006,950
2015	1,184	8,403,648,975	16,807,298
2016	1,244	8,823,831,423	17,647,663
2017	1,306	9,265,022,994	18,530,046
2018	1,371	9,728,274,144	19,456,548
2019	1,440	10,214,687,851	20,429,376
2020	1,511	10,725,422,244	21,450,844
2021	1,587	11,261,693,356	22,523,387
2022	1,666	11,824,778,024	23,649,556
2023	1,750	12,416,016,925	24,832,034
2024	1,837	13,036,817,771	26,073,636
2025	1,929	13,688,658,660	27,377,317
2026	2,026	14,373,091,593	28,746,183
2027	2,127	15,091,746,173	30,183,492
2028	2,233	15,846,333,481	31,692,667
2029	2,345	16,638,650,155	33,277,300
2030	2,462	17,470,582,663	34,941,165
2031	2,585	18,344,111,796	36,688,224
2032	2,714	19,261,317,386	38,522,635
2033	2,850	20,224,383,255	40,448,767
2034	2,993	21,235,602,418	42,471,205
2035	3,142	22,297,382,539	44,594,765

Source:JICA Study team

(b) Savings in sea transportation cost

(i) Examination of Domestic Ocean Freight

158. The ocean freight between Kupang port and an alternative port is calculated as same method of Belawn port. Result of calculation, the weighted average ocean freight between Kupang port and an alternative port (Tg.Perak port) is 235 thosand rupiahs/ton.

(ii) Increase of ocean freight

159. Table 19-10-2-3 shows the annual increase of ocean freight between Kupang port and an alternative port in case Kupang port fails to meet standard security port facility development.

Table 19-10-2-3 Increase of Ocean Freight between Kupang Port and Alternative Port

	Cargo Volume	Ocean freight	Total freight
	ton	Rp/ton	Rp
2005	700	235,000	1,645,000,000
2006	742	235,000	1,743,700,000
2007	787	235,000	1,848,322,000
2008	834	235,000	1,959,221,320
2009	884	235,000	2,076,774,599
2010	928	235,000	2,180,613,329
2011	974	235,000	2,289,643,996
2012	1,023	235,000	2,404,126,195
2013	1,074	235,000	2,524,332,505
2014	1,128	235,000	2,650,549,130
2015	1,184	235,000	2,783,076,587
2016	1,244	235,000	2,922,230,416
2017	1,306	235,000	3,068,341,937
2018	1,371	235,000	3,221,759,034
2019	1,440	235,000	3,382,846,986
2020	1,511	235,000	3,551,989,335
2021	1,587	235,000	3,729,588,802
2022	1,666	235,000	3,916,068,242
2023	1,750	235,000	4,111,871,654
2024	1,837	235,000	4,317,465,237
2025	1,929	235,000	4,533,338,498
2026	2,026	235,000	4,760,005,423
2027	2,127	235,000	4,998,005,694
2028	2,233	235,000	5,247,905,979
2029	2,345	235,000	5,510,301,278
2030	2,462	235,000	5,785,816,342
2031	2,585	235,000	6,075,107,159
2032	2,714	235,000	6,378,862,517
2033	2,850	235,000	6,697,805,643
2034	2,993	235,000	7,032,695,925
2035	3,142	235,000	7,384,330,721

Source:JICA Study team

(c) Total Benefit

160. Table 19-10-2-4 shows annual total benefit of Kupang port to comply with ISPS code.

Table 19-10-2-4 Annual Total Benefit of Kupang Port to Comply with ISPS Code

	Total Benefit Rp
2005	174,434,331
2006	184,900,391
2007	195,994,415
2008	207,754,080
2009	220,219,324
2010	231,230,291
2011	242,791,805
2012	254,931,395
2013	267,677,965
2014	281,061,863
2015	295,114,957
2016	309,870,704
2017	325,364,240
2018	341,632,452
2019	358,714,074
2020	376,649,778
2021	395,482,267
2022	415,256,380
2023	436,019,199
2024	457,820,159
2025	480,711,167
2026	504,746,726
2027	529,984,062
2028	556,483,265
2029	584,307,428
2030	613,522,800
2031	644,198,940
2032	676,408,886
2033	710,229,331
2034	745,740,797
2035	783,027,837

Source:JICA Study team

(2) Implementation Cost

161. Implementation cost is composed of capital cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost in annual. Table 19-10-2-5 shows implementation cost for port security facility development at Kupang port.

Table 19-10-2-5 Implementation Cost for Port Security Facility Development at Kupang Port

Unit:Rupiah

year	Initial Investment	Maintenance	Renewal	Total
2006	197,274,302			197,274,302
2007	4,931,857,561			4,931,857,561
2008	9,666,440,820			9,666,440,820
2009	4,931,857,561			4,931,857,561
2010		1,032,519,839		1,032,519,839
2011		1,032,519,839		1,032,519,839
2012		1,032,519,839		1,032,519,839
2013		1,032,519,839		1,032,519,839
2014		1,032,519,839		1,032,519,839
2015		1,032,519,839		1,032,519,839
2016		1,032,519,839		1,032,519,839
2017		1,032,519,839		1,032,519,839
2018		1,032,519,839		1,032,519,839
2019		1,032,519,839		1,032,519,839
2020		1,032,519,839		1,032,519,839
2021		1,032,519,839		1,032,519,839
2022		1,032,519,839		1,032,519,839
2023		1,032,519,839		1,032,519,839
2024		1,032,519,839	3,186,045,850	4,218,565,689
2025		1,032,519,839		1,032,519,839
2026		1,032,519,839		1,032,519,839
2027		1,032,519,839		1,032,519,839
2028		1,032,519,839		1,032,519,839
2029		1,032,519,839		1,032,519,839
2030		1,032,519,839		1,032,519,839
2031		1,032,519,839		1,032,519,839
2032		1,032,519,839		1,032,519,839
2033		1,032,519,839		1,032,519,839
2034		1,032,519,839		1,032,519,839
2035		1,032,519,839		1,032,519,839

(3) Evaluation of Projects

162. As total benefit till the year 2035 is much lower than implementation cost, project feasibility is relatively low from the view point of the national economy because of insufficient cargo volumes.

19-10-3 Financial Analysis

(1) Loan repayment capacity

163. Projected financial statement is shown in Table19-10-3-1. Debt service coverage ratio is lower than 1.75. Therefore, Bitung port has not enough financial capacity for loan repayment of port security facility development.

Table 19-10-3-1 Projected Financial Statement of Kupang Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179
Operating Expenses	5,547,677	5,547,677	5,547,677	5,547,677	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711
Personnel & Administration	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677
Maintenance					629,195	629,195	629,195	629,195	629,195	629,195	629,195	629,195	629,195	629,195
Depreciation					625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839
Net Operating Income	-5,547,677	-5,547,677	-5,547,677	-5,547,677	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532
Interest on Long-term Loans		2,219	57,703	166,450	221,934	221,934	221,934	221,934	221,934	221,934	221,934	221,934	210,837	199,740
Net Surplus	-5,547,677	-5,549,896	-5,605,379	-5,714,127	-2,218,466	-2,218,466	-2,218,466	-2,218,466	-2,218,466	-2,218,466	-2,218,466	-2,218,466	-2,207,369	-2,196,272
Accumulated Earnings	-5,547,677	-11,097,572	-16,702,952	-22,417,078	-24,635,544	-26,854,010	-29,072,475	-31,290,941	-33,509,406	-35,727,872	-37,946,337	-40,164,803	-42,372,172	-44,568,444

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-5,547,677	-11,097,572	-16,702,952	-22,417,078	-24,009,705	-25,602,331	-27,194,958	-28,787,584	-30,380,211	-31,972,837	-34,305,243	-36,637,648	-38,958,957
Cash Inflow	-5,350,402	-615,819	4,118,764	-615,819	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693
Net Operating Income	-5,547,677	-5,547,677	-5,547,677	-5,547,677	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532
Depreciation					625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839
Capital	49,319	1,232,964	2,416,610	1,232,964										
Long-term Loans	147,956	3,698,893	7,249,831	3,698,893										
Cash Outflow	197,274	4,934,077	9,724,144	5,098,308	221,934	221,934	221,934	221,934	221,934	221,934	961,713	961,713	950,616	939,519
Investment	197,274	4,931,858	9,666,441	4,931,858										
Repayment of principal											739,779	739,779	739,779	739,779
Interest on Long-term Loans		2,219	57,703	166,450	221,934	221,934	221,934	221,934	221,934	221,934	221,934	221,934	210,837	199,740
Cash Balance	-5,547,677	-5,549,896	-5,605,379	-5,714,127	-1,592,626	-1,592,626	-1,592,626	-1,592,626	-1,592,626	-1,592,626	-2,332,405	-2,332,405	-2,321,309	-2,310,212
Cash Ending	-5,547,677	-11,097,572	-16,702,952	-22,417,078	-24,009,705	-25,602,331	-27,194,958	-28,787,584	-30,380,211	-31,972,837	-34,305,243	-36,637,648	-38,958,957	-41,269,169

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-5,547,677	-11,097,572	-16,702,952	-22,417,078	-24,009,705	-25,602,331	-27,194,958	-28,787,584	-30,380,211	-31,972,837	-34,305,243	-36,637,648	-38,958,957	-41,269,169
Cash & Deposit	-5,547,677	-11,097,572	-16,702,952	-22,417,078	-24,009,705	-25,602,331	-27,194,958	-28,787,584	-30,380,211	-31,972,837	-34,305,243	-36,637,648	-38,958,957	-41,269,169
Fixed Assets	197,274	5,129,132	14,795,573	19,727,430	19,101,591	18,475,752	17,849,913	17,224,074	16,598,235	15,972,395	15,346,556	14,720,717	14,094,878	13,469,039
Total Assets	-5,350,402	-5,968,441	-1,907,379	-2,689,648	-4,908,114	-7,126,579	-9,345,045	-11,563,510	-13,781,976	-16,000,442	-18,958,686	-21,916,931	-24,864,079	-27,800,130
Liabilities	197,274	5,129,132	14,795,573	19,727,430	19,727,430	19,727,430	19,727,430	19,727,430	19,727,430	19,727,430	18,987,651	18,247,872	17,508,093	16,768,314
Capital	49,319	1,282,283	3,698,893	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858
Long-term Loans	147,956	3,846,849	11,096,680	14,795,573	14,795,573	14,795,573	14,795,573	14,795,573	14,795,573	14,795,573	14,055,794	13,316,015	12,576,236	11,836,457
Net Worth	-5,547,677	-11,097,572	-16,702,952	-22,417,078	-24,635,544	-26,854,010	-29,072,475	-31,290,941	-33,509,406	-35,727,872	-37,946,337	-40,164,803	-42,372,172	-44,568,444
Total Liabilities & Net Worth	-5,350,402	-5,968,441	-1,907,379	-2,689,648	-4,908,114	-7,126,579	-9,345,045	-11,563,510	-13,781,976	-16,000,442	-18,958,686	-21,916,931	-24,864,079	-27,800,130

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					-10.5%	-10.8%	-11.2%	-11.6%	-12.0%	-12.5%	-13.0%	-13.6%	-14.2%	-14.8%
Debt Service Coverage Ratio					-6.18	-6.18	-6.18	-6.18	-6.18	-6.18	-1.43	-1.43	-1.44	-1.46
Operating Ratio					141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%
Working Ratio					128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179	4,806,179
6,802,711	6,802,711	6,802,711	9,988,756	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711	6,802,711
5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677	5,547,677
629,195	629,195	629,195	3,815,241	629,195	629,195	629,195	629,195	629,195	629,195	629,195	629,195	629,195	629,195	629,195	629,195
625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839
-1,996,532	-1,996,532	-1,996,532	-5,182,578	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532
188,644	177,547	166,450	155,354	144,257	133,160	122,063	110,967	99,870	88,773	77,677	66,580	55,483	44,387	33,290	22,193
-2,185,176	-2,174,079	-2,162,982	-5,337,931	-2,140,789	-2,129,692	-2,118,595	-2,107,499	-2,096,402	-2,085,305	-2,074,209	-2,063,112	-2,052,015	-2,040,919	-2,029,822	-2,018,725
-46,753,620	-48,927,699	-51,090,681	-56,428,612	-58,569,401	-60,699,093	-62,817,689	-64,925,187	-67,021,589	-69,106,895	-71,181,104	-73,244,216	-75,296,231	-77,337,150	-79,366,972	-81,385,697

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-41,269,169	-43,568,284	-45,856,303	-48,133,225	-53,585,096	-58,290,629	-60,534,261	-62,766,797	-64,988,235	-67,198,577	-69,397,823	-71,585,971	-73,763,023	-75,928,978	-78,083,837	-80,227,599
-1,370,693	-1,370,693	-1,370,693	-4,556,739	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693	-1,370,693
-1,996,532	-1,996,532	-1,996,532	-5,182,578	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532	-1,996,532
625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839	625,839
928,423	917,326	906,229	895,133	3,334,840	872,939	861,842	850,746	839,649	828,552	817,456	806,359	795,262	784,166	773,069	761,972
				2,450,805											
739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779	739,779
188,644	177,547	166,450	155,354	144,257	133,160	122,063	110,967	99,870	88,773	77,677	66,580	55,483	44,387	33,290	22,193
-2,299,115	-2,288,019	-2,276,922	-5,451,871	-4,705,533	-2,243,632	-2,232,535	-2,221,439	-2,210,342	-2,199,245	-2,188,149	-2,177,052	-2,165,955	-2,154,859	-2,143,762	-2,132,665
-43,568,284	-45,856,303	-48,133,225	-53,585,096	-58,290,629	-60,534,261	-62,766,797	-64,988,235	-67,198,577	-69,397,823	-71,585,971	-73,763,023	-75,928,978	-78,083,837	-80,227,599	-82,360,264

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-43,568,284	-45,856,303	-48,133,225	-53,585,096	-58,290,629	-60,534,261	-62,766,797	-64,988,235	-67,198,577	-69,397,823	-71,585,971	-73,763,023	-75,928,978	-78,083,837	-80,227,599	-82,360,264
-43,568,284	-45,856,303	-48,133,225	-53,585,096	-58,290,629	-60,534,261	-62,766,797	-64,988,235	-67,198,577	-69,397,823	-71,585,971	-73,763,023	-75,928,978	-78,083,837	-80,227,599	-82,360,264
12,843,200	12,217,361	11,591,522	10,965,682	12,790,648	12,164,809	11,538,969	10,913,130	10,287,291	9,661,452	9,035,613	8,409,774	7,783,935	7,158,096	6,532,256	5,906,417
-30,725,084	-33,638,942	-36,541,704	-42,619,414	-45,499,982	-48,369,453	-51,227,827	-54,075,105	-56,911,286	-59,736,371	-62,550,358	-65,353,249	-68,145,044	-70,925,742	-73,695,343	-76,453,847
16,028,535	15,288,756	14,548,977	13,809,198	13,069,419	12,329,640	11,589,861	10,850,082	10,110,303	9,370,524	8,630,745	7,890,966	7,151,187	6,411,408	5,671,629	4,931,850
4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858	4,931,858
11,096,678	10,356,899	9,617,120	8,877,341	8,137,562	7,397,783	6,658,004	5,918,225	5,178,446	4,438,667	3,698,888	2,959,109	2,219,330	1,479,551	739,772	-7
-46,753,620	-48,927,699	-51,090,681	-56,428,612	-58,569,401	-60,699,093	-62,817,689	-64,925,187	-67,021,589	-69,106,895	-71,181,104	-73,244,216	-75,296,231	-77,337,150	-79,366,972	-81,385,697
-30,725,084	-33,638,942	-36,541,704	-42,619,414	-45,499,982	-48,369,453	-51,227,827	-54,075,105	-56,911,286	-59,736,371	-62,550,358	-65,353,249	-68,145,044	-70,925,742	-73,695,343	-76,453,847

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-15.5%	-16.3%	-17.2%	-47.3%	-15.6%	-16.4%	-17.3%	-18.3%	-19.4%	-20.7%	-22.1%	-23.7%	-25.6%	-27.9%	-30.6%	-33.8%
-1.48	-1.49	-1.51	-5.09	-1.55	-1.57	-1.59	-1.61	-1.63	-1.65	-1.68	-1.70	-1.72	-1.75	-1.77	-1.80
141.5%	141.5%	141.5%	207.8%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%	141.5%
128.5%	128.5%	128.5%	194.8%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%	128.5%

19-10-4 Feasibility of the Project

164. Project is not in the view points of national economy because of insufficient cargo volumes.

19-11 BANJARMASIN PORT

19-11-1 Demand Forecast

(1) Foreign Trade Cargo Volume

165. In Banjarmasin port, Trisakti Wharf is only one public berth. However, there is no discrimination of cargo data which is handled at Trisakti Wharf or others. The Study Team assumes that all import cargo volume is handled at Trisakti Wharf. Table 19-11-1-1 shows estimated foreign trade cargo volume at Banjarmasin port in 2004.

Table 19-11-1-1 Estimated Foreign Trade Cargo Volume Throughput at Banjarmasin Port in 2004

		2004
Import Cargo Volume	ton	16,478
Export Cargo Volume	ton	1,587,600
Total	ton	1,604,078

(2) Estimation of Foreign Trade Cargo Volume Handling Capacity

166. Banjarmasin Port operates 14 hours in a day. There is Trisakti Wharf to handle foreign trade cargo at Banjarmasin port. The Study Team estimates annual cargo handling capacity of this foreign trade wharf.

167. According to Lloyd's List on Ports of the World 2003, hourly general cargo handling capacity, and hourly coal handling capacity are 12 t/h and 350 t/h respectively. Table 19-11-1-2 shows annual cargo handling capacity of Trisakti Wharf at Banjarmasin Port.

Table 19-11-1-2 Annual Cargo Handling Capacity of Triskati Wharf at Banjarmasin Port

Cargo type	Handling capacity	Work hours	Gangs	Efficiency	Working days	Annual capacity
	ton/hour/gang	hours/day			day/year	ton
Coal Berth	350	24	2	0.7	350	4,116,000
Conventional Berth	12	24	2	0.7	350	141,120
Container	100	24	2	0.7	350	1,176,000
New Container Berth	200	24	2	0.7	350	2,352,000
Total						7,785,120

168. Total annual cargo handling capacity for foreign trade cargo is 7.8 million tons.

(3) Demand Forecast of Future Foreign Trade Cargo Volume

169. To project the future cargo volume, the Study Team adopts the GDP growth rate forecasted by the World Bank which is 6% per annum from 2006 to 2009. Study team projects the annual average growth rate will slow down to 5% from 2010 until 2020. Table 19-11-1-3 and Figure 19-11-1-1 shows the result of foreign trade cargo volume projection at Banjarmasin port.

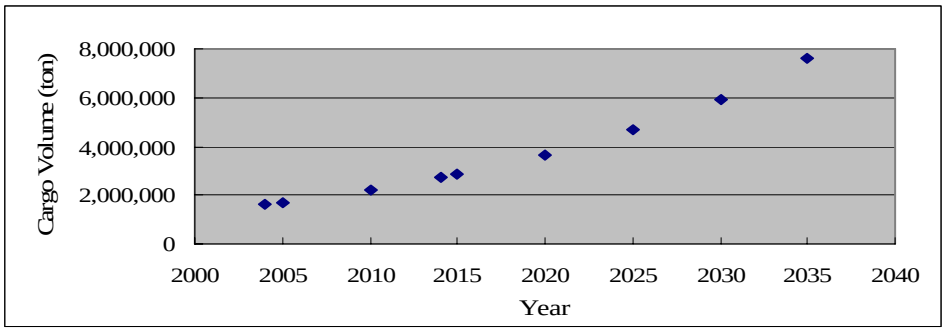


Figure 19-11-1-1 Future Foreign Trade Cargo Volume Projection at Banjarmasin Port

Table 19-11-1-3 Future Foreign Trade Cargo Volume Projection at Banjarmasin Port

Year	Cargo Volume (ton)
2010	2,200,000
2015	2,900,000
2020	3,700,000
2025	4,700,000
2030	6,000,000
2035	7,600,000

19-11-2 Economic Analysis

(1) Calculation of Benefits

(a) Saving in working capital interest of cargo owners

170. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

171. Table 19-11-1-1 shows international cargo volume and value at Banjarmasin port from 1999 to 2004. The average unit values of export cargo and import cargo from 1999 to 2004 are 52US$/ton and 712.7 US$/ton respectively. Average unit rate of foreign trade cargo is 59.2 US$/ton.

Table 19-11-2-1 Average Value of International Cargo at Banjarmasin Port 1999 -2004

	unit	1999	2000	2001	2002	2003	2004	Average
Export ave.value	US$/ton	66.8	63.3	53.2	50.9	44.0	44.8	52.0
Import ave.value	US$/ton	661.3	557.3	716.5	685.1	1029.4	868.4	712.7

Source:BPS

(ii) Increase of transport time

172. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS Code.

Cargo unloading from foreign trade vessel at alternative port		1 day
Waiting time for domestic trade vessel		1 day
Cargo loading to domestic trade vessel at alternative port		1 day
Transportation time from alternative port to Pontianak 246 mile / 15 knot/h	=	0.7 days
Total		3.7 days

(iii) Increase of additional interest

173. In Indonesia, the annual interest rate on bank loan is generally 15%. Additional interest is calculated as: 15%/year × 3.7days ÷ 365 days = 0.15%

(iv) Affected cargo volume in Without case

174. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. The Study Team assumes that 10% of the trade cargo with the United States and EU countries will be affected in case the port fails to comply with the ISPS Code.

175. Table 19-11-2-2 shows increase of working capital interest of foreign trade cargo owners at Banjarmasin Port. Increase of working capital interest is calculated by multiplying the projected cargo volume and additional interest.

Table 19-11-2-2 Increase of Working Capital Interest of Foreign Trade Cargo Owners at Banjarmasin Port

	Foreign Cargo Volume	Cargo Value	Total interest
	ton	Rp	Rp
2005	17,103	9,891,890,361	14,837,836
2006	18,164	10,506,050,222	15,759,075
2007	19,226	11,120,210,083	16,680,315
2008	20,288	11,734,369,945	17,601,555
2009	21,350	12,348,529,806	18,522,795
2010	22,412	12,962,689,667	19,444,035
2011	23,650	13,678,960,098	20,518,440
2012	24,889	14,395,230,529	21,592,846
2013	26,127	15,111,500,960	22,667,251
2014	27,366	15,827,771,391	23,741,657
2015	28,604	16,544,041,823	24,816,063
2016	30,184	17,458,204,567	26,187,307
2017	31,765	18,372,367,312	27,558,551
2018	33,346	19,286,530,057	28,929,795
2019	34,926	20,200,692,802	30,301,039
2020	36,507	21,114,855,547	31,672,283
2021	38,524	22,281,584,604	33,422,377
2022	40,541	23,448,313,660	35,172,470
2023	42,558	24,615,042,717	36,922,564
2024	44,576	25,781,771,773	38,672,658
2025	46,593	26,948,500,830	40,422,751
2026	49,167	28,437,575,613	42,656,363
2027	51,742	29,926,650,396	44,889,976
2028	54,316	31,415,725,180	47,123,588
2029	56,891	32,904,799,963	49,357,200
2030	59,465	34,393,874,746	51,590,812
2031	62,751	36,294,353,437	54,441,530
2032	66,037	38,194,832,128	57,292,248
2033	69,323	40,095,310,819	60,142,966
2034	72,609	41,995,789,510	62,993,684
2035	75,895	43,896,268,201	65,844,402

Source:JICA Study team

(b) Savings in sea transportation cost

(i) Examination of Domestic Ocean Freight

176. The ocean freight between Banjarmasin port and an alternative port is calculated as same method of Belawn port. Result of calculation, the weighted average ocean freight between Banjarmasin port and an alternative port (Tg.Perak port) is 144 thousand rupiahs/ton.

(ii) Increase of ocean freight

177. Table 19-11-2-3 shows the annual increase of ocean freight between Banjarmasin port and an alternative port in case Banjarmsin port fails to meet standard security port facility development.

Table 19-11-2-3 Increase of Ocean Freight between Banjarmasin Port and Alternative Port

	Cargo Volume ton	Ocean freight Rp/ton	Total freight Rp
2005	17,103	144,000	2,462,779,420
2006	18,164	144,000	2,615,686,520
2007	19,226	144,000	2,768,593,619
2008	20,288	144,000	2,921,500,719
2009	21,350	144,000	3,074,407,819
2010	22,412	144,000	3,227,314,919
2011	23,650	144,000	3,405,644,441
2012	24,889	144,000	3,583,973,962
2013	26,127	144,000	3,762,303,484
2014	27,366	144,000	3,940,633,006
2015	28,604	144,000	4,118,962,527
2016	30,184	144,000	4,346,561,208
2017	31,765	144,000	4,574,159,889
2018	33,346	144,000	4,801,758,569
2019	34,926	144,000	5,029,357,250
2020	36,507	144,000	5,256,955,930
2021	38,524	144,000	5,547,435,930
2022	40,541	144,000	5,837,915,930
2023	42,558	144,000	6,128,395,929
2024	44,576	144,000	6,418,875,929
2025	46,593	144,000	6,709,355,929
2026	49,167	144,000	7,080,090,197
2027	51,742	144,000	7,450,824,465
2028	54,316	144,000	7,821,558,732
2029	56,891	144,000	8,192,293,000
2030	59,465	144,000	8,563,027,268
2031	62,751	144,000	9,036,188,579
2032	66,037	144,000	9,509,349,889
2033	69,323	144,000	9,982,511,200
2034	72,609	144,000	10,455,672,511
2035	75,895	144,000	10,928,833,821

Source:JICA Study team

(c) Total Benefit

178. Table 19-11-2-4 shows annual total benefit of Banjarmasin port to comply with ISPS code.

Table 19-11-2-4 Annual Total Benefit of Banjarmasin Port to Comply with ISPS Code

	Total Benefit Rp
2005	2,477,617,255
2006	2,631,445,595
2007	2,785,273,935
2008	2,939,102,274
2009	3,092,930,614
2010	3,246,758,953
2011	3,426,162,881
2012	3,605,566,808
2013	3,784,970,735
2014	3,964,374,663
2015	4,143,778,590
2016	4,372,748,515
2017	4,601,718,440
2018	4,830,688,364
2019	5,059,658,289
2020	5,288,628,214
2021	5,580,858,307
2022	5,873,088,400
2023	6,165,318,493
2024	6,457,548,587
2025	6,749,778,680
2026	7,122,746,560
2027	7,495,714,440
2028	7,868,682,320
2029	8,241,650,200
2030	8,614,618,080
2031	9,090,630,109
2032	9,566,642,138
2033	10,042,654,166
2034	10,518,666,195
2035	10,994,678,224

(2) Implementation Cost

179. Implementation cost is composed of capital cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost per annum. Table 19-11-2-5 shows implementation cost for port security facility development at Banjarmasin port.

Table 19-11-2-5 Implementation Cost for Port Security Facility Development at Banjarmasin Port

unit:Rupiah

year	Initial Investment	Maintenance	Renewal	Total
2006	67,346,999			67,346,999
2007	1,683,674,985			1,683,674,985
2008	3,300,002,970			3,300,002,970
2009	1,683,674,985			1,683,674,985
2010		649,149,312		649,149,312
2011		649,149,312		649,149,312
2012		649,149,312		649,149,312
2013		649,149,312		649,149,312
2014		649,149,312		649,149,312
2015		649,149,312		649,149,312
2016		649,149,312		649,149,312
2017		649,149,312		649,149,312
2018		649,149,312		649,149,312
2019		649,149,312		649,149,312
2020		649,149,312		649,149,312
2021		649,149,312		649,149,312
2022		649,149,312		649,149,312
2023		649,149,312		649,149,312
2024		649,149,312		649,149,312
2025		649,149,312		649,149,312
2026		649,149,312		649,149,312
2027		649,149,312		649,149,312
2028		649,149,312		649,149,312
2029		649,149,312		649,149,312
2030		649,149,312		649,149,312
2031		649,149,312		649,149,312
2032		649,149,312		649,149,312
2033		649,149,312		649,149,312
2034		649,149,312		649,149,312
2035		649,149,312		649,149,312

(3) Evaluation of Projects

180. The result of the EIRR calculation is shown in Table 19-11-2-6, and indicates that the project is feasible.

Table 19-11-2-6 EIRR Calculation for Banjarmasin Port

Rupiah

	Benefit	Cost(2)				Benefit	Net Present Value		
Year	(1)	Investment	Maintenance	Renewal	Total	(1)-(2)	Revenue	Cost	Difference
2006		67,346,999			67,346,999	-67,346,999	0	67,346,999	-67,346,999
2007		1,683,674,985			1,683,674,985	-1,683,674,985	0	1,255,946,334	-1,255,946,334
2008		3,300,002,970			3,300,002,970	-3,300,002,970	0	1,836,284,536	-1,836,284,536
2009		1,683,674,985			1,683,674,985	-1,683,674,985	0	698,870,532	-698,870,532
2010	3,246,758,953		649,149,312		649,149,312	2,597,609,641	1,005,313,094	200,999,924	804,313,170
2011	3,426,162,881		649,149,312		649,149,312	2,777,013,569	791,356,403	149,936,965	641,419,438
2012	3,605,566,808		649,149,312		649,149,312	2,956,417,496	621,227,232	111,846,279	509,380,954
2013	3,784,970,735		649,149,312		649,149,312	3,135,821,423	486,465,771	83,432,328	403,033,443
2014	3,964,374,663		649,149,312		649,149,312	3,315,225,351	380,081,977	62,236,790	317,845,187
2015	4,143,778,590		649,149,312		649,149,312	3,494,629,278	296,354,789	46,425,865	249,928,923
2016	4,372,748,515		649,149,312		649,149,312	3,723,599,203	233,282,806	34,631,622	198,651,185
2017	4,601,718,440		649,149,312		649,149,312	3,952,569,128	183,130,675	25,833,643	157,297,032
2018	4,830,688,364		649,149,312		649,149,312	4,181,539,052	143,404,539	19,270,744	124,133,795
2019	5,059,658,289		649,149,312		649,149,312	4,410,508,977	112,043,815	14,375,114	97,668,701
2020	5,288,628,214		649,149,312		649,149,312	4,639,478,902	87,361,998	10,723,193	76,638,805
2021	5,580,858,307		649,149,312		649,149,312	4,931,708,995	68,769,100	7,999,023	60,770,077
2022	5,873,088,400		649,149,312		649,149,312	5,223,939,088	53,984,826	5,966,914	48,017,912
2023	6,165,318,493		649,149,312		649,149,312	5,516,169,181	42,274,016	4,451,051	37,822,965
2024	6,457,548,587		649,149,312		649,149,312	5,808,399,275	33,029,234	3,320,285	29,708,948
2025	6,749,778,680		649,149,312		649,149,312	6,100,629,368	25,753,317	2,476,785	23,276,532
2026	7,122,746,560		649,149,312		649,149,312	6,473,597,248	20,272,343	1,847,571	18,424,773
2027	7,495,714,440		649,149,312		649,149,312	6,846,565,128	15,914,109	1,378,205	14,535,903
2028	7,868,682,320		649,149,312		649,149,312	7,219,533,008	12,461,896	1,028,080	11,433,816
2029	8,241,650,200		649,149,312		649,149,312	7,592,500,888	9,736,640	766,901	8,969,738
2030	8,614,618,080		649,149,312		649,149,312	7,965,468,768	7,591,783	572,074	7,019,709
2031	9,090,630,109		649,149,312		649,149,312	8,441,480,797	5,976,055	426,742	5,549,313
2032	9,566,642,138		649,149,312		649,149,312	8,917,492,826	4,691,297	318,330	4,372,967
2033	10,042,654,166		649,149,312		649,149,312	9,393,504,854	3,673,624	237,460	3,436,164
2034	10,518,666,195		649,149,312		649,149,312	9,869,516,883	2,870,250	177,135	2,693,115
2035	10,994,678,224		649,149,312		649,149,312	10,345,528,912	2,237,971	132,135	2,105,836
Total	166,708,329,352	6,734,699,940	16,877,882,112	0	23,612,582,052	143,095,747,300	4,649,259,559	4,649,259,559	0

EIRR= 34.06%

19-11-3 Financial Analysis

(1) Loan repayment capacity

181. Projected financial statement is shown in Table19-11-3-1. Debt service coverage ratio is more than 50 through the repayment period. Therefore, Banjarmsin port has enough financial capacity for loan repayment of port security facility development.

Table 19-11-3-1 Projected Financial Statement of Banjarmasin Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675
Operating Expenses	42,931,905	42,931,905	42,931,905	42,931,905	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358
Personnel & Administration	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905
Maintenance					214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799
Depreciation					213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654
Net Operating Income	-42,931,905	-42,931,905	-42,931,905	-42,931,905	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317
Interest on Long-term Loans		758	19,699	56,824	75,765	75,765	75,765	75,765	75,765	75,765	75,765	75,765	71,977	68,189
Net Surplus	-42,931,905	-42,932,662	-42,951,604	-42,988,729	14,510,552	14,510,552	14,510,552	14,510,552	14,510,552	14,510,552	14,510,552	14,510,552	14,514,340	14,518,129
Accumulated Earnings	-42,931,905	-85,864,567	-128,816,171	-171,804,899	-157,294,347	-142,783,795	-128,273,243	-113,762,691	-99,252,139	-84,741,587	-70,231,035	-55,720,483	-41,206,143	-26,688,015

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-42,931,905	-85,864,567	-128,816,171	-171,804,899	-157,080,694	-142,356,488	-127,632,282	-112,908,076	-98,183,871	-83,459,665	-68,936,522	-54,413,380	-39,886,449
Cash Inflow	-42,864,558	-41,248,230	-39,631,902	-41,248,230	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971
Net Operating Income	-42,931,905	-42,931,905	-42,931,905	-42,931,905	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317
Depreciation					213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654
Capital	16,837	420,919	825,001	420,919										
Long-term Loans	50,510	1,262,756	2,475,002	1,262,756										
Cash Outflow	67,347	1,684,433	3,319,702	1,740,499	75,765	75,765	75,765	75,765	75,765	75,765	276,828	276,828	273,040	269,252
Investment	67,347	1,683,675	3,300,003	1,683,675										
Repayment of principal											201,063	201,063	201,063	201,063
Interest on Long-term Loans		758	19,699	56,824	75,765	75,765	75,765	75,765	75,765	75,765	75,765	75,765	71,977	68,189
Cash Balance	-42,931,905	-42,932,662	-42,951,604	-42,988,729	14,724,206	14,724,206	14,724,206	14,724,206	14,724,206	14,724,206	14,523,143	14,523,143	14,526,931	14,530,719
Cash Ending	-42,931,905	-85,864,567	-128,816,171	-171,804,899	-157,080,694	-142,356,488	-127,632,282	-112,908,076	-98,183,871	-83,459,665	-68,936,522	-54,413,380	-39,886,449	-25,355,730

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-42,931,905	-85,864,567	-128,816,171	-171,804,899	-157,080,694	-142,356,488	-127,632,282	-112,908,076	-98,183,871	-83,459,665	-68,936,522	-54,413,380	-39,886,449	-25,355,730
Cash & Deposit	-42,931,905	-85,864,567	-128,816,171	-171,804,899	-157,080,694	-142,356,488	-127,632,282	-112,908,076	-98,183,871	-83,459,665	-68,936,522	-54,413,380	-39,886,449	-25,355,730
Fixed Assets	67,347	1,751,022	5,051,025	6,734,700	6,521,046	6,307,393	6,093,739	5,880,085	5,666,431	5,452,778	5,239,124	5,025,470	4,811,816	4,598,163
Total Assets	-42,864,558	-84,113,545	-123,765,146	-165,070,199	-150,559,647	-136,049,095	-121,538,543	-107,027,991	-92,517,439	-78,006,887	-63,697,398	-49,387,909	-35,074,632	-20,757,567
Liabilities	67,347	1,751,022	5,051,025	6,734,700	6,734,700	6,734,700	6,734,700	6,734,700	6,734,700	6,734,700	6,533,637	6,332,574	6,131,511	5,930,448
Capital	16,837	437,755	1,262,756	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675
Long-term Loans	50,510	1,313,266	3,788,269	5,051,025	5,051,025	5,051,025	5,051,025	5,051,025	5,051,025	5,051,025	4,849,962	4,648,899	4,447,836	4,246,773
Net Worth	-42,931,905	-85,864,567	-128,816,171	-171,804,899	-157,294,347	-142,783,795	-128,273,243	-113,762,691	-99,252,139	-84,741,587	-70,231,035	-55,720,483	-41,206,143	-26,688,015
Total Liabilities & Net Worth	-42,864,558	-84,113,545	-123,765,146	-165,070,199	-150,559,647	-136,049,095	-121,538,543	-107,027,991	-92,517,439	-78,006,887	-63,697,398	-49,387,909	-35,074,632	-20,757,567

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					223.7%	231.3%	239.4%	248.1%	257.4%	267.5%	278.4%	290.2%	303.1%	317.2%
Debt Service Coverage Ratio					195.34	195.34	195.34	195.34	195.34	195.34	53.46	53.46	54.20	54.97
Operating Ratio					74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%
Working Ratio					74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675	57,946,675
43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358	43,360,358
42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905	42,931,905
214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799	214,799
213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654
14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317
64,401	60,612	56,824	53,036	49,247	45,459	41,671	37,883	34,094	30,306	26,518	22,730	18,941	15,153	11,365	7,577
14,521,917	14,525,705	14,529,493	14,533,282	14,537,070	14,540,858	14,544,646	14,548,435	14,552,223	14,556,011	14,559,799	14,563,588	14,567,376	14,571,164	14,574,953	14,578,741
-12,166,098	2,359,607	16,889,101	31,422,382	45,959,452	60,500,310	75,044,956	89,593,391	104,145,614	118,701,625	133,261,425	147,825,012	162,392,388	176,963,553	191,538,505	206,117,246

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-25,355,730	-10,821,222	3,717,074	18,259,158	32,805,030	47,354,691	61,908,139	76,465,377	91,026,402	105,591,216	120,159,817	134,732,208	149,308,386	163,888,353	178,472,108	193,059,651
14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971	14,799,971
14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317	14,586,317
213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654	213,654
265,464	261,675	257,887	254,099	250,311	246,522	242,734	238,946	235,157	231,369	227,581	223,793	220,004	216,216	212,428	208,640
201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063	201,063
64,401	60,612	56,824	53,036	49,247	45,459	41,671	37,883	34,094	30,306	26,518	22,730	18,941	15,153	11,365	7,577
14,534,507	14,538,296	14,542,084	14,545,872	14,549,661	14,553,449	14,557,237	14,561,025	14,564,814	14,568,602	14,572,390	14,576,178	14,579,967	14,583,755	14,587,543	14,591,332
-10,821,222	3,717,074	18,259,158	32,805,030	47,354,691	61,908,139	76,465,377	91,026,402	105,591,216	120,159,817	134,732,208	149,308,386	163,888,353	178,472,108	193,059,651	207,650,983

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-10,821,222	3,717,074	18,259,158	32,805,030	47,354,691	61,908,139	76,465,377	91,026,402	105,591,216	120,159,817	134,732,208	149,308,386	163,888,353	178,472,108	193,059,651	207,650,983
-10,821,222	3,717,074	18,259,158	32,805,030	47,354,691	61,908,139	76,465,377	91,026,402	105,591,216	120,159,817	134,732,208	149,308,386	163,888,353	178,472,108	193,059,651	207,650,983
4,384,509	4,170,855	3,957,202	3,743,548	3,529,894	3,316,240	3,102,587	2,888,933	2,675,279	2,461,626	2,247,972	2,034,318	1,820,664	1,607,011	1,393,357	1,179,703
-6,436,713	7,887,929	22,216,359	36,548,578	50,884,585	65,224,380	79,567,963	93,915,335	108,266,495	122,621,443	136,980,180	151,342,704	165,709,017	180,079,119	194,453,008	208,830,686
5,739,385	5,528,322	5,307,259	5,126,196	4,925,133	4,724,070	4,523,007	4,321,944	4,120,881	3,919,818	3,718,755	3,517,692	3,316,629	3,115,566	2,914,503	2,713,440
1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675	1,683,675
4,045,710	3,844,647	3,643,584	3,442,521	3,241,458	3,040,395	2,839,332	2,638,269	2,437,206	2,236,143	2,035,080	1,834,017	1,632,954	1,431,891	1,230,828	1,029,765
-12,166,098	2,359,607	16,889,101	31,422,382	45,959,452	60,500,310	75,044,956	89,593,391	104,145,614	118,701,625	133,261,425	147,825,012	162,392,388	176,963,553	191,538,505	206,117,246
-6,436,713	7,887,929	22,216,359	36,548,578	50,884,585	65,224,380	79,567,963	93,915,335	108,266,495	122,621,443	136,980,180	151,342,704	165,709,017	180,079,119	194,453,008	208,830,686

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
332.7%	349.7%	368.6%	389.6%	413.2%	439.8%	470.1%	504.9%	545.2%	592.5%	648.9%	717.0%	801.2%	907.7%	1046.8%	1236.4%
55.75	56.56	57.39	58.24	59.13	60.04	60.97	61.94	62.94	63.97	65.03	66.13	67.27	68.45	69.67	70.94
74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%
74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%	74.5%

19-11-4 Feasibility of the Project

182. Project is feasible in both view points of national economy and port management body.

19-12 BITUNG PORT

19-12-1 Demand Forecast

(1) Foreign Trade Cargo Volume

183. Table 19-12-1-1 shows foreign trade cargo volume throughput at Bitung port.

Table 19-12-1-1 Foreign Trade Cargo Volume Throughput at Bitungr Port 1998-2004

unit:ton

	1998	1999	2000	2001	2002	2003	2004
Import	142,286	59,698	72,727	51,796	144,722	92,491	10,615
Export	301,245	299,552	394,911	232,936	531,420	388,676	387,995
total	443,531	359,250	467,638	284,732	676,142	481,167	398,610

(2) Estimation of Foreign Trade Cargo Volume Handling Capacity

184. Bitung Port operates around the clock. Samudera Quay Wharf handles foreign trade cargo at Bitung port. In addition, the New container wharf which starts operation in May 2005 may be converted into a foreign trade wharf in future. Study team estimates annual cargo handling capacity of these two wharves.

185. Samudera Quay Wharf : Total length of Berth is 607 m with water depth of 15m. Table 19-12-1-2 shows annual cargo handling capacity of Samudera Quay Wharf at Bitung Port

Table 19-12-1-2 Foreign Annual Cargo Handling Capacity of Samudera Quay Wharf at Bitung Port

Cargo type	Handling capacity	Work hours	Gangs	Efficiency	Working days	Annual capacity
	ton/hour/gang	hours/day			day/year	ton
General Cargo	15	24	9	0.7	350	793,800
Total						793,800

186. New Container Wharf : Total length of Berth is 182 m with water depth of 12m. Estimated annual cargo handling capacity is 910 thousand tons.

187. Total annual cargo handling capacity for foreign trade cargo is 1.7 million tons.

(3) Demand Forecast of Future Foreign Trade Cargo Volume

188. Foreign trade cargo volume has fluctuated. Main export commodities are coconut products and marine products, the prices of which are easily influenced by international market price. Main import commodity is consumer goods. To project the future cargo volume, study team adopts the GDP growth rate forecasted by the World Bank which is 6% per annum from 2006 to 2009. Study team projects the annual average growth rate will slow down to 5% from 2010 until 2020. Table 19-12-1-3 and Figure19-12-1-1 show the result of foreign trade cargo volume projection at Bitung port. Annual foreign trade cargo volume will reach its annual handling capacity of 17,000,000 tons in year the 2031.

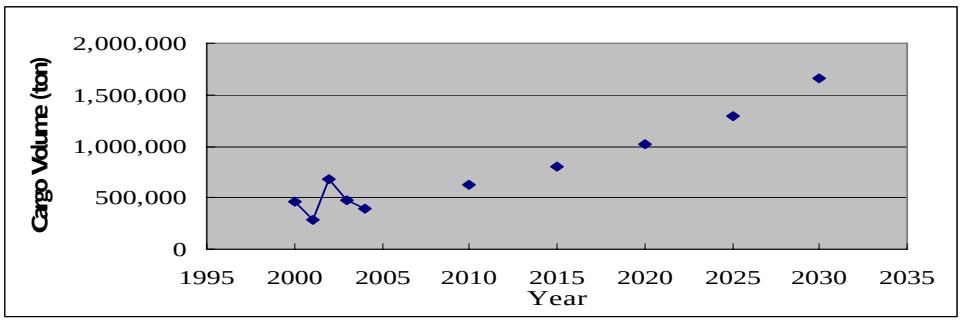


Figure 19-12-1-1 Future Foreign Trade Cargo Volume Projection at Bitung Port

Table 19-12-1-3 Future Foreign Trade Cargo Volume Projection at Bitung Port

Year	Cargo Volume (ton)
2010	620,000
2015	800,000
2020	1,020,000
2025	1,300,000
2030	1,660,000
2031	1,740,000

19-12-2 Economic Analysis

(1) Calculation of Benefits

(a) Saving in working capital interest of cargo owners

189. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

190. Table 19-12-2-1 shows international cargo volume and value at Bitung port from 1999 to 2004. The average unit values of export cargo and import cargo from 1999 to 2004 are 461.15US$/ton and 281.7 US$/ton respectively. Average unit rate of foreign trade cargo is 435.6 US$/ton.

Table 19-12-2-1 Average Value of International Cargo at Bitung Port 1999 -2004

	unit	1999	2000	2001	2002	2003	2004	Average
Export ave.value	US$/ton	595.7	500.1	606.7	414.7	428.6	410.6	461.1
Import ave.value	US$/ton	383.1	276.0	1500.0	197.5	269.7	329.9	281.7

Source:BPS

(ii) Increase of transport time

191. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS Code.

Cargo unloading from foreign trade vessel at alternative port	1 day
Waiting time for domestic trade vessel	1 day
Cargo loading to domestic trade vessel at alternative port	1 day
Transportation time from alternative port to Bitung 990 mile / 15 knot/h	= 2.8 days
Total	5.8 days

(iii) Increase of additional interest

192. In Indonesia, the annual interest rate on bank loan is generally 15%. Additional interest is calculated as: 15%/year × 5.8days ÷ 365 days = 0.24%

(iv) Affected cargo volume in Without case

193. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. The Study Team assumes that 10% of the trade cargo volume with the United States and EU countries will be affected in case the port fails to comply with the ISPS Code.

194. Table19-12-2-2 shows Increase of Working Capital Interest of Foreign Trade Cargo Owners at Bitung Port. Increase of Working Capital Interest is calculated by multiplying the projected cargo volume and additional interest.

Table 19-12-2-2 Increase of Working Capital Interest of Foreign Trade Cargo Owners at Bitung Port

	Foreign Cargo Volume	Cargo Value	Total interest
	ton	Rp	Rp
2005	4,363	18,566,317,615	44,559,162
2006	4,739	20,168,543,017	48,404,503
2007	5,116	21,770,768,419	52,249,844
2008	5,492	23,372,993,821	56,095,185
2009	5,868	24,975,219,222	59,940,526
2010	6,245	26,577,444,624	63,785,867
2011	6,590	28,046,016,210	67,310,439
2012	6,935	29,514,587,796	70,835,011
2013	7,280	30,983,159,381	74,359,583
2014	7,625	32,451,730,967	77,884,154
2015	7,970	33,920,302,552	81,408,726
2016	8,411	35,794,613,390	85,907,072
2017	8,851	37,668,924,228	90,405,418
2018	9,292	39,543,235,066	94,903,764
2019	9,732	41,417,545,904	99,402,110
2020	10,172	43,291,856,742	103,900,456
2021	10,734	45,684,005,107	109,641,612
2022	11,297	48,076,153,472	115,382,768
2023	11,859	50,468,301,837	121,123,924
2024	12,421	52,860,450,201	126,865,080
2025	12,983	55,252,598,566	132,606,237
2026	13,700	58,305,653,419	139,933,568
2027	14,418	61,358,708,272	147,260,900
2028	15,135	64,411,763,125	154,588,231
2029	15,852	67,464,817,977	161,915,563
2030	16,570	70,517,872,830	169,242,895
2031	17,000	72,348,804,000	173,637,130

Source:JICA Study team

(b) Savings in sea transportation cost

(i) Examination of Domestic Ocean Freight

195. The ocean freight between Bitung port and an alternative port is calculated as same method of Belawn port. Result of calculation, the weighted average ocean freight between Bitung port and an alternative port (Tg.Perak port) 346 thousand rupiahs/ton.

(ii) Increase of ocean freight

196. Table 19-12-2-3 shows the annual increase of ocean freight between Bitung port and an alternative port in case Bitung port fails to meet standard security port facility development.

Table 19-12-2-3 Increase of Ocean Freight between Bitung Port and Alternative Port

	Cargo Volume	Ocean freight	Total freight
	ton	Rp/ton	Rp
2005	4,363	346,000	1,509,452,460
2006	4,739	346,000	1,639,714,321
2007	5,116	346,000	1,769,976,181
2008	5,492	346,000	1,900,238,042
2009	5,868	346,000	2,030,499,902
2010	6,245	346,000	2,160,761,763
2011	6,590	346,000	2,280,157,490
2012	6,935	346,000	2,399,553,217
2013	7,280	346,000	2,518,948,945
2014	7,625	346,000	2,638,344,672
2015	7,970	346,000	2,757,740,399
2016	8,411	346,000	2,910,122,964
2017	8,851	346,000	3,062,505,530
2018	9,292	346,000	3,214,888,095
2019	9,732	346,000	3,367,270,660
2020	10,172	346,000	3,519,653,225
2021	10,734	346,000	3,714,136,284
2022	11,297	346,000	3,908,619,342
2023	11,859	346,000	4,103,102,401
2024	12,421	346,000	4,297,585,460
2025	12,983	346,000	4,492,068,518
2026	13,700	346,000	4,740,283,660
2027	14,418	346,000	4,988,498,802
2028	15,135	346,000	5,236,713,943
2029	15,852	346,000	5,484,929,085
2030	16,570	346,000	5,733,144,227
2031	17,000	346,000	5,882,000,000

Source:JICA Study team

(c) Total Benefit

197. Table 19-12-2-4 shows annual total benefit of Bitung port to comply with ISPS code.

Table 19-12-2-4 Annual Total Benefit of Bitung Port to Comply with ISPS Code

	Total Benefit Rp
2005	1,554,011,623
2006	1,688,118,824
2007	1,822,226,026
2008	1,956,333,227
2009	2,090,440,429
2010	2,224,547,630
2011	2,347,467,929
2012	2,470,388,228
2013	2,593,308,527
2014	2,716,228,826
2015	2,839,149,125
2016	2,996,030,036
2017	3,152,910,948
2018	3,309,791,859
2019	3,466,672,770
2020	3,623,553,682
2021	3,823,777,896
2022	4,024,002,111
2023	4,224,226,325
2024	4,424,450,540
2025	4,624,674,755
2026	4,880,217,228
2027	5,135,759,702
2028	5,391,302,175
2029	5,646,844,648
2030	5,902,387,122
2031	6,193,438,568

Source:JICA Study team

(2) Implementation Cost

198. Implementation cost is composed of capital cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost per annum. Table 19-12-2-5 shows implementation cost for port security facility development at Bitung port.

Table 19-12-2-5 Implementation Cost for Port Security Facility Development at Bitung Port

Unit:Rupiah

year	Initial Investment	Maintenance	Renewal	Total
2006	36,915,012			36,915,012
2007	922,875,302			922,875,302
2008	1,808,835,592			1,808,835,592
2009	922,875,302			922,875,302
2010		955,413,270		955,413,270
2011		955,413,270		955,413,270
2012		955,413,270		955,413,270
2013		955,413,270		955,413,270
2014		955,413,270		955,413,270
2015		955,413,270		955,413,270
2016		955,413,270		955,413,270
2017		955,413,270		955,413,270
2018		955,413,270		955,413,270
2019		955,413,270		955,413,270
2020		955,413,270		955,413,270
2021		955,413,270		955,413,270
2022		955,413,270		955,413,270
2023		955,413,270		955,413,270
2024		955,413,270	381,030,000	1,336,443,270
2025		955,413,270		955,413,270
2026		955,413,270		955,413,270
2027		955,413,270		955,413,270
2028		955,413,270		955,413,270
2029		955,413,270		955,413,270
2030		955,413,270		955,413,270
2031		955,413,270		955,413,270
2032		955,413,270		955,413,270
2033		955,413,270		955,413,270
2034		955,413,270		955,413,270
2035		955,413,270		955,413,270

(3) Evaluation of Projects

199. The result of the EIRR calculation is shown in Table 19-12-2-6, and indicates that the project is feasible.

Table 19-12-2-6 EIRR Calculation for Bitung Port

Rupiah

Year	Benefit (1)	Cost(2) Investment	Maintenance	Renewal	Total	Benefit (1)-(2)	Net Present Value Revenue	Cost	Difference
2006		36,915,012			36,915,012	-36,915,012	0	36,915,012	-36,915,012
2007		922,875,302			922,875,302	-922,875,302	0	693,645,489	-693,645,489
2008		1,808,835,592			1,808,835,592	-1,808,835,592	0	1,021,852,424	-1,021,852,424
2009		922,875,302			922,875,302	-922,875,302	0	391,856,135	-391,856,135
2010	2,224,547,630		955,413,270		955,413,270	1,269,134,360	709,937,110	304,908,435	405,028,675
2011	2,347,467,929		955,413,270		955,413,270	1,392,054,659	563,082,953	229,173,280	333,909,673
2012	2,470,388,228		955,413,270		955,413,270	1,514,974,958	445,381,797	172,249,719	273,132,078
2013	2,593,308,527		955,413,270		955,413,270	1,637,895,257	351,411,512	129,465,206	221,946,306
2014	2,716,228,826		955,413,270		955,413,270	1,760,815,556	276,644,915	97,307,790	179,337,126
2015	2,839,149,125		955,413,270		955,413,270	1,883,735,855	217,339,711	73,137,843	144,201,868
2016	2,996,030,036		955,413,270		955,413,270	2,040,616,766	172,381,869	54,971,387	117,410,483
2017	3,152,910,948		955,413,270		955,413,270	2,197,497,678	136,348,910	41,317,234	95,031,676
2018	3,309,791,859		955,413,270		955,413,270	2,354,378,589	107,580,905	31,054,588	76,526,316
2019	3,466,672,770		955,413,270		955,413,270	2,511,259,500	84,691,905	23,341,046	61,350,858
2020	3,623,553,682		955,413,270		955,413,270	2,668,140,412	66,536,246	17,543,444	48,992,801
2021	3,823,777,896		955,413,270		955,413,270	2,868,364,626	52,772,880	13,185,889	39,586,991
2022	4,024,002,111		955,413,270		955,413,270	3,068,588,841	41,741,772	9,910,691	31,831,080
2023	4,224,226,325		955,413,270		955,413,270	3,268,813,055	32,934,752	7,449,009	25,485,743
2024	4,424,450,540		955,413,270	381,030,000	1,336,443,270	3,088,007,270	25,927,528	7,831,632	18,095,895
2025	4,624,674,755		955,413,270		955,413,270	3,669,261,485	20,369,365	4,208,115	16,161,251
2026	4,880,217,228		955,413,270		955,413,270	3,924,803,958	16,155,857	3,162,876	12,992,981
2027	5,135,759,702		955,413,270		955,413,270	4,180,346,432	12,778,800	2,377,260	10,401,540
2028	5,391,302,175		955,413,270		955,413,270	4,435,888,905	10,082,625	1,786,780	8,295,844
2029	5,646,844,648		955,413,270		955,413,270	4,691,431,378	7,937,437	1,342,968	6,594,469
2030	5,902,387,122		955,413,270		955,413,270	4,946,973,852	6,235,865	1,009,393	5,226,472
2031	6,193,438,568		955,413,270		955,413,270	5,238,025,298	4,918,078	758,673	4,159,404
2032	6,193,438,568		955,413,270		955,413,270	5,238,025,298	3,696,493	570,229	3,126,264
2033	6,193,438,568		955,413,270		955,413,270	5,238,025,298	2,778,334	428,592	2,349,742
2034	6,193,438,568		955,413,270		955,413,270	5,238,025,298	2,088,233	322,135	1,766,098
2035	6,193,438,568		955,413,270		955,413,270	5,238,025,298	1,569,544	242,121	1,327,423
Total	110,784,884,903	3,691,501,209	24,840,745,020	381,030,000	28,913,276,229	81,871,608,674	3,373,325,396	3,373,325,396	0

EIRR= 33.05%

19-12-3 Financial Analysis

(1) Loan repayment capacity

200. Projected financial statement is shown in Table19-12-3-1. Debt service coverage ratio is more than 35 through the repayment period. Therefore, Bitung port has enough financial capacity for loan repayment of port security facility development.

Table 19-12-3-1 Projected Financial Statement of Bitung Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316
Operating Expenses	16,768,101	16,768,101	16,768,101	16,768,101	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949
Personnel & Administration	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101
Maintenance					117,738	117,738	117,738	117,738	117,738	117,738	117,738	117,738	117,738	117,738
Depreciation					117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110
Net Operating Income	-16,768,101	-16,768,101	-16,768,101	-16,768,101	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367
Interest on Long-term Loans		325	8,439	24,344	32,458	32,458	32,458	32,458	32,458	32,458	32,458	30,835	29,212	27,589
Net Surplus	-16,768,101	-16,768,425	-16,776,540	-16,792,444	5,236,909	5,236,909	5,236,909	5,236,909	5,236,909	5,236,909	5,236,909	5,238,532	5,240,155	5,241,778
Accumulated Earnings	-16,768,101	-33,536,526	-50,313,066	-67,105,510	-61,868,601	-56,631,692	-51,394,783	-46,157,874	-40,920,965	-35,684,056	-30,447,146	-25,208,614	-19,968,460	-14,726,682

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-16,768,101	-33,536,617	-50,315,515	-67,114,763	-61,769,815	-56,424,866	-51,079,918	-45,734,970	-40,390,022	-35,045,074	-29,838,557	-24,632,040	-19,423,447
Cash Inflow	-16,731,186	-15,845,225	-14,959,265	-15,845,225	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478
Net Operating Income	-16,768,101	-16,768,101	-16,768,101	-16,768,101	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367
Depreciation					117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110
Capital	9,229	230,719	452,209	230,719										
Long-term Loans	27,686	692,156	1,356,627	692,156										
Cash Outflow	36,915	923,291	1,819,633	954,022	41,529	41,529	41,529	41,529	41,529	41,529	179,961	179,961	177,884	175,808
Investment	36,915	922,875	1,808,836	922,875										
Repayment of principal											138,431	138,431	138,431	138,431
Interest on Long-term Loans		415	10,798	31,147	41,529	41,529	41,529	41,529	41,529	41,529	41,529	41,529	39,453	37,376
Cash Balance	-16,768,101	-16,768,516	-16,778,898	-16,799,248	5,344,948	5,344,948	5,344,948	5,344,948	5,344,948	5,344,948	5,206,517	5,206,517	5,208,593	5,210,670
Cash Ending	-16,768,101	-33,536,617	-50,315,515	-67,114,763	-61,769,815	-56,424,866	-51,079,918	-45,734,970	-40,390,022	-35,045,074	-29,838,557	-24,632,040	-19,423,447	-14,212,777

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-16,768,101	-33,536,617	-50,315,515	-67,114,763	-61,769,815	-56,424,866	-51,079,918	-45,734,970	-40,390,022	-35,045,074	-29,838,557	-24,632,040	-19,423,447	-14,212,777
Cash & Deposit	-16,768,101	-33,536,617	-50,315,515	-67,114,763	-61,769,815	-56,424,866	-51,079,918	-45,734,970	-40,390,022	-35,045,074	-29,838,557	-24,632,040	-19,423,447	-14,212,777
Fixed Assets	36,915	959,790	2,768,626	3,691,501	3,574,391	3,457,281	3,340,170	3,223,060	3,105,950	2,988,839	2,871,729	2,754,619	2,637,508	2,520,398
Total Assets	-16,731,186	-32,576,826	-47,546,889	-63,423,261	-58,195,424	-52,967,586	-47,739,748	-42,511,910	-37,284,072	-32,056,235	-26,966,828	-21,877,421	-16,785,938	-11,692,379
Liabilities	36,915	959,790	2,768,626	3,691,501	3,691,501	3,691,501	3,691,501	3,691,501	3,691,501	3,691,501	3,553,070	3,414,639	3,276,207	3,137,776
Capital	9,229	239,948	692,156	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875
Long-term Loans	27,686	719,843	2,076,469	2,768,626	2,768,626	2,768,626	2,768,626	2,768,626	2,768,626	2,768,626	2,630,195	2,491,763	2,353,332	2,214,901
Net Worth	-16,768,101	-33,536,526	-50,313,066	-67,105,510	-61,868,601	-56,631,692	-51,394,783	-46,157,874	-40,920,965	-35,684,056	-30,447,146	-25,208,614	-19,968,460	-14,726,682
Total Liabilities & Net Worth	-16,731,186	-32,576,736	-47,544,440	-63,414,009	-58,177,100	-52,940,191	-47,703,282	-42,466,372	-37,229,463	-31,992,554	-26,894,077	-21,793,976	-16,692,252	-11,588,906

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					147.4%	152.4%	157.8%	163.5%	169.7%	176.3%	183.5%	191.3%	199.8%	209.1%
Debt Service Coverage Ratio					129.70	129.70	129.70	129.70	129.70	129.70	29.93	29.93	30.28	30.64
Operating Ratio					76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%
Working Ratio					75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316	22,272,316
17,002,949	17,002,949	17,002,949	17,383,979	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949	17,002,949
16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101	16,768,101
117,738	117,738	117,738	498,768	117,738	117,738	117,738	117,738	117,738	117,738	117,738	117,738	117,738	117,738	117,738	117,738
117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110
5,269,367	5,269,367	5,269,367	4,888,337	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367
25,967	24,344	22,721	21,098	19,475	17,852	16,229	14,606	12,983	11,360	9,737	8,115	6,492	4,869	3,246	1,623
5,243,401	5,245,024	5,246,647	4,867,239	5,249,892	5,251,515	5,253,138	5,254,761	5,256,384	5,258,007	5,259,630	5,261,253	5,262,876	5,264,498	5,266,121	5,267,744
-9,483,281	-4,238,257	1,008,389	5,875,628	11,125,521	16,377,036	21,630,174	26,884,935	32,141,319	37,399,326	42,658,956	47,920,209	53,183,084	58,447,583	63,713,704	68,981,448

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-14,212,777	-9,000,031	-3,785,208	1,431,691	6,269,637	11,197,589	16,420,718	21,645,923	26,873,204	32,102,562	37,333,997	42,567,508	47,803,095	53,040,759	58,280,500	63,522,316
5,386,478	5,386,478	5,386,478	5,005,448	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478	5,386,478
5,269,367	5,269,367	5,269,367	4,888,337	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367	5,269,367
117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110	117,110
173,731	171,655	169,578	167,502	458,525	163,349	161,272	159,196	157,120	155,043	152,967	150,890	148,814	146,737	144,661	142,584
				293,100											
138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431	138,431
35,300	33,224	31,147	29,071	26,994	24,918	22,841	20,765	18,688	16,612	14,535	12,459	10,382	8,306	6,229	4,153
5,212,746	5,214,823	5,216,899	4,837,946	4,927,952	5,223,129	5,225,205	5,227,282	5,229,358	5,231,434	5,233,511	5,235,587	5,237,664	5,239,740	5,241,817	5,243,893
-9,000,031	-3,785,208	1,431,691	6,269,637	11,197,589	16,420,718	21,645,923	26,873,204	32,102,562	37,333,997	42,567,508	47,803,095	53,040,759	58,280,500	63,522,316	68,766,210

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-9,000,031	-3,785,208	1,431,691	6,269,637	11,197,589	16,420,718	21,645,923	26,873,204	32,102,562	37,333,997	42,567,508	47,803,095	53,040,759	58,280,500	63,522,316	68,766,210
-9,000,031	-3,785,208	1,431,691	6,269,637	11,197,589	16,420,718	21,645,923	26,873,204	32,102,562	37,333,997	42,567,508	47,803,095	53,040,759	58,280,500	63,522,316	68,766,210
2,403,288	2,286,177	2,169,067	2,051,957	2,227,946	2,110,836	1,993,726	1,876,615	1,759,505	1,642,395	1,525,284	1,408,174	1,291,064	1,173,953	1,056,843	939,733
-6,596,743	-1,499,031	3,600,758	8,321,594	13,425,535	18,531,554	23,639,648	28,749,820	33,862,067	38,976,391	44,092,792	49,211,269	54,331,823	59,454,453	64,579,159	69,705,942
2,999,345	2,860,913	2,722,482	2,584,051	2,445,620	2,307,188	2,168,757	2,030,326	1,891,894	1,753,463	1,615,032	1,476,600	1,338,169	1,199,738	1,061,307	922,875
922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875	922,875
2,076,469	1,938,038	1,799,607	1,661,176	1,522,744	1,384,313	1,245,882	1,107,450	969,019	830,588	692,156	553,725	415,294	276,863	138,431	
-9,483,281	-4,238,257	1,008,389	5,875,628	11,125,521	16,377,036	21,630,174	26,884,935	32,141,319	37,399,326	42,658,956	47,920,209	53,183,084	58,447,583	63,713,704	68,981,448
-6,483,936	-1,377,344	3,730,871	8,459,679	13,571,140	18,684,224	23,798,931	28,915,261	34,033,214	39,152,789	44,273,988	49,396,809	54,521,253	59,647,320	64,775,011	69,904,324

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
219.3%	230.5%	242.9%	238.2%	236.5%	249.6%	264.3%	280.8%	299.5%	320.8%	345.5%	374.2%	408.1%	448.9%	498.6%	560.7%
31.00	31.38	31.76	29.88	32.56	32.98	33.40	33.84	34.28	34.74	35.21	35.70	36.20	36.71	37.24	37.78
76.3%	76.3%	76.3%	78.1%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%
75.8%	75.8%	75.8%	77.5%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%

19-12-4 Feasibility of the Project

201. Project is feasible in both view points of national economy and port management body.

19-13 MAKASSAR PORT

19-13-1 Demand Forecast

(1) Foreign Trade Cargo Volume

202. Table 19-13-1-1 shows foreign trade cargo volume throughput at Makassar port.

Table 19-13-1-1 Foreign Trade Cargo Volume Throughput at Makassar Port 1999-2004

unit:ton

	1999	2000	2001	2002	2003	2004
Export	669,431	923,687	1,510,363	1,028,516	1,138,219	1,241,077
Import	488,691	628,688	451,746	620,797	637,017	708,689
Total	1,158,122	1,552,375	1,962,109	1,649,313	1,775,236	1,949,766

(2) Estimation of Foreign Trade Cargo Volume Handling Capacity

203. Makassar Port is operates around the clock. Study team estimates annual cargo handling capacity of the Soekarno Multipurpose Terminal and Hatta Container Terminal, the two foreign trade wharves at Makassar port.

204. Soekarno Multipurpose Terminal: Total length of Berth is 240 m with water depth of 9m Table19-13-1-2 shows annual cargo handling capacity of Soekarno Multipurpose Terminal at Makassar Port.

Table 19-13-1-2 Annual Cargo Handling Capacity of Soekarno Multipurpose Terminal

Cargo type	Handling capacity	Work hours	Gangs	Efficiency	Working days	Annual capacity
	ton/hour/gang	hours/day			day/year	ton
General Cargo	20	24	6	0.7	350	705,600
Total						705,600

205. Hatta Container Terminal: Total length of Berth is 850 m with water depth of 12m. Estimated annual cargo handling capacity is 6.1 million tons.

206. Total annual cargo handling capacity for foreign trade cargo is 6.8 million tons.

(3) Demand Forecast of Future Foreign Trade Cargo Volume

207. Figure19-13-1-1 shows correlation between total foreign trade cargo handling volume of Makassar port and National GDP (at 1993 constant prices) from 2000 to 2004. There is a moderate correlation between total cargo volume and national GDP.

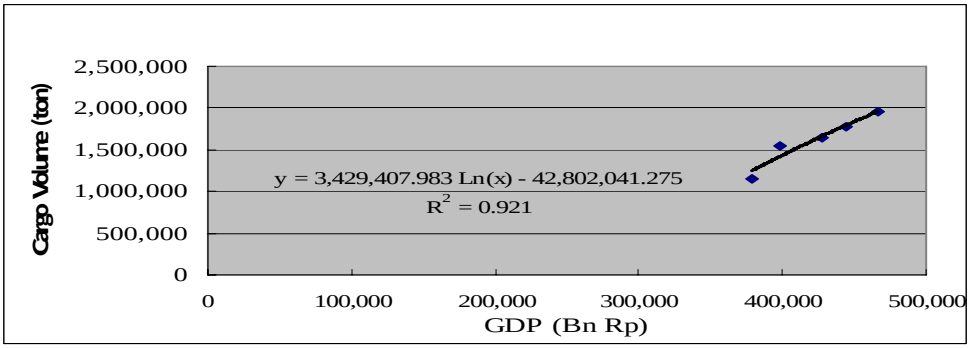


Figure 19-13-1-1 Correlation between Total Foreign Trade Cargo Volume and National GDP at Makassar Port

208. To project the future cargo volume, study team adopts the GDP growth rate forecasted by the World Bank which is 6% per annum from 2006 to 2009. The Study Team projects the annual average growth rate will slow down to 5% from 2010 until 2020. Table 19-13-1-3 and Figure 19-13-1-1 shows the result of foreign trade cargo volume projection at Makassar port. Annual foreign trade cargo volume will reach its annual handling capacity of 6.8 million tons in the year 2033.

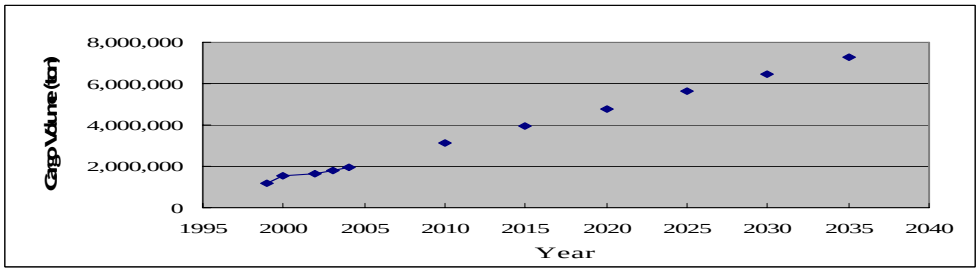


Figure 19-13-1-2 Future Foreign Trade Cargo Volume Projection at Makassar Port

Table 19-13-1-3 Future Foreign Trade Cargo Volume Projection at Makassar Port

year	Cargo Volume (ton)
2010	3,110,000
2015	3,940,000
2020	4,780,000
2025	5,620,000
2030	6,450,000
2033	6,950,000

19-13-2 Economic Analysis

(1) Calculation of Benefits

(a) Saving in working capital interest of cargo owners

209. Increase of working capital interest can be calculated as: Value of cargo × Time difference of transportation × interest

(i) Value of Foreign Trade Cargoes

210. Table 19-13-2-1 shows international cargo volume and value at Makassar port from 1999 to 2004. The average unit values of export cargo and import cargo from 1999 to 2004 are 488.5US$/ton and 219.6 US$/ton respectively. Average unit rate of foreign trade cargo is 398.3 US$/ton.

Table 19-13-2-1 Average Value of International Cargo at Makassar Port 1999 -2004

	unit	1999	2000	2001	2002	2003	2004	Average
Export ave.value	US$/ton	563.6	397.7	283.8	569.3	741.5	762.0	488.5
Import ave.value	US$/ton	1328.8	670.9	732.5	8892.0	868.7	231.7	219.6

Source:BPS

(ii) Increase of transport time

211. The Study Team assumes that it takes at least three days for transshipment of cargo from a foreign trade vessel to a domestic vessel at an alternative port which complies with the ISPS Code.

Cargo unloading from foreign trade vessel at alternative port	1 day
Waiting time for domestic trade vessel	1 day
Cargo loading to domestic trade vessel at alternative port	1 day
Transportation time from alternative port to Makassar 413 mile / 15 knot/h =	1.1 days
Total	4.1 days

(iii) Increase of additional interest

212. In Indonesia, the annual interest rate on bank loan is generally 15%. Additional interest is calculated as: 15%/year × 4.1days ÷ 365 days= 0.17%

(iv) Affected cargo volume in Without case

213. Indonesia's foreign trade with the United States and EU countries from 2000 to 2004 represented 10% of the total foreign trade cargo volume of Indonesia. The Study Team assumes that 10% of the trade cargo with the United States and EU countries will be affected in case the port fails to comply with the ISPS Code.

214. Table 19-13-2-2 shows Increase of Working Capital Interest of Foreign Trade Cargo Owners at Makassar Port. Increase of Working Capital Interest is calculated by multiplying the projected cargo volume and additional interest.

Table 19-13-2-2 Increase of Working Capital Interest of Foreign Trade Cargo Owners at Makassarg Port

	Foreign Cargo Volume ton	Cargo Value Rp	Total interest Rp
2005	21,426	45,321,193,159	77,046,028
2006	23,355	49,400,838,397	83,981,425
2007	25,284	53,480,483,635	90,916,822
2008	27,213	57,560,128,873	97,852,219
2009	29,141	61,639,774,112	104,787,616
2010	31,070	65,719,419,350	111,723,013
2011	32,744	69,260,272,520	117,742,463
2012	33,748	71,384,784,422	121,354,134
2013	36,092	76,341,978,860	129,781,364
2014	37,766	79,882,832,030	135,800,814
2015	39,440	83,423,685,200	141,820,265
2016	41,112	86,960,307,960	147,832,524
2017	42,115	89,082,281,616	151,439,879
2018	44,456	94,033,553,480	159,857,041
2019	46,128	97,570,176,240	165,869,300
2020	47,800	101,106,799,000	171,881,558
2021	49,474	104,647,652,170	177,901,009
2022	50,478	106,772,164,072	181,512,679
2023	52,822	111,729,358,510	189,939,909
2024	54,496	115,270,211,680	195,959,360
2025	56,170	118,811,064,850	201,978,810
2026	57,844	122,351,918,020	207,998,261
2027	58,848	124,476,429,922	211,609,931
2028	61,192	129,433,624,360	220,037,161
2029	62,866	132,974,477,530	226,056,612
2030	64,540	136,515,330,700	232,076,062
2031	66,212	140,051,953,460	238,088,321
2032	67,215	142,173,927,116	241,695,676
2033	68,000	143,833,940,000	244,517,698

(b) Savings in sea transportation cost

(i) Examination of Domestic Ocean Freight

215. The ocean freight between Makassar port and an alternative port is calculated as same method of Belawn port. Result of calculation, the weighted average ocean freight between Makassar port and an alternative port (Tg.Perak port) is 179 thousand rupiahs/ton.

(ii) Increase of ocean freight

216. Table 19-13-2-3 shows the annual increase of ocean freight between Makassar port and an alternative port in case Makassar port fails to meet standard security port facility development.

Table 19-13-2-3 Increase of Ocean Freight between Makassar Port and Alternative Port

	Cargo Volume ton	Ocean freight Rp/ton	Total freight Rp
2005	21,426	179,000	3,835,322,617
2006	23,355	179,000	4,180,564,093
2007	25,284	179,000	4,525,805,570
2008	27,213	179,000	4,871,047,047
2009	29,141	179,000	5,216,288,523
2010	31,070	179,000	5,561,530,000
2011	32,744	179,000	5,861,176,000
2012	33,748	179,000	6,040,963,600
2013	36,092	179,000	6,460,468,000
2014	37,766	179,000	6,760,114,000
2015	39,440	179,000	7,059,760,000
2016	41,112	179,000	7,359,048,000
2017	42,115	179,000	7,538,620,800
2018	44,456	179,000	7,957,624,000
2019	46,128	179,000	8,256,912,000
2020	47,800	179,000	8,556,200,000
2021	49,474	179,000	8,855,846,000
2022	50,478	179,000	9,035,633,600
2023	52,822	179,000	9,455,138,000
2024	54,496	179,000	9,754,784,000
2025	56,170	179,000	10,054,430,000
2026	57,844	179,000	10,354,076,000
2027	58,848	179,000	10,533,863,600
2028	61,192	179,000	10,953,368,000
2029	62,866	179,000	11,253,014,000
2030	64,540	179,000	11,552,660,000
2031	66,212	179,000	11,851,948,000
2032	67,215	179,000	12,031,520,800
2033	69,556	179,000	12,450,524,000

Source:JICA Study team

(c) Total Benefit

217. Table 19-13-2-4 shows annual total benefit of Makassar port to comply with ISPS code.

Table 19-13-2-4 Annual Total Benefit of Makassar Port to Comply with ISPS Code

	Total Benefit Rp
2005	3,912,368,645
2006	4,264,545,519
2007	4,616,722,392
2008	4,968,899,266
2009	5,321,076,139
2010	5,673,253,013
2011	5,978,918,463
2012	6,162,317,734
2013	6,590,249,364
2014	6,895,914,814
2015	7,201,580,265
2016	7,506,880,524
2017	7,690,060,679
2018	8,117,481,041
2019	8,422,781,300
2020	8,728,081,558
2021	9,033,747,009
2022	9,217,146,279
2023	9,645,077,909
2024	9,950,743,360
2025	10,256,408,810
2026	10,562,074,261
2027	10,745,473,531
2028	11,173,405,161
2029	11,479,070,612
2030	11,784,736,062
2031	12,090,036,321
2032	12,273,216,476
2033	12,695,041,698

Source:JICA Study team

(2) Implementation Cost

218. Implementation cost is composed of capital cost, maintenance cost and security guard cost. Maintenance cost is assumed as 5% of initial direct cost per annum. Table 19-13-2-5 shows implementation cost for port security facility development at Makassar port.

Table 19-13-2-5 Implementation Cost for Port Security Facility Development at Makassar Port

Unit:Rupiah

year	Initial Investment	Maintenance	Renewal	Total
2006	227,690,361			227,690,361
2007	5,692,259,024			5,692,259,024
2008	11,156,827,687			11,156,827,687
2009	5,692,259,024			5,692,259,024
2010		1,843,105,077		1,843,105,077
2011		1,843,105,077		1,843,105,077
2012		1,843,105,077		1,843,105,077
2013		1,843,105,077		1,843,105,077
2014		1,843,105,077		1,843,105,077
2015		1,843,105,077		1,843,105,077
2016		1,843,105,077		1,843,105,077
2017		1,843,105,077		1,843,105,077
2018		1,843,105,077		1,843,105,077
2019		1,843,105,077		1,843,105,077
2020		1,843,105,077		1,843,105,077
2021		1,843,105,077		1,843,105,077
2022		1,843,105,077		1,843,105,077
2023		1,843,105,077		1,843,105,077
2024		1,843,105,077	3,683,925,050	5,527,030,127
2025		1,843,105,077		1,843,105,077
2026		1,843,105,077		1,843,105,077
2027		1,843,105,077		1,843,105,077
2028		1,843,105,077		1,843,105,077
2029		1,843,105,077		1,843,105,077
2030		1,843,105,077		1,843,105,077
2031		1,843,105,077		1,843,105,077
2032		1,843,105,077		1,843,105,077
2033		1,843,105,077		1,843,105,077
2034		1,843,105,077		1,843,105,077
2035		1,843,105,077		1,843,105,077

(3) Evaluation of Projects

219. The result of the EIRR calculation is shown in Table 19-13-2-6, and indicates that the project is not feasible due to the insufficient cargo volume.

Table 19-13-2-6 EIRR Calculation for Makassar Port

Rupiah

Year	Benefit (1)	Cost(2) Investment	Maintenance	Renewal	Total	Benefit (1)-(2)	Net Present Value Revenue	Cost	Difference
2006		227,690,361			227,690,361	-227,690,361	0	227,690,361	-227,690,361
2007		5,692,259,024			5,692,259,024	-5,692,259,024	0	4,782,589,610	-4,782,589,610
2008		11,156,827,687			11,156,827,687	-11,156,827,687	0	7,875,853,864	-7,875,853,864
2009		5,692,259,024			5,692,259,024	-5,692,259,024	0	3,376,136,830	-3,376,136,830
2010	5,673,253,013		1,843,105,077		1,843,105,077	3,830,147,936	2,827,131,435	918,467,816	1,908,663,620
2011	5,978,918,463		1,843,105,077		1,843,105,077	4,135,813,386	2,503,311,761	771,689,168	1,731,622,593
2012	6,162,317,734		1,843,105,077		1,843,105,077	4,319,212,657	2,167,778,266	648,366,946	1,519,411,321
2013	6,590,249,364		1,843,105,077		1,843,105,077	4,747,144,287	1,947,830,135	544,752,620	1,403,077,514
2014	6,895,914,814		1,843,105,077		1,843,105,077	5,052,809,737	1,712,456,634	457,696,709	1,254,759,925
2015	7,201,580,265		1,843,105,077		1,843,105,077	5,358,475,188	1,502,567,398	384,553,042	1,118,014,356
2016	7,506,880,524		1,843,105,077		1,843,105,077	5,663,775,447	1,315,964,343	323,098,330	992,866,013
2017	7,690,060,679		1,843,105,077		1,843,105,077	5,846,955,602	1,132,642,481	271,464,582	861,177,899
2018	8,117,481,041		1,843,105,077		1,843,105,077	6,274,375,964	1,004,529,799	228,082,328	776,447,471
2019	8,422,781,300		1,843,105,077		1,843,105,077	6,579,676,223	875,740,687	191,632,912	684,107,775
2020	8,728,081,558		1,843,105,077		1,843,105,077	6,884,976,481	762,460,344	161,008,410	601,451,935
2021	9,033,747,009		1,843,105,077		1,843,105,077	7,190,641,932	663,047,819	135,277,953	527,769,866
2022	9,217,146,279		1,843,105,077		1,843,105,077	7,374,041,202	568,397,120	113,659,433	454,737,687
2023	9,645,077,909		1,843,105,077		1,843,105,077	7,801,972,832	499,734,797	95,495,728	404,239,068
2024	9,950,743,360		1,843,105,077	3,683,925,050	5,527,030,127	4,423,713,233	433,179,442	240,604,721	192,574,721
2025	10,256,408,810		1,843,105,077		1,843,105,077	8,413,303,733	375,133,714	67,412,568	307,721,147
2026	10,562,074,261		1,843,105,077		1,843,105,077	8,718,969,184	324,577,531	56,639,490	267,938,042
2027	10,745,473,531		1,843,105,077		1,843,105,077	8,902,368,454	277,442,671	47,588,037	229,854,633
2028	11,173,405,161		1,843,105,077		1,843,105,077	9,330,300,084	242,388,330	39,983,081	202,405,249
2029	11,479,070,612		1,843,105,077		1,843,105,077	9,635,965,535	209,223,927	33,593,458	175,630,468
2030	11,784,736,062		1,843,105,077		1,843,105,077	9,941,630,985	180,469,138	28,224,950	152,244,188
2031	12,090,036,321		1,843,105,077		1,843,105,077	10,246,931,244	155,556,854	23,714,373	131,842,481
2032	12,273,216,476		1,843,105,077		1,843,105,077	10,430,111,399	132,677,843	19,924,623	112,753,220
2033	12,695,041,698		1,843,105,077		1,843,105,077	10,851,936,621	115,306,184	16,740,505	98,565,679
2034	12,695,041,698		1,843,105,077		1,843,105,077	10,851,936,621	96,879,316	14,065,236	82,814,079
2035	12,695,041,698		1,843,105,077		1,843,105,077	10,851,936,621	81,397,211	11,817,497	69,579,714
Total	245,263,779,639	22,769,036,096	47,920,732,002	3,683,925,050	74,373,693,148	170,890,086,491	22,107,825,180	22,107,825,180	0

EIRR= 19.02%

19-13-3 Financial Analysis

(1) Loan repayment capacity

220. Projected financial statement is shown in Table 19-13-3-1. Debt service coverage ratio is more than 20 through the repayment period. Therefore, Makassar port has enough financial capacity for loan repayment of port security facility development.

Table 19-13-3-1 Projected Financial Statement of Makassar Port

Income Statement (Unit:thousand Rp)

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Operating Revenue					80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187
Operating Expenses	59,184,332	59,184,332	59,184,332	59,184,332	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869
Personnel & Administration	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332
Maintenance					726,205	726,205	726,205	726,205	726,205	726,205	726,205	726,205	726,205	726,205
Depreciation					722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332
Net Operating Income	-59,184,332	-59,184,332	-59,184,332	-59,184,332	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318
Interest on Long-term Loans		2,562	66,599	192,114	256,152	256,152	256,152	256,152	256,152	256,152	256,152	256,152	246,546	236,940
Net Surplus	-59,184,332	-59,186,894	-59,250,932	-59,376,446	19,716,166	19,716,166	19,716,166	19,716,166	19,716,166	19,716,166	19,716,166	19,716,166	19,725,772	19,735,377
Accumulated Earnings	-59,184,332	-118,371,226	-177,622,158	-236,998,604	-217,282,438	-197,566,272	-177,850,106	-158,133,940	-138,417,775	-118,701,609	-98,985,443	-79,269,277	-59,543,505	-39,808,128

Cash Flow

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Beginning		-59,184,332	-118,371,226	-177,622,158	-236,998,604	-216,560,106	-196,121,608	-175,683,111	-155,244,613	-134,806,115	-114,367,617	-94,782,958	-75,198,298	-55,604,034
Cash Inflow	-58,956,642	-53,492,073	-48,027,505	-53,492,073	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650
Net Operating Income	-59,184,332	-59,184,332	-59,184,332	-59,184,332	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318
Depreciation					722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332
Capital	56,923	1,423,065	2,789,207	1,423,065										
Long-term Loans	170,768	4,269,194	8,367,621	4,269,194										
Cash Outflow	227,690	5,694,821	11,223,427	5,884,373	256,152	256,152	256,152	256,152	256,152	256,152	1,109,991	1,109,991	1,100,385	1,090,779
Investment	227,690	5,692,259	11,156,828	5,692,259										
Repayment of principal											853,839	853,839	853,839	853,839
Interest on Long-term Loans		2,562	66,599	192,114	256,152	256,152	256,152	256,152	256,152	256,152	256,152	256,152	246,546	236,940
Cash Balance	-59,184,332	-59,186,894	-59,250,932	-59,376,446	20,438,498	20,438,498	20,438,498	20,438,498	20,438,498	20,438,498	19,584,659	19,584,659	19,594,265	19,603,870
Cash Ending	-59,184,332	-118,371,226	-177,622,158	-236,998,604	-216,560,106	-196,121,608	-175,683,111	-155,244,613	-134,806,115	-114,367,617	-94,782,958	-75,198,298	-55,604,034	-36,000,163

Balance Sheet

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Current Assets	-59,184,332	-118,371,226	-177,622,158	-236,998,604	-216,560,106	-196,121,608	-175,683,111	-155,244,613	-134,806,115	-114,367,617	-94,782,958	-75,198,298	-55,604,034	-36,000,163
Cash & Deposit	-59,184,332	-118,371,226	-177,622,158	-236,998,604	-216,560,106	-196,121,608	-175,683,111	-155,244,613	-134,806,115	-114,367,617	-94,782,958	-75,198,298	-55,604,034	-36,000,163
Fixed Assets	227,690	5,919,949	17,076,777	22,769,036	22,046,704	21,324,372	20,602,040	19,879,708	19,157,376	18,435,044	17,712,712	16,990,380	16,268,048	15,545,716
Total Assets	-58,956,642	-112,451,277	-160,545,381	-214,229,568	-194,513,402	-174,797,236	-155,081,070	-135,364,904	-115,648,738	-95,932,572	-77,070,245	-58,207,918	-39,335,985	-20,454,447
Liabilities	227,690	5,919,949	17,076,777	22,769,036	22,769,036	22,769,036	22,769,036	22,769,036	22,769,036	22,769,036	21,915,197	21,061,358	20,207,520	19,353,681
Capital	56,923	1,479,987	4,269,194	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259
Long-term Loans	170,768	4,439,962	12,807,583	17,076,777	17,076,777	17,076,777	17,076,777	17,076,777	17,076,777	17,076,777	16,222,938	15,369,099	14,515,261	13,661,422
Net Worth	-59,184,332	-118,371,226	-177,622,158	-236,998,604	-217,282,438	-197,566,272	-177,850,106	-158,133,940	-138,417,775	-118,701,609	-98,985,443	-79,269,277	-59,543,505	-39,808,128
Total Liabilities & Net Worth	-58,956,642	-112,451,277	-160,545,381	-214,229,568	-194,513,402	-174,797,236	-155,081,070	-135,364,904	-115,648,738	-95,932,572	-77,070,245	-58,207,918	-39,335,985	-20,454,447

Financial Indicators

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rate of Return Fixed Assets					90.6%	93.7%	96.9%	100.5%	104.3%	108.3%	112.8%	117.6%	122.8%	128.5%
Debt Service Coverage Ratio					80.79	80.79	80.79	80.79	80.79	80.79	18.64	18.64	18.81	18.97
Operating Ratio					75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%
Working Ratio					74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%

(Unit:thousand Rp)

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187	80,605,187
60,632,869	60,632,869	60,632,869	64,316,795	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869	60,632,869
59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332	59,184,332
726,205	726,205	726,205	4,410,130	726,205	726,205	726,205	726,205	726,205	726,205	726,205	726,205	726,205	726,205	726,205	726,205
722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332
19,972,318	19,972,318	19,972,318	16,288,393	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318
227,335	217,729	208,123	198,518	188,912	179,306	169,700	160,095	150,489	140,883	131,278	121,672	112,066	102,461	92,855	83,249
19,744,983	19,754,589	19,764,194	16,089,875	19,783,406	19,793,011	19,802,617	19,812,223	19,821,829	19,831,434	19,841,040	19,850,646	19,860,251	19,869,857	19,879,463	19,889,068
-20,063,144	-308,556	19,455,639	35,545,514	55,328,920	75,121,931	94,924,548	114,736,771	134,558,600	154,390,034	174,231,074	194,081,719	213,941,971	233,811,828	253,691,290	273,580,359

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-36,000,163	-16,386,687	3,236,395	22,869,082	38,827,451	55,645,561	75,307,066	94,978,176	114,658,892	134,349,214	154,049,141	173,758,674	193,477,813	213,206,557	232,944,907	252,692,863
20,694,650	20,694,650	20,694,650	17,010,725	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650	20,694,650
19,972,318	19,972,318	19,972,318	16,288,393	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318	19,972,318
722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332	722,332
1,081,173	1,071,568	1,061,962	1,052,356	3,876,539	1,033,145	1,023,539	1,013,934	1,004,328	994,722	985,117	975,511	965,905	956,300	946,694	937,088
				2,833,789											
853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839	853,839
227,335	217,729	208,123	198,518	188,912	179,306	169,700	160,095	150,489	140,883	131,278	121,672	112,066	102,461	92,855	83,249
19,613,476	19,623,082	19,632,688	15,958,368	16,818,110	19,661,505	19,671,110	19,680,716	19,690,322	19,699,927	19,709,533	19,719,139	19,728,744	19,738,350	19,747,956	19,757,561
-16,386,687	3,236,395	22,869,082	38,827,451	55,645,561	75,307,066	94,978,176	114,658,892	134,349,214	154,049,141	173,758,674	193,477,813	213,206,557	232,944,907	252,692,863	272,450,425

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
-16,386,687	3,236,395	22,869,082	38,827,451	55,645,561	75,307,066	94,978,176	114,658,892	134,349,214	154,049,141	173,758,674	193,477,813	213,206,557	232,944,907	252,692,863	272,450,425
-16,386,687	3,236,395	22,869,082	38,827,451	55,645,561	75,307,066	94,978,176	114,658,892	134,349,214	154,049,141	173,758,674	193,477,813	213,206,557	232,944,907	252,692,863	272,450,425
14,823,384	14,101,052	13,378,720	12,656,388	14,767,845	14,045,513	13,323,181	12,600,849	11,878,517	11,156,185	10,433,853	9,711,521	8,989,189	8,266,857	7,544,525	6,822,193
-1,563,303	17,337,447	36,247,803	51,483,839	70,413,406	89,352,579	108,301,357	127,259,741	146,227,731	165,205,326	184,192,527	203,189,334	222,195,746	241,211,764	260,237,388	279,272,618
18,499,842	17,646,003	16,792,164	15,938,325	15,084,486	14,230,648	13,376,809	12,522,970	11,669,131	10,815,292	9,961,453	9,107,614	8,253,776	7,399,937	6,546,098	5,692,259
5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259	5,692,259
12,807,583	11,953,744	11,099,905	10,246,066	9,392,227	8,538,389	7,684,550	6,830,711	5,976,872	5,123,033	4,269,194	3,415,355	2,561,517	1,707,678	853,839	-
-20,063,144	-308,556	19,455,639	35,545,514	55,328,920	75,121,931	94,924,548	114,736,771	134,558,600	154,390,034	174,231,074	194,081,719	213,941,971	233,811,828	253,691,290	273,580,359
-1,563,303	17,337,447	36,247,803	51,483,839	70,413,406	89,352,579	108,301,357	127,259,741	146,227,731	165,205,326	184,192,527	203,189,334	222,195,746	241,211,764	260,237,388	279,272,618

2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
134.7%	141.6%	149.3%	128.7%	135.2%	142.2%	149.9%	158.5%	168.1%	179.0%	191.4%	205.7%	222.2%	241.6%	264.7%	292.8%
19.14	19.31	19.49	16.16	19.85	20.03	20.22	20.41	20.61	20.80	21.01	21.21	21.43	21.64	21.86	22.08
75.2%	75.2%	75.2%	79.8%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%	75.2%
74.3%	74.3%	74.3%	78.9%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%

19-13-4 Feasibility of the Project

221. Project is feasible in both view points of national economy and port management body.

19-14 RESULT OF ANALYSIS

19-14-1 Summary of Analysis Result

222. Table 19-14-1-1 shows summary of analysis result

Table 19-14-1-1 Result of Analysis Summary

Port Name	EIRR (%)	Debt Service Coverage Ratio
Belawan	36.78	14
Dumai	41.79	39
Palembang	13.12	29
Pontianak	12.77	8
Benoa	89.10	17
Kupang	—	—
Banjarmasin	34.06	53
Bitung	33.05	29
Makassar	19.02	19

* Kupang port (-) means the result of caluculation rea minus.

223. All project is well feasible in the view point of national economy and port management body except for Kupan port. However, project of Kupang port also become feasible once its container cargo volume incearses.

CHAPTER-20. RECOMMENDATIONS

20-1 GENERAL

1. Port security measures are unnoticeable, severe and laborious tasks. It is thought that trouble-free is in the natural order of things and if something happens, the issue of responsibility is pursued. In addition, security measures are prone to become sloppy when a peaceable situation continues for a long period of time. Therefore the ISPS Code prescribes training, drills and exercises and it requires port facility personnel to be proficient in all assigned security duties, at all security levels, and to be able to identify any security related deficiencies. It is important to conduct training, drills and exercises in an honest way.

2. On the other hand, threats to port security are becoming increasingly complex. In order to cope with these threats, it is necessary to obtain information from all over the world, prepare appropriate counter-measures, and put them in practice. In addition, it is indispensable to randomly review the existing security measures and improve them as necessary. This entails of the "Plan-Do-See" system.

3. Port security measures are incomplete without cooperation and concerted implementation with many other countries. Therefore it is advisable to participate in international meetings and symposiums on port security in a positive way and to contribute to the realization of a secure world through such discussions.

20-2 ESTABLISHMENT OF PORT SECURITY SYSTEM

4. In Indonesia, framework on port security measures has been built up. DGST has been nominated as the Designated Authority. Director General of DGST instructed ADPEL/ KAMPEL to conduct PFSA and port management bodies to prepare PFSP and implement it. In addition, PSO shall be designated and PSC shall be established.

5. For major foreign trade ports, PFSA has been conducted, PFSP has been prepared, security measures have been implemented based on it and Statements of compliance have been issued. As to the foreign trade ports other than these ports, the study team has completed draft PFSAs and PFSPs. If the Indonesian side took the steps prescribed in these drafts, these ports could comply with the ISPS Code. It is recommended that all foreign trade ports follow the prescribed procedure and comply with the ISPS Code as soon as possible.

6. Although the framework and system on port security in Indonesia has become regular in shape, actual situation of security measures is not always satisfactory.

7. In the study, the Study Team made surveys on the implementation of port security measures for the ports which have already complied with the ISPS Code. (It could be said that the Study Team made an audit as an outer organization in a certain sense.) The survey results showed that security measures have not been appropriately taken in those ports. The reasons for this are thought to be as follows:

1) Lack or inadequacy of security awareness
2) Security facilities and equipment cannot be installed due to shortage of the fund.
3) It is difficult to judge whether the situation is good or bad due to the absence of technical standards.

8. As to lack or inadequacy of security awareness, the Study Team pointed out the problematical points in detail in the study. In addition, the team members had discussion with officials who were in charge of port security and the team held seminars and workshops. It is recommended that the Indonesian officials take proper security measures using what they have learnt during the study as reference.

9. With regard to port security facilities and equipment which is thought to be necessary for the study ports, the Study Team proposed the development plan and suggested that expensive facilities and equipment be developed by foreign loan and/or grant. It is recommended that the Indonesian government make efforts to ensure that these proposals are carried out. Other facilities and equipment such as fence and gate should be installed at an early date using Indonesia's own funds.

10. As to standards for developing port security facilities and equipment, the Study Team proposed the draft technical standards for port security facilities and equipment which was prepared considering the Indonesian situation based on some case examples in Japan. Tentative translation into Bahasa Indonesia is made for in-depth understanding, although the original is written in English. It is recommended that this technical standard be amended as necessary and be distributed to officials in charge of port security at an early date. The technical standards can be a textbook on port security facilities and equipment and it is advisable that it become required reading for persons related to port security.

20-3 BUILD-UP OF SYSTEM

11. In the present port security system in Indonesia, only some officials belonging to the Directorate of Sea and Coast Guard, DGST have wide knowledge on port security and have to assume all responsibilities in responding to port security incidents in Indonesia. In the future it is expected that PSC will fully function and PSO will be able to undertake his/her role. However, strengthening of the organization assigned to port security in the Directorate of Sea and Coast Guard is an urgent issue because the intermediate audit is forthcoming and the officials will have many works to handle in updating the PFSPs in the days to come.

12. In addition, the officials have to handle confidential information in many cases and a vast number of related documents have been accumulated. Therefore it is recommended to improve an office for the officials which has functions of putting the document and filing them.

13. Port security is implemented by the contracting governments according to the revised SOLAS Convention which became effective on July 2004. Although the ISPS Code prescribes provisions to be observed, it can be interpreted in several ways and thus a variety of methods can be adopted. This study has showed the basic approach to port security in Indonesia. However, Sea and Coast Guard of DGST still needs technical supports to put the contents of the study into effect and technical advice for the intermediate audit to come. It is recommended that port security specialists be dispatched from foreign countries to give technical guidance.

20-4 CONCRETIZATION OF RESPONSIBILITY

14. Port security system of each port in Indonesia has been established. The chairman of PSC is a chairman of ADPEL. PSO and PFSOs take security measures in cooperation with related organizations under PSC. However it is found that sharing of roles between KPLP and KPPP and between PSO and PFSO is not clear in some ports.

15. It should be clarified in PSC that the responsible person at each security level makes a judgment on security measures and that all information related to security incidents be conveyed to upper responsible persons.

- Security level 1: PFSO
- Security level 2: PSO
- Security level 3: PSC Chairman

16. One of the problems which complicates port security measures in Indonesia is the budget of ADPEL/KAMPEL. KPLP is responsible for security of the water area in a port. However KPLP cannot sufficiently patrol the water area due to the inadequate budget for patrol boats, especially budget for fuel of patrol boats and repair or renewal of aged patrol boats. ADPEL/ KAMPEL should make its best effort to increase the budget. In case that it is difficult to increase the budget for the time to come, ADPEL/KAMPEL should create a structure in which related port management bodies including PELINDO are required to bear part of the cost burden.

20-5 GROWTH OF SECURITY AWARENESS

17. Port security incidents may have a serious impact on transportation and economic development in Indonesia. Therefore it is important that officials directly in charge of port security not only have full knowledge of port security incidents and measures but also make efforts to get various influential persons to understand the importance of port security. It is recommended that DGST get high-ranking officials of MOT as well as Ministry of Finance and BAPENAS to understand the importance of port security in a positive manner.

18. Strict implementation of port security measures may give some inconvenience to related persons. For example, surrounding residents who used to enter a port area without any restriction and vendors who sell daily necessaries are excluded from the port area. It is recommended that security officials explain the necessity of port security measures and make efforts to acquire their understanding.

19. Port security measures should be implemented by making responsibility clear under PSC where PSO and PFSO have a central role. A port is a facility where many organizations are involved and some organizations have information on thieves and crime. Therefore it is important to maintain close relations with these organizations and exchange information frequently. It is advisable to make the most use of PSC.

20. Moreover it is important to grasp and analyze the port security incidents which occur in Indonesia to prepare effective security measures. Therefore it is recommended to make a unified report form and to establish a system to report security incidents to DGST as soon as possible. Sea and Coast Guard of DGST should summarize the information and make it public periodically, for example semi-annually. (It is said that surrounding residents board vessels for begging in long channels. In such a case, it must be reported when, where and how many persons boarded on the vessel and what they demanded.)

20-6 INTRODUCTION OF NEW SECURITY MEASURES

21. On the other hand, new security equipment and system which are thought to be more effective for port security have been proposed and introduced. For containers, mechanical seal, electronic seal and container tracking system using GPS have been proposed. It is recommended that DGST encourage shipping companies and operators to positively introduce them.

22. DGST is now developing AIS in major ports. AIS is originally devised for safety navigation of a vessel, but it can be applied to port security by using with a radar. At present AIS has some problems when it is applied to port security: Only limited vessels have them on board; and in case that a vessel with AIS on board plans to attack other vessel with AIS, the terrorist vessel can easily identify the vessel to be attacked. However, it is recommended that AIS be placed in many foreign trade ports for vessel safety and port security.

23. Several cases were reported in which only valuable goods were stolen from a container. It is thought that leakage of information on international cargo causes this kind of theft. It is recommended that port operators adopt strict information control and DGST encourage moral improvement of persons involved in information handling.

20-7 EDUCATION AND TRAINING

24. It is indispensable that Port Administrator, PSO, PFSO, KPPP and SATPAM acquire knowledge on the ISPS Code and related port security measures respectively and can practically apply them to daily works in order to introduce correct port security measures.

25. Port administrator and PSO do not necessarily attend the ISPS course, although PFSO attends when he/she takes up a post as PFSO. In particular, it is necessary for PSO to attend at least the ISPS course because PSO is requested to make a final judgment on PFSO's work including completion of DoS.

26. PFSO is not always familiar with the PFSA and PFSP of his/her own port, although he/she has basic knowledge on the ISPS Code. It is thought that one reason is that PFSP is prepared not by PSO himself/herself but by RSO. Then it is difficult for PSO to grasp the problems involved in the PFSP because he/she did not prepare it, even if the PFSP has been completed. In this study, the Study Team proposed the draft PFSA and PFSP manuals, which were provisionally translated into Bahasa Indonesia for easy understanding. Officials in charge of port security can easily prepare PFSA and PFSP by using these manuals and can deeply understand the contents by comparing them with the existing ones. Then it is recommended that these draft PFSA and PFSP manuals be modified as necessary and distributed to all persons in charge of port security works.

27. It is recommended that the following measures be taken to realize more effective training:

1) All ISPS legislated course syllabi should be submitted to DGST.
2) All trainers for ISPS courses should be submitted to DGST and registered.
3) ISPS trainers need to be updated on current developments in governmental legislation and international requirements.
4) Procedures and processes to audit the competency of trainers and relevancy of subject matters for statutory courses should be established.

28. PELINDO, being a state-owned enterprise, is recommended to have their own training center or PELINDO academy for effective training. ADPEL and personnel with security related duties in PELINDO ports should also hold their training in the center. BP3IP, the existing government training school responsible for training seafarers should incorporate an awareness program in maritime security and the ISPS Code.

29. It is indispensable for each port to conduct drills and exercises which are prescribed in the ISPS Code in order to rapidly and appropriately cope with actual security incidents. According to the hearing on drills and exercises already conducted, one problem is that no evaluation on the implementation was conducted. It is recommended that a system which identifies points to be improved and reflects them in the existing security measures be established.

20-8 DEVELOPMENT OF PORT SECURITY FACILITIES AND EQUIPMENT

30. The Study Team proposed the development plan of port security facilities and equipment for proper implementation of port security measures. It is advisable that DGST make efforts to realize the plan.