Japan International Cooperation Agency

Study on the Development of Domestic Sea Transportation and Maritime Industry in the Republic of Indonesia (STRAMINDO)

FINAL REPORT

Main Text Volume 2

Integrated Master Plan and Action Plan

March 2004

ALMEC Corporation

Japan Marine Science Inc.

STRAMINDO

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

STRAMINDO

STUDY ON THE DEVELOPMENT OF DOMESTIC SEA TRANSPORTATION
AND MARITIME INDUSTRY IN THE REPUBLIC OF INDONESIA

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ACRONYMS

ABS	American Bureau of Shipping
ADB	Asian Development Bank
ADPEL	Administrator Pelabuhan / Port Administration Office
AFTA	ASEAN Free Trade Agreement
AGR	Annual Growth Rate
AIS	Automatic Identification System
APBN	*Anggaran Pendapatan Belanja Negara* / National Government Budget
APCIS	Asia-Pacific Computerized Information System
APSEM	Asia-Pacific Shipbuilding Experts Meeting
ASEAN	Association of Southeast Asian Nations
BAPINDO	*Bank Pembangunan Indonesia* / Development Bank of Indonesia (now BMI)
BEMAC	Beam Metrical Alternative Creation, the brand name of Uzushio Electric Group
BIDA	Batam Industrial Development Authority
BKI	*Biro Klasifikasi Indonesia* / Indonesian Classification Bureau
BLT	*Berlian Laju Tanker*/ An Indonesian Shipping Company
BMI	Bank Mandiri Indonesia
BOR	Berth Occupancy Ratio
BPS	*Biro Pusat Statistik* / Central Bureau of Statistics
BRI	Bank Rakyat Indonesia
BTN	*Bank Tabungan Negara* / National Saving Bank
BUMN	*Badan Usaha Milik Negara* / State-owned Enterprises
BV	Bureau Veritas
CGI	Consultative Group for Indonesia
CIF	Cost, Insurance and Freight
COLREG	Convention on the International Regulations for Preventing Collisions at Sea, 1972
CPI	Consumer Price Index
CPO	Crude Palm Oil
DBP	Development Bank of The Philippines
DGLC	Directorate General for Land Communication
DGMMEMI	Directorate General of Metal, Machinery, Electronic and Multifarious Industries
DGSC	Directorate General of Sea Communication
DKI Jakarta	*Daerah Khusus Ibukota Jakarta* / Special Capital City of Jakarta
DLKP	*Daerah Lingkungan Kepentingan Pelabuhan* / Important Port Environment Area
DLKR	*Daerah Lingkungan Kerja* / Work Environment Area
DLBS	Development Loan through Banking System
DNV	Det Norske Veritas
DOC	Document of Compliance
DPC	*Dewan Pimpinan Cabang* / Branch Heads Council
DPD	*Dewan Pimpinan Daerah* / Regional Heads Council
DPP	*Dewan Pimpinan Pusat* / Central Heads Council

DWT	Dead Weight Ton
DSMP	Domestic Shipping Modernization Program
ECDIS	Electronic Chart Display And Information System
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ETA	Education and Training Agency
EXIM	Export and Import
FDI	Foreign Direct Investment
FIRR	Financial Internal Rate of Return
FOB	Free on Board
GAFEKSI	Gabungan Forwarders dan Ekspedisi Indonesia or INFA
GBHN	*Garis Besar Haluan Negara* / National Guidelines
GDP	Gross Domestic Product
GL	Germanischer Lloyd
GNP	Gross National Product
GOI	The Government of Indonesia
GOJ	The Government of Japan
GPS	Global Positioning System
GRDP	Gross Regional Domestic Product
GRT	Gross Registered Tonnage
GT	Gross Tonnage
HP	Horse-Power
HSC	High Speed Craft
IACS	The International Association Classification Societies
IBRA	Indonesia Bank Restructuring Agency
IDHS	Indonesian Demographic and Health Survey
IFCT	Industrial Finance Corporation of Thailand
ILLC	International Load Line Certificate
IMB	International Maritime Bureau
IMCO	Inter-Governmental Maritime Consultative Organization
IMO	International Maritime Organization
IMR	Infant Mortality Rate
INFA	Indonesian Forwarders' Association
INSA	Indonesian Shipowners' Association
IPERINDO	*Ikatan Perusahan Industri Kapal Nasional Indonesia* / Indonesian Shipbuiling Industries Association
ISM-SMS	International Safety Management - Safety Management System
ISO	International Organization for Standardization
ISPS CODE	International Ship and Port Facility Security Code
IWT	Inland Waterway Transportation
ITP	*Indocement Tunggal Perkasa* / An Indonesian Cement Company
JBIC	Japan Bank For International Cooperation
JICA	Japan International Cooperation Agency
JMS	Japan Marine Science Inc.
KANPEL	*Kantor Pelabuhan* / Port Office
KFC	*Kapal Feri Cepat* / High Speed Ferry
KM	*Kapal Motor* / Motor Ship
KM	*Keputusan Menteri* / Minister Degree

KPI	*Kesatuan Pelaut Indonesia* / Indonesian Seamen's Association
L/F	Load Factor
LCT	Landing Craft Tank
LLASDP	*Lalulintas Angkutan Sungai Danau dan Penyeberangan* / River, Lake and Ferry Transportation
LLMC	Limitation Of Liability For Maritime Claims
LR	Lloyd's Register
MARINA	Maritime Industry Authority of the Philippines
MARPOL	International Convention for the Prevention of Marine Pollution from Ship
MISC	Malaysia International Shipping Corporation
MOC	Ministry of Communications
MOF	Ministry of Finance
MOT	Ministry of Transportation
MOU	Memorandum of Understanding
MSC	Maritime Safety Committee
MSOE	Ministry of State-owned Enterprises
MT	Metric Ton
MOIT	Ministry of Industry and Trade
NK	Nippon Kaiji Kyokai
NKK	*Nippon Koukan Kabushikigaisha* / A Japanese steel corporation
NM	Nautical Mile
NSL	Navigation and Signal Lighting Module
NOL	Neptune Orient Line / A Singapore shipping company
OD	Origin-Destination
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OECF	Overseas Economic Cooperation Fund (now JBIC)
OOF	Other Official Finance
P/F	Passenger Factor
PDCA	Plan-Do-Check-Action
PELINDO	*PT (Persero) Pelabuhan Indonesia* / Public Port Corporation
PELNI	*Pelayaran Nasional Indonesia* / A state-owned shipping company
PERTAMINA	*Perusahan Pertambangan Minyak dan Gas Bumi Negara* / Indonesia State Oil and Gas Mining Company
Persero	*Perseroan Terbatas* / Publicly listed corporation
PISA	Philippine Inter-Island Shipping Association
PKT	*Pupuk Kalimantan Timur* / An Indonesian fertilizer company
PLTA	*Pembangkit Listrik Tenaga Air* / Hydraulic Power Plant
PLTG	*Pembangkit Listrik Tenaga Gas* / Thermal Power Plant
PROPENAS	*Program Pembangunan Nasional* / National 5 year Development Program
PMA	*Penanaman Modal Asing* / Foreign Capital Investment
PMDN	*Penanaman Modal Dalam Negeri* / Domestic Capital Investment
P&I	Protection and Indemnity
PSC	Port State Control
PT. ASDP	PT. Angkutan Sungai Danau dan Penyeberangan / Inland Waterways and Ferry Transportation Corporation
PT. Petroges	PT. Pupuk Petrokimia Gresik / An Indonesian fertilizer company

PT. PIM	PT. Pupuk Iskandar Muda / An Indonesian fertilizer company
PT. PKT	PT. Pupuk Kalimantan Timur / An Indonesian fertilizer company
PUSRI	Pupuk Sriwidjaja / An Indonesian fertilizer company
QA	Quality Assurance
RINA	Registro Italiano Navale
RLS	Regular Liner Service
RMS	Repairs, Maintenance and Supply
RO	Recognized Organizations
Ro-Ro	Roll on Roll off
SMC	Safety Management Certificate
SMHC	Ship Management and Holding Company
SOE	State-owned Enterprise
SOLAS	International Convention of the Safety Of Life At Sea
STCW	International Convention of the Standard Of Training, Certification And Watchkeeping for Seafarers
STRAMINDO	The Study on the Development of Domestic Sea Transportation and Maritime Industry in the Republic of Indonesia
SUA	Suppression of Unlawful Acts against the Safety of Maritime Navigation
SIUP	*Surat Izin Usaha Perusahaan* / Business Permit
SIUPAL	*Surat Izin Usaha Perusaan Angkutan Laut* / Shipping Business License
SWL	Safe Working Load
SV	Senior Volunteer
TEU	Twenty Footer Equivalent Units
TFR	Total Fertility Rate
TLC	Ton Lifting Capacity
TOR	Terms of Reference
TQC	Total Quality Control
TSL	Two Step Loan
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
VDR	Voyage Data Recorder
WB	The World Bank

Chapter 7

SECTOR DEVELOPMENT VISION

7. SECTOR DEVELOPMENT VISION

7.1. Basic Recognition in Formulating the Master Plan

The Master Plan (M/P) for domestic sea transportation and maritime industry has been formulated with the recognition that an important and indispensable task is commissioned to this mode in Indonesia under several development contexts covering national economic development, globalization and regional integration process, technology advancement towards competitive shipping, discreet government interventions in providing commercial and non-commercial shipping services, and national tonnage development.

(1) National Economic Development

It is evident that transport has a key role in supporting national economic development. Transport affects, and is affected by, economic development of a nation. On one side, economic advancement of a nation depends on the existence of a national transportation system. On the other hand, economic development has the potential to affect the development of both transport infrastructure and transport means. Hence, transport system development should follow the trend of, and strategy for, economic development of the nation.

The strategy for economic development in Indonesia, which is stipulated in the State Guidelines (GBHN) 1999-2004, has two main objectives.

First is to promote a global-oriented economic development by using technological development that can be achieved through developing competitive advantages and the comparative advantages of Indonesia's being both a maritime and an agricultural country in accordance with the competence and product advantages in every region.

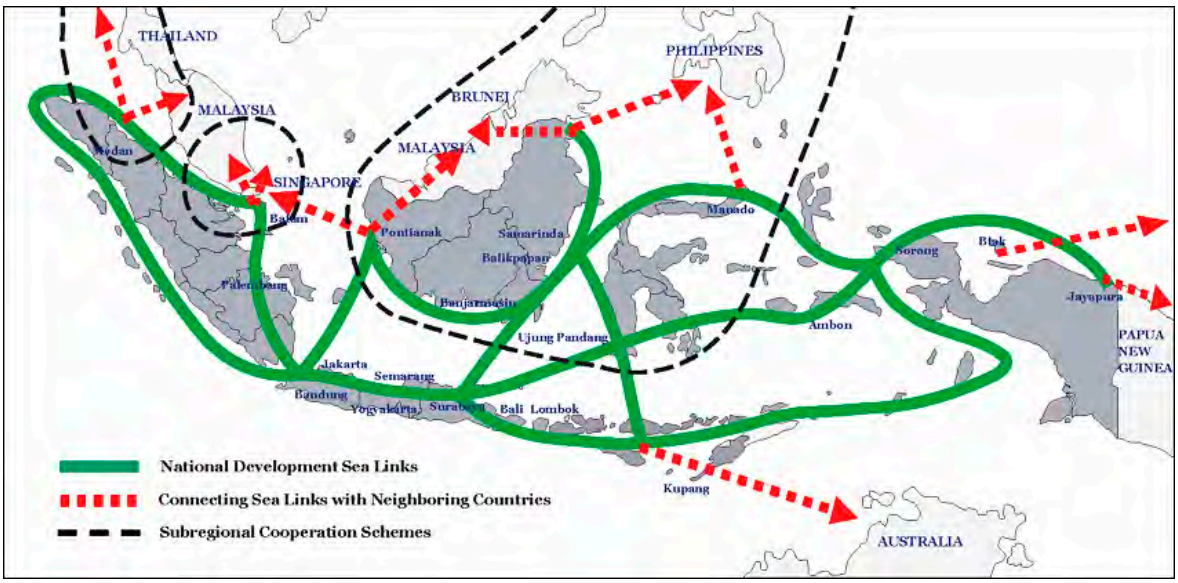
Second is to improve the development and maintenance of public infrastructures and utilities, including transportation, communication, energy and electricity, and portable water supply in order to induce an even distribution of development to serve social needs, and to provide access to remote and isolated areas.

The first objective implies that two main forces affect the development of Indonesia's national economy; i.e., the domestic and international economic environments. The Indonesian economy is highly influenced by the agricultural and maritime industries and many Indonesians are dependent on these two economic sectors. Thus, the government needs to give a high priority on these two sectors if the economy is to be improved. Additionally, the international economy - specifically with regards to globalization - exerts much influence on the national economy. The globalization of economies and trade helps open economic and business opportunities in Indonesia through foreign investments. The government is therefore very eager to capture this business opportunity to advance both its maritime and agricultural sectors that is supported by technology to be competitive in the region. To further increase the competitiveness of the local economy, a good transportation system, supported by technology to enhance its efficiency, needs to be provided.

The second objective asserts that it is necessary to promote an equitable distribution of national development by developing both facilities and utilities at isolated and remote areas. In the more developed areas, the maintenance of facilities and utilities should be given

more attention to support the even distribution of national development. The Indonesian Government considers that transportation system is only one of the development aspects that need to be enhanced. In this case, however, the national transportation system, especially sea transportation system, needs to be developed to expedite inter-island trades and to help strengthen a continuous and a well-distributed logistical distribution services nationwide. These good transportation and logistical distribution systems may help to provide affordable goods and services in all areas of the country. This implies that the pattern of national transportation development should take into account the efficiency of the system.

Figure 7.1.1 National Economic Development with Sea Transport Network



(2) International Development Environments

(a) Globalization and Liberalization of Maritime Transport Services

One expert said that globalization is a series of phenomena rather than one theory. It is true that globalization is encompassing almost all the local economics as long as they respect market economy principles where liberalized trade and investment environments are provided.

Globalization has appeared in many aspects of shipping services, typically in container haulage. At present, container shipping routes are formed into a hub-and-spoke network where every large container vessels are assigned between hub ports with provision for more competitive services. Domestic shipping becomes a feeder service as part of such global shipping network.

To promote international trade in services, the World Trade Organization (WTO) decided to launch a new round negotiation in 2001 which includes maritime transport, called the "Doha Development Agenda". Since the negotiation of maritime transport services has three pillars (international maritime transport, maritime auxiliary services, and access/use of port services), domestic cabotage transport is not within its scope. However, more liberalized environments around domestic cabotage transport may affect its industrial structure in the long run.

(b) Regional Integration and Sub-regional Cooperation

In parallel with globalization, regional economic integration initiatives are steadily on-going in EU, ASEAN, NAFTA, and others. The new regional trade regime, the ASEAN Free Trade Area (AFTA), started in 2002 thus eliminating intra-regional tariff towards the year 2008. Under the new AFTA regime, costly domestic products may be substituted for imported but cheaper ones in line with removing trade barriers. It is to be noted that Indonesia, having intricate water boundaries, allows numerous sea access from other ASEAN countries. It implies an important policy shift to hold cabotage right, from conventional efforts to fulfill national tonnage to putting more efforts in providing competitive shipping services.

One unique aspect of ASEAN cooperation programs is sub-regional groupings where development conditions and interests are more common. In relation to Indonesia, there are so far three sub-regions conceptualized and partly implemented:

- SIJORI (Singapore – Johor – Riau)
- IMT (Indonesia – Malaysia – Thailand) Growth Triangle
- BIMP-EAGA (Brunei, Indonesia, Malaysia, Philippines – East ASEAN Growth Area)

Sea transportation is considered as an important input and catalyst to the development and integration of these sub-regions.

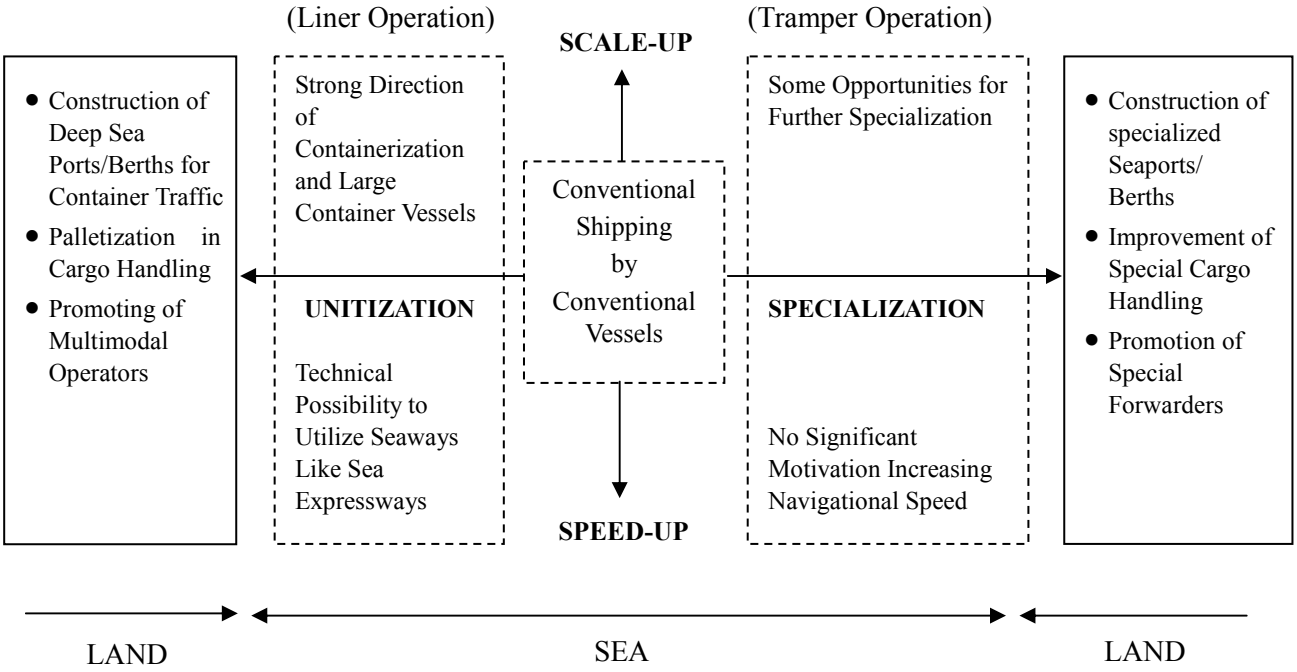
(3) Technology Advancement towards Competitive Shipping Services

The direction of future maritime transport system is summarized according to the four key innovations: unitization, specialization, scale-up, and speed-up. All these innovations are not new, but great opportunities still lie ahead to pave the way to further increase competitive advantage of domestic shipping in Indonesia. For example, unitization is the key concept to upgrade liner shipping services while container vessels and Ro-Ro vessels have been modestly introduced in the domestic trade since the mid-1990s. Similarly, specialization is the key concept to upgrade bulk shipping while cement bulk haulage accounts for less than 10% of the domestic seaborne cement cargo. Many are still packed in bags and transported on conventional vessels.

Both “scale-up” and “speed-up” needs sufficient investments in ships. To make such investments viable, innovations must be applied on the overall transport system including deeper berths and efficient cargo handling equipments, and smooth secondary transports possibly arranged by multimodal transport operators and specialized forwarders.

In order to provide competitive shipping services, the Java Sea is a valuable asset for the domestic shipping industry. The distance between major ports of Java and Kalimantan or Sulawesi ranges from 400 to 800 miles. The distance range is long enough to enjoy cost reduction benefit from enlarging vessels while it is also short enough to cross the sea and reach a destination port within one day by fast ship. Since the sea is almost calm throughout the year, it enables extraordinary economic shipping such as very large barge haulage and self-propelling vessels with a shallow and wide hull structure.

Figure 7.1.2 Evolving Directions to Future Maritime Transport System



(4) Discreet Government Interventions to Commercial and Non-commercial Shipping Services

There are two types of shipping services: commercial shipping and non-commercial shipping. In practice, however, the boundary is not always clear and also to some degree, depends on external conditions such as government policy and economic conditions. If shipping is indispensable and service scope is limited, the government needs to do its utmost to provide reasonable services. In Indonesia's case, however, there are the vast territorial waters where a variety of shipping services are required. It is therefore impossible for the government to meet all the demands as the sole provider in the country due to extremely large financial burdens. Instead, the government should try to make shipping services financially viable. On the other hand, the Government should assume responsibility for non-commercial shipping.

Policy candidates to support commercial shipping

- Preparation of attractive shipping investment environments
- Monitoring of shipping activities to avoid excessive competition (e.g. dumping rates, monopolized practices, etc.)
- Enhancement of maritime safety, security and protection of the marine environment

Policy candidates to support non-commercial shipping

- Provision of minimum shipping services
- Direct intervention to fleet preparation
- Consultation with local governments and the people involved

The M/P needs to show such distinction and propose different sets of policy packages for commercial and non-commercial shipping types.

(5) National Tonnage Development

Although it is an inherent right, Indonesia has applied its cabotage right in a flexile manner mainly due to national tonnage shortage. There are some misconceptions regarding shipping such as considering that domestic shipping is only a supporting business to domestic trade, thus, fleet nationality does not matter. However, domestic shipping is an industry that has to sustain and develop the national tonnage in order to meet the following national requirements:

Stable carriage of goods and people: Not only foreign-chartered vessels but also national vessels prefer more profitable routes. Foreign-chartered vessels under the cabotage regime have rather a short sight for cost recovery but on the other hand the shipping business principally needs a long-term cost recovery policy due to considerable fleet investment. In this sense, the new fleet investment to be made by national shipping lines will contribute to stable shipping services. It is also important to note that, in cases of emergency, when foreign vessels are reluctant to engage in servicing domestic trade, national vessels could be used to ensure the steady functioning of logistical lifelines.

Safeguard of the marine environment: Every maritime country must place the highest priority on the protection of its marine environment. Oil spill accidents from ships, particularly substandard ships, expose the marine environment to detrimental risks. When foreign vessels offer likely dumping rates, they are likely to be substandard ships. Through an adequate ship registration system, Indonesia must be confident that its national fleet is conscious of the need to protect the marine environment.

Defense and security support: This is the country's particular requirement as the largest archipelago in the world. To maintain and secure its territorial integrity, shipping services must be provided to remote and underdeveloped regions. But since such shipping services seem to be commercially non-viable, it may be difficult to expect foreign vessels to service such routes.

Balance of payment: In reality, the shipping industry is one of the major contributors to the deficit in the balance of payment in services in the national account of Indonesian. As long as heavy reliance on foreign tonnage continues, the country cannot overcome this fiscal predicament.

Accumulation of maritime-related industries: Indonesia should realize economy of scale when various maritime-related industries are accumulated around the national vessels and the ports. The shipping industry gives rise to two types of employment: seafarers and shore-based personnel. It also provides two foreign-currency earning opportunities beside shipping business, i.e., exporting seafarers and locally-built vessels. For instance, without the Philippines' dynamic domestic shipping industry, it could not have become the country with the largest supply of seafarers.

7.2. Goals and Strategies

The primary objective of this Study is to increase the share of Indonesian flagged vessels in domestic shipping and to provide improved shipping services to shippers and passengers on all domestic shipping routes. These objectives will be incorporated in a Master Plan covering the period until 2024. The following goals are set based on the directions discussed in previous sections:

- To develop a sufficient and competitive domestic shipping system in order to support socio-economic development; and
- To strengthen the domestic shipping industry and its related maritime industries through the establishment of a new partnership between public and private sectors

As a target, the share of Indonesian flagged vessels in transporting domestic cargo is determined as follows:

Table 7.2.1 Share of Indonesian Flagged Vessels in Transporting Domestic Cargo

Year 2001	Year 2014	Year 2024
60%*	86%	100%

Source: * DGSC (refer to Table 3.1.2)

It will be possible to fulfill the targeted extent of cabotage right if affordable fleet investment sources equivalent to vessel depreciation cost and a certain profit margin can be invested on Indonesian flagged vessels. In the intermediate year of 2014, it is assumed that the domestic shipping industry will partly achieve cabotage transport in selected priority commodities such as coal, oil, CPO, Fertilizer, wood, rice and rubber in addition to container domestic trade.

In order to identify development paths towards the established goals, STRAMINDO sets the following six strategies:

(1) Realization of a desirable role of domestic shipping in the national transport system

Provided that favorable economic growth continues during the M/P period, the domestic shipping will expand to more than double its current scale. To achieve a desirable modal share of domestic shipping in the national transport system, the development issues to be addressed include promotion of further containerization and larger and efficient bulk haulage for freight shipping and offering of differentiated services and routes from air-based modes for passenger shipping. Besides shipping services, secondary transport such as port access and internal port services must be provided adequately to maintain shipping advantages such as mass haulage and economic cost. Time-consuming ship repairing must be kept to a minimum to ensure maximum possible commission days and increase yield.

(2) Provision of sustainable shipping services to support the local economy and society

In reality, numerous shipping routes are hardly financially sustainable. Thus, some routes are maintained through government subsidy such as PELNI passenger services and pioneer passenger/cargo services. Small-scale shippers rely on traditional shipping since it accepts small volume consignment under non-scheduled operation. Therefore, to maintain socio-economic activities in remote inaccessible areas, reliable and safe shipping services must be provided. Non-commercial shipping will be redefined in terms of regional development policy framework and regulations within the concept of regional autonomy. In addition to the existing subsidy schemes, a new approach that will encourage sustainable commercial operations such as leasing government-owned vessels (either central or local), co-ownership of vessels and government assistance in ship replacement and modernization, will be identified.

(3) Development of maritime transport system with due consideration to safety and the environment

Indonesia has safety problems as well as security problems in its territorial waters. Based on observations, only a few domestic vessels take adequate oil-spill protection measures. The ageing fleet of Indonesia is of particular concern. Measures to prolong vessel life and to facilitate vessel replacement are urgently required. Since ship safety and marine environment protection are growing international concerns, Indonesian fleet seaworthiness needs to be assured and maintained at levels conforming to international norms through ascensions to international conventions.

(4) Establishment of conducive investment environments with clear domestic shipping development vision

Even though the government has lifted a strict supply-demand adjustment measure, it must still possess a vision on how to develop domestic shipping and to be able to work in partnership with the private sector through the promotion of a conducive investment environment. However, caution should be exercised on the provision of government support as it may distort the market and would lead to poor long-term business decisions; rather, government support should be designed to help investors make the right decision which should be consistent with the government's vision. The government must therefore conduct thorough preparatory works such as studying country experiences in successfully attracting shipping investment. Potentially beneficial measures being considered are the adoption of international commercial regulation pertaining to mortgage and liability and the implementation of transparent and effective shipping promotion measures concerning taxation and ship registration. Since vessel acquisition is the core of shipping investment, stable long-term funding support is of great importance. Government must take a leading role to make available ship finance alternatives including policy-oriented public finance. Since the Indonesian domestic shipping covers vast areas, government also has a responsibility to allocate shipyard investment to various regions to meet coverage requirements for future demand.

(5) Introduction of modern management

The domestic shipping industry features a mass of small operators. In Indonesia, shipping companies controlling less than three vessels account for 82% of the total domestic company. Many companies experience a mismatch between vessel (type and/or size) availability and cargo-type demand. Such issues are difficult to resolve due to lack of modern management. Modern management integrates shipping finance, marketing, ship assignment, and navigation control, as well as information technology to manage transactions. Shipyards can also benefit much from modern management systems particularly in spare parts inventory and procurement, new technologies, among others.

(6) Human resource-oriented industry development

Indonesia is a country with rich human resources in the maritime transport sector. If shipping and shipbuilding industries are to become more active, competent and sufficient manpower are available. However, to modernize current management systems, qualified local personnel knowledgeable in state-of-the-art maritime industry management and new technologies in accordance with international standards are required. Introduction of modern maritime industry management and new maritime technology application training

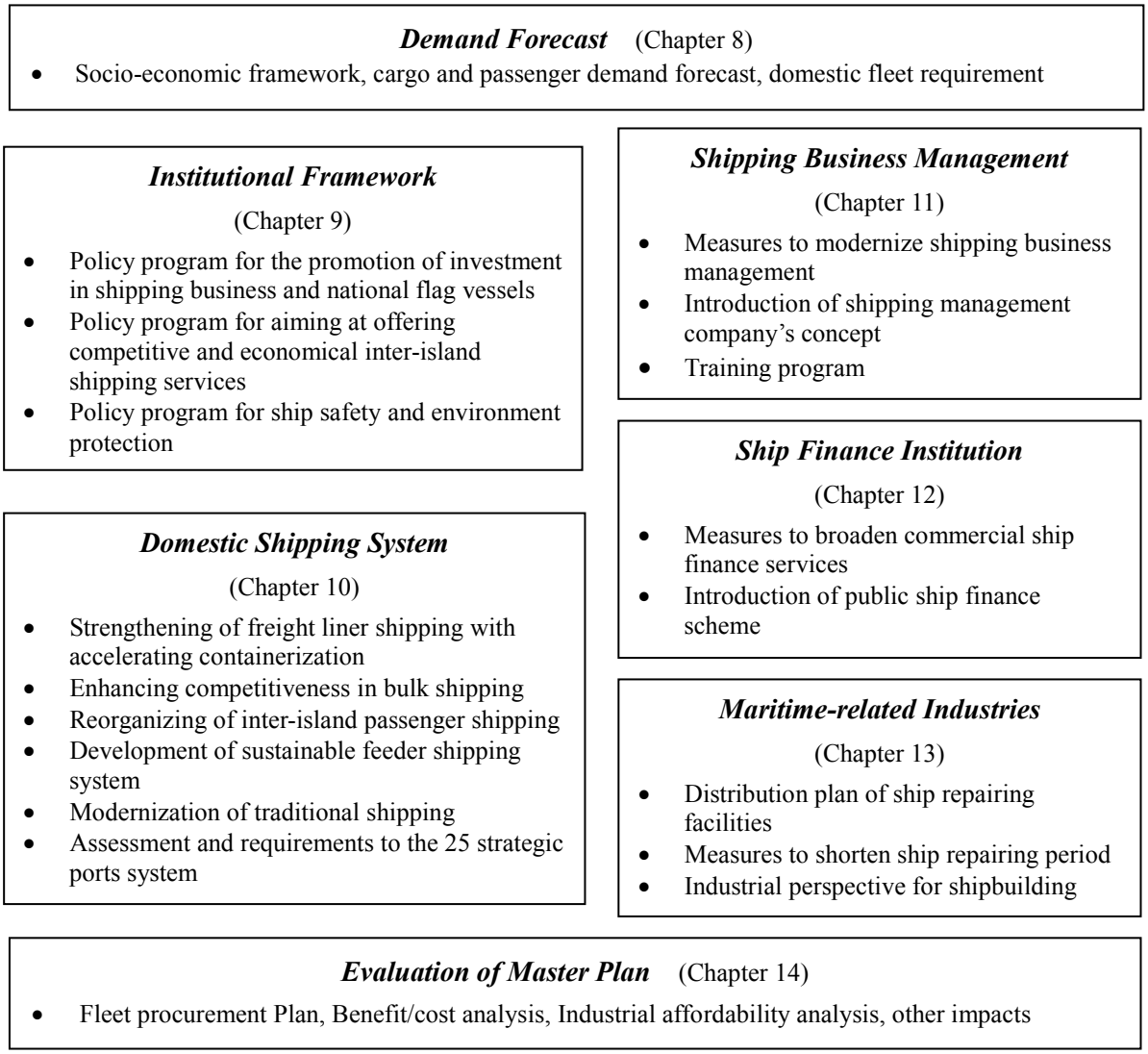
is therefore critical in the maritime industry modernization process. Particular attention should be paid to training active personnel such as management staff and senior engineers at shipping companies and shipyards.

7.3. Master Plan Structure and List of Projects

The master plan is composed of five components: (i) institutional framework, (ii) domestic shipping system, (iii) shipping business management, (iv) ship finance institution, (v) maritime-related industries.

Since domestic shipping transportation is a system wherein all the components are to be fully integrated, there is no priority component. Each component has several programs and projects as shown in Figure 7.3.1

Figure 7.3.1 Overall Structure of the STRAMINDO Master Plan



Chapter 8

TRAFFIC DEMAND FORECAST

8. TRANSPORT DEMAND FORECAST AND FUTURE FLEET REQUIREMENTS

8.1. Overview

Future demand for domestic maritime transportation in Indonesia was forecast to obtain basic information for developing maritime transport and also to prepare an analytical tool for project evaluation.

Demand forecast was basically made by following the so-called four-step method – a stepwise forecast of (1) demand generation/attraction, (2) demand distribution or OD movement, (3) modal split and (4) traffic assignment. The results of the traffic assignment are then the basis for fleet estimation. Details of the assumptions, methodologies and results are presented in Technical Report No. 1 and only the summary of the results of the forecast are presented herein.

Main outputs of cargo demand forecast are as follows.

1. Zone-wise OD matrix of main commodities (in terms of tonnage)
2. Zone-wise OD matrix by cargo type (in terms of tonnage)
3. Port to port OD matrix by cargo type (in terms of tonnage)
4. Port to port Ship Traffic (Ship calls and DWT)
5. Necessary Fleet Size (DWT)
6. Maritime Transportation Cost to carry OD volume

Main outputs of passenger demand forecast are as follows.

1. Zone-wise OD matrix of long-distance passenger (excluding passengers using land-based modes e.g. car, bus and railway).
2. Zone-wise OD matrix of sea passenger
3. Port to port OD matrix of sea passenger
4. Port to port Ship Traffic (Ship calls and GRT)
5. Necessary Fleet Size (GRT)
6. Maritime Transportation Cost to carry OD volume

8.2. Future Socio-economic Framework

8.2.1. Population

It is projected that the Indonesian population will exceed 270 million in 2025, 1.3 times of population in 2000 (see Figure 8.2.1 and Table 8.2.1). The population share of Java will remain dominant with a share of 56.5% in 2025, albeit slightly lower than its current share of 58.6%.

The forecasted population per province is shown in Figure 8.2.2. It is notable that it is projected that there will remarkable population growth in the province of Riau and in Jakarta.

Figure 8.2.1 Population Distribution

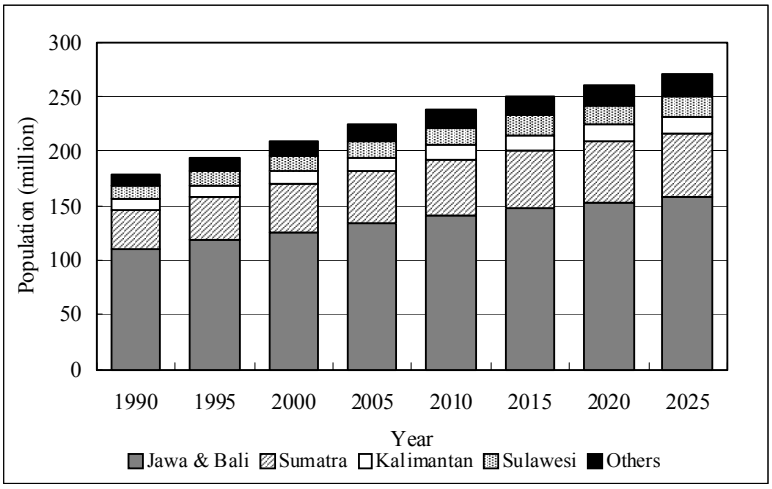


Table 8.2.1 Population Projection by Region, 2005 - 2025

(1) Regional Population (1000 person)

Region		1990	1995	2000	2005	2010	2015	2020	2025
1	Northern Sumatra	20,947	23,218	25,536	27,819	29,969	31,947	33,710	35,348
2	Southern Sumatra	15,525	17,141	18,633	20,029	21,306	22,471	23,494	24,410
3	Jakarta	8,228	9,790	11,411	13,040	14,654	16,247	17,799	19,377
4	West Jawa	35,382	37,230	39,000	40,616	41,934	42,940	43,613	44,020
5	Central Jawa	28,516	30,727	32,917	35,073	37,045	38,791	40,286	41,577
6	Yogyakarta	2,913	3,238	3,624	4,060	4,511	4,962	5,403	5,846
7	East Jawa	32,489	34,312	36,079	37,747	39,165	40,358	41,314	42,028
8	Bali	2,777	3,038	3,306	3,566	3,806	4,038	4,259	4,464
9	Nusa Tenggara	7,384	8,294	9,173	9,988	10,731	11,426	12,071	12,673
10	Kalimantan	9,096	10,079	11,018	11,905	12,722	13,476	14,142	14,748
11	Sulawesi	12,510	13,719	14,897	15,997	16,978	17,856	18,631	19,318
12	Maluku+Papua	3,483	4,000	4,503	4,997	5,485	5,966	6,424	6,874
	Indonesia Total	179,248	194,786	210,097	224,839	238,305	250,480	261,146	270,684

(2) Regional Population Composition (%)

Region		1990	1995	2000	2005	2010	2015	2020	2025
1	Northern Sumatra	11.69	11.92	12.15	12.37	12.58	12.75	12.91	13.06
2	Southern Sumatra	8.66	8.80	8.87	8.91	8.94	8.97	9.00	9.02
3	Jakarta	4.59	5.03	5.43	5.80	6.15	6.49	6.82	7.16
4	West Jawa	19.74	19.11	18.56	18.06	17.60	17.14	16.70	16.26
5	Central Jawa	15.91	15.77	15.67	15.60	15.55	15.49	15.43	15.36
6	Yogyakarta	1.63	1.66	1.72	1.81	1.89	1.98	2.07	2.16
7	East Jawa	18.13	17.62	17.17	16.79	16.43	16.11	15.82	15.53
8	Bali	1.55	1.56	1.57	1.59	1.60	1.61	1.63	1.65
9	Nusa Tenggara	4.12	4.26	4.37	4.44	4.50	4.56	4.62	4.68
10	Kalimantan	5.07	5.17	5.24	5.29	5.34	5.38	5.42	5.45
11	Sulawesi	6.98	7.04	7.09	7.11	7.12	7.13	7.13	7.14
12	Maluku+Papua	1.94	2.05	2.14	2.22	2.30	2.38	2.46	2.54
	Indonesia Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Note: Northern Sumatra includes NAD, Sumatra Utara, Sumatra Barat and Riau.
Southern Sumatra includes Sumatra Selatan, KBB, Bengkulu, Lampung and Jambi.

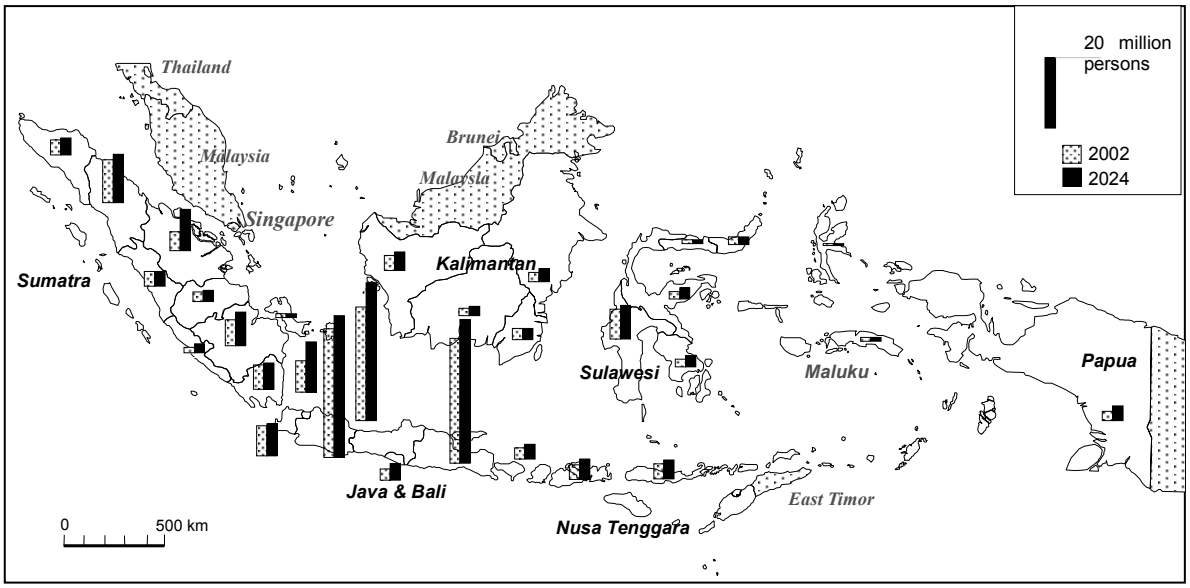
(3) Annual Average Growth Rate (%)

	Region	1990-95	1995-00	2000-05	2005-10	2010-15	2015-20	2020-25
1	Northern Sumatra	2.08	1.92	1.73	1.50	1.29	1.08	0.95
2	Southern Sumatra	2.00	1.68	1.46	1.24	1.07	0.89	0.77
3	Jakarta	3.54	3.11	2.70	2.36	2.09	1.84	1.71
4	West Jawa	1.02	0.93	0.82	0.64	0.48	0.31	0.19
5	Central Jawa	1.50	1.39	1.28	1.10	0.93	0.76	0.63
6	Yogyakarta	2.14	2.28	2.30	2.13	1.92	1.72	1.59
7	East Jawa	1.10	1.01	0.91	0.74	0.60	0.47	0.34
8	Bali	1.81	1.71	1.53	1.31	1.19	1.07	0.94
9	Nusa Tenggara	2.35	2.04	1.72	1.45	1.26	1.10	0.98
10	Kalimantan	2.07	1.80	1.56	1.34	1.16	0.97	0.84
11	Sulawesi	1.86	1.66	1.44	1.20	1.01	0.85	0.73
12	Maluku+Papua	2.81	2.40	2.10	1.88	1.70	1.49	1.36
	Indonesia Total	1.68	1.52	1.37	1.17	1.00	0.84	0.72

Source: Chapter 7, pp. 257-258, The Population of Indonesia, Salahudin Muhidin, 2002

Note: 1) Population in 2025 is extrapolated by Study Team
2) Annual average growth rates are changed by using compound growth rates instead of originally used simple growth rates.

Figure 8.2.2 Future Population by 30 Province



8.2.2. Economic Growth

In the current National Development Plan (PROPENAS) 1999 - 2004, the Government set the target of economic growth to recover from 4% in the first year to 7% in the last year. For the year 2004, about 4% growth is expected by the Ministry of Finance according to "The Asian Development Outlook" of ADB.

Beyond year 2005, two scenarios of high and low economic growth are used as assumptions for demand forecast. Future economic growth was assumed at 4.0% p.a. for the low growth case and 7.0% p.a. for the high growth case as shown in Figure 8.2.3.

Figure 8.2.3 Past Trend and Target of GDP Growth Rate

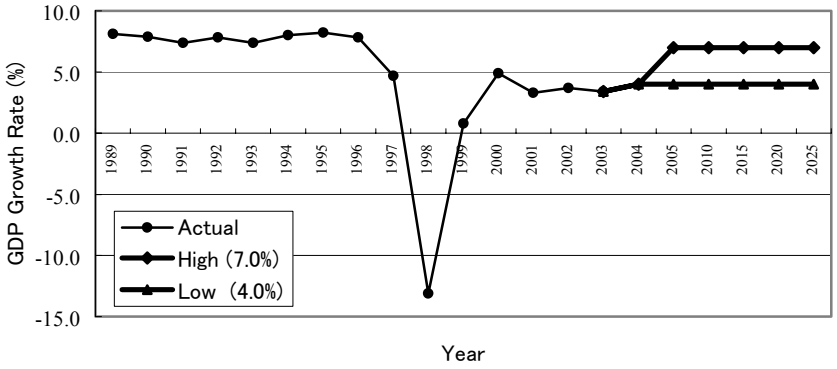
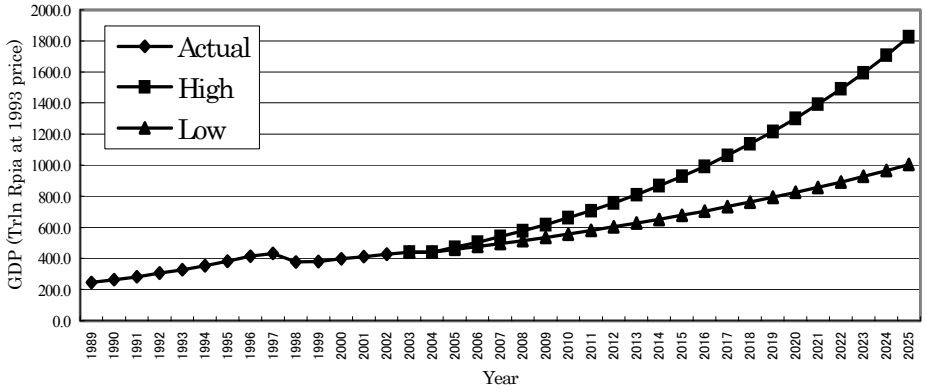


Figure 8.2.4 Future Economic Growth in Indonesia



In the high and low growth cases, Indonesian GDP will grow as shown in Table 8.2.4. By year 2025, GDP will increase by 2.6 times of the GDP in 2000 in the low case and 4.8 times in the high case, in real terms.

Forecasted GRDP per region is shown in Table 8.2.2 and Figure 8.2.5. According to the results, regional disparities between west and east Indonesia will be marginally improved.[1] Provincial level GRDP forecast is illustrated in Figure 8.2.6. Roughly, relative growth in GRDO in Indonesia is forecasted to be uniform.

In terms of US Dollar, Indonesian GNP per capita dropped dramatically from US$ 1110 just before the economic crisis in 1997 to US$ 415 in 1998, according to a World Bank report (Foot Prints in Indonesia, WALHI, 2000). Although GNP per capita has improved to US$ 745 in 2000, Indonesia's GNP per capita is the still least of the original ASEAN countries. If the assumed economic growth is realized, GNP per capita in 2025 will be US$ 1,487 in the low growth case, which is approximately the average level of present Thailand and Philippines; and, US$ 2,701 in the high growth case, which is 1.4 times higher than the present Thailand level. (Figure 8.2.7)

[1] In this regard, Indonesian Government has taken a set of policies to accelerate the development in Eastern Indonesia. The policy is being implemented through coordination with State Minister for Development Acceleration on Eastern Indonesia.

Table 8.2.2 Future GRDP by Region (Trillion Rupiahs at 1993 price)

High Case (GR=7%)

Region	2000	2005	2010	2015	2020	2025
Sumatra	74.0	88.7	121.1	165.2	225.3	307.2
Jawa and Bali	233.7	286.4	400.1	558.7	779.7	1087.6
Kalimantan	39.6	50.4	73.1	105.9	153.4	222.0
Sulawesi	18.3	22.6	32.0	45.1	63.6	89.6
Others	18.0	23.6	35.4	53.0	79.4	118.9
Total	383.6	471.7	661.6	927.9	1301.4	1825.3

Low Case (GR=4%)

Region	2000	2005	2010	2015	2020	2025
Sumatra	74.0	86.2	102.1	120.8	143.0	169.1
Jawa and Bali	233.7	278.4	337.3	408.6	494.7	598.6
Kalimantan	39.6	49.0	61.6	77.5	97.3	122.2
Sulawesi	18.3	22.0	26.9	33.0	40.3	49.3
Others	18.0	23.0	29.8	38.8	50.4	65.4
Total	383.6	458.5	557.8	678.7	825.7	1004.6

Regional Composition (%)

Region	2000	2005	2010	2015	2020	2025
Sumatra	19.3	18.8	18.3	17.8	17.3	16.8
Jawa and Bali	60.9	60.7	60.5	60.2	59.9	59.6
Kalimantan	10.3	10.7	11.0	11.4	11.8	12.2
Sulawesi	4.8	4.8	4.8	4.9	4.9	4.9
Others	4.7	5.0	5.4	5.7	6.1	6.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Annual Growth Rate by Region

Region	2000-05	2005-25	
	Both Cases	High	Low
Sumatra	3.7	6.4	3.4
Jawa and Bali	4.1	6.9	3.9
Kalimantan	4.9	7.7	4.7
Sulawesi	4.4	7.1	4.1
Others	5.6	8.4	5.4
Total	4.2	7.0	4.0

Note 'Others' include Nusa Tenggara, Maluku and Papua.

Figure 8.2.5 Future GRDP by Region

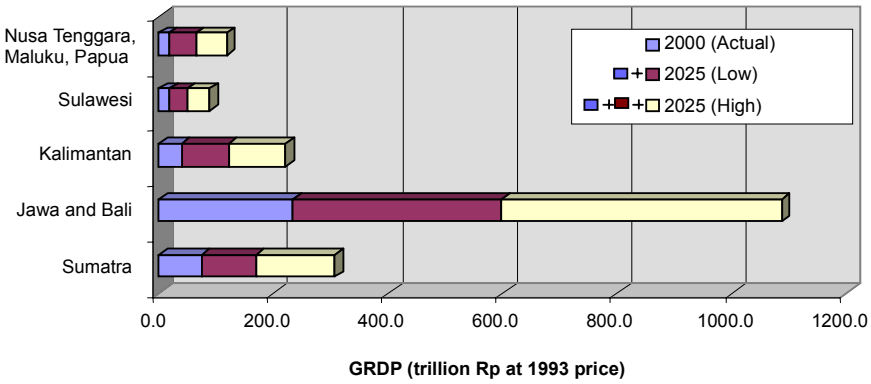


Figure 8.2.6 Future Regional GDP by 30 Zone Province

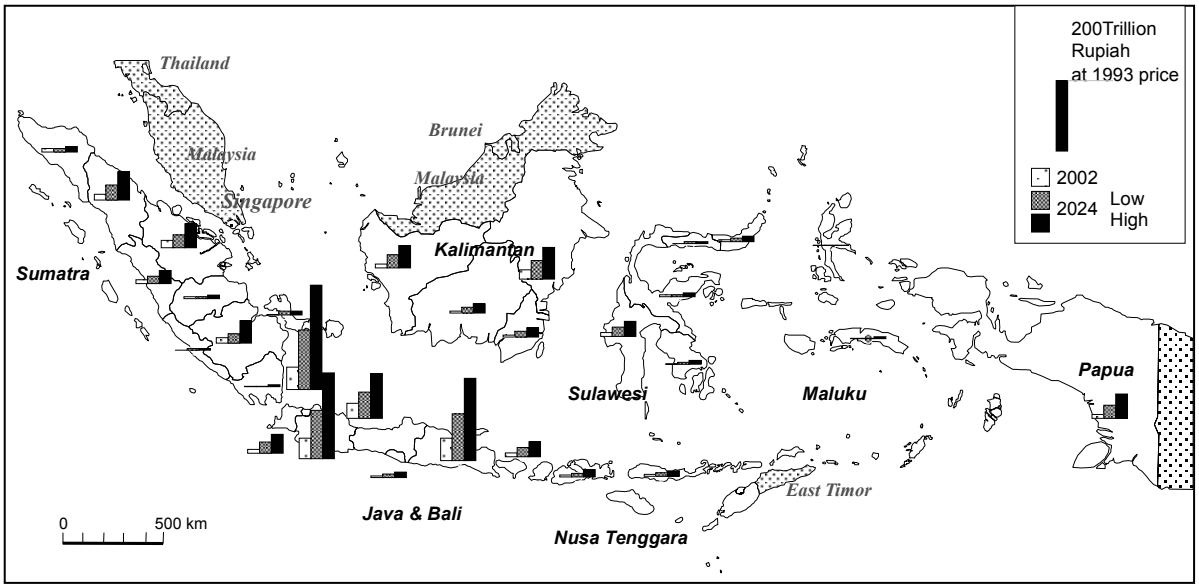
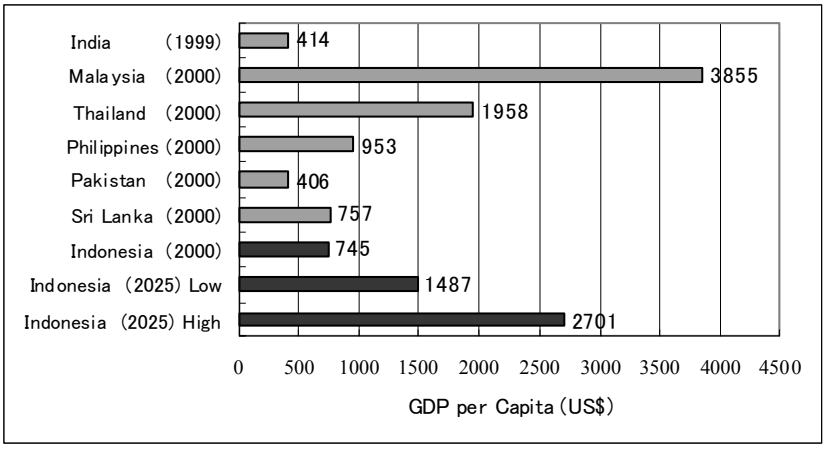


Figure 8.2.7 Comparison of GNP per Capita among Asian Countries (US$/person)



8.3. Cargo Demand Forecast

Based on the assumed socio-economic framework in the future, the future demand is estimated. Consideration was also made on the production constraints of several major commodities, in particular petroleum and coal. The following summarizes the future demand for sea transportation, including seaborne cargo, loading and unloading at ports, cargo origin and destination and packaging trend.

8.3.1. Seaborne Cargo

Table 8.3.1 summarizes the future sea traffic forecast per commodity type. Sea cargo will double in the coming 20 years. But the growth will not be uniform, as dry cargo will treble while liquid cargo will increase by 30% only. Petroleum currently comprises more than half of the sea traffic, however as a result of limited success in oil exploration, the prospect of any notable increase in domestic oil production is highly unlikely – which will also reflect a subsequent stall in liquid cargo sea traffic demand. Coal on the other has sufficient supply at least in the coming 20years. However, increasing mining rates will lead to dwindling coal reserves. Moreover, a shift to more environmentally friendly energy source such as natural gas will limit the growth in coal sea traffic. Thus, it is projected that coal will have a higher growth in the period 2003-20014 than from 2014-2024. In the case of wood sea traffic, the policy of the government to limit the cutting of forests for wood production will lead to stagnation in the sea carriage of wood. General cargo on the other hand, is not limited by supply constraints, but will grow in line with economic growth. General cargo is forecasted to increase nearly five times in the period 2003-2024.

Table 8.3.1 Sea Traffic Forecast

	Volume in million MT					2002 = 1.0				
	2002	2009	2014	2019	2024	2002	2009	2014	2019	2024
Petroleum	82.6	103.3	105.1	105.7	106.1	1.0	1.3	1.3	1.3	1.3
CPO	2.5	4.1	5.7	8.0	11.1	1.0	1.6	2.3	3.2	4.4
Other liquid	1.6	2.0	2.3	2.6	3.2	1.0	1.2	1.4	1.7	2.0
Coal	16.7	27.4	31.4	34.7	38.1	1.0	1.6	1.9	2.1	2.3
Mine and Quarry	4.7	5.8	6.6	7.8	9.4	1.0	1.2	1.4	1.7	2.0
Rice	1.3	1.4	1.5	1.5	1.5	1.0	1.1	1.1	1.1	1.1
Agri grains	1.2	1.5	1.7	2.0	2.4	1.0	1.2	1.4	1.7	2.0
Fertilizer	5.9	6.1	6.2	6.2	6.2	1.0	1.0	1.0	1.1	1.1
Cement	5.0	8.0	11.0	15.1	20.9	1.0	1.6	2.2	3.0	4.1
Other grains	2.3	2.8	3.2	3.7	4.5	1.0	1.2	1.4	1.7	2.0
Fresh products	0.3	0.4	0.4	0.5	0.6	1.0	1.2	1.4	1.7	2.0
Wood	10.4	8.3	8.3	8.3	8.3	1.0	0.8	0.8	0.8	0.8
General Cargo	22.3	39.7	59.5	89.0	104.1	1.0	1.8	2.7	4.0	4.7
Dry Cargo	70.1	101.4	129.7	168.9	196.0	1.0	1.4	1.9	2.4	2.8
Liquid Cargo	86.7	109.4	113.1	116.3	120.4	1.0	1.3	1.3	1.3	1.4
All Cargo	156.8	210.8	242.8	285.1	316.5	1.0	1.3	1.5	1.8	2.0

During the 1960s, Japan experienced unprecedented high economic growth at the rate of 8 - 13% per annum. Domestic maritime transport grew significantly in the period. Figure 8.3.1 shows the growth of GDP and cargo volume since 1960, which shows sharp increase of the maritime cargo at the same pace of the economic growth. The sharp growth lasted until the late-1970s and during 1960 – 1978, cargo volume became 3.8 times from 139

million tons to 527 million tons. Since 1978, however, the increasing trend leveled off. Main commodities were petroleum products, iron and steel, coal, cement, limestone which is quite similar in composition as Indonesian maritime cargoes except iron and steel (Figure 8.3.6).

Comparison of the projected sea cargo traffic and the Japanese experience suggests plausibility of the projected sea cargo.

Figure 8.3.1 Past Trend of Domestic Maritime Cargoes and GDP in Japan

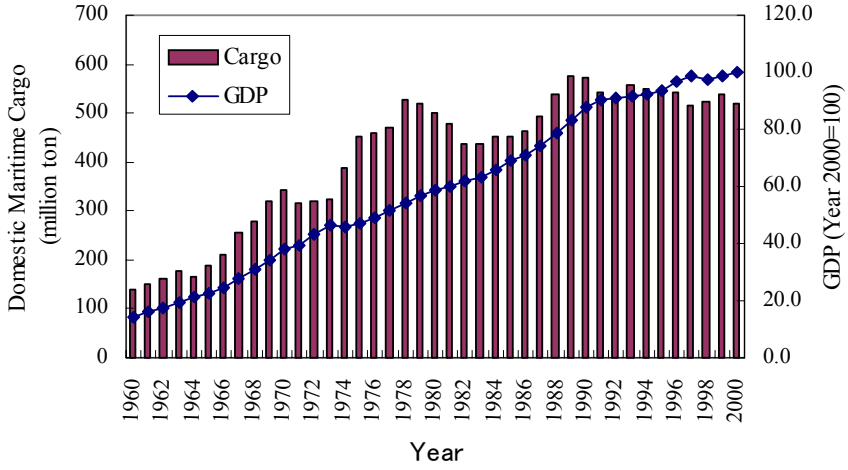
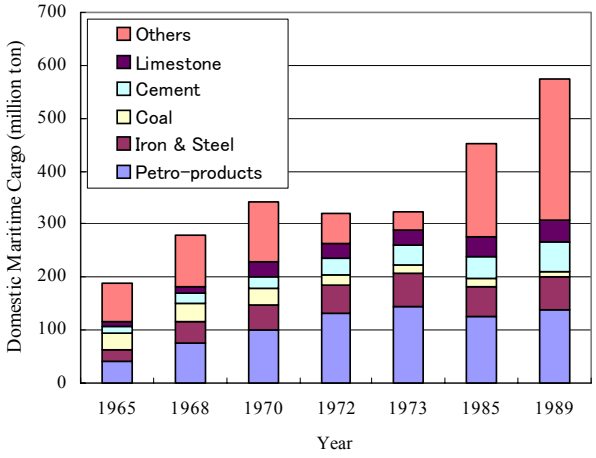


Figure 8.3.2 Domestic Maritime Cargoes by Commodity in Japan



8.3.2. Loading and Unloading Forecast

Table 8.4.8 and 8.4.9 shows the results of the loading and unloading forecast.

Table 8.3.2 Dry Cargo Loading and Unloading Forecast Results

	Throughput (MT)					Throughput 2002 = 1.00				
	Yr 2002	Yr 2009	Yr 2014	Yr 2019	Yr 2024	Yr 2002	Yr 2009	Yr 2014	Yr 2019	Yr 2024
1 Malahayati	28,458	45,008	60,025	80,278	84,152	1.00	1.58	2.11	2.82	2.96
2 Lhokseumawe	198,054	241,175	277,143	320,391	326,747	1.00	1.22	1.40	1.62	1.65
3 Sabang	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
4 Meulaboh	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
5 Kuala Langsa	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
6 Belawan	4,997,122	8,108,979	11,137,593	15,441,224	18,082,834	1.00	1.62	2.23	3.09	3.62
7 Pangkalan Susu	44,155	32,840	31,399	29,810	28,133	1.00	0.74	0.71	0.68	0.64
8 Tanjung Balai Asahan/T	222	438	695	1,098	1,349	1.00	1.97	3.13	4.94	6.07
9 Kuala Tanjung	53,015	104,232	164,310	257,851	314,936	1.00	1.97	3.10	4.86	5.94
10 Sibolga	283,736	472,579	673,675	974,108	1,145,311	1.00	1.67	2.37	3.43	4.04
11 Gunung Sitoli	180,409	294,747	413,928	590,366	694,701	1.00	1.63	2.29	3.27	3.85
12 Dumai	822,573	1,123,115	1,495,814	2,091,583	2,461,188	1.00	1.37	1.82	2.54	2.99
13 Tanjung Pinang	1,579,317	2,098,348	2,567,725	3,271,466	4,027,680	1.00	1.33	1.63	2.07	2.55
14 Pekanbaru	2,869,705	3,492,273	4,525,722	6,051,828	6,949,294	1.00	1.22	1.58	2.11	2.42
15 Tanjung Balai Karimun	212,394	352,332	498,585	704,053	787,450	1.00	1.66	2.35	3.31	3.71
16 Kuala Enok	3,760	3,691	4,179	5,401	6,276	1.00	0.98	1.11	1.44	1.67
17 Bagan Siapi-api	28,527	35,202	40,899	48,681	57,603	1.00	1.23	1.43	1.71	2.02
18 Bengkalis	14,901	24,060	32,423	44,534	56,288	1.00	1.61	2.18	2.99	3.78
19 Selat Panjang	5,830	9,745	14,798	22,862	28,826	1.00	1.67	2.54	3.92	4.94
20 Tembilahan	9,689	18,987	29,985	47,684	60,510	1.00	1.96	3.09	4.92	6.24
21 Rengat	21,727	42,077	65,537	103,001	130,113	1.00	1.94	3.02	4.74	5.99
22 Sungai Pakning	333,439	431,995	566,681	773,415	922,271	1.00	1.30	1.70	2.32	2.77
23 Kijang	63,553	73,738	88,092	108,255	125,864	1.00	1.16	1.39	1.70	1.98
24 Batam	2,693,519	3,897,127	5,279,742	7,364,811	9,464,199	1.00	1.45	1.96	2.73	3.51
25 Teluk Bayur	4,132,757	6,608,527	8,748,618	11,560,566	14,463,412	1.00	1.60	2.12	2.80	3.50
26 Kuala Tangkal	306,739	443,444	607,868	844,475	945,461	1.00	1.45	1.98	2.75	3.08
27 Talang Dukuh / Jambi	938,930	868,365	964,553	1,104,551	1,165,829	1.00	0.92	1.03	1.18	1.24
28 Muara Sabak	28,514	48,228	69,717	100,561	113,294	1.00	1.69	2.44	3.53	3.97
29 Pulau Baai	114,883	149,023	183,004	227,905	265,827	1.00	1.30	1.59	1.98	2.31
30 Palembang	4,425,102	5,491,648	6,218,155	7,118,611	7,849,828	1.00	1.24	1.41	1.61	1.77
31 Pangkal Balam	366,476	432,202	516,524	650,366	727,112	1.00	1.18	1.41	1.77	1.98
32 Tanjung Pandang	678,303	942,685	1,178,423	1,518,826	1,802,873	1.00	1.39	1.74	2.24	2.66
33 Muntok	123,997	229,762	335,791	492,799	571,150	1.00	1.85	2.71	3.97	4.61
34 Panjang	9,123,488	15,726,528	20,279,670	25,409,632	29,838,769	1.00	1.72	2.22	2.79	3.27
35 Bakauheuni	4,387	4,809	5,076	5,440	5,956	1.00	1.10	1.16	1.24	1.36
36 Tanjung Priok	10,848,934	16,005,073	23,015,013	33,631,497	40,887,952	1.00	1.48	2.12	3.10	3.77
37 Sunda Kelapa	2,279,670	2,926,348	3,919,360	5,425,314	6,435,630	1.00	1.28	1.72	2.38	2.82
38 Marunda	153,443	183,529	207,893	242,320	282,969	1.00	1.20	1.35	1.58	1.84
39 Kepulauan Seribu	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
40 Kalibaru	1,931	2,391	2,729	3,201	3,871	1.00	1.24	1.41	1.66	2.01
41 Muara Karang / Muara J	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
42 Muara Baru	84,359	140,571	161,942	179,759	197,553	1.00	1.67	1.92	2.13	2.34
43 Cirebon	536,242	883,048	1,220,529	1,703,954	1,912,489	1.00	1.65	2.28	3.18	3.57
44 Banten	11,889,185	16,701,804	18,909,595	21,462,430	23,451,631	1.00	1.40	1.59	1.81	1.97
45 Semarang	2,392,958	3,093,956	3,696,361	4,446,097	4,999,072	1.00	1.29	1.54	1.86	2.09
46 Cilacap	6,979,461	9,844,040	11,615,211	13,696,927	15,361,664	1.00	1.41	1.66	1.96	2.20
47 Tegal	114,360	202,833	290,703	419,066	475,715	1.00	1.77	2.54	3.66	4.16
48 Surabaya	9,205,118	13,312,418	17,968,599	24,808,003	28,373,143	1.00	1.45	1.95	2.70	3.08
49 Gresik	1,612,869	1,981,007	2,501,973	3,267,933	3,716,323	1.00	1.23	1.55	2.03	2.30
50 Probolinggo	423,211	655,120	902,876	1,262,932	1,408,939	1.00	1.55	2.13	2.98	3.33
51 Meneng / Tanjung Wang	478,245	576,691	651,460	742,287	798,239	1.00	1.21	1.36	1.55	1.67
52 Pasuruan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
53 Panarukan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
54 Kalianget	75,955	95,854	111,477	133,528	160,865	1.00	1.26	1.47	1.76	2.12
55 Benoa	342,732	487,088	665,026	933,159	1,079,466	1.00	1.42	1.94	2.72	3.15
56 Padangbai	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
57 Celukan Bawang	667,549	880,185	1,143,185	1,507,932	1,961,778	1.00	1.32	1.71	2.26	2.94
58 Lembar	421,677	643,695	856,348	1,141,170	1,442,665	1.00	1.53	2.03	2.71	3.42
59 Bima	83,836	129,891	178,343	249,756	305,820	1.00	1.55	2.13	2.98	3.65
60 Badas	56,980	82,636	104,363	130,769	159,557	1.00	1.45	1.83	2.29	2.80
61 Kupang / Tenau	318,433	423,178	543,444	720,870	829,264	1.00	1.33	1.71	2.26	2.60
62 Waingapu	64,787	85,675	103,827	129,928	149,141	1.00	1.32	1.60	2.01	2.30
63 Ende	108,164	168,428	230,076	317,298	408,944	1.00	1.56	2.13	2.93	3.78
64 Maumere	30,652	46,411	61,751	83,623	102,218	1.00	1.51	2.01	2.73	3.33
65 Kalabahi	42,119	69,163	95,473	133,758	159,454	1.00	1.64	2.27	3.18	3.79
66 Pontianak	1,387,252	2,203,217	3,240,632	4,802,515	5,801,906	1.00	1.61	2.34	3.46	4.18
67 Teluk Air	25,707	30,237	43,186	65,461	83,711	1.00	1.18	1.68	2.55	3.26
68 Sintete	61,637	113,684	168,829	252,626	298,998	1.00	1.84	2.74	4.10	4.85
69 Ketapang	4,834	6,404	9,789	15,611	20,381	1.00	1.32	2.02	3.23	4.22
70 Sampit	252,846	263,365	325,697	425,982	494,475	1.00	1.04	1.29	1.68	1.96
71 Kuala Pembuang	42,568	34,342	34,547	34,838	34,990	1.00	0.81	0.81	0.82	0.82
72 Samuda	897	946	1,123	1,388	1,534	1.00	1.05	1.25	1.55	1.71
73 Pulang Pisau	34,464	43,586	56,863	76,674	89,223	1.00	1.26	1.65	2.22	2.59
74 Pangkalan Bun	161,692	160,886	191,323	239,171	274,715	1.00	1.00	1.18	1.48	1.70
75 Sukamara	63,013	89,195	121,953	171,531	198,454	1.00	1.42	1.94	2.72	3.15
76 Kumai	398,356	378,975	427,592	501,737	544,575	1.00	0.95	1.07	1.26	1.37
77 Pengatan Mendawai	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
78 Banjarmasin	8,142,318	11,451,591	13,006,894	14,961,451	15,570,877	1.00	1.41	1.60	1.84	1.91
79 Kotabaru	6,600,212	11,868,297	13,794,299	15,382,725	16,815,804	1.00	1.80	2.09	2.33	2.55
80 Balikpapan	842,606	1,642,115	2,465,969	3,697,856	4,331,369	1.00	1.95	2.93	4.39	5.14
81 Samarinda	4,053,428	5,514,361	7,151,841	9,556,052	10,812,498	1.00	1.36	1.76	2.36	2.67
82 Tarakan	1,337,341	1,740,793	2,232,655	2,956,030	3,463,202	1.00	1.30	1.67	2.21	2.59
83 Nunukan	263,903	325,146	426,035	576,067	650,827	1.00	1.23	1.61	2.18	2.47
84 Bitung	1,270,544	2,082,192	2,897,569	4,090,692	4,745,859	1.00	1.64	2.28	3.22	3.74
85 Manado	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
86 Gorontalo	82,578	97,478	118,300	152,255	180,132	1.00	1.18	1.43	1.84	2.18
87 Pantoloan	691,956	1,022,130	1,338,557	1,801,739	2,209,376	1.00	1.48	1.93	2.60	3.19
88 Toli-toli	90,358	91,217	106,192	128,144	145,928	1.00	1.01	1.18	1.42	1.61
89 Ujung Pandang	6,847,534	10,691,627	14,347,951	19,580,037	22,884,154	1.00	1.56	2.10	2.86	3.34
90 Pare-pare	236,708	282,173	334,094	420,208	453,691	1.00	1.19	1.41	1.78	1.92
91 Kendari	235,774	298,927	379,815	512,884	635,141	1.00	1.27	1.61	2.18	2.69
92 Ambon	260,189	377,914	491,826	647,599	697,341	1.00	1.45	1.89	2.49	2.68
93 Bandaneire	804	1,277	1,706	2,294	2,526	1.00	1.59	2.12	2.85	3.14
94 Ternate	257,330	286,690	334,092	398,949	436,728	1.00	1.11	1.30	1.55	1.70
95 Sorong	418,123	597,525	825,346	1,174,260	1,462,855	1.00	1.43	1.97	2.81	3.50
96 Jayapura	531,962	883,918	1,335,626	2,035,133	2,606,936	1.00	1.66	2.51	3.83	4.90
97 Biak	118,577	224,151	339,975	520,911	656,863	1.00	1.89	2.87	4.39	5.54
98 Merauke	117,134	200,790	301,421	454,267	635,738	1.00	1.71	2.57	3.88	5.43
99 Manokwari	25,141	52,569	83,466	132,493	166,780	1.00	2.09	3.32	5.27	6.63
100 Fak-fak	38,731	76,722	121,743	193,866	243,409	1.00	1.98	3.14	5.01	6.28
101 Nanggore Aceh Daruss	339,696	382,050	417,255	461,912	508,889	1.00	1.12	1.23	1.36	1.50
102 Sumatera Utara	136,666	125,138	138,602	159,674	173,367	1.00	0.92	1.01	1.17	1.27
103 Sumatera Barat	118,646	123,376	142,980	175,761	199,661	1.00	1.04	1.21	1.48	1.68
104 Riau	4,904,721	7,170,039	10,441,096	15,394,647	18,436,549	1.00	1.46	2.13	3.14	3.76
105 Jambi	10,022	16,989	20,140	23,288	25,749	1.00	1.70	2.01	2.32	2.57
106 Sumatera Selatan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
107 Kepulauan Bangka Beli	218,195	277,633	328,705	401,548	478,818	1.00	1.27	1.51	1.84	2.19
108 Bengkulu	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
109 Lampung	48,383	36,683	36,254	36,444	35,428	1.00	0.76	0.75	0.75	0.73
110 DKI Jakarta	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
111 Jawa Barat	19,503	24,150	27,568	32,334	39,104	1.00	1.24	1.41	1.66	2.01
112 Banten	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
113 Jawa Tengah	470,190	707,038	971,004	1,342,487	1,467,943	1.00	1.50	2.07	2.86	3.12
114 DI Yogyakarta	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
115 Jawa Timur	817,854	1,430,846	1,754,805	2,099,380	2,441,522	1.00	1.75	2.15	2.57	2.99
116 Bali	119	236	374	593	734	1.00	1.98	3.14	4.98	6.17
117 Kalimantan Barat	86	118	157	215	242	1.00	1.37	1.82	2.50	2.80
118 Kalimantan Tengah	91,711	109,663	145,765	203,938	245,660	1.00	1.20	1.59	2.22	2.68
119 Kalimantan Selatan	2,029,304	2,951,070	3,721,315	4,763,441	5,968,514	1.00	1.45	1.83	2.35	2.94
120 Kalimantan Timur	8,697,792	9,403,558	10,510,685	11,972,396	13,111,429	1.00	1.08	1.21	1.38	1.51
121 Sulawesi Utara	136,038	187,215	231,180	292,782	344,638	1.00	1.38	1.70	2.15	2.53
122 Gorontalo	1,145	919	924	933	939	1.00	0.80	0.81	0.82	0.82
123 Sulawesi Tengah	347,697	637,469	926,229	1,350,073	1,685,912	1.00	1.83	2.66	3.88	4.85
124 Sulawesi Selatan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
125 Sulawesi Tenggara	836,790	1,624,304	2,449,761	3,715,101	4,617,353	1.00	1.94	2.93	4.44	5.52
126 Nusa Tenggara Barat	173,668	215,032	262,458	327,187	401,727	1.00	1.24	1.51	1.88	2.31
127 Nusa Tenggara Timur	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
128 Maluku	1,329,373	1,819,845	2,354,983	3,097,298	3,439,773	1.00	1.37	1.77	2.33	2.59
129 Maluku Utara	109,188	122,199	146,174	178,801	196,932	1.00	1.12	1.34	1.64	1.80
130 Irian Jaya/Papua	511,105	764,146	1,094,708	1,616,110	2,046,652	1.00	1.50	2.14	3.16	4.00

shaded cells are top 20 in terms of tons

Table 8.3.3 Liquid Cargo Loading and Unloading Forecast Results

	Throughput (MT)					Throughput 2002 = 1.00				
	Yr 2002	Yr 2009	Yr 2014	Yr 2019	Yr 2024	Yr 2002	Yr 2009	Yr 2014	Yr 2019	Yr 2024
1 Malahayati	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
2 Lhokseumawe	263,658	86,951	37,051	14,931	5,860	1.00	0.33	0.14	0.06	0.02
3 Sabang	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
4 Meulaboh	145,446	66,174	50,721	52,643	65,694	1.00	0.45	0.35	0.36	0.45
5 Kuala Langsa	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
6 Belawan	14,218,199	13,442,232	15,315,123	16,686,043	17,806,390	1.00	0.95	1.08	1.17	1.25
7 Pangkalan Susu	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
8 Tanjung Balai Asahan/T	1,529	2,052	2,423	2,825	3,269	1.00	1.34	1.58	1.85	2.14
9 Kuala Tanjung	62,215	90,655	114,190	147,433	194,796	1.00	1.46	1.84	2.37	3.13
10 Sibolga	270,444	265,648	291,214	307,138	317,272	1.00	0.98	1.08	1.14	1.17
11 Gunung Sitoli	39,286	46,894	45,202	43,943	43,293	1.00	1.19	1.15	1.12	1.10
12 Dumai	28,947,133	34,113,756	37,100,333	38,873,586	40,363,209	1.00	1.18	1.28	1.34	1.39
13 Tanjung Pinang	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
14 Pekanbaru	476,652	449,749	511,618	555,476	589,774	1.00	0.94	1.07	1.17	1.24
15 Tanjung Balai Karimun	77,691	70,451	80,120	86,241	90,017	1.00	0.91	1.03	1.11	1.16
16 Kuala Enok	52,626	50,793	57,242	61,396	64,236	1.00	0.97	1.09	1.17	1.22
17 Bagan Siapi-api	190	321	441	564	689	1.00	1.69	2.33	2.97	3.63
18 Bengkalis	319	540	741	946	1,156	1.00	1.69	2.33	2.97	3.63
19 Selat Panjang	14,559	13,202	15,014	16,161	16,869	1.00	0.91	1.03	1.11	1.16
20 Tembilahan	576,502	686,049	762,582	822,830	887,545	1.00	1.19	1.32	1.43	1.54
21 Rengat	412,111	491,844	542,340	582,107	618,228	1.00	1.19	1.32	1.41	1.50
22 Sungai Pakning	54,890	55,419	61,765	65,730	68,494	1.00	1.01	1.13	1.20	1.25
23 Kijang	42,683	38,941	44,260	47,654	49,776	1.00	0.91	1.04	1.12	1.17
24 Batam	552,905	710,204	847,108	1,003,536	1,208,647	1.00	1.28	1.53	1.82	2.19
25 Teluk Bayur	2,873,413	2,941,055	3,142,216	3,287,541	3,440,372	1.00	1.02	1.09	1.14	1.20
26 Kuala Tangkal	19,816	23,203	31,903	42,786	57,667	1.00	1.17	1.61	2.16	2.91
27 Talang Dukuh / Jambi	970,328	1,408,237	2,071,516	2,997,742	4,332,270	1.00	1.45	2.13	3.09	4.46
28 Muara Sabak	3	5	7	10	14	1.00	1.64	2.27	3.16	4.40
29 Pulau Baai	237,061	243,466	272,412	297,888	323,317	1.00	1.03	1.15	1.26	1.36
30 Palembang	13,808,109	11,123,756	11,618,990	12,180,816	12,917,459	1.00	0.81	0.84	0.88	0.94
31 Pangkal Balam	328,781	356,490	415,753	479,413	555,311	1.00	1.08	1.26	1.46	1.69
32 Tanjung Pandang	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
33 Muntok	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
34 Panjang	3,016,457	2,333,561	2,244,200	2,105,953	1,989,999	1.00	0.77	0.74	0.70	0.66
35 Bakauheuni	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
36 Tanjung Priok	8,534,387	12,482,560	15,914,828	19,103,609	22,220,380	1.00	1.46	1.86	2.24	2.60
37 Sunda Kelapa	42,519	44,684	40,417	35,304	30,705	1.00	1.05	0.95	0.83	0.72
38 Marunda	22,911	35,366	47,024	62,566	83,701	1.00	1.54	2.05	2.73	3.65
39 Kepulauan Seribu	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
40 Kalibaru	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
41 Muara Karang / Muara	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
42 Muara Baru	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
43 Cirebon	70,965	102,220	124,350	154,259	196,378	1.00	1.44	1.75	2.17	2.77
44 Banten	2,036,542	2,057,586	2,247,635	2,431,064	2,649,077	1.00	1.01	1.10	1.19	1.30
45 Semarang	4,984,890	4,749,762	5,119,206	5,394,843	5,656,458	1.00	0.95	1.03	1.08	1.13
46 Cilacap	5,419,311	8,415,161	5,875,724	5,154,250	5,117,105	1.00	1.55	1.08	0.95	0.94
47 Tegal	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
48 Surabaya	7,435,196	22,578,993	17,783,138	14,361,438	12,383,934	1.00	3.04	2.39	1.93	1.67
49 Gresik	1,013,304	3,329,064	2,534,349	1,936,612	1,538,721	1.00	3.29	2.50	1.91	1.52
50 Probolinggo	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
51 Meneg / Tanjung Wang	444,069	1,826,990	1,357,807	1,051,873	889,821	1.00	4.11	3.06	2.37	2.00
52 Pasuruan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
53 Panarukan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
54 Kalianget	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
55 Benoa	1,433,802	1,317,015	1,403,518	1,443,573	1,458,445	1.00	0.92	0.98	1.01	1.02
56 Padangbai	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
57 Celukan Bawang	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
58 Lembar	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
59 Bima	510	690	853	987	1,098	1.00	1.35	1.67	1.94	2.15
60 Badas	97,610	118,520	119,888	118,714	117,591	1.00	1.21	1.23	1.22	1.20
61 Kupang / Tenau	268,383	305,954	312,291	311,265	309,252	1.00	1.14	1.16	1.16	1.15
62 Waingapu	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
63 Ende	227,891	209,328	223,077	229,444	231,807	1.00	0.92	0.98	1.01	1.02
64 Maumere	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
65 Kalabahi	81,078	87,699	90,397	90,766	90,539	1.00	1.08	1.11	1.12	1.12
66 Pontianak	1,957,164	1,875,377	2,040,895	2,165,475	2,284,285	1.00	0.96	1.04	1.11	1.17
67 Teluk Air	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
68 Sintete	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
69 Ketapang	4	7	10	14	18	1.00	1.68	2.33	3.16	4.24
70 Sampit	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
71 Kuala Pembuang	7,311	13,065	19,222	28,141	41,127	1.00	1.79	2.63	3.85	5.63
72 Samuda	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
73 Pulang Pisau	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
74 Pangkalan Bun	16,368	15,993	17,325	18,431	19,610	1.00	0.98	1.06	1.13	1.20
75 Sukamara	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
76 Kumai	120,989	242,546	380,728	587,634	896,445	1.00	2.00	3.15	4.86	7.41
77 Pengatan Mendawai	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
78 Banjarmasin	1,221,129	1,137,857	1,216,973	1,261,558	1,290,625	1.00	0.93	1.00	1.03	1.06
79 Kotabaru	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
80 Balikpapan	31,593,396	42,124,938	44,612,347	45,455,218	45,803,701	1.00	1.33	1.41	1.44	1.45
81 Samarinda	243,524	324,415	407,648	513,591	662,528	1.00	1.33	1.67	2.11	2.72
82 Tarakan	8,281,413	8,926,129	9,845,044	10,317,430	10,526,231	1.00	1.08	1.19	1.25	1.27
83 Nunukan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
84 Bitung	1,948,637	2,022,512	2,245,153	2,461,902	2,722,928	1.00	1.04	1.15	1.26	1.40
85 Manado	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
86 Gorontalo	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
87 Pantoloan	556	889	1,213	1,714	2,505	1.00	1.60	2.18	3.09	4.51
88 Toli-toli	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
89 Ujung Pandang	2,244,746	2,119,761	2,285,777	2,391,092	2,471,208	1.00	0.94	1.02	1.07	1.10
90 Pare-pare	553,558	508,470	541,867	557,331	563,073	1.00	0.92	0.98	1.01	1.02
91 Kendari	77	117	154	194	238	1.00	1.52	2.00	2.51	3.08
92 Ambon	11,773	228,271	164,909	113,938	77,484	1.00	19.39	14.01	9.68	6.58
93 Bandaneire	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
94 Ternate	24,824	24,389	27,158	29,742	32,722	1.00	0.98	1.09	1.20	1.32
95 Sorong	39,395	50,425	46,200	43,366	41,942	1.00	1.28	1.17	1.10	1.06
96 Jayapura	5,416	6,279	5,892	5,641	5,537	1.00	1.16	1.09	1.04	1.02
97 Biak	116,023	143,364	132,145	124,553	120,657	1.00	1.24	1.14	1.07	1.04
98 Merauke	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
99 Manokwari	13,304	24,291	35,642	51,314	72,972	1.00	1.83	2.68	3.86	5.48
100 Fak-fak	6,093	6,461	6,145	5,924	5,808	1.00	1.06	1.01	0.97	0.95
101 Nanggore Aceh Daruss	66,879	39,100	37,343	44,504	58,926	1.00	0.58	0.56	0.67	0.88
102 Sumatera Utara	5,964	8,826	8,603	8,459	8,437	1.00	1.48	1.44	1.42	1.41
103 Sumatera Barat	346,635	420,487	424,472	419,516	414,872	1.00	1.21	1.22	1.21	1.20
104 Riau	19,674,908	21,068,133	23,180,027	24,376,263	25,152,596	1.00	1.07	1.18	1.24	1.28
105 Jambi	1,250	1,593	1,881	2,170	2,489	1.00	1.27	1.50	1.74	1.99
106 Sumatera Selatan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
107 Kepulauan Bangka Bel	5,570	5,613	6,300	6,932	7,609	1.00	1.01	1.13	1.24	1.37
108 Bengkulu	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
109 Lampung	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
110 DKI Jakarta	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
111 Jawa Barat	179,030	209,007	164,876	122,757	88,422	1.00	1.17	0.92	0.69	0.49
112 Banten	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
113 Jawa Tengah	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
114 DI Yogyakarta	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
115 Jawa Timur	1,864,682	6,116,115	4,667,079	3,583,045	2,869,889	1.00	3.28	2.50	1.92	1.54
116 Bali	3,322	4,176	4,603	4,905	5,146	1.00	1.26	1.39	1.48	1.55
117 Kalimantan Barat	595	974	1,352	1,878	2,617	1.00	1.64	2.27	3.16	4.40
118 Kalimantan Tengah	13,913	16,575	19,272	22,672	27,493	1.00	1.19	1.39	1.63	1.98
119 Kalimantan Selatan	20,483	24,558	34,156	44,486	56,350	1.00	1.20	1.67	2.17	2.75
120 Kalimantan Timur	2,637,122	3,757,960	4,092,336	4,391,191	4,790,277	1.00	1.43	1.55	1.67	1.82
121 Sulawesi Utara	256,172	235,307	250,762	257,918	260,575	1.00	0.92	0.98	1.01	1.02
122 Gorontalo	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
123 Sulawesi Tengah	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
124 Sulawesi Selatan	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
125 Sulawesi Tenggara	242,971	264,255	295,408	327,822	368,479	1.00	1.09	1.22	1.35	1.52
126 Nusa Tenggara Barat	6,064	7,462	7,823	8,059	8,327	1.00	1.23	1.29	1.33	1.37
127 Nusa Tenggara Timur	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
128 Maluku	13,875	53,832	48,369	45,728	47,383	1.00	3.88	3.49	3.30	3.41
129 Maluku Utara	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
130 Irian Jaya/Papua	51,886	65,435	62,342	61,505	63,218	1.00	1.26	1.20	1.19	1.22

shaded cells are top 20 in terms of tons

In the future the ports of Belawan, Batam, Teluk Bayur, Panjang, Tg. Priok, Tg. Perak, The ports of Pontianak and Makassar will experience high growth of more than three times the current throughput in the next 20 years. Pontianak port throughput will increase the highest among primary ports at more than four times by 2024. The ports of Banten, Tg. Perak and Makassar will have to handle more than 20 million MT of dry cargo per year in 2024; while, Tg. Priok will have to handle more than 40 million MT of dry cargo by 2024.

In the case of liquid cargo, the increase in domestic throughput is generally expected not to increase as significantly as dry cargo – however, international traffic may increase significantly as more of the petroleum needs of Indonesia will be served by foreign sources. Still the some ports will experience significant increase in port activity. Most important is the increase in liquid cargo through in the port of Tg. Priok at 2.6 times by 2024 which would entail more than 20 million MT of liquid cargo traffic.

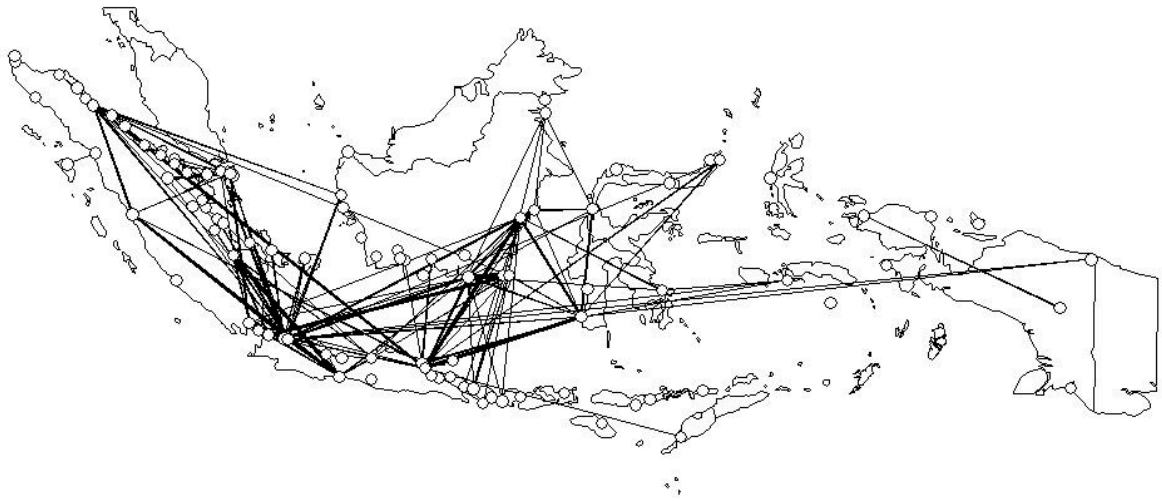
8.3.3. OD Forecast of Maritime Freight

Figures 8.3.3 to Figures 8.3.8 illustrate the projected changes in OD patterns of dry cargo and liquid cargo. Currently, surveyed OD patterns indicate that dry cargo are largely centered in the key cities of Jakarta and Surabaya, wherein trade in the eastern regions of Indonesia are focused towards Jakarta and trade in the western regions are focused towards Surabaya. Due to this tendency the average distance traveled by dry cargo is approximately 500 nautical miles. Based on the OD forecast, such trend will continue in the future.

In the case of liquid cargo, domestic sea traffic are concentrated between the oil production areas in Riau to Jakarta and Surabaya as well as from the oil production sites in the eastern coast of Kalimantan and Surabaya. There is also significant traffic of crude oil from Riau to Kalimantan Timur. Similar to dry cargo, liquid OD patterns will not change significantly. However, there is expected a marked increase in activity between Surabaya and Kalimantan Timur. Average distance of transport is about 500 nautical miles.

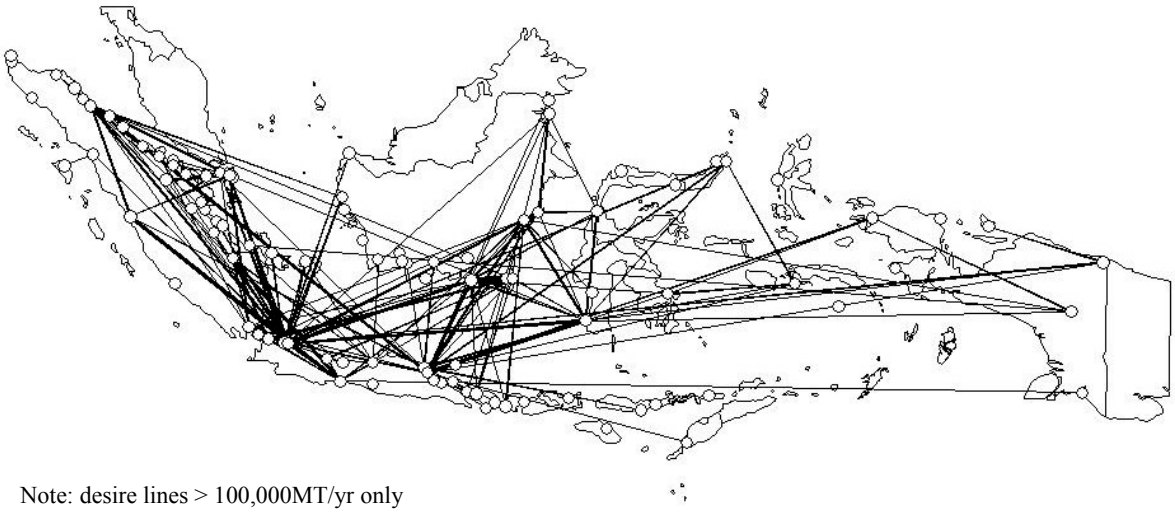
Top 20 OD pairs for both dry cargo and liquid cargo are specified in the appendix of Chapter 8.

Figure 8.3.3 Dry Cargo Desire Lines Year 2002



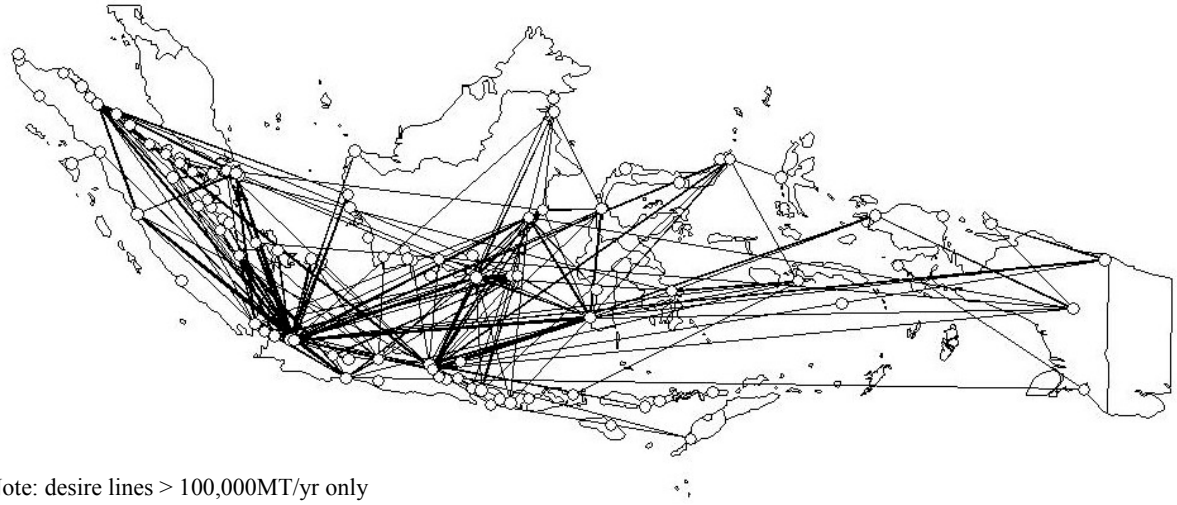
Note: desire lines > 100,000MT/yr only

Figure 8.3.4 Dry Cargo Desire Lines Year 2014



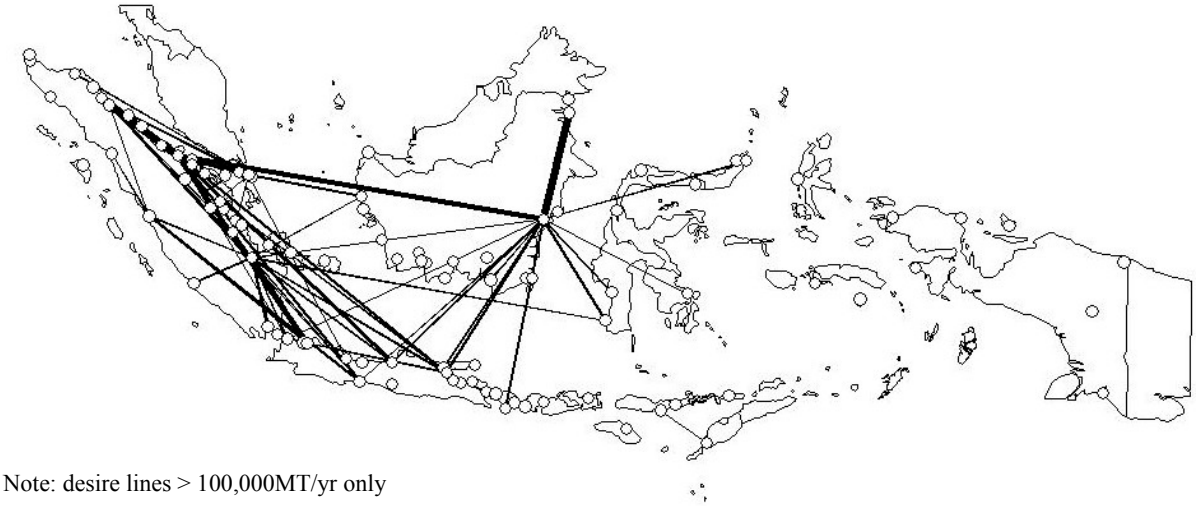
Note: desire lines > 100,000MT/yr only

Figure 8.3.5 Dry Cargo Desire Lines Year 2024



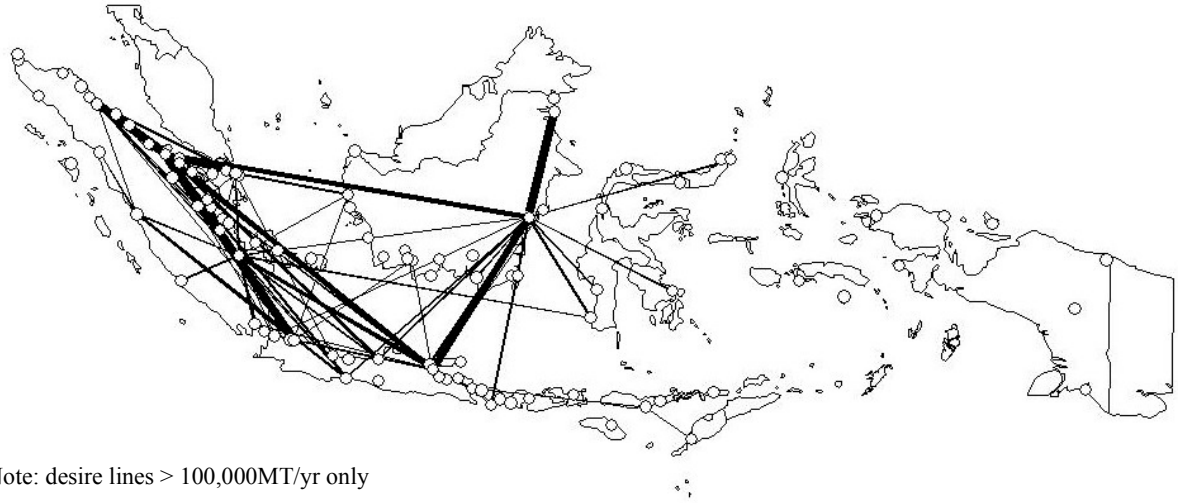
Note: desire lines > 100,000MT/yr only

Figure 8.3.6 Liquid Cargo Desire Lines Year 2002



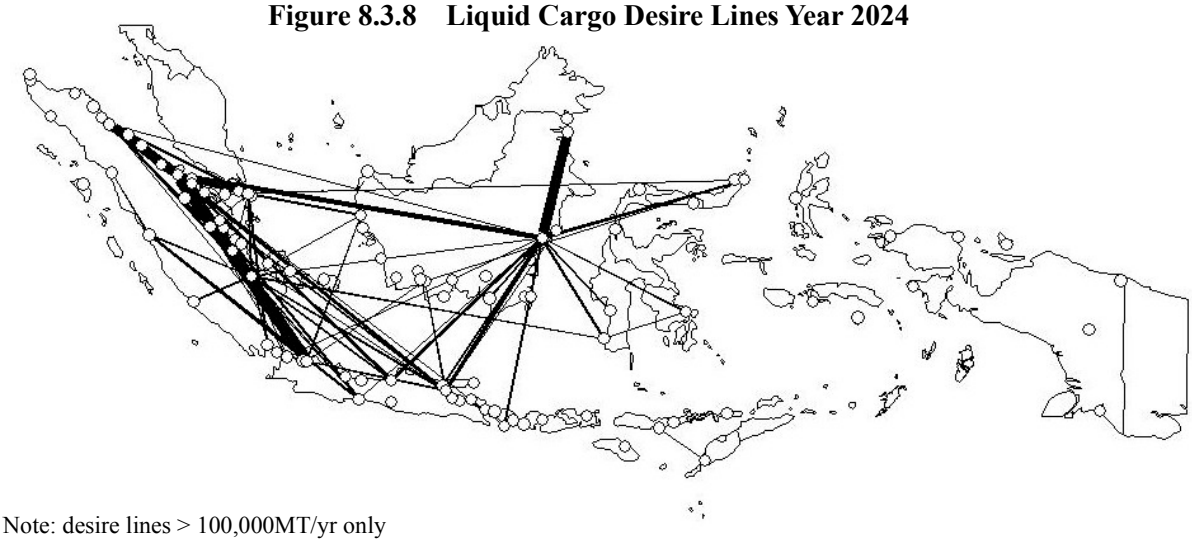
Note: desire lines > 100,000MT/yr only

Figure 8.3.7 Liquid Cargo Desire Lines Year 2014



Note: desire lines > 100,000MT/yr only

Figure 8.3.8 Liquid Cargo Desire Lines Year 2024



Note: desire lines > 100,000MT/yr only

8.3.4. Summary of Future Changes in Freight Maritime Demand

Dry cargo will increase by nearly three times while liquid cargo will increase by nearly one and half time in the next 20 years as shown in Table 8.4.3 and 8.4.4. Changes in the volume-distance profile of dry and liquid cargo are shown in Figure 8.3.9 respectively showing the approximately uniform growth across distance groupings, thus the average distance of freight transport in the future will stay more or less the same as today.

Table 8.3.4 Summary of Dry Cargo Demand

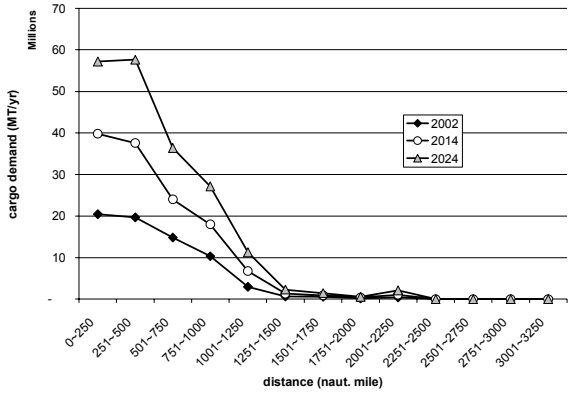
Year	MT	1,000 MT-nmile	2002 MT = 1.00	2002 MT-nmile = 1.00
2002	70,072,484	34,056,509	1.00	1.00
2014	129,718,412	62,791,420	1.85	1.84
2024	196,055,013	97,691,589	2.80	2.87

Table 8.3.5 Summary of Liquid Cargo Demand

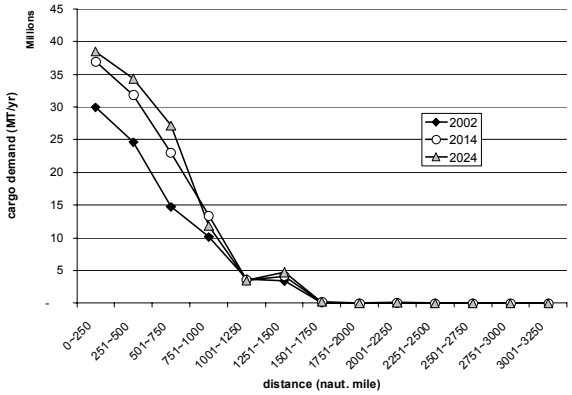
Year	MT	1,000 MT-nmile	2002 MT = 1.00	2002 MT-nmile = 1.00
2002	86,686,697	40,808,389	1.00	1.00
2014	113,105,219	54,272,041	1.30	1.33
2024	120,430,694	57,227,078	1.39	1.40

Figure 8.3.9 Future Changes in Demand-Distance Profile

Dry Cargo



Liquid Cargo



8.3.5. Future Packaging Trend

The future packaging trend of dry cargo (excluding coal and mining products) is estimated by selecting the vessel type (i.e. container, conventional or bulker) that will minimize the transport. The selected vessel will indicate the packaging type, i.e. containerized if transported by container vessels, break bulk if transported by conventional vessels and bulk if transported by bulkers. Packaging type is therefore decided in conjunction with the vessel type and vessel size selection.

Petroleum, CPO and other liquid cargo are assumed to be totally transported in bulk. Similarly, coal and mining and quarrying products are assumed to be totally transported in bulk.

The following is the forecasted packaging trend. Table 8.3.6 shows the increase in containerization rate and Table 8.3.7 summarizes the estimated packaging trend for each commodity. It is expected that containerization rate will double in the next 20 years.

Table 8.3.6 Estimated Future Containerization Rate

	2002	2014	2024
Containerized traffic (MT)	11,288	33,356	58,954
Non-containerized traffic (MT)	37,430	56,126	87,592
Total containerizable traffic (MT)	48,718	89,482	146,546
% containerized	23%	37%	40%

Note: Containerization rate is the share of containerized cargo of all containerizable cargo. Containerizable cargo is assumed to include all commodities except petroleum, CPO, other liquid cargo, coal and mining products

Table 8.3.7 Estimated Future Packaging Trend

Commodity	Package Type	Volume (1,000 MT)			Share (%)		
		2002	2014	2024	2002	2014	2024
Petroleum	Container	169	0	0	0%	0%	0%
	Break	78	0	0	0%	0%	0%
	Bulk	82,326	105,123	106,144	100%	100%	100%
CPO	Container	3	0	0	0%	0%	0%
	Break	74	0	0	3%	0%	0%
	Bulk	2,442	5,729	11,090	97%	100%	100%
Other liquid	Container	46	0	0	3%	0%	0%
	Break	0	0	0	0%	0%	0%
	Bulk	1,548	2,253	3,196	97%	100%	100%
Coal	Container	347	0	0	2%	0%	0%
	Break	1	0	0	0%	0%	0%
	Bulk	16,326	31,348	38,030	98%	100%	100%
Mine/Quarry	Container	46	0	0	1%	0%	0%
	Break	185	0	0	4%	0%	0%
	Bulk	4,449	6,531	9,306	95%	100%	100%
Rice	Container	125	437	498	9%	34%	37%
	Break	1,171	839	860	88%	66%	63%
	Bulk	41	0	0	3%	0%	0%
Agri grains	Container	702	285	405	59%	18%	18%
	Break	54	914	1,309	5%	57%	57%
	Bulk	438	416	591	37%	26%	26%
Fertilizer	Container	0	222	210	0%	4%	3%
	Break	2,757	2,842	2,988	47%	47%	49%
	Bulk	3,132	2,990	2,941	53%	49%	48%
Cement	Container	284	1,209	2,805	6%	11%	14%
	Break	4,319	7,771	14,113	86%	72%	68%
	Bulk	428	1,819	3,807	9%	17%	18%
Other grains	Container	258	0	102	11%	0%	2%
	Break	1,780	2,446	3,510	79%	83%	81%
	Bulk	220	511	724	10%	17%	17%
Fresh Products	Container	141	183	259	47%	60%	58%
	Break	162	124	188	53%	40%	42%
	Bulk	0	0	0	0%	0%	0%
Wood	Container	403	644	653	4%	8%	8%
	Break	9,619	7,138	7,162	92%	90%	91%
	Bulk	423	134	85	4%	2%	1%
General Cargo	Container	9,375	30,376	54,022	42%	52%	52%
	Break	12,247	28,182	49,314	55%	48%	48%
	Bulk	639	0	0	3%	52%	52%
All Cargo	Container	11,900	33,357	58,952	8%	14%	19%
	Break	32,447	50,256	79,445	21%	21%	25%
	Dry Bulk	26,096	43,749	55,484	17%	18%	18%
	Liquid Bulk	86,316	113,105	120,431	55%	47%	38%

8.4. Passenger Demand Forecast

8.4.1. Mid to Long Distance Passenger Demand

Since this Study deals with maritime transportation on a national level, long-distance inter-provincial trips is of key interest vis-à-vis short distance intra-provincial trips. As such, demand forecast does not to include land-based modes as land based modes are typically

used for short distance travel only, for example rail-based trips on average are only about 100-km in distance. Moreover, the topography of Indonesia naturally excludes land-based transport in many cases. Ferry trips however, were included in the analysis initially but were later filtered out to concentrate the analysis on mid to long distance passenger travel only.

8.4.2. Passenger Traffic Generation and Attraction

As GDP per capita increases, people will tend to travel more. In the low GDP growth case, it is forecasted that air and sea based trips will increase by 1.7 times by 2024 or an average growth rate of about 2.6% per annum. In the high GDP growth case, air and sea trip generation is forecasted to increase by 2.3 times by 2024 or an equivalent of about 4.1 % growth per annum.

The following figures summarize the forecasted trip generation/attraction per region. The results indicate increase of trips generation and attraction is more or less uniform across the country, except NTB, NTT, Maluku and Maluku Utara region – where growth is rather flat.

Figure 8.4.1 Inter-island Sea + Air Trips Forecast Under Low Growth Scenario

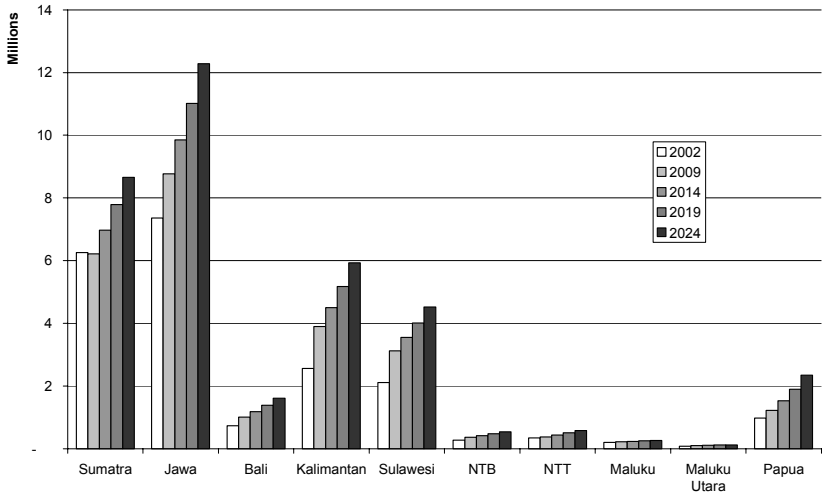
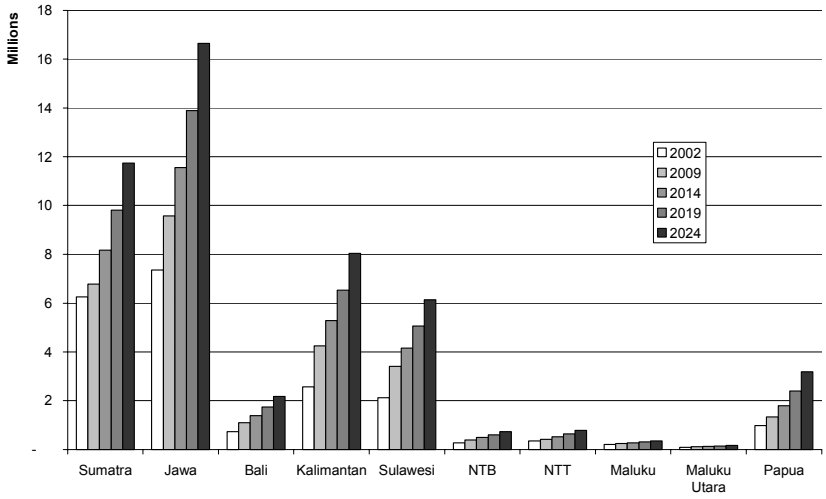


Figure 8.4.2 Inter-island Sea + Air Trips Forecast Under High Growth Scenario



8.4.3. Modal Split between Air and Sea

Modal split involves the decomposition of the combined inter-island sea and airline trips. The following tables illustrate the result of the forecast. Under the high GDP growth case, growth in the number of inter-island sea trips actually slows down as the increase in the total number of trips could not compensate for the shift of passengers from inter-island sea services to airline service. In the low GDP growth case, even though the growth of total trips is not as high as the high GDP growth case, but the share of inter-island sea service will not drop as significantly – thereby resulting in a higher number of passengers.

Table 8.4.1 Forecast of Sea Trips – High Growth Case

Year	Share of Inter-island Sea	Inter-island Sea+ Air Trips	Inter-island Sea Trips	Change as ratio to 2002 values
2002	0.60	20,923,337	12,500,000	1.00
2009	0.51	27,610,602	14,153,913	1.13
2014	0.41	33,770,421	13,785,483	1.10
2019	0.35	41,136,732	14,594,084	1.17
2024	0.33	49,965,087	16,591,194	1.33

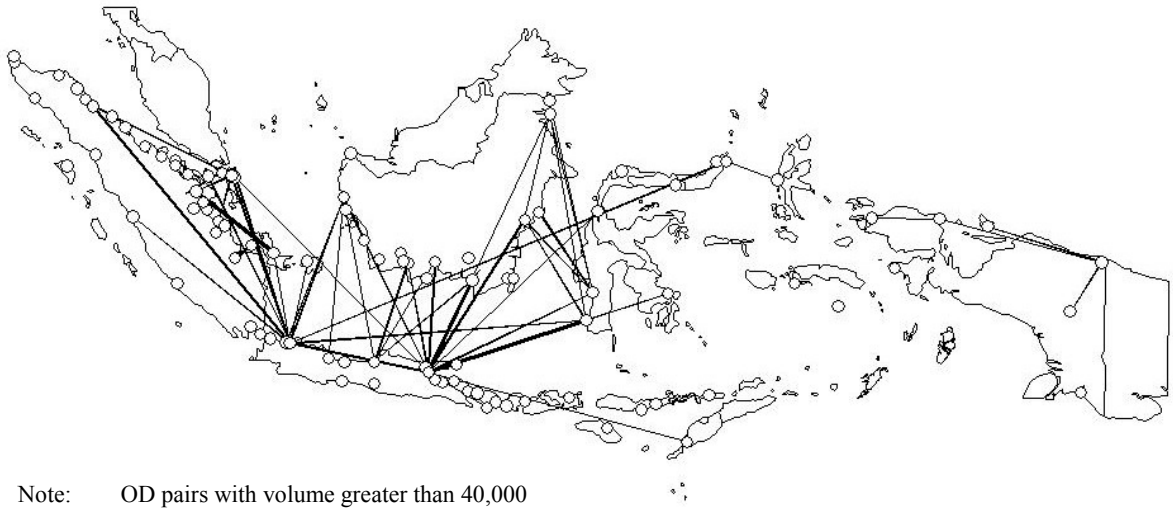
Table 8.4.2 Forecast of Sea Trips – Low Growth Case

Year	Share of Inter-island Sea	Inter-island Sea + Air Trips	Inter-island Sea Trips	Change as ratio to 2002 values
2002	0.60	20,923,337	12,500,000	1.00
2009	0.65	25,314,472	16,382,000	1.31
2014	0.65	28,802,911	18,676,241	1.49
2019	0.59	32,636,733	19,276,271	1.54
2024	0.51	36,874,568	18,747,353	1.50

8.4.4. Sea Passenger OD

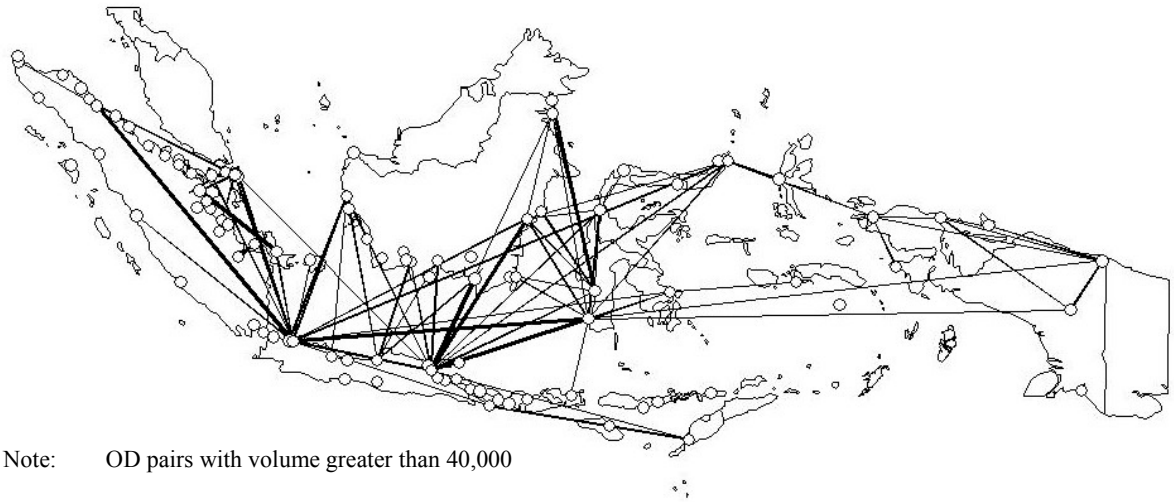
Firgure 8.4.3 to 8.4.5 illustrate the projected future OD pattern of sea passenger demand. From the results it can be seen that traffic in the eastern side of Indonesia towards the central areas will strengthen. Top 20 OD pairs are listed in the appendix.

Figure 8.4.3 Inter-island Sea Passenger OD (2002)



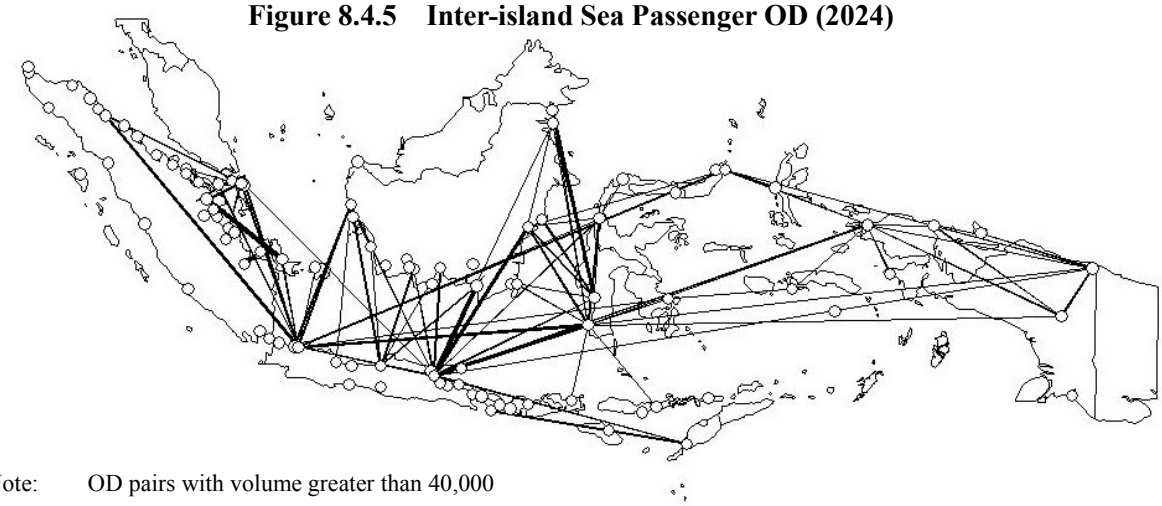
Note: OD pairs with volume greater than 40,000

Figure 8.4.4 Inter-island Sea Passenger OD (2014)



Note: OD pairs with volume greater than 40,000

Figure 8.4.5 Inter-island Sea Passenger OD (2024)



Note: OD pairs with volume greater than 40,000

8.4.5. Changes in Future Inter-island Sea Passenger Demand

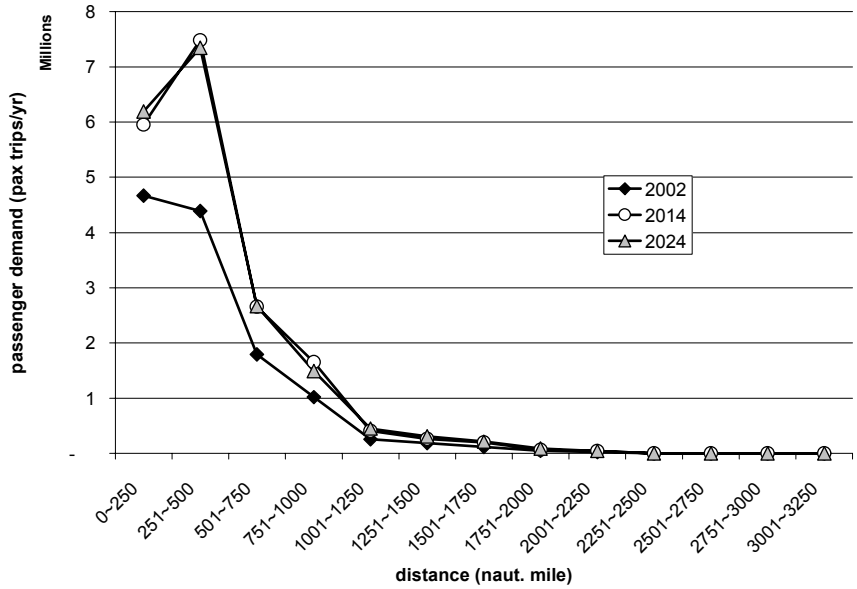
Based on the forecasted OD structure, the volume of demand in terms of passenger and passenger-mile is calculated (assuming port-to-port transport). The following tables show the results. Demand will increase by 1.5 times by 2024.

It is expected that there will be higher growth in relatively short distance travel of within 250 to 500 nautical miles as shown in Figure 8.5.9. Much of the growth however, will be concentrated in the next ten years. From 2014 to 2024 passenger growth will be relatively flat, because increasing incomes will shift demand from sea to air.

Table 8.4.3 Summary of Change in Inter-island Sea Passenger Demand

Year	Pax	1,000 Pax-nmile	2002 pax = 1.00	2002 pax-nmile = 1.00
2002	12,500,000	5,081,850	1.00	1.00
2014	18,714,597	7,896,568	1.50	1.55
2024	18,800,539	7,931,057	1.50	1.56

Figure 8.4.6 Inter-island Sea Passenger OD (2024)



8.5. Required Fleet Expansion

Based on the projected demand, the future fleet requirement is estimated. This section summarizes the results of the forecast.

8.5.1. Current Fleet

To be able to forecast the future fleet requirement, it is necessary to define the starting point of the forecast and the current fleet composition and quantity is the basis of this exercise. The operational fleet is determined from DGSC sources with corresponding adjustments. Table 8.5.1 summarizes the operational fleet operating in domestic trade. The current fleet is comprised of mainly conventional vessels and tankers – see Figure 8.4.6.

Figure 8.5.1 Composition of Domestic Fleet

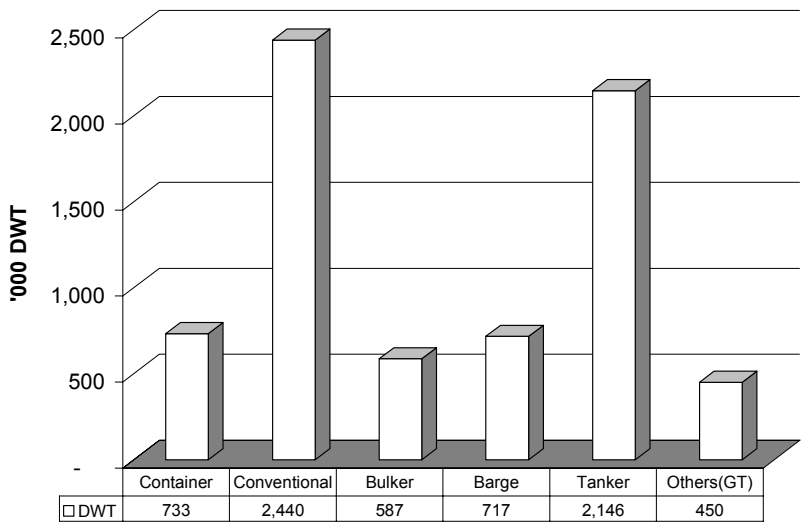


Table 8.5.1 Estimated Domestic Fleet

Type	Vessel Size	DWT	Units	Remarks
Container	1,000 - 2,000	703	1	
	2,000 - 4,000	46,404	15	
	4,000 - 8,000	320,611	53	
	8,000 - 12,000	112,495	11	
	over 12,000	253,114	17	
	Total	**733,327**	**98**	
Conventional	0 - 1,000	318,351	637	
	1,000 - 2,000	296,347	198	
	2,000 - 4,000	471,909	157	
	4,000 - 8,000	809,923	162	
	over 8,000	543,070	54	
	Total	**2,439,600**	**1208**	
Bulker	1,000 - 4,000	12,790	5	
	4,000 - 8,000	73,673	12	
	8,000 - 15,000	101,300	9	
	over 15,000	399,059	13	
	Total	**586,822**	**40**	
Barge	2,500 - 5,000	391,215	104	Barges of sizes below 2,500 DWT are assumed to operate in rivers and are not included
	5,000 - 10,000	307,383	41	
	10,000 - 15,000	18,629	1	
	Total	**717,227**	**147**	
Tanker	0 - 1,000	50,638	101	
	1,000 - 4,000	531,700	213	
	4,000 - 8,000	371,346	62	
	8,000 - 15,000	247,564	23	
	15,000 - 25,000	360,093	18	
	25,000 - 35,000	405,105	14	
	over 35,000	180,047	5	
	Total	**2,146,493**	**434**	
Passenger	0 - 1,500	72,000	162	Not including Ferries considered to be operating beyond the scope of the Study
	1,500 - 4,000	42,000	17	
	4,000 - 6,000	136,000	25	
	over 6,000	118,000	10	
	Total	**368,000**	**214**	
Passenger/RoRo	0 - 4,000	15,000	5	Not including RoRo Ferries considered to be operating beyond the scope of the Study
	4,000 - 6,000	29,000	6	
	over 6,000	8,000	1	
	Total	**52,000**	**12**	
RoRo	0 - 2,000	5,806	4	Not including small RoRo vessels considered to be operating beyond the scope of the Study
	2,000 - 4,000	9,282	3	
	over 4,000	14879	3	
	Total	**29,967**	**10**	

8.5.2. Domestic Fleet Growth

(1) Growth in Vessel Requirement for Liquid Cargo Demand

The domestic tanker fleet will have to be able to cope with the increase in liquid cargo traffic. Table 8.7.7 summarizes the growth in traffic of liquid cargo. Based on the growth of demand, it is expected that the tanker fleet tonnage will also increase by 1.33 times by 2014 and by 1.43 times by 2024.

Table 8.5.2 Growth in Liquid Cargo Traffic

	2002	2014	2024
MT	86,686,697	113,105,219	120,430,694
MT Growth (2002 = 1.00)	1.00	1.30	1.39
'000 MT-mile	40,808,389	54,272,041	57,227,078
MT-mile Growth (2002 = 1.00)	1.00	1.33	1.40

Note: Liquid cargo is composed of petroleum, CPO and other liquid cargo. At least 85% of the liquid cargo traffic in ton-mile is petroleum

(2) Growth in Vessel Requirement for Dry Cargo Demand

Based on a port-to-port network structure the vessel requirement for dry cargo is simulated using the minimum cost vessel selection approach. The growth pattern in the simulated vessel requirement is then used as the basis for extrapolation of the current fleet to estimate future fleet requirements.

There are three scenarios considered in the estimation of fleet requirement for dry cargo.

Case 0: Base Case – No changes in fleet specification and port conditions

Case 1: Improved Fleet – Improved fleet conditions brought about by ship replacement and modernization. It is assumed that vessels over 35 years old will be replaced by second hand vessels in the next ten years. Vessels over 30 and 25 years old will be replaced in the periods of 2014~2019 and 2019~2024 respectively. As a result vessel speed and commissionable days will improve. Improvement in vessel speed is assumed to apply only to container vessels. Such assumptions are however considered as preliminary and will be further refined after a more aggressive modernization plan is devised.

Table 8.5.3 Improved Average Speed of Fleet Scenario

Vessel Type	Average Speed (knots)		
	2002	2014	2024
Container	10~12	12.2~16.1	12.2~16.1
Conventional	9~11	10.8~13.2	11.7~14.3
Bulker (all)	No change		

Table 8.5.4 Improved Commissionable Days Scenario

Vessel Type	Commissionable days		
	2002	2014	2024
Container (all)	346	353	359
Conventional (all)	338	349	359
Bulker (all)	350	355	359

Table 8.5.5 shows the summary of waiting time per vessel type at Indonesian ports (based on PELINDO Statistics). Waiting time is comprised of time spent for non- cargo operational activities, including waiting for berth, waiting for cargo, repair time, and approach time.

Table 8.5.5 Current Non-operational Port Waiting Time at Ports

	Container	Bulker	Conventional
Average (hrs)	10.3	7.3	18.0
Minimum (hrs)	3.0	4.0	4.0
Maximum (hrs)	48.0	48.0	77.8

It can be clearly seen that conventional vessels exhibit very inefficient management of vessel waiting time at ports, thus leading to very low vessel utilization. Berth availability is a contributory factor, but because only a few ports are very congested and that berthing allocation in many cases is on equal terms with containers and bulkers, thus berth space availability is not a significant factor. It is more likely to be because of logistics management and over tonnage. It is therefore possible to improve port waiting time of conventional vessels through the control of national tonnage and through improved management of port vessel time, by coordinating cargo availability at port and vessel calling.

Thus as part of improved fleet case, it is assumed that conventional vessel operators be able to duplicate the level of efficiency of container vessel operators and bulker operators in terms of minimizing waiting time. Moreover, as a support mechanism, the government is assumed be able to sufficiently control over tonnage in conventional vessels as this will greatly aid in minimizing waiting time for cargo at ports.

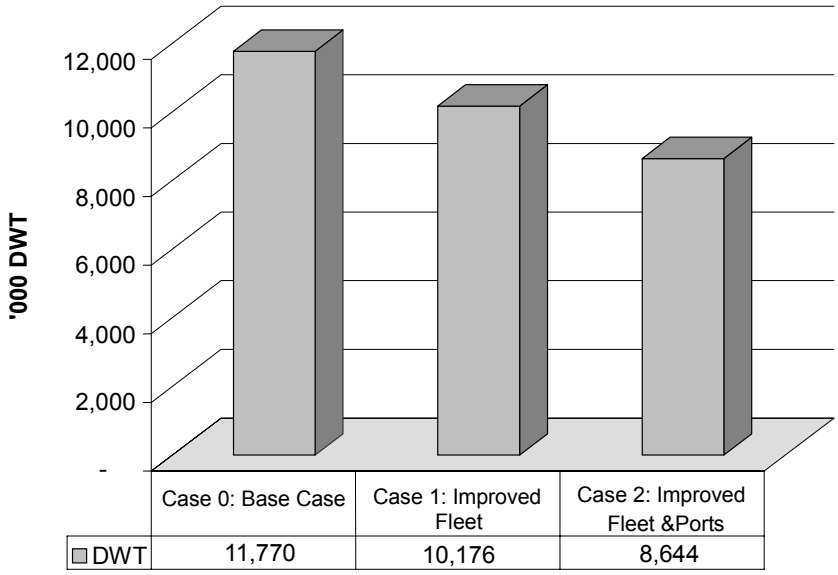
Case 2: Improved Fleet and Port Productivity - Improved port productivity in terms of minimizing waiting time and improving cargo handling speed is assumed to be realized. Unlike Case 1, the improved port productivity case considers port investment to increase berth length and to introduce efficient cargo handling facilities. As a result, port waiting and cargo handling time is assumed to be improved as follows.

Table 8.5.6 Improved Port Productivity Scenario

	2002	2014	2024
Waiting time (2002 = 1.0)	1.0	0.5	0.5
Cargo handling speed (2002 = 1.0)	1.0	1.2	1.2

Based on the preceding assumptions, the required fleet for 2024 for each case is compared on Figure 8.5.2. It can be seen that Case 1 presents a 5% decrease in fleet tonnage requirement and Case 2 presents a 16% decrease in fleet tonnage.

Figure 8.5.2 Comparison of 2024 Dry Cargo Fleet Requirements under 3 Scenarios



(3) Growth in Vessel Requirement for Passenger Traffic

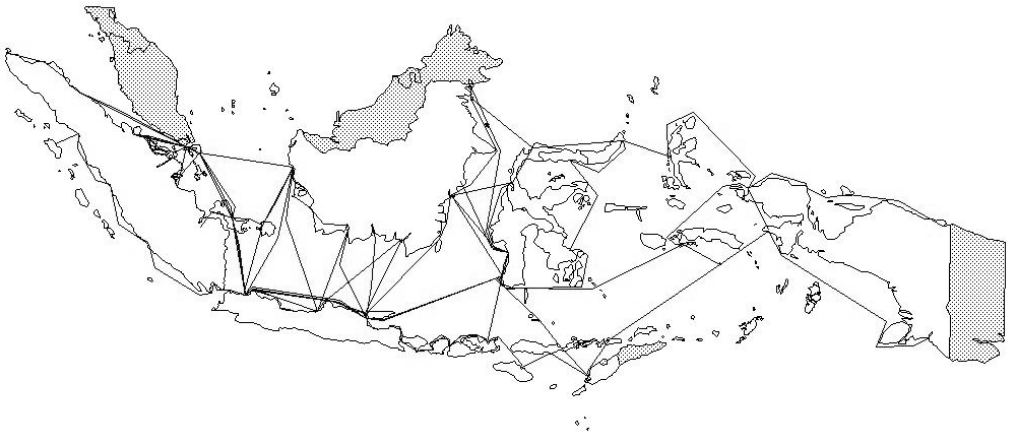
The domestic passenger fleet will have to be able to cope with the increase in passenger traffic (Table 8.7.15).

Table 8.5.7 Growth in Passenger Traffic

	2002	2014	2024
Pax	12,500,000	18,714,597	18,800,539
Pax Growth (2002 = 1.00)	1.00	1.50	1.50
'000 pax-mile	5,081,850	7,896,568	7,931,057
Pax-mile Growth (2002 = 1.00)	1.00	1.55	1.56

To be able to estimate the fleet requirements for passenger service, the passenger network needs to be clarified, and the proposed network is as follows. The rationale of the proposed network is discussed in Chapter 10.

Figure 8.5.3 Assumed Network For Passenger Fleet Estimate



Based on these assumptions, the following fleet requirements will be required. Based on the demand forecast for maritime passengers, demand will be flat from 2014 onwards. Thus, it is taken that fleet requirements will increase from the present up to 2014 and will be stable from thereon. The following is the results of the fleet estimation.

Table 8.5.8 Estimated Passenger Fleet Requirements from 2014 Onwards

Vessel ID	Capacity (pax)	Passenger Type	Passenger/ RoRo Type	Passenger/ Cargo Type	All Types
1	2,000	16	-	-	**16**
2	1,000	25	10	8	**42**
3	500	27	6	19	**52**
4	315	-	-	-	**-**
5	210	-	1	12	**13**
6	150	-	-	31	**31**
All		**68**	**17**	**70**	**154**

8.5.3. Estimated Future Fleet Requirement

Based on the estimated growth in fleet requirement, the current fleet is extrapolated for the benchmark years 2014 and 2024. Table 8.7.16, Table 8.7.17, and Table 8.7.18 summarizes the estimated fleet for Case 0, Case 1, and Case 2 respectively.

Table 8.5.9 Case 0: Base Case Fleet Estimate

Type	DWT	2002		2014		2024	
		DWT/3	Units	DWT/3	Units	DWT/3	Units
Container	1,000 - 2,000	1	1	1	1	1	1
	2,000 - 4,000	46	15	58	19	69	23
	4,000 - 8,000	321	53	400	67	476	79
	8,000 - 12,000	112	11	142	14	148	15
	12,000 - 18,000	192	14	1,062	76	2,088	149
	Over 18,000	61	3	339	17	666	34
	Sub-total	**733**	**97**	**2,002**	**194**	**3,448**	**301**
Conven-Tional	0 - 1,000	318	637	517	1,034	812	1,625
	1,000 - 2,000	296	198	481	321	756	504
	2,000 - 4,000	472	157	1,300	433	2,539	846
	4,000 - 8,000	810	162	897	179	967	193
	over 8,000	543	54	602	60	649	65
	Sub-total	**2,440**	**1,208**	**3,797**	**2,028**	**5,724**	**3,233**
Bulker	1,000 - 4,000	13	5	9	4	11	4
	4,000 - 8,000	74	12	53	9	64	11
	8,000 - 15,000	101	9	133	12	213	19
	over 15,000	399	13	695	23	822	27
	Sub-total	**587**	**40**	**890**	**48**	**1,111**	**62**
Barge	2,500 - 5,000	391	104	473	126	451	120
	5,000 - 10,000	307	41	676	90	856	114
	10,000 - 15,000	19	1	54	4	51	4
	Sub-total	**717**	**147**	**1,203**	**221**	**1,358**	**238**
Tanker	0 - 1,000	51	101	67	135	71	142
	1,000 - 4,000	532	213	707	283	746	298
	4,000 - 8,000	371	62	494	82	521	87
	8,000 - 15,000	248	23	329	30	347	32
	15,000 - 25,000	360	18	479	24	505	25
	25,000 - 35,000	405	14	539	18	568	19
	over 35,000	180	5	239	6	252	6
	Sub-total	**2,146**	**434**	**2,855**	**578**	**3,010**	**609**
Cargo Vessels Total		**6,623**	**1,926**	**10,747**	**3,069**	**14,651**	**4,443**
Passenger/2	0 - 1,500 GT	72	162	18	44	18	44
	1,500 - 4,000 GT	42	17	81	46	81	46
	4,000 - 6,000 GT	136	25	180	33	180	33
	over 6,000 GT	118	10	189	16	189	16
	Sub-total	**368**	**214**	**467**	**139**	**467**	**139**
Pass./ Ro-Ro	0 - 4,000 GT	15	5	21	7	21	7
	4,000 - 6,000 GT	29	6	48	10	48	10
	over 6,000 GT	8	1	-	-	-	-
	Sub-Total	**52**	**12**	**69**	**17**	**69**	**17**
Passenger Vessels Total		**420**	**226**	**536**	**156**	**536**	**156**

/1 in thousands

/2 Includes purely passenger and passenger cum cargo vessels

/3 Pure Ro-Ro vessels are considered to be part of container and conventional fleet tonnage

Table 8.5.10 Case 1: Fleet Estimate under Improved Fleet Conditions

Type	DWT	2002		2014		2024	
		DWT/3	Units	DWT/3	Units	DWT/3	Units
Container	1,000 - 2,000	1	1	1	1	1	1
	2,000 - 4,000	46	15	55	18	65	22
	4,000 - 8,000	321	53	377	63	451	75
	8,000 - 12,000	112	11	121	12	134	13
	12,000 - 18,000	192	14	977	70	1,910	137
	Over 18,000	61	3	311	16	609	31
	Sub-total	**733**	**97**	**1,842**	**180**	**3,170**	**279**
Conven-Tional	0 - 1,000	318	637	424	848	637	1,275
	1,000 - 2,000	296	198	395	263	593	395
	2,000 - 4,000	472	157	1,069	356	1,946	649
	4,000 - 8,000	810	162	761	152	807	161
	over 8,000	543	54	510	51	540	54
	Sub-total	**2,440**	**1,208**	**3,158**	**1,670**	**4,524**	**2,534**
Bulker	1,000 - 4,000	13	5	9	3	10	4
	4,000 - 8,000	74	12	50	8	59	10
	8,000 - 15,000	101	9	129	12	204	19
	over 15,000	399	13	676	23	786	26
	Sub-total	**587**	**40**	**865**	**46**	**1,059**	**59**
Barge	2,500 - 5,000	391	104	454	121	418	111
	5,000 - 10,000	307	41	667	89	827	110
	10,000 - 15,000	19	1	54	4	49	4
	Sub-total	**717**	**147**	**1,175**	**214**	**1,294**	**226**
Tanker	0 - 1,000	51	101	67	135	71	142
	1,000 - 4,000	532	213	707	283	746	298
	4,000 - 8,000	371	62	494	82	521	87
	8,000 - 15,000	248	23	329	30	347	32
	15,000 - 25,000	360	18	479	24	505	25
	25,000 - 35,000	405	14	539	18	568	19
	over 35,000	180	5	239	6	252	6
	Sub-total	**2,146**	**434**	**2,855**	**578**	**3,010**	**609**
Cargo Vessels Total		**6,623**	**1,926**	**9,895**	**2,688**	**13,057**	**3,707**
Passenger/2	0 - 1,500	72	162	18	44	18	44
	1,500 - 4,000	42	17	81	46	81	46
	4,000 - 6,000	136	25	180	33	180	33
	over 6,000	118	10	189	16	189	16
	Sub-total	**368**	**214**	**467**	**139**	**467**	**139**
Pass./ Ro-Ro	0 - 4,000	15	5	21	7	21	7
	4,000 - 6,000	29	6	48	10	48	10
	over 6,000	8	1	-	-	-	-
	Sub-Total	**52**	**12**	**69**	**17**	**69**	**17**
Passenger Vessels Total		**420**	**226**	**536**	**156**	**536**	**156**

/1 in thousands

/2 Includes purely passenger and passenger cum cargo vessels

/3 Pure Ro-Ro vessels are considered to be part of container and conventional fleet tonnage

Table 8.5.11 Case 2: Fleet Estimate under Improved Fleet and Port Productivity

Type	DWT	2002		2014		2024	
		DWT/3	Units	DWT/3	Units	DWT/3	Units
Container	1,000 - 2,000	1	1	1	1	1	1
	2,000 - 4,000	46	15	46	15	55	18
	4,000 - 8,000	321	53	315	53	383	64
	8,000 - 12,000	112	11	110	11	114	11
	12,000 - 18,000	192	14	806	58	1,608	116
	Over 18,000	61	3	257	12	513	26
	Sub-total	**733**	**97**	**1,535**	**150**	**2,674**	**236**
Conven-Tional	0 - 1,000	318	637	343	686	518	1,036
	1,000 - 2,000	296	198	319	213	482	321
	2,000 - 4,000	472	157	823	274	1,543	514
	4,000 - 8,000	810	162	719	144	770	154
	over 8,000	543	54	482	48	517	51
	Sub-total	**2,440**	**1,208**	**2,686**	**1,365**	**3,830**	**2,077**
Bulker	1,000 - 4,000	13	5	7	3	8	3
	4,000 - 8,000	74	12	41	7	48	8
	8,000 - 15,000	101	9	106	10	165	15
	over 15,000	399	13	587	20	683	23
	Sub-total	**587**	**40**	**740**	**40**	**905**	**49**
Barge	2,500 - 5,000	391	104	384	102	356	95
	5,000 - 10,000	307	41	571	76	705	94
	10,000 - 15,000	19	1	49	4	45	4
	Sub-total	**717**	**147**	**1,004**	**182**	**1,106**	**193**
Tanker	0 - 1,000	51	101	67	135	71	142
	1,000 - 4,000	532	213	707	283	746	298
	4,000 - 8,000	371	62	494	82	521	87
	8,000 - 15,000	248	23	329	30	347	32
	15,000 - 25,000	360	18	479	24	505	25
	25,000 - 35,000	405	14	539	18	568	19
	over 35,000	180	5	239	6	252	6
	Sub-total	**2,146**	**434**	**2,855**	**578**	**3,010**	**609**
Cargo Vessels Total		**6,623**	**1,926**	**8,820**	**2,315**	**11,525**	**3,164**
Passenger/1	0 - 1,500	72	162	18	44	18	44
	1,500 - 4,000	42	17	81	46	81	46
	4,000 - 6,000	136	25	180	33	180	33
	over 6,000	118	10	189	16	189	16
	Sub-total	**368**	**214**	**467**	**139**	**467**	**139**
Pass./ Ro-Ro	0 - 4,000	15	5	21	7	21	7
	4,000 - 6,000	29	6	48	10	48	10
	over 6,000	8	1	-	-	-	-
	Sub-Total	**52**	**12**	**69**	**17**	**69**	**17**
Passenger Vessels Total		**420**	**226**	**536**	**156**	**536**	**156**

/1 in thousands

/2 Includes purely passenger and passenger cum cargo vessels

/3 Pure Ro-Ro vessels are considered to be part of container and conventional fleet tonnage

8.5.4. Optimal Size Selection for Large Containers

Based on the fleet estimate, large sized container of over 12,000 DWT will increase the fastest at 8.4 to 10.9 times in the next 20 years. It is therefore important to look more closely into exactly what size of large container is recommendable for Indonesia. Primary routes were selected and cost comparison is conducted between various sizes of large containers. For this analysis Case 0 is considered (though other cases will also come to the same conclusion).

From the analysis summarized in Table 8.5.12 and 8.5.13, it can be clearly seen that the optimal vessel size for primary container routes is somewhere between 15,000 DWT to 20,000 DWT. The use of much larger vessel of up to 30,000 DWT is infeasible commercially and in many cases port depth limitations

Table 8.5.12 Large Container Size Selection at Primary Routes based on 2014 Demand

Primary Route		Demand (1,000)		Crit. Depth/1	Cost (15,000 DWT = 1.000)			
		MT	TEU		10,000 DWT	15,000 DWT	20,000 DWT	30,000 DWT
Tg Perak	Makassar	4,186	299	10.5	1.082	1.000	1.000	1.048
Tg Priok	Makassar	1,675	119	11.0	1.096	1.000	0.998	1.130
T. Bayur	Tg Priok	1,184	84	10.0	1.069	1.000	1.138	1.434
Tg Priok	Balikpapan	977	69	12.0	1.094	1.000	0.999	1.196
Tg Perak	Balikpapan	669	47	10.5	1.083	1.000	1.117	1.407

Note: /1 critical depth is the depth of the shallowest port between the two ports
/2 Typical draft of each vessel is as follows: 10,000 DWT (7.4m); 15,000 DWT (8.5m); 20,000 DWT (9.5 m); 30,000 DWT (11.3 m)
/3 shaded cells are unfeasible vessels

Table 8.5.13 Large Container Size Selection at Primary Routes based on 2024 Demand

Primary Route		Demand (1,000)		Crit. Depth/1	Cost (15,000 DWT = 1.000)			
		MT	TEU		10,000 DWT	15,000 DWT	20,000 DWT	30,000 DWT
Tg Perak	Makassar	6,833	488	10.5	1.082	1.000	1.000	1.048
Tg Priok	Makassar	3,055	218	11.0	1.096	1.000	0.998	1.029
T. Bayur	Tg Priok	2,005	143	10.0	1.087	1.000	0.999	1.107
Tg Priok	Balikpapan	1,853	132	12.0	1.094	1.000	0.999	1.025
Tg Perak	Balikpapan	1,179	84	10.5	1.083	1.000	1.001	1.072
Tg Priok	Jayapura	1,138	81	11.0	1.120	1.000	0.994	1.077
Batam	T. Bayur	979	69	10.0	1.103	1.000	0.997	1.154
Batam	Tg Priok	792	56	14.0	1.085	1.000	1.119	1.396
Batam	Panjang	728	52	12.0	1.087	1.000	1.089	1.346

Note: /1 critical depth is the depth of the shallowest port between the two ports
/2 Typical draft of each vessel is as follows: 10,000 DWT (7.4m); 15,000 DWT (8.5m); 20,000 DWT (9.5 m); 30,000 DWT (11.3 m)
/3 shaded cells are unfeasible vessels

8.5.5. Changes in Future Fleet Profile and Productivity

According the demand forecast works, the current fleet profile will change its character to respond to changing needs and conditions. This section illustrates the expected changes in Indonesian fleet.

Table 8.5.14 illustrates the change in vessel type in the future. It can be clearly seen that container vessels will play a much larger role in the future. Its share of the domestic fleet tonnage will more than double in the next 20 years and its tonnage (or total DWT) will increase fourfold in the same period. Bulkers and conventional vessels tonnage will double in the next 20 years. Tankers however will not increase as significantly, at only about one and half times. Table 8.5.15 illustrates the growth in passenger vessels. As passenger demand will not increase significantly in the future fleet requirement will therefore additional fleet requirement will also be limited. Figure 8.5.4 graphically summarizes the future fleet requirements.

Table 8.5.16 shows the expected trend in terms of average vessel size. Container vessels will significantly increase in average size at more than 1.5 times in the coming 20 years. Bulkers will also increase in average size by about 1.2 times. Tankers on the other hand are assumed not to change its current size profile significantly. Conventional vessels on the other hand exhibit a different trend in which average vessel size will decrease by about 0.9 times in the next 20 years. Large conventional vessels are facing stiff competition against small to mid sized container vessels. But on the other hand small conventional vessels will continue to thrive as small conventional vessels are the only feasible vessel to call at many small ports. Thus the combined effect of container vessels hindering the expansion of large conventional vessels and the steady expansion of small conventional vessels put pressure to lower the average vessel size of conventional vessels. Overall, the average cargo fleet size will roughly stay constant as the volume of conventional vessels weighs down the total fleet average vessel size.

Table 8.5.17 summarizes the improvement in productivity of dry cargo fleet. It can be shown that the improvement of fleet covered under Case 1, will markedly improve fleet productivity of Indonesia. Figure 8.5.5 illustrates a comparison of projected improvement of fleet productivity under the three scenarios. In the case of Japan, its domestic cargo fleet is 19,230 ton-mile/DWT, which is higher than even the most optimistic estimate of 13,576 ton-mile/DWT. This indicates that to attain a much higher fleet productivity, the government need to consider other aspects of domestic fleet operation aside from fleet improvement and port improvement – including tonnage control, logistics management, etc.

Table 8.5.14 Future Change in Cargo Vessel Type Profile

	2002		2014		2024	
TYPE	**'000 DWT**	**Growth**	**'000 DWT**	**Growth**	**'000 DWT**	**Growth**
Container	733	1.0	1,841	2.5	3,169	4.3
Conventional	2,439	1.0	3,158	1.3	4,524	1.9
Bulker	1,304	1.0	2,039	1.6	2,352	1.8
Tanker	2,146	1.0	2,854	1.3	3,010	1.4
Cargo Fleet	**6,623**	**1.0**	**10,409**	**1.6**	**13,899**	**2.09**

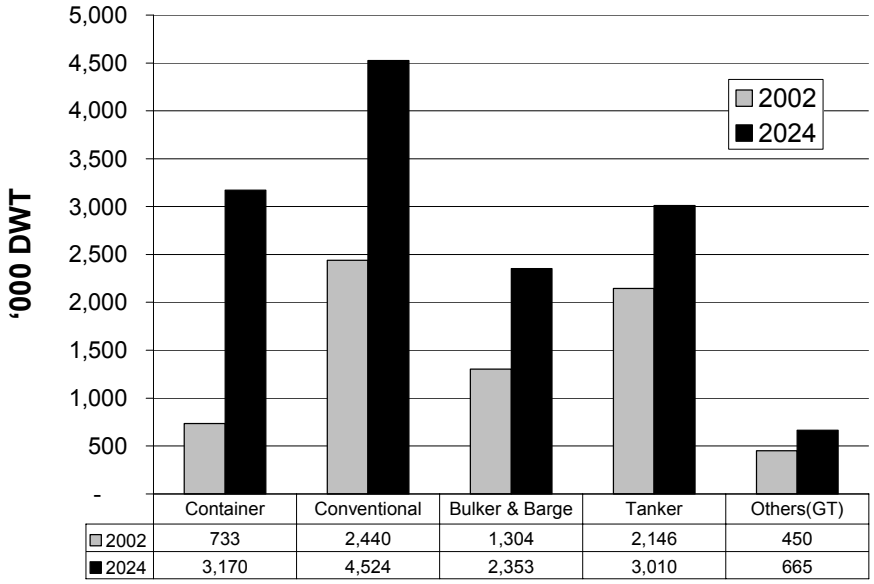
/1 Based on Case 1: Improved Fleet Scenario
/2 Growth sets 2002 values = 1.0

Table 8.5.15 Future Growth in Passenger Vessel Type

	2002		2014		2024	
TYPE	**'000 GT**	**Growth**	**'000 GT**	**Growth**	**'000 GT**	**Growth**
Passenger/1	368	1.0	467	1.3	467	1.3
Passenger/Ro-Ro	52	1.0	69	1.3	69	1.3
Passenger Fleet	**420**	**1.0**	**536**	**1.3**	**536**	**1.3**

/1 Includes both passenger and passenger cum cargo types
/2 Growth sets 2002 values = 1.0

Figure 8.5.4 Growth in Fleet per Vessel Type



	Container	Conventional	Bulker & Barge	Tanker	Others(GT)
2002	733	2,440	1,304	2,146	450
2024	3,170	4,524	2,353	3,010	665

/1 other include passenger vessels

Table 8.5.16 Change in Average Size of Cargo Vessels

TYPE	**Average DWT**			**Ave. DWT (2002 = 1.00)**		
	2002	**2014**	**2024**	**2002**	**2014**	**2024**
Container	7,522	10,253	11,369	1.00	1.36	1.51
Conventional	2,020	1,891	1,785	1.00	0.94	0.88
Bulker	6,985	7,829	8,278	1.00	1.12	1.19
Tanker	4,942	4,942	4,942	1.00	1.00	1.00
Cargo Fleet	**3,438**	**3,517**	**3,326**	**1.00**	**1.02**	**0.97**

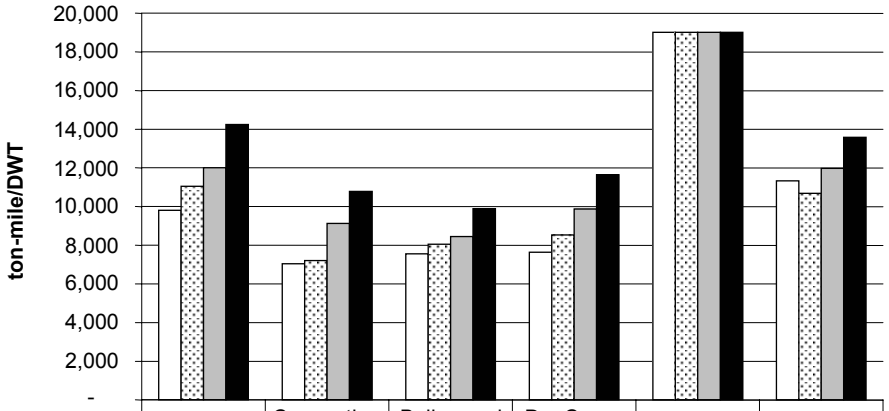
Note: Based on Case 1: Improved Fleet Scenario

Table 8.5.17 Improvement in Dry Cargo Fleet Productivity

Vessel Type	**Item**	**2002**	**2014**	**2024**
Container	Ton-mile (million)	7,186	21,112	38,075
	DWT (thousand)	733	1,842	3,170
	Ton-mile/DWT	9,804	11,461	12,011
Conventional	Ton-mile (million)	17,195	26,982	41,286
	DWT (thousand)	2,440	3,673	5,367
	Ton-mile/DWT	7,047	8,544	9,125
Bulker and Barge	Ton-mile (million)	9,857	15,751	19,874
	DWT (thousand)	1,303	2,040	2,353
	Ton-mile/DWT	7,565	7,721	8,446

Note: Based on Case 1: Improved Fleet Scenario

Figure 8.5.5 Comparison of 2024 Fleet Productivity

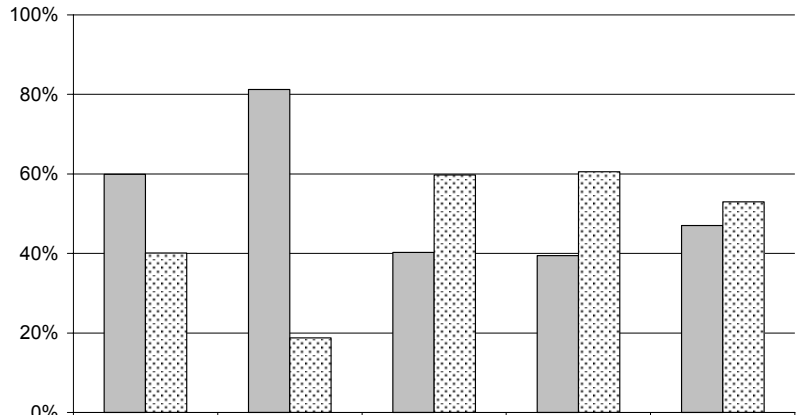


	Container	Conventional	Bulker and Barge	Dry Cargo Fleet	Tanker	All Fleet
Current	9,804	7,047	7,559	7,648	19,016	11,331
Case 0	11,043	7,213	8,049	8,525	19,012	10,679
Case 1	12,011	9,126	8,446	9,877	19,012	11,983
Case 2	14,239	10,780	9,883	11,654	19,012	13,576

8.5.6. Cabotage Analysis

A key issue for the Indonesian domestic shipping master plan is the expansion of cabotage. Currently, cabotage is being very loosely implemented in domestic shipping. Based on the STRAMINDO survey bulk carriage (dry and liquid) is predominantly handled by foreign flagged vessels and to some extent break bulk as well. Only container carriage is being transported primarily by Indonesian flagged vessels. Overall, about half of the total sea traffic is being carried by foreign vessels (Figure 8.5.6).

Figure 8.5.6 Extent of Cabotage in Indonesia



	Break	Container	D. Bulk	L. Bulk	ALL
Indonesian	60%	81%	40%	39%	47%
Foreign	40%	19%	60%	61%	53%

Note: /1 Source: STRAMINDO Survey
/2 D. Bulk = dry bulk; L. Bulk = liquid bulk
/3 % refers to share of Indonesian/Foreign flagged vessel in terms of sea traffic carriage in MT

According to DGSC, the government will initiate the implementation of cabotage to selected commodities; namely, oil, CPO, coal, fertilizer, wood, rice and rubber in the near future. The following table shows the extent of Indonesian and foreign vessel carriage for each of these commodities. In particular, oil and coal is heavily being transported by foreign flagged tankers.

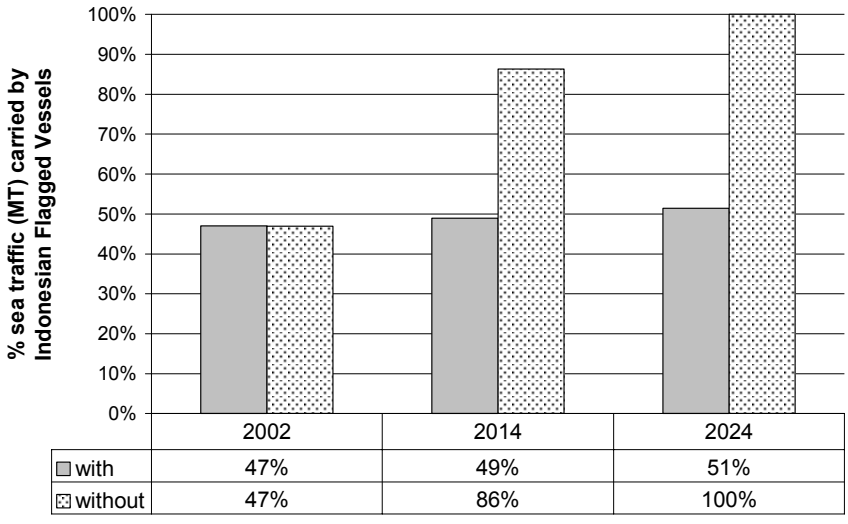
Table 8.5.18 Share of Indonesian and Foreign Flagged Vessels on Carriage of Selected Commidities

	Flag of Carrier	
Commodity	**Indonesian**	**Foreign**
Oil	39%	61%
CPO	62%	38%
Coal	40%	60%
Fertilizer	74%	26%
Wood	72%	28%
Rice	62%	38%
Rubber/1	65%	35%

/1 assumed to be 2% of general cargo (STRAMINDO Survey)
/2 % refers to percentage of sea traffic in MT – estimated from sample data
/3 Source: STRAMINDO Survey

It is envisioned that by 2014, DGSC will be able to successfully implement cabotage on these seven selected commodities and that by 2024, DGSC will be able to completely implement cabotage on all commodities. The following illustrates the likely results with and without the envisioned cabotage program. Details of computations are in Technical Report No. 1.

Figure 8.5.7 Comparison of With and Without Cabotage Program



The Table 8.5.19 illustrates the effect of the assumed implementation of cabotage per type of cargo. The results indicate that the cabotage program currently being discussed will primarily affect bulk cargo carriage in the near to mid term. There will be marginal effect in break cargo and container cargo in the coming ten years. However, as complete cabotage

implementation is envisaged up to 2024, all domestic cargo will be 100% carried by Indonesian flagged vessels in the long term.

The cargo fleet requirement to support the cabotage program is summarized in the Table 8.5.20. It is shown that in 2014, of the total required 9.9 million DWT vessels required, about 8 million DWT of the vessels will be Indonesian vessels. This means that effort should be made to promote an additional 2.8 million DWT of national vessels apart from maintaining the current the current rate of Indonesian vessels. In 2024, all vessels will be Indonesian, thus it will require efforts to promote 5.9 million DWT of Indonesian vessels, apart from maintaining the current rate of Indonesian vessels.

Table 8.5.19 Effect of Cabotage Program per Cargo Type

		Without Cabotage Program			With Cabotage Program		
		2002	2014	2024	2002	2014	2024
Cargo carried by Indonesian Vessels (MT)	Break	19.4	28.3	43.6	19.4	31.8	79.4
	Container	9.7	27.2	47.9	9.7	27.2	59.0
	D. Bulk	10.5	17.0	20.9	10.5	36.9	55.5
	L. Bulk	34.1	45.2	49.3	34.1	111.6	120.4
	ALL	73.7	117.7	161.7	73.7	207.6	314.3
As % of Total	Break	60%	56%	55%	60%	63%	100%
	Container	81%	81%	81%	81%	82%	100%
	D. Bulk	40%	39%	38%	40%	84%	100%
	L. Bulk	39%	40%	41%	39%	99%	100%
	ALL	47%	49%	51%	47%	86%	100%

Table 8.5.20 Cargo Fleet Requirement to Support Cabotage Program

		2002	2014	2024
Required Indonesian Vessels "Without" Cabotage Program (million DWT)	Conventional	1.5	1.8	2.5
	Container	0.6	1.5	2.6
	D. Bulker	0.5	0.8	0.9
	Tanker	0.8	1.1	1.2
	ALL	3.4	5.2	7.2
Required Indonesian Vessels "With" Cabotage Program (million DWT)	Conventional	1.5	2.0	4.5
	Container	0.6	1.5	3.2
	D. Bulker	0.5	1.7	2.4
	Tanker	0.8	2.8	3.0
	ALL	3.4	8.0	13.1
Difference in Vessels Required, "Without" Case – "With" Case (million DWT)	Conventional	-	0.2	2.0
	Container	-	0.0	0.6
	D. Bulker	-	0.9	1.5
	Tanker	-	1.7	1.8
	ALL	-	2.8	5.9
Total Required Vessels (million DWT)	Conventional	2.4	3.2	4.5
	Container	0.7	1.8	3.2
	D. Bulker	1.3	2.0	2.4
	Tanker	2.1	2.9	3.0
	ALL	6.6	9.9	13.1

Note: Details of computations are indicated in Technical Report No.1.

Chapter 9

INSTITUTIONAL DEVELOPMENT PROGRAMS

9. INSTITUTIONAL DEVELOPMENT PROGRAMS

9.1. Policy Program for the Promotion of Investment in Shipping Business and National Flag Vessels

9.1.1. Background

It is often said that shipping companies in Indonesia have no access to the banks' financing system and that unbearably high interest rate, short repayment period and collateral of 150% or more are factors causing this situation. While these are phenomena which need improvement, it has been understood to date in Indonesia that the country needs to introduce international maritime commercial regime, particularly in terms of ship mortgage law as the first step in making the country's flag or shipping business more attractive for foreign and domestic banks and investors. Everybody is aware that the provisions in Book II of the Indonesian Civil and Commercial Code are obsolete and out-dated. In particular, the provisions pertaining to shipowner/carrier's responsibility and liability and the limitation of liability, mortgage/hypothec and arrest of vessels are regarded as such in the light of relevant international shipping practices/conventions and laws in other jurisdictions. As for the mortgage/hypothec, recent efforts by the domestic shipping community have come to such a stage that relevant draft law has been proposed to the government and, accordingly, Indonesian ratification of relevant international convention will be realized in the near future.

In order to make Indonesian flag and shipping business attractive enough, however, a few more legal actions is recommended in terms of execution of the mortgage and adequate shipping liability regime, and so forth. Ship registration was one of focal points during the course of the Study. The debates were done on whether there is an alternative or intermediate way or not between closed registry and open one in order to attract investment in national tonnage. However no conclusion was made in the end due to its complexity and sensitivity among the parties concerned. The debates are summarized in the lights of pros and cons of various chartering methods in the appendix to this chapter.

(Note): Book II of the Indonesian Commercial Code provides regulations pertaining to rights and obligations related to shipping. It includes provisions concerning ship and its cargo, ship operator and shipping company, the master, the crew and the passengers, seafarers agreements, chartering, the carriage of goods and passengers, collision, sea accidents, marine insurance, general average, extinction of obligations in maritime trade, and ships and sailing objects in rivers and inland-waters.

The provisions of Book II are lex specialist to the provisions of Book I of the Commercial Code which governs trade matters in general and to the provisions of the Civil Code which governs matters of private law in general. The Code dated back to 1848 which was originally identical to the maritime law chapter of the Dutch Commercial Code of 1838.

Except for the change which took place in 1934 following the change of its Dutch counterpart, the provisions of Book II of the Indonesian Commercial Code remain unaltered until today. The inclusion of the provisions of The Hague Rules which took part in 1952 in the Dutch Commercial Code was not followed by Indonesia.

Therefore, over the past 50 years or more, almost nothing was done in Indonesia's legal aspects in spite of the developments in the field of international private maritime law and commercial standards.

9.1.2. Ratification of the International Convention on Maritime Liens and Mortgages

In view of the financing problem faced by the shipping industry in fleet development, the need to review the regulation pertaining to ship hypothec (mortgage) became urgent. Banks and non-bank finance institutions are reluctant to provide loans to shipping companies due to the fact the Indonesian law on hypothec does not sufficiently protect the interest of the creditor in the case of default of the debtor. Also, the provision that only Indonesian registered ships can be the subject of hypothec creates hesitation on the part of the foreign financial institutions as the ship in question can easily be withdrawn from the Indonesian registry when the Indonesian debtor is in default.

(Note): Mortgages and Hypothecs

Mortgages and Hypothecs are charges on a ship created by agreement between the borrower and the lender or by unilateral declaration of the borrower to secure the payment of sum of money. The borrower is the Mortgagor and the lender is the Mortgagee. Mortgages and Hypothecs usually are used to secure the repayment of the long-term loan required to finance the building or the purchase of a vessel.

Generally speaking, Mortgages are the word used in common law countries and Hypothecs are in civil law countries. International shipping practices are substantively influenced by common law practices and accordingly, in the relevant international conventions, Mortgages are usually used. Although Mortgages and Hypothecs are different in some respects, the similarities between them are more pronounced than the differences in practice.

The Indonesian National Shipowners Association (INSA) took the initiative to form a working group for preparing a draft law on maritime claims and ship hypothec. The working group consisted of representatives from the members of INSA and officials of the Ministry of Communications/DGSC and other experts under the chairmanship of a well-known lawyer. The proposed draft law has been submitted to the Ministry of Communications through the Directorate General of Sea Communication together with the proposal to the Ministry for Foreign Affairs for the ratification of the International Convention on Maritime Liens and Mortgages 1993. This proposal is now currently being discussed in the inter-department level.

A newspaper in the shipping circle (Indonesia Shipping Gazette, August 25, 2003) reported a DGSC official's view on this subject to the effect that the ratification was expected to be completed this year.

9.1.3. Arrest of Ships (Execution of Mortgages/Hypothecs)

(1) International convention and practices

According to Article 1 of the International Convention on Arrest of Ships, 1999, the claims in respect of which a vessel may be arrested are the following:

a. loss or damage caused by the operation of the ship,

b. loss of life or personal injury occurring, whether on land or on water, in direct connection with the operation of the ship,

c. salvage operation or any salvage agreement, including, if applicable, special compensation relating to salvage operations in respect of a ship which by itself or its cargo threatened damage to the environment,

d. damage or threat of damage caused by the ship to the environment, coastline or related interests; measures take to prevent, minimize, or remove such damage; compensation for such damage; cost of reasonable measures of reinstatement of the environment actually undertaken or to be undertaken; (---abridged---),

e. cost or expenses relating to the raising, removal, destruction, or the rendering harmless of a ship which is sunk, wrecked, stranded or abandoned, (---abridged---), and costs or expenses relating to the preservation of an abandoned ship and maintenance of its crew,

f. any agreement relating to the use or hire of the ship, whether contained in a charter party or otherwise,

g. any agreement relating to the carriage of goods in any ship whether by charter party or otherwise,

h. loss or damage to or in connection with goods (including luggage) carried on board the ship,

i. general average,

j. towage,

k. pilotage,

l. goods, materials, provisions, bunkers, equipment (including containers) supplied or services rendered to the ship for its operation, management, preservation or maintenance,

m. construction, reconstruction, repair, converting or equipping of the ship,

n. port, canal, dock, harbour and other waterway dues and charges,

o. wages and other sums due to the master, officers and other members of the ship's complement in respect of their employment on the ship, including costs of repatriation and social insurance contributions payable on their behalf,

p. disbursements incurred on behalf of the ship or its owners,

q. insurance premiums (including mutual insurance calls) in respect of the ship, payable by or on behalf of the shipowner or demise charterer,

r. any commissions, brokerages or agency fees payable in respect of the ship by or on behalf of the shopowner or demise charterer,

s. any disputes as to ownership or possession of the ship,

t. any dispute between co-owners of the ship as to the employment or earnings of the ship,

u. a mortgage or a "hypotheque" or a charge of the same nature on the ship,

v. any dispute arising out of a contract for the sale of the ship.

The first aim, protection of creditors, is achieved by requiring (Art.11 of 'Maritime Liens and Mortgage Convention' 1993) that prior to the forced sale, the competent authority of the state where the sale is to take place should give at least thirty (30) days written notice of the time and place of such sale to all holders of registered mortgages and hypothecs.

While this requirement is reasonable, in real business, the arrest of ship has been done preceding the forced sale. On this arrest of ship, Article 3 and 2 of the above "Arrest Convention" stipulate as under, the contents of which will be self-explanatory.

Article 3 - 1 : Arrest is permissible of any ship in respect of which a maritime claim is asserted if ;

- the person who owned the ship at the time when the maritime claim arose is liable for the claim and is owner of the ship when the arrest is effected, or
- the demise charterer of the ship at the time when the maritime claim arose is liable for the claim and is demise charterer or owner of the ship when the arrest is effected,
- the claim is based upon a mortgage or a "hypotheque" or a charge of the same nature on the ship.

Article 3 – 2 : Arrest is also permissible of any other ship or ships which, when the arrest is effected, is or are owned by the person who is liable for the maritime claim and who was, when the claim arose ;

- owner of the ship in respect of which the maritime claim arose ; or
- demise charterer, time charterer or voyage charterer of the ship.

--- (Abridged) ---

Article 2 – 1: A ship may be arrested or released from arrest only under the authority of a Court of the State Party in which the arrest is effected.

Article 2 – 2: A ship may only be arrested in respect of a maritime claim but in respect of no other claim.

Article 2 –4: Subject to the provisions of this Convention, the procedure relating to the arrest of a ship or its release shall be governed by the law of the State in which the arrest was effected or applied for.

Therefore, it is clear that a holder of mortgages (hypothecs) can arrest the ship (ships) in any of the State Party (i.e. contracting state) and that the application of arrest is varied depending on the country where the arrest is carried out.

The publication of the United Nations Economic and Social Commission for Asia and Pacific (UN-ESCAP), "Report on the Regional Seminar on Maritime Legislation, 8 –11

January 1990, Bangkok" describes the enforcement of the arrest country by country. The following is the description on Netherlands' application of the ship arrest, which may prove of some use in understanding how quickly and easily this arrest can be done.

Netherlands

(a) Application for arrest

For the arrest of a ship, leave of the President of the district Court is requested by way of petition signed by a lawyer. The President puts his signature upon this paper under a sentence stating "Granted in the amount of - ".

The creditor must show that his claim is prima facie a valid one. It is sufficient for him to state that he has a claim against his debtor, which has accrued. He does not have to produce proof at that stage. -Leave of the President will be given without documentary evidence and can be granted without hearing the debtor. The creditor is not required to prove a "good arguable case". The creditor is not required to provide security beforehand.

(b) Enforcement of arrest

The arrest will be effected by the bailiff who issues a document to the master declaring that the ship is under arrest.

A chain is (sometimes) put on the wheel. Harbor authorities are informed, which constitutes, in fact, the best possible protection.

(2) Next step for Indonesia

There is no doubt that the coming ratification of the International Convention on Maritime Liens and Mortgages coupled with the legislation of (draft) Law on Preferential Maritime Claims and Ship Hypothecs would prove valuable first step in promoting investment in shipping business and national flag vessels.

However, as a next step, Indonesia may need to ratify the abovementioned international convention on arrest of ships.

As for the procedure of "the detention or seizure of the ship", the draft law (Article 26) only says, "the submission of an application to the court for a forced sale of the ship/vessel, in accordance with the laws and regulations in force". And it has been understood that under the Indonesian Law on Civil Procedures, the legal procedure for the arrest of ships is similar to the legal procedure concerning the attachment of goods or properties through the court. It may take some time until arrest could be executed since the court may hold hearing sessions with the parties concerned before the decision on the arrest is made.

In order to convince international investors that Indonesian shipping business and national flag ships are as safe as some of neighbor countries', Indonesia may need to introduce the same kind of special treatment in the procedure in executing ship mortgages/hypothecs.

9.1.4. Shipowner/Carrier's Responsibility and Liability and the Limitation of Liability

(1) Package Liability

Indonesia has not ratified any of the conventions on carriage of goods at sea. Carrier's responsibility and liability are the most important issues in transport document. The Indonesian Commercial Code provides a package liability limit of Rp.600, an amount already considered to be very low and obsolete at present since the provision was created during the time Indonesia was still under the Dutch administration. Compared with the Hague Rules or Hague Visby Rules which have been widely accepted internationally, the Code's provisions are considered obsolete particularly with respect to the carrier's period of responsibility and the extremely low amount of the financial limit of package liability.

The Hague Rules (International Convention for the Unification of Certain Rules Relating to Bills of Lading, signed at Brussels on August 25,1924) have been adopted by 51 countries (more than 70 countries at the peak) including U.S.A.

(a) Signatories of Hague rules (as of 2003)

Algeria, Antigua, Bahamas, Bolivia, British Guiana, British Honduras, British Solomon, Islands, Ceylon, Cuba, Cyprus, Dominica, Estonia, Fiji, Gold Coast, Grenada, Iran, Israel, Ivory Coast, Jamaica, Japan, Kenya, Kuwait, Madagascar, Malay States, Mauritius, Monaco, North Borneo, Palestine, Paraguay, Peru, Poland, Portugal, Romania, Sarawak, Seychelles, Slovenia, Solomon Islands, Somaliland, Spain, St Helena, St Lucia, St Vincent, Straits Settlements, Tanganyika, The Gamble, Trinidad Tobago, Turkey, United States of America, Yugoslavia, Zaire, Zanaibar.

The Hague Visby Rules (1968 Protocol to Amend the International Convention for the Unification of certain Rules Relating to Bills of Lading, 1924) raised the limitation amount of the carrier's liability and clarified the way in calculating the number of packages contained in a container. This Visby Rules have been adopted by at least 31 countries including UK, France, Belgium, Denmark, Norway, Finland, Sweden, Italy, Netherlands, Japan, etc.

(b) Signatories of Hague Visby Rules (as of 2003)

Argentina, Belgium, Bermuda, British Virgin Islands, Cameroon, Canada, Cayman Islands, Congo, Croatia, Denmark, Ecuador, Falkland Islands, Finland, France, Germany, Gibraltar, Hong Kong, Isle of Man, Italy, Luxembourg, Monserrat, Norway, Singapore, Sri Lanka, Sweden, Switzerland, Syria, The Netherlands, Tonga, United Kingdom.

As for the carrier's responsibility and liability, there exists another rule called Hamburg Rules (United Nation7s Convention on the Carriage of Goods by Sea, 1978), which were drafted at the instigation of developing countries which felt vulnerable to their dependence upon carriers from the developed world. They were conceived in the spirit of the 1970s, a product of the battle on the new economic order. Many years have passed since the Rules were adopted in 1978; there were 26 countries which ratified them. But, in today's spirit of the economic realism, the

Rule may be already politically outdated, and that the balance of advantage points clearly towards maintaining a system which is applied, tested and understood.

(c) Signatories to Hamburg Rules (as of 2003)

Austria, Barbados, Botswana, Burkina Fasso, Cameron, Chile, Czech Republic, Egypt, Gambia, Georgia, Guinea, Hungary, Kenya, Lebanon, Lesotho, Malawi, Morocco, Nigeria, Romania, Senegal, Sierra Leone, Slovakia, Tanzania, Tunisia, Uganda, Zambia.

It is a widely known fact that the Indonesian national shipping line, P.T. Djakarta Lloyd, for instance, includes Hague Rules as a paramount clause in its bill of lading. It would safely be said that Indonesia's ratification of Hague Rules or Hague Visby Rules will prove a useful policy measure in gaining international confidence in the country's shipping business and national flag ships.

(2) Tonnage/Global Liability

Regarding tonnage limitation of liability in terms of cargo and collision damage claims, there are two articles in the Indonesian Commercial Code, each of which reads as follows:

- Article 474; "If the carrier is the operator of the ship, his liability for damage to goods carried by the ship shall be limited to an amount of fifty Guilders (note: old Dutch Guilders) per cubic meter of net tonnage of the ship; in the case of mechanically propelled vessels, space occupied for the engine shall be added.
- Article 541; "An operator's liability for damages caused by a collision shall be limited to an amount of fifty guilders (old Dutch Guilders) per cubic meter of net tonnage of the vessel; in the case of mechanically propelled vessels, space for the engine shall be added.
- If the operator, for the damage caused by such collision, also bears a liability as a carrier, his liability as a whole shall be limited to the amount as indicated in the first paragraph."

Limitation of shipowners' liability is considered by some as an anachronism in the modern age, and discussions have been made internationally whether limitation of shipowners liability should be granted or not.

The first International Convention on this subject, drafted by the CMI and signed at Brussels in 1924, provided for limitation of a shipowners' liability for "acts or faults" of persons in the service of the vessel to an amount equal to the value of the vessel and its accessories, plus the freight, subject to a maximum of eight pounds sterling per ton in respect of most types of claims.

This Convention was not widely adopted and has been largely superseded by the 1957 International Convention on Limitation of the Liability of Owners of Sea-going Vessels which was in force once in a little less than 50 countries and is now in force in 32 countries. It applies to claims for loss of life and personal injury, called "personal claims" in the Convention, and to claims for loss of or damage to property and in respect of

liability for wreck removal, called "property claims". A shipowner may limit the amount of his liability for claims covered by the Convention unless the occurrence giving rise to the claim resulted from his "actual fault or privity". In the case of a corporate shipowner, this means that its liability will be unlimited if the occurrence was caused by the acts or omissions of an alter ego of the corporation, that is, an executive or managerial employee, while the liability will be limited if the fault was that of the vessel's master or crew or of a non-managerial shore-side employee.
The amount to which liability may be limited is expressed in terms of "gold francs" in such a way as, 1,000 francs per ton of the vessel's net tonnage where there are only property claims, and 3,100 francs per ton where there are only personal claims. Where there are both property and personal claims, the Convention provides for a total limit of 3,100 francs per ton, whereof the amount of 2,100 francs per ton is to be appropriated for payment of personal claims, and the remaining 1,000 francs per ton is to be appropriated for property claims.

(a) Signatories of the 1957 Convention

Algeria, Brazil, British Guiana, British Honduras, Canada, Dominica, Fiji, Ghana, Grenada, India, Iran, Israel, Italy, Lebanon, Luxembourg, Macao, Malagasy Republic, Mauritius, Monaco, New Hebrides, Papua New Guinea, Portugal, Seychelles, Singapore, Solomon Islands, St Lucia, St Vincent, Syria, Tonga, Vatican City, Yugoslavia, Zaire.

A third convention, the Convention on Limitation of Liability for Maritime Claims, was signed in London in 1976. In the 1976 Convention the philosophy of limitation is substantially changed in three fundamental aspects, viz.:

- Limitation of liability is no longer a right granted to the owner of a ship and to persons employing the ship (i.e. operators and charterers) but is extended to any person rendering services in salvage operations,
- Whilst limitation has so far been based on the concept that the limit should approximate to the operator's interest in the venture (the value of the ship and freight), the guiding principle on which the 1976 Convention is based is commercial insurability. One consequence of this change in approach has been the substantial increase of the limits.
- Whilst the limitation in 1957 Convention can not be invoked if the occurrence giving rise to the claim resulted from the actual fault or privity of the owner, this has been replaced by the rule whereby the person liable is not entitled to limit his liability if it is proved that the loss resulted from his personal act or omission, committed with the intent to cause such loss, or recklessly, and with knowledge that such loss would probably result.
- The kind of claims that can be limited are the same as in 1957 Convention.
- The formula for calculating the limit is somewhat complex and is on a sliding scale depending upon the tonnage of the ship.

(b) Signatories of 1976 Convention

Anguilla, Australia, Bahamas, Barbados, Belgium, Belize, Benin, Bermuda, Cayman Island, China, Croatia, Denmark, Egypt, Equatorial Guinea, Falkland Islands, Finland, France, Georgia, Germany, Gibraltar, Greece, Guernsey, Guyana, Hong Kong, Ireland, Isle of Man, Japan, Jersey, Latvia, Liberia, Marshall Islands, Mexico, Montserrat, New Zealand, Norway, Pitcairn Islands, Poland, Russian Federation, Spain, St Helena, Sweden, Switzerland, The Netherlands, Turkey, United Arab Emirates, United Kingdom, Vanuatu, Virgin islands, Yemen.

It must be considered that almost everywhere, if claims are enforced against a ship having the nationality of a non-contracting State, whose law provides for lower limits, in the territory of a contracting State the owner of that ship will have no other choice but to plead limitation in accordance with the provisions of the 1976 Convention.

Therefore, in respect of any ship employed in international trade at least, insurance premiums will have to be assessed on the basis of the higher limits. So, no saving will thus be obtained by providing lower limits in the national law, in terms of ocean-going shipping.

On the other hand, if the lower limits are provided, they will be beneficial to foreign shipowners when claims are enforced against their ships in the jurisdiction of the country in question.

In the light of the availability of insurance, accession to the 1976 Convention may be the subject worthy to be investigated by Indonesian Government.

(3) Next Step for Indonesia

In order to maintain shipper/carrier relationship in domestic and deep-sea trade in Indonesia that is in line with international standards, and to protect the financial stability of national shipping business entities from various risks, it would be appropriate for the Government to progress further investigation in terms of the ratification of the two international conventions listed under and to bring domestic legislation in line with their provisions.

- Hague or Hague Visby Rules (International Convention for the Unification of Certain Rules Relating to Bills of Lading, 1924, and 1968 Protocol to Amend the same)
- 1976 London Convention (International Convention on Limitation of Liability for Maritime Claims, 1976)

(Note) The limitation per package or unit or kilogram is provided for in favor of the carrier by the Hague Rules. The global limitation is provided for in the 1976 London Convention.

The package/unit/kilogram limitation operates only in respect of the liability of the carrier for loss of or damage to the goods carried and is applied automatically by the

court. The global limitation which operates in respect of a variety of claims against the shipowner (for example, claims in respect of loss of life or personal injury, or loss or damage to property including damage to harbour works, basins and waterways and aids to navigation) is a benefit which can be sought even after liability has been finally established. It might be of interest to point out that by national legislation in some countries (e.g., the United Kingdom) the right to limit liability under the Convention also applies in relation to non-seagoing ships and further, for the purposes of the Convention, a ship is widely defined to include "any structure whether completed or in the course of completion, launched and intended for use in navigation as a ship or part of a ship".

9.1.5. Implementation Schedule

The section has mapped out the policy program for the promotion of investment in shipping business and national flag vessels in conformity with the relevant international commercial standards. The program includes four actions: (i) maritime liens and mortgages, (ii) arrest of ships (execution of mortgages/hypothecs), and (iii) accession to cargo and tonnage/global liability-related conventions. Since there is a strong need to improve shipping investment environments, (i) is considered urgent requirements to be implemented within a couple of years. As a next step, item (ii) will have to be implemented in the coming three years time. Regarding the liability-related international conventions, it will take quite some time for domestic legal preparation and the government may keep pace with other developing countries. Therefore, item (iii) is rather a long-term implementation issue.

Table 9.1.1 International Conventions with Regard to Cargo Liability

Convention	Period of responsibility	Basis of liability	Limitation of liability for loss or damage to goods	Notice of claims for damage to goods	Time bar	Transport document
Hague Rules 1924	While in vessel: "tackle-to-tackle"	Due diligence to make vessel seaworthy and to take care of cargo but with several exceptions	£ 100 sterling in gold	3 days	1 year	Bill of lading (a negotiable document)
Hague-Visby Rules 1968 Protocol	While in vessel: "tackle-to-tackle"	Due diligence to make vessel seaworthy and to take care of cargo but with several exceptions	10,000 francs Poincare per package or 30 francs per kilo whichever higher	3 days	1 year	Bill of lading (a negotiable document)
Hague-Visby Rules 1979 Protocol	While in vessel: "tackle-to-tackle"	Due diligence to make vessel seaworthy and to take care of cargo but with several exceptions	667 SDR per Paclage or 2 SDR per kilo whichever is higher	3 days	1 year	Bill of lading (a negotiable document)
Hamburg Rules 1978	While in carrier's charge	Presumed fault or neglect	835 SDR per Paclage or 2.5 SDR per kilo whichever is higher	15 days	2 year	Bill of lading or other document
CMR 1956 (Road)	While in carrier's charge	Strict liability with exceptions for matters "beyond control"	25 germinal francs per kilo (3 francs = 1 SDR)	7 days	2 year	Waybill/ consignment note
CIM 1980 (Rail)	While in carrier's charge	Strict liability with exceptions for matters "beyond control"	50 germinal francs per kilo (3 francs = 1 SDR)	7 days	1 year	Waybill/ consignment note
Warsaw 1929 (Air)	While in carrier's charge	Strict liability with exceptions for matters "beyond control"	250 francs Poincare per kilo	14 days	2 year	Airway bill
MT Convention 1980	While in carrier's charge	Presumed fault or neglect	920 SDR per package or 2.75 SDR per kilo whichever is higher	6 days	2 year	Nonnegotiable or negotiable transport document

9.2. Policy Program Aiming at Maintaining and Developing Inter-island Shipping Services

Provision of stable inter-island shipping services is a big challenge in Indonesia due mainly to its vast territorial waters. Unfortunately, the development has suffered from serious deficiencies because of patchy governmental support and lack of industrial efforts. Conventional debates such as cabotage and anti-monopoly have not been settled in the Indonesian domestic shipping. Today, regional autonomy is a contemporary issue in any administrative services including shipping. This section discusses those issues to maintain and develop inter-island shipping services. When discussing inter-island shipping network, some industrial leaders point out that too many open ports are big obstacles in network development. Although the Study does not cover overseas shipping and its supportive port system, it highlights the core of this debate.

9.2.1. Fulfilling Cabotage Right

(1) Cabotage Policy in Indonesia

The regime of cabotage is clearly upheld by Law No.21/1992 as the basic policy in regulating inter-island shipping services. Art. 73 of the Law stipulates that the domestic sea transportation shall be carried out by using Indonesian flagged vessels, though the Law provides that flag dispensation can be granted by the Government in certain circumstances and under certain provisions. The Elucidation of the Law stipulates that "under certain circumstances" would mean, "in the event that there is a shortage of tonnage to meet the required ship's space in the domestic sea transportation". If the required tonnage is fulfilled, then the domestic sea transportation shall be performed by Indonesian flag vessels. The Law and its Elucidation further stipulate that the flag dispensation can only be given to foreign ships which are operated by Indonesian shipping companies.

It is often pointed out, in reference to the above Indonesian cabotage regime, that only 60% of the total inter-island cargoes, approximately 149 million m/t, is carried by the country's national flag vessels and the remaining approximately 40% is carried by non-Indonesian flag vessels as of 2001. And in this connection, it would be said a part of public knowledge that under the category of non-Indonesian flag vessels, there are vessels owned by Indonesian companies that are registered abroad (mostly under the flag of convenience) on various reasons and considerations of relevant owners. Also, on the other hand, there exists another question whether those foreign flagged vessels enjoying the flag dispensation are indeed operated by Indonesian shipping companies as required by law. This question is raised because it has also been public knowledge that many of the chartered vessels in Indonesian inter-island shipping are under so-called "back-to-back charter" arrangement, which is in fact proforma chartering arrangements. While these must be problems needed to be addressed from administrative point of view, they are phenomena which are not easily monitored even by the Directorate General of Sea Communications (DGSC).

In the meantime, while the above said 60% share of national flag vessels is a fact in total, if we look at container ship services, the 99% have been loaded by Indonesia flag vessels and in the case of general cargoes, the share was 86%. As a matter of fact, flag

dispensation is currently closed against foreign container vessels, log carriers and passenger ships. Flag dispensation is said practically open for foreign conventional and dry/liquid bulk vessels.

Therefore, it might be useful to recognize underlying problems and basic remedy measures for those in regular liner services, separately with other problems commonly shared by all types of services, although the key issue in the matter in common is the shortage of national tonnage (in volume or quality) and the issue of fleet development has become very essential.

(2) Monitoring and Evaluation System

Article 4 of Government Regulation No. 82/1999 and Article 4 of the Decree of the Ministry of Communications No. 33/2001 provide the mechanism and criteria with respect to monitoring system. In order to know whether there is a lack of capacity of space in the Indonesian-flagged vessels, the Director General conducts monitoring and evaluation on vessel movement and freight by involving the association of shipowners and the association of cargo owners, through the forum for the coordination of Freight and Ship's Space Information (IMRK) periodically.

The monitoring and evaluation shall be done by taking into account the following: (a) the requirement for ship's space for domestic sea transport on certain liner routes; (b) the requirement for ship's space for the domestic sea-transportation on certain non-liner routes; (c) the capacity of national shipping companies in providing space of Indonesian-flagged vessels on regular routes and irregular routes; and (d) the development of national fleet on long-term basis to meet the national tonnage requirements. If the evaluation shows that the availability of the Indonesian-flagged vessels are sufficient, the Director General may prohibit the use of foreign vessels and announce it periodically, through the Freight and Ship's Space Information Forum (IMRK) or mass media.
While legal provision is clear, however, it is not clear as to how the above mechanism actually works, how the various criteria are applied and whether the issuance of the flag dispensation is effectively connected to such monitoring and/or evaluation. (As already mentioned, flag dispensation is said to be practically open for foreign conventional and dry/liquid bulk vessels.)

Timely, reliable and relevant data collection and financial reporting are a prerequisite for any administration's policy analysis and decision-making. DGSC's current situation seemingly leaves much room to be desired. On top of the requirement for the abovementioned functions and many other kinds of responsibility, there is another factor which will increase DGSC's requirement for more systematic monitoring and evaluation system, that is, Regional Autonomy. In the days of regional autonomy, central government's (DGSC's) role will tend to shift from regulator to facilitator and controller in managing nautical transportation service through issuance of standards, recommendation and implementation guidelines. In such circumstances, the information needs of other stakeholders such as the private sector and regional governments/community will also increase. The central government also has a need to collect and analyze financial and operational data prepared by the regional governments for the purpose of monitoring and evaluating regional governments, for more efficient

resource allocation, for developing and refining regulations and guidelines, for identifying capacity building needs, and for other policy and decision-making purposes.

It would be important for DGSC to develop a consistent administrative and financial reporting system which meets the needs of central government including itself and many other stakeholders such as regional governments, private sector and the community in general, for the purpose of transparency, accountability, monitoring and evaluation, capacity building, policy development, and decision-making purposes.

(3) Measures to Fulfill Cabotage Regime

There is no cure-all measure to fulfill cabotage right in Indonesia as long as national shipping lines serve shippers and cargo owners satisfactorily. Many shipping aspects should be fundamentally strengthened by adequate measures. But those measures must be implemented in an integral manner. The Study explores several important aspects for eventually increasing the share of Indonesian flagged vessels as follows:

- Mobilization of domestic ship finance and removal of institutional barriers (Chapters 9, 12)
- Strengthening of public ship finance (Chapter 12)
- Addressing bulk shipping issues (Chapter 10)
- Administrative improvement (Chapter 9)
- Improvement of shipping management capability (Chapter 11)

(4) Government's Short-term Target: Partial Cabotage Regime

It has been informed that in the short term, the Government intends to carry out cabotage right for several commodities, i.e. coal, oil, CPO, Fertilizer, wood, rice and rubber.

To enforce it without causing any inconvenience such as unbalance ship space and cargo volume and resultantly fueling tariff escalation, an additional 2.8 million DWT of national vessels will have to be placed until the year 2014, apart from maintaining the current rate of Indonesian vessels (refer to Section 8.5).

The critical path to this partial cabotage regime is to ensure a cycle of ship finance, procurement and registration under the Indonesian flag. In addition, there may be some practicable measures, such as renovation and conversion of existing idle fleet to carry those selective cargoes, re-flagging of once flagged-out vessels, and others.

To effectively enforce such partial cabotage regime, the government should improve its enforcement capability, particularly concerning IMRK, PPKA and port inspection. Theoretically IMRK (Forum for the Coordination of Freight and Ship Space) is the basis for the issuance of the PPKA (the Letter of Notification for Using Foreign Vessels). Before enforcement of cabotage, IMRK should be done precisely and the previous PPKA which were normally submitted by national shipping companies for chartering foreign vessels needs to be carefully re-examined. If necessary, DGSC will inform the related shipping companies that their PPKA no longer valid from a determined date.

In ports, the offices of the Port Administrator, ADPEL or KANPEL, may be made to function as the checkpoint for the implementation of cabotage policy/flag dispensation with respect to the carriage of the respective commodities. The issuance of port clearance by the Port Administrator may be used as an instrument in enforcing the cabotage policy.

9.2.2. Promotion of Dialogue and Coordination in relation with Anti-monopoly Regime

(1) Promotion of dialogue between cargo-owners and ship-owners

Article 74 para (2) of Law 21/1992 stipulates that the domestic sea transportation is to be carried on a regular system and shall be complemented by a non-regular system. The implementation of regular route networks, which includes the fixation of the routes system and the placement of vessels, seems now to be the responsibility of DGSC and INSA. DGSC determines the route networks as an infrastructure to be filled with vessels by shipping companies at their own discretion. Tramper vessels may be used to serve ports which are not served by liner vessels. Freight rate is a matter of negotiation between shipping companies and shippers.

For a long time already, the shipping companies have been complaining of the decreasing trend of freight rates in certain routes. And recently, container vessel operators have come to an agreement with respect to sailing schedules and rates to be quoted to shippers. Unfortunately, however, the operators were summoned by the Business Competition Supervisory Commission (Komisi Pengawas Persaingan Usaha – KPPU) with the charge that the operators have violated Law No. 5/1999 concerning prohibition of monopoly practices and unfair business practices by conducting unfair business practices by not involving the shippers in the negotiation of the agreement. The matter on whether such agreement between ship-owners/operators could indeed be charged as an unfair act against shippers is still pending.

To win the support of cargo owners and to avoid the possible alleged violation of the aforesaid Law No. 5/1999, it is important to involve shippers or their organizations in dealing with such matters as freight costs, which may involve the interest of the shippers. Since shippers of container cargoes (general cargoes) in liner services are in general less organized than ship-owners, the Ministry of Industry and Trade, in cooperation with the Ministry of Communications, should initiate to take the necessary steps to have shippers/cargo-owners organized to create a systematical dialogue mechanism with the organization of ship owners/operators.

This may be applied not only to regular liner services but also to other types of service, such as break bulk, dry bulk and liquid bulk. The association of shipowners could come to an agreement as to how they could understand and support each other by for instance entering into long-term shipment agreements between cargo-owners and ship-owners where both parties can take mutual benefit respectively from the long-term cargo guarantee and from the long-term acceptable terms and conditions and stable freight cost fixing.

The Ministry of Industry and Trade in cooperation with the Ministry of Communications may be desired to take necessary steps to have shippers/cargo-owners organized create a systematic dialogue mechanism with the organization of shipowners. Perhaps, the

reactivation of the existing Indonesian Shippers Organization (DEPALINDO) would be the initial effort in this connection. (In the 1960s, a coordination/discussion forum between shippers and carriers was established whereby INSA and DEPALINDO were represented in the forum.)

The Indonesian shipowners need the support from the traders/shippers, and vice-versa. The association of shipowners could come to an agreement as to how they could understand and support each other on such matters as listed under:

- Mid-long term fleet requirements, and relevant support policy measures in non-shipping sectors,
- Structural improvement of inter-island shipping,
- Long-term shipment agreement between cargo-owners and shipowners whereby both parties can take mutual benefit through long term cargo guarantee and long term acceptable terms and conditions, on dry/liquid bulk cargoes, and
- The issue of to what extent shipping could be exempted from anti-monopoly law.

(2) Establishing rules in carriers' coordinated action in terms of anti-monopoly law

As it is understood that Indonesian anti-monopoly law, Law No. 5/1999, does not have any particular article applied on shipping and that there is no particular legislation in this regard, it is presumed that not a little controversy connected with carriers' coordinated action will continuously rise if anti-monopoly ideology becomes the trend in Indonesia.

So, together with the abovementioned dialogue mechanism with shippers, legal establishment of rules in carriers' coordinated action in terms of anti-monopoly law may become one of the policy targets in the medium-term.

Economic theory relates to the optimum allocation of scarce resources. Competition is, and has always been, one of the finest market regulators available for society to allocate its resources. Conversely, monopoly is said to be one of the worst. Hence, regulation has been aimed at the control of monopoly power and its abuse, and is thus intended to foster competition. But there are areas where competition does not work for the benefit of society. And transportation, shipping in particular, is one of them.

Fierce competition between carriers, that is, cut-throat competition, leads to a deterioration of service and unstable financial situation. Unnecessary duplication or waste is often the result as well. The overall efficiency and reliability of the system is likely to suffer and society's goal of an adequate transportation system is not met. The realization that competition is not feasible in all circumstances in transportation led to a change in the US: from regulation of monopoly abuse to the regulation of competition.

(Note) This change came early with respect to US shipping – the Shipping Act of 1916 which provided a certain measure of antitrust immunity.

It has been an established practice for ship operators in the world to establish liner conferences or, more recently, some other form of agreement among themselves. In Japan, too, ship-operators, including those in coastal shipping, are exempted from the

application of the Anti-Monopoly Law, with exception of cases which are deemed still unfair.

Applicable concrete measures may be varied depending on the country's and the industry's development status, but the following Japan's past development might prove of some interest to Indonesian administrative authorities, in considering its future regulatory framework in this connection (refer to Column 9-1).

9.2.3. Structural Improvement of Inter-island Shipping

(1) A Weak Industry Structure with Mushrooming Shipping Companies

Indonesian general shipping companies totaled 1,794 with 6,079 vessels and the specialized shipping companies totaled 524 with 2,047 vessels both in the year of 2001, and the greater part of them are supposed to be in inter-island shipping business. This is a sharp increase from 1988, when there were only 343 general shipping companies and 200 special shipping companies. There is no doubt that the "Paknov 21" deregulation package which allowed for a new shipping company without the condition of possession of national flag ship is the key factor which caused the sharp increase in the number of shipping companies. With Government Regulation No.82/1999 which stipulates that an Indonesian shipping company must own at least 175 GT of national tonnage, entry of newcomers has curbed since 1999.

Generally speaking, inter-island shipping operators can be divided into two categories based on its business characteristics. The first one that is engaged in the transportation of basic industrial materials such as petroleum, steel product, coal, or fertilizer and is keeping close tie with specific industrial material firm is called an industrial carrier. The second type of operator is engaged in transportation of general cargoes from variety of shippers and is called a common carrier.

In the case of industrial carriage, to secure stable transport, the consignor enterprises that ship main cargoes have tendency to put shipping operators under their control for stabilized transportation of their own raw materials and products. There will be cases these relations have worked commendably to gain stabilized earning for shipping companies. On the other hand, this type of consignor-superiority in the transaction relationships may lead to hindrances towards a competition environment.

Looking at common carriers, it is clear that shipping businesses of minor scale have large share in the inter-island shipping. The industry faces many problems in its market such as shortage of crew and rationalization of freight and charges. It may be said that most of these problems are rooted in the minor nature of businesses.

Column 9-1: Japan's Experience in terms of Anti-monopoly Regime

(1) Before the deregulation:

By the Marine Transport Law, agreements, contracts or joint action (hereafter referred to as "agreements") among ship-operators on rates, shipping conditions, routes, ship deployment and loading, had been excluded from application of the Law concerning Prohibition of Private Monopoly and Maintenance of Fair Transactions (hereafter referred to as "Anti-monopoly Law"), with the exception of some cases which involve the use of unfair transactions or cases which raise the freight and charges unreasonably by substantially limiting competition in a particular transaction field.

This regulatory formula was based on the following rationale:

- Agreements in terms of ship-operating business sometimes include agreements which, by nature, might prove restrictive of competition, and possibly cause problems in terms of the Anti-monopoly Law.
- But even in such a case as is contrary to the Anti-monopoly Law, the agreements need to be admitted if the agreements are judged to contribute to users' benefit.
- Therefore, those agreements should be exempted from the application of the Anti-monopoly Law, on condition that ship-operators are required to report to the (at that time) Minister of Transport in advance of the conclusion or alteration of the agreements.

In the case of tanker and chemical tanker business in coastal shipping, it was thought that relevant cargo movement was liable to be fluctuating by seasonal and weather conditions, and also it was easy for the relevant cargo-owners to pressure for lower freight rates by making use of their superior position. And, for this reason, the exemption from the application of the Antimonopoly Law was given to the freight agreement for securing freight rates, and this has contributed to the stabilization of the relevant freight rates.

(b) After the de-regulation:

In 1999, over-all review of agreements to be exempted from the application of the Anti-monopoly Law was made as part of the nation-wide policy on deregulation. It was the viewpoint that deregulation became necessary in line with Japan's economic and social development, to let market mechanism function more effectively, and to progress to freer competition in fairer open market. In the course of this review, with regard to coastal shipping, it was decided to confine the range of agreements to be exempted to the necessary minimum (cooperative management for the maintenance of routes to/from under populated regions, cooperative management for setting up daily/time schedules to enhance the convenience of users), and the conclusion of the agreements were brought to be subjected to the authorization of the Minister of Land, Infrastructure and Transport, in order to judge whether the relevant agreements were considered necessary for the increase of users' benefit, even in the light of the agreements' restrictive effects on competition.

On the other hand, in order to prevent the abuse of the superior position of shippers, which was anticipated to happen following the abolishment of freight agreements, in 1998 the Fair Trade Commission, including the opinion of the then Ministry of Transport, issued "Guidelines relative to the application of the Antimonopoly Law"

(2) Industry Restructuring Need

There is the necessity to improve the market structure through such means as rationalization of the number of companies by change or discontinuance of business, promotion of concentration and mergers, promotion of modernization, and use of large vessels by strengthening the management base. It will be important in the future to actively promote drastic structural improvements to strengthen the management base, and to create eventually a sound market condition where shipping is recognized as an important core-industry of the nation.

Certainly, it is difficult to improve the structure. However, in the intense influence of borderless international economies, even the huge consignor enterprises will be taking desperate restructuring measures for survival, merging or making diverse rationalization efforts. The promotion of structural improvement will, as a matter of course, inflict great pains on individual businesses. However, if the inter-island shipping industry is to cope precisely with the numerous problems it faces, and secure the mission of the industry of providing high-quality transport services stably and efficiently, it will be necessary to promote drastic structural improvement to strengthen the managerial foundation by overcoming such pains.

(3) Review of Business License Requisite

For the restructuring of the industry, particularly streamlining shipping companies, it is effective to review current business license requisite. For instance, some of business permission requisites stipulated in The Coastal Shipping Law of Japan are listed in Column 9-2. Although some of them will be cut out in near future to meet Japan's current movement toward deregulation, those are requisites which supported the development of Japan's coastal shipping industry over the past 30 years. In the case of Indonesia, however, DGSC periodically receives only shipping operation reports which don't contain financial conditions. It is impossible for DGSC to understand shipping companies' business stability and affordability of new investment. The responsible authority should look into not only operation appropriateness but also business stability in relation with the issuance of shipping business license.

To guide adequate industrial reform in the long run, DGSC needs to improve its capability in monitoring, analyzing and assessing the performance of registered shipping companies. But DGSC's monitoring capacity in this connection leaves much to be desired. For example, although current SIUPAL (shipping business license) stipulates that the SIUPAL holders are responsible, among other requirements, to submit a yearly report of the company's activity to DGSC. In actuality, the reporting of companies is inadequate and this severely constricts the ability of DGSC to monitor and evaluate the industry, particular with regards to policy development. The licensing requisites may not be clear enough to meet current requirements, and may need to be reestablished clearly now as the first step.

Column 9-2: Some of Business Permission Requisites (among other things) stipulated in The Coastal Shipping Law of Japan

a) Requisite of ship owning, etc;
- operation of more than 3 vessels
- owning of ship capacity more than 1,000 g/t, or owning of more than 15% of total operating fleet, whichever is greater,
- combined tonnage of owned ships and time-chartered ships exceeding 60% of total tonnage of operating fleet, and
- owning of minimum 1 vessel.

b) Requisite of business stability:
- appropriate funds program -- fund program for the acquisition or conversion of owned ships is required to be appropriate in the light of stable management base. Conformity to this criteria is evaluated along the following standards, and for business entities whose equity or equity ratio is insufficient, guidance is given to improve those situations.
  (1) In the case of personal business: more than 10% of funding required to acquire or convert owned ships is own equity.
  (2) In the case of company to be established newly: the capital amount of the company exceeds 10% of funding required to acquire or convert ships to be used for operation.
  (3) In the case of existent companies: self-equity ratio (capital / liability + capital) after the execution of the acquisition or conversion of ships is more than 10%.
  ------- In this connection, in addition to the balance sheet of the most recent fiscal year, tendering of cargo guarantee documents or ship-chartering contracts may sometimes be required.
- reasonable and certain profitability of ship-operation program - judgment criteria in this connection is that 10 year's accumulated profit before depreciation, in the ship's operation program table, exceeds the ship's initial cost.

c) Requisite of proper business operation:
- establishment of a business office, and
- certain ship-manning program.

(Remarks)
As a part of over-all deregulation of transport industries, the above permission system is expected to be changed into "registration" system in near future, and in that connection many of the above requisites will be abolished at the same time. Still, it will be certain that requisite of "appropriate funds program" and "certain ship-manning program" are maintained as at present in order to secure proper business operation abiding by laws and regulations in terms of ship safety etc.

9.2.4. National Port System and Domestic Shipping

According to INSA, Presidential Instruction (INPRES) No.4/85 was the starting point of the decreasing of domestic shipping's role since 117 ports were open to international trade. It is true that such an open port system damages domestic shipping, particularly preventing the domestic shipping industry from developing a hierarchical shipping network. More specifically, a limited international access points may enable a hierarchical shipping network such as spokes-and-hub where domestic shipping does not need to compete with international shipping with easily holding of its cabotage right.

On the other hand, a country's port system must be closely linked to its foreign trade policy. Under the globalization era, countries, even socialists countries, now recognize that trade and investment across borders are two-wheel driving forces to achieve economic development. In general, developing countries have a stronger need to promote export and attract investment rather than developed countries.

In this sense, DGSC cannot design the national port system alone. In redesigning the port system, it is necessary to optimize or promote both domestic and international trading activities as well as shipping development. Taking into account the neighboring archipelagic countries such as the Philippines and Japan, it is not realistic to return the port system before the INPRES No.4/85, featuring four gateway ports. An international port should be determined one by one in terms of location, hinterland demand, position to neighboring countries, and position in the national port system rather than the total number of open ports.

Table 9.2.1 Comparison of Open Ports

	Indonesia	Philippines	Japan
No. of Ports Open to International Trade	141	125	128
International Trade Volume (Mil. MT)	338	70	890
Population (Mil.)	210	70	125
No. of Islands	18,100	7,100	3,900

9.2.5. Implementation Schedule

This section has discussed four institutional topics: cabotage right, anti-monopoly regime, shipping industry restructuring and national port system. All are complicated issues and seriously affect domestic shipping development. Therefore sound decision-making process and firm implementation is required. The responsible authority must find a way by which healthy demand and supply balance could be brought about. The industry policy should benefit all in line with developing and maintaining inter-island shipping services.

Although each topic encompasses urgent issues and mid-to-long term issues, the shipping sector's efforts to cope with the Anti-monopoly Law ix considered as most urgent taking account of expanding container and Ro-Ro liner operation network in the short-term.

With regards to Anti-monopoly Law, some open debates are necessary to justify common carriers' service characteristics under the context of social and economic development where inter-island shipping takes a significant and indispensable role. At the same time, a dialogue channel with shippers must be expanded to obtain their reliance and support.

It needs long-term efforts to firmly keep the cabotage right in Indonesia associated with shipping industry restructuring/modernization efforts and favorable investment environments. Special attention should be paid to fostering competitive industrial carriers.

In regard to streamlining operators and a more rigid national port system, the responsible authority needs to do some preparatory works internally. For instance, SIUPAL and PPKA related documents and data should be carefully monitored and analyzed to become a basis of meaningful and informative dialogue with the shipping industry. To discuss with port and trade authorities, the shipping administration should quantitatively analyze the effect to domestic shipping as a result of too many open ports and collect persuasive evidences and local petitions.

9.3. Policy Program Concerning Ship Safety and Environment Protection

9.3.1. IMO-Centered Maritime Safety Regime

Shipping is perhaps the most international of all the world's great industries and one of the most dangerous. It has always been recognized that the best way of improving safety at sea is by developing international regulations that are followed by all shipping nations. In 1948, an international conference in Geneva adopted a convention formally establishing IMO to promote maritime safety more effectively.

IMO is a specialized agency dealing with maritime affairs and belongs to the Economic and Social Council of the United Nations. IMO has independent status regarding budget and personnel. IMO was established based upon an international convention called IMO convention. The IMO Convention entered into force in 1958 and the new Organization met for the first time the following year. In 1959, the Organization commenced its operation using its original name of IMCO (Inter-Governmental Maritime Consultative Organization), after which, the Organization's name changed to IMO in 1982.

The purposes of the Organization are: *"To provide machinery for cooperation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trades; to encourage and facilitate the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships."*

For a better understanding of IMO, its historical background and its pivotal roles on ship safety and environment protection are introduced below:

- Its first task was to adopt a new version of the International Convention for the Safety of Life at Sea (SOLAS), the most important of all treaties dealing with maritime safety. This was achieved in 1960 and IMO then turned its attention to

such matters as the facilitation of international maritime traffic, load lines and the carriage of dangerous goods, while the system of measuring the tonnage of ships was revised.

- In 1967, a tanker disaster, in which 120,000 tons of oil was spilled, demonstrated that the growth in the size of oil tanker was of particular concern and pollution began to emerge as a new problem. Following this disaster, the IMO introduced a series of measures designed to prevent tanker accidents and to minimize their consequences and also tackled the environmental threat caused by routine operations such as the cleaning of oil cargo tanks and the disposal of engine room wastes, in tonnage terms of which is more serious than accidental pollution. These measures finally resulted in the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). It covers not only accidental and operational oil pollution but also pollution by chemicals, goods in package form, sewage, garbage, and air pollution.
- IMO also established and developed a system for providing compensation to those who had suffered financially as a result of pollution. Two treaties relating thereto were adopted to enable victims of oil pollution to obtain compensation much more easily and quickly. They have been amended twice, in 1992 and 2000, so as to increase the limits of compensation payable to victims of pollution.
- Mainly due to technological innovations and changes, IMO was able to introduce major improvements to the maritime distress system like a global search and rescue system and the establishment of the International Mobile Satellite Organization (IMSO) both in 1970s.
- In 1992, the Global Maritime Distress and Safety System (GMDSS) began to phase in and became fully operational in 1999, guaranteeing a ship in distress anywhere in the world.
- IMO introduced other measures concerned with the safety of containers, bulk cargoes, liquefied tankers, and other ship and adopted a special convention on standards of training, certification and watch keeping. On 1 February 1997, the 1995 amendments to the International Convention on Standards of Training, Certification and watch keeping for Seafarers, 1978 entered into force. These greatly improved the seafarer standard.
- IMO's most important concern is adoption of maritime legislation and in that regard, have adopted around 40 conventions and protocols including their amendments on several occasions.
- While IMO's role is to adopt treaties, the member Governments are responsible for putting them into effect. To achieve this, IMO has introduced measures to improve the way legislation is implemented, by assisting flag States and by encouraging the establishment of regional port State control systems. The systems to ensure its fulfillment of IMO standard on ships going to foreign ports can be used more efficiently where the inspections are made on regional rather than national basis.
- IMO has also developed a technical cooperation program which is designed to assist Governments which lack the technical knowledge and resources that are needed to operate a shipping industry successfully. The focal point of this program is on providing advanced training for men and women involved in maritime

administration, education and management.

- The International Safety Management Code entered into force and became applicable to passenger ships, oil and chemical tankers, bulk carriers, gas carriers, and cargo high speed craft of 500 gross tonnage and above on and after 1 July 1998 and to other cargo ships and mobile offshore drilling units of 500 gross tonnage and above on and after 1 July 2002.
- It is expected that these two measures, by raising standards of management and shipboard personnel, will greatly improve safety and pollution prevention in the years to come.
- In the wake of the terrorist atrocities in the United States in September 2001, a new comprehensive security regime for international shipping is set to enter into force in July 2004 following the adoption of a series of measures to strengthen maritime security and prevent and suppress acts of terrorism against shipping, which has crucial significance not only to the international maritime community but the world community as a whole, given the pivotal role shipping plays in the conduct of world trade.
- The challenge now that IMO and its 163 Member States is facing is how to maintain this success at a time when shipping is changing more rapidly than ever before.

9.3.2. Contemporary Ship Safety and Environment Issues in Indonesia

(1) ISM (International Safety Management) Code and ISPS

Objectives

The objectives of the Code are to ensure safety at sea, prevention of human injury or loss of life and avoidance of damage to the environment, in particular, to the marine environment, and to property. The Company should provide safe operation practices and working environment, establish safe guard against risks and continuously improve them by complying with mandatory rules and regulations and also taking into account applicable codes, guidelines and standards recommended by the bodies concerned.

Scope of Application

July 1, 2002 became a memorable date for the shipping industry as the International Safety Management (ISM) Code fully became enforceable from that date onwards. The ISM Code was applied to passenger ships, oil tankers, gas carriers, bulk carriers, and high-speed craft of 500 gross tonnage and above from 1 July 1998 for the first phase implementation. Other cargo ships, including offshore drilling units, of 500 gross tonnage and above must comply with the ISM Code. The ISM Code provides a mandatory international standard for safe management and operation of ships and for pollution prevention. IMO had called for complete and effective implementation of the ISM Code so as to promote establishment of the safety culture in the long-term.

- The requirements of this Code may be applied to all ships with 500GT and over.
- Functional requirements are that every Company should develop, implement and maintain the relevant policy, instructions and procedures to ensure safe operation of

ships and protection of the environment and procedure for reporting, emergency situations and audits and reviews.

Present State of DOC and SMC issuances

The Government and BKI, an Organization authorized to carry out ISM audit and issue Interim Certificate, have completed auditing of the companies and their own ships with regard to Ship Management System as previously scheduled so far.

The ships' types and sizes, scheduled dates and numbers of issued Certificates are shown in Table 9.3.1:

Further actions to be taken

International Ship and Port Facility Security Code (ISPS) has become effective on July 2004 and the remainder of ISM Audit currently scheduled shall be completed by 2006. Ship Management Audit for the ships in domestic use are still scheduled by the year 2006, but they will be completed as scheduled. A quick decision to implement the ISPS Code will be imminently required irrespective of its introduction and application to ships in domestic use unlikely being an issue difficult to solve.

(2) Oil Spill Protection

Present state of Marine Environment Protection;

The Indonesian Government has ratified and legalized the International Convention for the Prevention of Pollution from Ships, 1973 and the Protocol of 1978 relating thereto (MARPOL 73/78). Presidential Decree No.46 Year 1986 applies to tankers with size 150GT or more and ships other than tankers with size 400GT or more. Furthermore, an effort was made to provide shore reception facilities, and in this connection, Ministerial Decree KM 215/AL 506/PHB-87 was issued, which is with regards to the Establishment of Vessel Disposal Reception Facilities. The Decree stipulates necessity of disposal reception facilities in Ports visited by many ships and dockyard to repair ships. For compliance of this Decree, reception facilities have been provided in the following ports: Tanjung Priok (Jakarta), Tanjung Perak (Surabaya), Blanglancang (Aceh), Dumai (Riau Province), Pulau Sambu (Riau Province), Plaju (South Sumatera), Sungai Gerong (South Sumatera), Cilacap (Central Java), Balikpapan (East Kalimantan), and Sorong (Northeast Papua), 10 in total.

As to legalization for domestic purpose, Ministerial Decree KM.86/1990 particularly prepared for Annex I, is applicable to Non-convention ship, which applies to oil tankers with size of 100GT up to 149GT and ships other than oil tankers with size of 100GT up to 399GT and tug boat using motor engine of 200HP or more and stipulates the requirements for equipment and construction of ships in respective size and control of discharge from all ships machinery room and oil tanker loading room.

In addition, the Regulation No.51/2002 was issued to implement Law No.21 year 1992 on Shipping and requires prevention of pollution in Chapter VIII. With this regard, further issuance of regulation is under process, which once issued MARPOL Annex III, IV and V are ready to be ratified.

Table 9.3.1 Implementation Condition of ISM Code

DECREE LETTER OF DGSC NUMBER PY.67/1/6-96 ON 12 JULY 1996 REGARDING VALIDATION OF SAFETY MANAGEMENT SHIP/INTERNATIONAL SAFETY MANAGEMENT (ISM Code)

FOR INDONESIAN FLAGGED SHIP THAT USED FOR INTERNATIONAL SHIPPING

Ship Type	Size Measure (GT)	Validation of ISM – Code
Passenger Ship High Speed Passenger Craft Passenger Ferry	All Size Measure	1 JULY 1998
Oil Tanker Chemical Tanker GAS Carrier Bulk Carrier High Speed Cargo Craft	≥ 500 GT	
Cargo Craft MODU Ship (Mobile Offshore Drilling Unit)	≥ 500 GT	1 JULY 2002

FOR INDONESIAN FLAGGED SHIP THAT USED FOR DOMESTIC SHIPPING

Ship Type	Size Measure (GT)	Validation of ISM – Code	Those that Hit By ISM-Code Stipulation	Realization	Percentage
Passenger Ship High Speed Passenger Craft	ALL Size	1 JULY 1998	DOC= 185 SMC= 715	DOC= 185 SMC= 715	100% 100%
Passenger Ferry	≥ 300 GT				
Chemical Tanker High Speed Cargo Craft	≥ 500 GT				
Other Tanker Craft Including Liquid GAS Carrier	≥ 500 GT	1 JULY 1999			
Bulk Carrier	≥ 500 GT	1 JULY 2000			
Passenger Ferry Container Craft	100 until < 300 GT ≥ 500 GT	1 JULY 2002	DOC= 45 SMC= 80	DOC= 45 SMC= 80	100% 100%
MODU Ship	≥ 500 GT	1 JULY 2003	DOC= 5 SMC= 5	DOC= 5 SMC= 5	100% 100%
OTHER Cargo Craft	≥ 500 GT	1 JULY 2004	DOC= 183 SMC= 555	DOC= 34 SMC= 258	18% 46%
Chemical Oil Tanker Craft Liquid GAS Carrier High Speed Cargo Craft	150 until < 500 GT	1 JULY 2006	DOC= 6 SMC= 6	DOC= 0 SMC= 0	0% 0%
TOTAL			DOC= 424 SMC= 1361	DOC= 269 SMC= 1058	63% 78%

Source: DGSC (as of December 2002)

Table 9.3.2 Status of MARPOL 73/78

(Date of deposit of instruments, as of 31 December 2002)

Authority	Annex I & II	Annex III	Annex IV	Annex V	Annex VI
Indonesia	21/10/86	-	-	-	-
Malaysia	31/01/97	-	-	28/02/96	-
Philippines	2015/6/1	2015/6/1	2015/6/2	2015/6/3	-
Singapore	01/11/90	02/03/94	-	27/05/99	08/10/00
Thailand	-	-	-	-	-
Viet Nam	29/05/91	-	-	-	-
Brunei Darussalam	23/10/86	-	-	-	-
Entry into force date	02/10/83	01/07/92	2027/9/3	31/12/88	-

Source: TOKYO MOU Annual Report 2002;

Prevention of Marine Pollution by Oil Resulted from Ship's Accidents

To prevent the marine pollution in Indonesia waters, the following measures are currently undertaken:

Limitation of discharge of the pollution from ships: Limitation of the amount of pollutants permissible to be discharged in the event of the ship accident is governed for the ships by requiring them to be provided with marine pollution prevention and combating equipment in accordance with the Law No.21 year 1992 on Shipping.

Responds to oil spill resulted from ships accident: Efforts taken by the Government, in this case, the Ministry of Communication, Directorate General of Sea Communication as the coordinating agency, with respect to developing preparedness to respond to oil spill resulted from ships' accident, among other, is by encouraging port authorities to establish local contingency plans, while at the national level, the plan is awaiting for the signature of the President.

Summary

In spite of the prohibition on oily waste discharge from ships, the discharge is still done on a daily basis. However, IMO recognized that the environmental threat caused by such routine operation, as the disposal of engine room wastes, is more serious than accidental pollution. With IMO's recognition in mind, although the discharge is currently mainly executed by small size ships and total amount of which is unlikely to be regarded as significantly contaminative for the entire territorial water to be protected, current situation has to be taken seriously and more efficient procedures of utilization of shore reception facilities need be established.

9.3.3. Proposed Development Directions

(1) Swift Domestic Legislation and Accession to IMO Conventions

Indonesia's awareness about ship safety and environment appeared high when the country ratified SOLAS 74 in 1981. After this, a series of IMO convention codes came into effect. At present, ship safety and marine environment protection is of utmost concern among global marine communities. The government legislated the Shipping Law in 1992. But necessary government regulations to support the law have not been fully prepared until today. As a result, for example, the government has not ratified MARPOL 73/79 related important annexes except Annex I & II. There is an urgent need for the government to develop the domestic legal framework for ship safety and marine environment, since the Law No. 21/ 1992 and the Government Regulation No. 51/ 2002 still need a substantial number of supplemental ministerial decrees for enforcement.

(2) Enhancement of Maritime Safety

The Study confirms that the number of maritime accidents shows a downward trend in recent years. But vessels of poor seaworthiness still took many lives away, that is, 58 and 46 casualties in 2001 and 2002, respectively. According to the statistics, the biggest accident cause is human error. It may include such law violation as a voyage with no seaworthiness certificate and carrying passengers far beyond the ship's certified compliment. Thus, strengthening of law enforcement capability and its strict enforcement seems the most effective way.

(3) Cleaner Marine Environment

In spite of the prohibition of oily waste discharge from ships, the discharge is being mainly executed by small size ships and total amount of which is unlikely to be regarded as significantly contaminative for the entire territorial water to be protected, but the environmental threat caused by such routine operation is more serious than accidental pollution. Therefore, current situation has to be taken seriously and more efficient procedures of utilization of shore reception facilities need be established.

In addition to the ongoing variety of plans/programs, it should always be in mind that shore reception facilities, oil spill combating contingency plans are to be improved in maintaining perseverant efforts to achieve the goal.

(4) Curbing Piracy and Armed Robbery Incidents

Piracy and armed robbery incidents become fierce and rampant on Indonesia's territorial waters. To protect maritime security and ensure safe navigation, the country needs to strengthen proactive and reactive measures with full utilization and integration of available domestic resources. In this sense, a national coordination body at a higher level is required (e.g. "Coordination Body for Security at Sea").

Such coordination efforts also work effectively under international and regional cooperation schemes. IMO has taken several different aspects of counter measures to prevent the incidents and is seem to be successful in its actions. There is an example as to how piracy incidents can be dealt with in conformity with presently available

international law. That is to say that the hijacked ship was arrested as a result of the efforts of circulating information describing the hijacked vessel and coordinating the reports from ships in the area that spotted her. Thus, coordination within the same regional countries is especially a required activity for the prevention and suppression of these incidents.

(5) Competent Maritime Administration Officers

As the largest archipelago country in the world, Indonesia has a total of 2,047 ports, including inclusive public, special and fishing ports. It is, therefore, not an easy task to provide all ports with a tightly meshed governing network. This is mainly because of comparatively lacking human resources and cooperative activities with isolated locations as well as due to the relatively massive burdens of the Government.

To meet IMO requirements, maritime administration officers need to absorb new knowledge and technology. But it is faced with difficulties to respond to them because of the lack of a number of skilled and well trained work force (e.g. PSC Officers). Some port offices complained of their lack of well trained PSC Officers in their office; others complained they have no deployed Officer. Therefore, human resource development deserves government's top priority. The government must therefore device internal training schemes and utilizes any external training opportunities such as IMO initiatives and technical assistance programs of developed countries.