Japan International Cooperation Agency (JICA)
National Development Planning Agency (BAPPENAS)
Directorate General of Sea Transportation, Ministry of Transportation (DGST)
PT. PANN

The Preparatory Survey for Domestic Shipping and Sea Transportation Improvement Project in The Republic of Indonesia

FINAL REPORT

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ABBREVIATIONS

AFI	Apex Financial Intermediary
API	*Arsitektur Perbankan Indonesia* or Indonesian Banking Architecture
ASEAN	Association of Southeast Asia Nation
B/C	Cost Benefit Ratio
BAPPENAS	*Badan Perencanaan Pembangunan Nasional* or National Development Planning Agency
BEI	*Bank Ekspor Indonesia*
BI	*Bank Indonesia*
BKI	*Biro Klasifikasi Indonesia* or Indonesia Classification Society
BNI	*Bank Niaga Indonesia*
BRI	*Bank Rakyat Indonesia*
CDM	Clean Development Mechanism
CMEA	Coordination Ministry of Economic Affairs
CPO	Crude Palm Oil
DGHTBI	Directorate General of High Technology Based Industry
DGLT	Directorate General of Land Transportation
DGOT	Directorate General of Treasury
DGST	Directorate General of Sea Transportation
DOC	Document of Compliance
DRPLN-JM	*Daftar Rencana Pinjaman Luar Negeri Jangka Menengah* or List of Medium-term Foreign Loan Plan
DRPPLN	*Daftar Rencana Prioritas Pinjaman Luar Negeri* or List of Foreign Loan Priority
DWT	Dead Weight Tonnage
EA	Executing Agency
EEDI	Energy Efficiency Design Index
EEOI	Energy Efficiency Operational Indicator
EIRR	Economic Internal Rate of Retune
FIRR	Financial Internal Rate of Retune
GDP	Gross Domestic Product
GHG	Green House Gas
GOI	Government of Indonesia

GOJ	Government of Japan
GT/GRT	Gross Tonnage/Gross Registered Tonnage
IACS	International Association of Classification Societies
IMO	International Maritime Organization
INPRES	Presidential Instruction
IPERINDO	*Ikatan Perusahaan Industri Kapal Nasional Indonesia* or Indonesia Shipbuilding Industry Association
ISM Code	International Safe Management Code
ISMA	Indonesian Ship Management Association
ISO	International Organization for Standardization
JAMKRINDO	*Jaminan Kredit Indonesia* or Indonesia Credit Guarantee (public agency)
JBIC	Japan Bank of International Cooperation
JIBOR	Jakarta Interbank Offered Rate
JICA	Japan International Cooperation Agency
JRTT	Japan Railway Construction, Transport and Technology Agency
KM	*Keputusan Menteri* or Minister Decision
KPI	*Kesatuan Pelaut Indonesia* of Indonesia Seafarer Society
KPLP	*Kesatuan Penjagaan Laut dan Pantai* or Sea and Coast Guard
L/A	Loan Agreement
LCC	Low Cost Carrier
LCT	Landing Craft Tanker
LPEI	*Lembaga Pembiayaan Ekspor Indonesia* or Indonesian Export Financing Institution
LPG	Liquid Petroleum Gas
MARPOL	Marine pollution
METS	Maritime Emissions Trading Scheme
MOF	Ministry of Finance
MOI	Ministry of Industry
MOT	Ministry of Transport
MP3EI	*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia* or The Masterplan for the Acceleration and Expansion of Economic Development of Indonesia
MSME	Micro-, Small- and Medium-sized Enterprise
MSOE	Ministry of State-owned Enterprises
MT	Metric Ton
NaSDEC	National Shipbuilding Design and Engineering Center

NBFI	Non-bank Financial Institution
NPL	Non-performing Loan
NPV	Net Present Value
OD	Origin-destination
ODA	Official Development Assistance
PANN	*Pengembangan Armada Niaga Nasional* or National Merchant Fleet Development
PCC	Project Coordinating Committee
PELINDO	*Pelabuhan Indonesia* or Indonesia Port Corporation
PERTAMINA	*Perusahaan Tambang Minyak Negara* or State Oil Company
PFI	Participating Financial Intermediary
PLN	*Perusahaan Listrik Negara* or State Electric Company
PMC	Project Management Consultant
PMU	Project Management Unit
PP	*Peraturan Pemerintah* or Government Regulation
PPA	*Perusahaan Pengelola Aset* or Asset Manager Company
PSFP	Public Ship Finance Program
PT.	*Perusahaan Terbatas or* Limited Company
PWG	Project Working Group
RM	Relation Management
ROA	Return on Assets
ROE	Return on Equity
ROPAX	RORO Passenger Vessel
RORO	Roll-on, Roll-off
RPJMN	*Rencana Pembangunan Jangka Menengah Nasional* or Medium-term National Development Strategy
RPPLN	*Rencana Pemanfaatan Pinjaman Luar Negeri* or Utilization of Foreign Loan Plan
S/L	Subsidiary Loan
SBI	*Sertifikat Bank Indonesia* or Bank Indonesia Certificate
SBU	Strategic Business Unit
SC	Steering Committee
SEEMP	Ship Energy Efficiency Management Plan
SI	Superintendent
SIOPSUS	*Surat Izin Operasi Perusahaan Angkutan Laut Khusus* or Permit for Special Shipping Company

SIUPAL	*Surat Izin Usaha Perusahaan Angkutan Laut* or Permit for General Shipping Company
SLA	Subsidiary Loan Agreement
SMC	Safety Management Certificate
SME	Small- and Medium-sized Enterprise
SMHC	Ship Management and Holding Company
SMS	Safety Management System
SOE	State-Owned Enterprise
SOLAS	Safety of Life at Sea
STRAMINDO	Study on the Development of Domestic Sea Transportation and Maritime Industry in the Republic of Indonesia
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TEU	Twenty-foot Equivalent Unit
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

1.1 Scope of the Survey

1) Master Plan and Its Succeeding Technical Assistance

JICA has been continuously extending technical and loan assistance to the maritime transport sector in Indonesia. In regard to public ship finance and ship management, the following projects have been implemented for policy advocacy, institutional development and development planning:

- The Study on the Development of Domestic Sea Transportation and Maritime Industry in Indonesia (STRAMINDO, 2002-2004)
- The Study on the Development of Domestic Sea Transportation and Maritime Industry in Indonesia – Assistance for Public Ship Finance Scheme and Advanced Maritime Education Program (STRAMINDO II, 2004-2005)
- Technical Cooperation Project for Shipping and Sea Transportation Improvement (2006-2008)
- Technical Cooperation Project for Shipping and Sea Transportation Improvement Phase II (2008-2011)

2) Preparation of Japanese ODA Loan Project

Reviewing the above projects' positive results, BAPPENAS, the Ministry of Transportation, PT. PANN and JICA made several preliminary discussions in order to identify priority projects in the field of maritime transport. They agreed to carry out a JICA preparatory survey to propose a Domestic Shipping and Sea Transportation Improvement Project with Japanese ODA loan. Subsequently, the Survey Team was mobilized in March 2011.

The primary objective is to support Indonesian domestic shipping and sea transportation by implementing a new financial scheme focusing on small shipping companies. To meet this objective, the Survey has highlighted the following:

i. Identification of local shipping development needs to strengthen inter-island connectivity;
ii. A feasible public ship financing scheme using Japan's ODA loan;
iii. Necessary institutional set-up and technical support to upgrade and modernize ship management practices; and
iv. Formulation of the Project Implementation Plan

3) Survey Area

The Survey covers the whole country of Indonesia. The survey subjects are limited to domestic shipping and its related industry, economy and social activities.

Source: mappy.com

Figure 1.1.1 Survey Area

4) Survey Organization

JICA has formed and dispatched the Survey Team since March 2011. BAPPENAS, DGST of MOT and PT. PANN are counterpart agencies in the Survey.

Table 1.1.1 Survey Related Personnel

Name	Position
(Indonesian Side)	
Bambang Prihartono	Director of Transport, BAPPENAS
Dail Umamil Asri	Transport Expert, BAPPENAS
Adolf R. Tambunan	Director of Shipping and Sea Traffic, MOT
Haekal Dachlan	Sub-director for National Fleet Development, MOT
Ibnu Wibowo	President, PT. PANN
Suhartati	Financial Expert, PT. PANN
(JICA Side)	
Oketani Atsushi	JICA HQ Officer-in-charge
Higuchi Hajime	JICA Indonesia Office Officer-in-charge
Kumazawa Ken	Team Leader / Ship Finance / Organization and Institution
Takino Seiichi	Fleet Development Planning / Maritime Logistics Development
Samuel Custodio	Maritime Logistic Development (2)
Maeda Eiji	Shipping Business Management / Loan Arrangement and Financial Analysis
Izumi Yasuo	Loan Arrangement and Financial Analysis (2)
Sakaguchi Kazuaki	Ship Management
Nakajo Yasuo	Ship Design
Seki Yosui / Kanai Yoshikazu	Coordinator / Organization and Institution (2)

Source: Compiled by JICA Survey Team

1.2 Development of Doable PSFP

1) Review of Previous Proposals

The Study on the Development of Domestic Sea Transportation and Maritime Industry in Indonesia (STRAMINDO, completed in March 2004) elaborated a public ship finance scheme. To deliver ship loans to shipping companies, it was designed to have a two-step mechanism when tapping Japan's ODA loan into the sector.

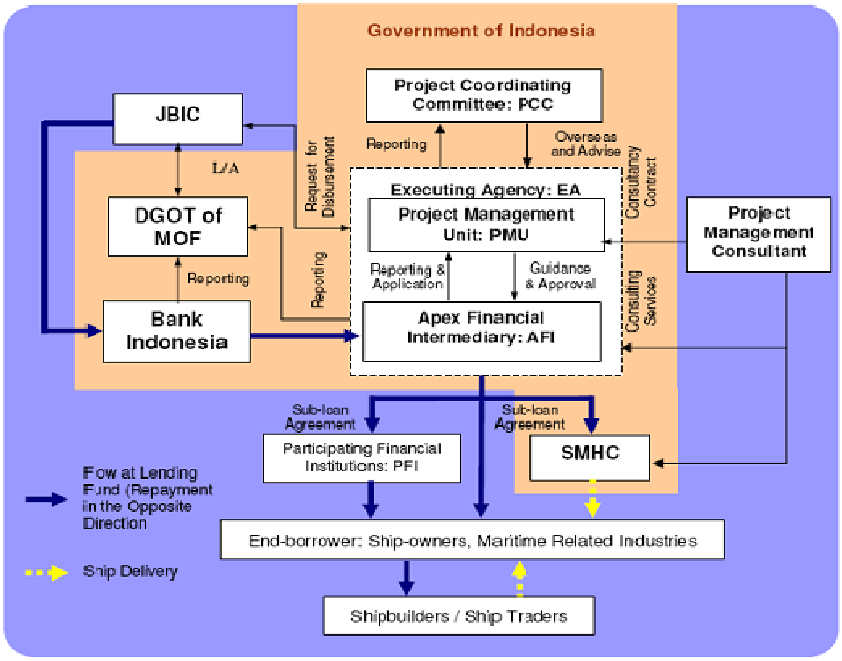
Since then, many discussions have been done among relevant agencies on the platform prepared by a series of JICA technical cooperation projects. Although many project schemes have been proposed and discussed, this report presents the three (3) schemes that have been proposed as a result of the said discussions. They are (i) STRAMINDO II scheme (as of March 2005), (ii) an MOF expert's scheme (as of December 2007) and (iii) a JICA expert's scheme (as of September 2010). Their proposed schemes are illustrated in figures 1.2.1 to 1.2.3.

The differences among these schemes are explainable by historical conditions and proposers' concerns and perspectives, as summarized in Table 1.2.1.

Table 1.2.1 Summary of Previously Proposed Public Ship Finance Schemes

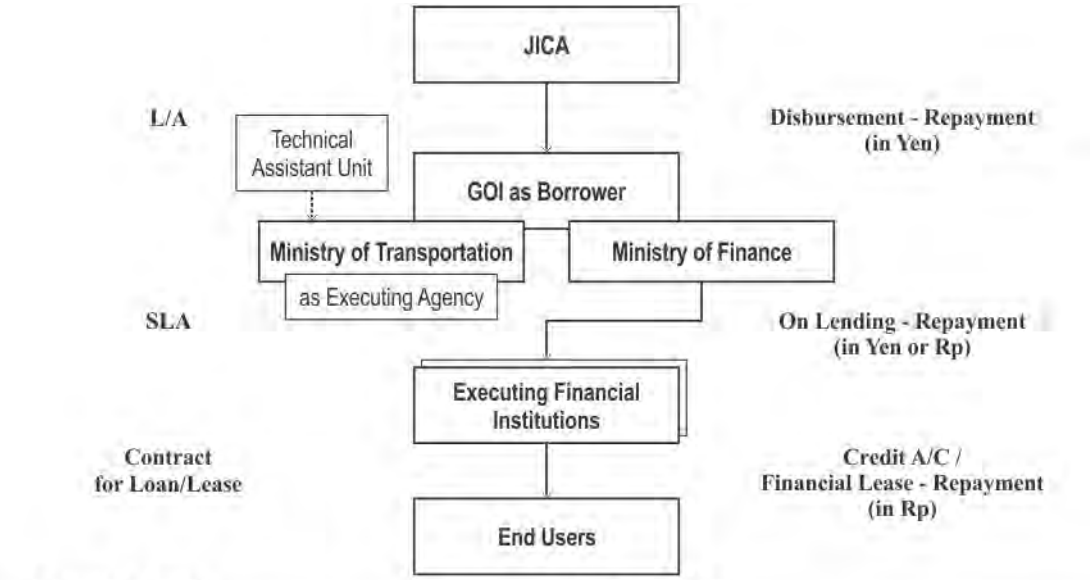
	STRAMINDO II	MOF Expert	JICA Expert
Time & Occasion	March 2005 Presented in the study's Final Report	December 2007 Presented in the workshop on public ship finance	September 2010 Presented in the JICA expert report
Government Role to Take Exchange Risk	MOF does not take any exchange risk. Instead, one or a couple of state-owned commercial banks are appointed as Apex Financial Intermediary (AFI).	GOI as borrower takes exchange risk.	GOI as borrower takes exchange risk.
Sub-loan Conditions on End User	• Medium to long-term loan • Possible lease arrangement • 12.0% (fixed rate)	• Loan (both rupiah and yen available) • No description of lease arrangement • 9.25% (floating rate in rupiah)	• Lease service to be provided by PT. PANN • No description of loan arrangement • MOF studies to finance lower rate to end users than in the market.
Project Management and Technical Assistance	EA (Executing Agency) consists of PMU (Project Management Unit) and AFI. PMU receives technical assistance from PMC (Project Management Consultant).	MOT establishes EA where technical assistance is provided.	PMU is established. No description for technical assistance.
PT. PANN's Involvement	SMHC (Ship Management and Holding Company) is to be established by either PT. PANN or a new organization. If the PT. PANN's issue on accumulated non-performing loans is solved, it may participate in the scheme.	No description	PT. PANN is designated as an Executing Financial Institution.
Ship Management	SMHC will provide ship management services to the vessels procured under the scheme.	No description	Ship management services are provided to PT. PANN in the scheme.

Source: Compiled by JICA Survey Team



Financing Institute		Currency	Interest Rate	
			%	Cumulative %
JBIC Loan		Yen	1.30	1.30
GOI / MOF (Sub-loan Commission)		Yen	0.50	1.80
Apex Financial Intermediary (AFI)	Commission	Rupiah	1.20	3.00
	Exchange Risk	Rupiah	5.50	8.50
Participating Financial Intermediary (PFI)	Commission	Rupiah	2.00	10.50
	Business Risk	Rupiah	1.50	12.00
Interest on End User		Rupiah	12.00	

Figure 1.2.1 STRAMINDO II Scheme (as of March 2005)



Sub Loans in Rupiah

Financing Process	Cur-rency	Interest Rate	
		%	Cumulative %
BI rate*)	Rp.	8.25	8.25
GOI/MOF (sub-loan commission)	Rp.	0.25	8.50
Executing Financial Institution	Rp.	0.75	9.25
Interest rate to end user	Rp.	9.25	

Sub Loans in Yen

Financing Process	Cur-rency	Interest Rate	
		%	Cumulative %
BI rate*)	Yen	1.30	1.30
GOI/MOF (sub-loan commission)	Yen	0.35	1.65
Executing Financial Institution	Yen	0.15	1.80
Interest rate to end user	Yen	1.80	

Figure 1.2.2 MOF Expert's Scheme (as of December 2007)

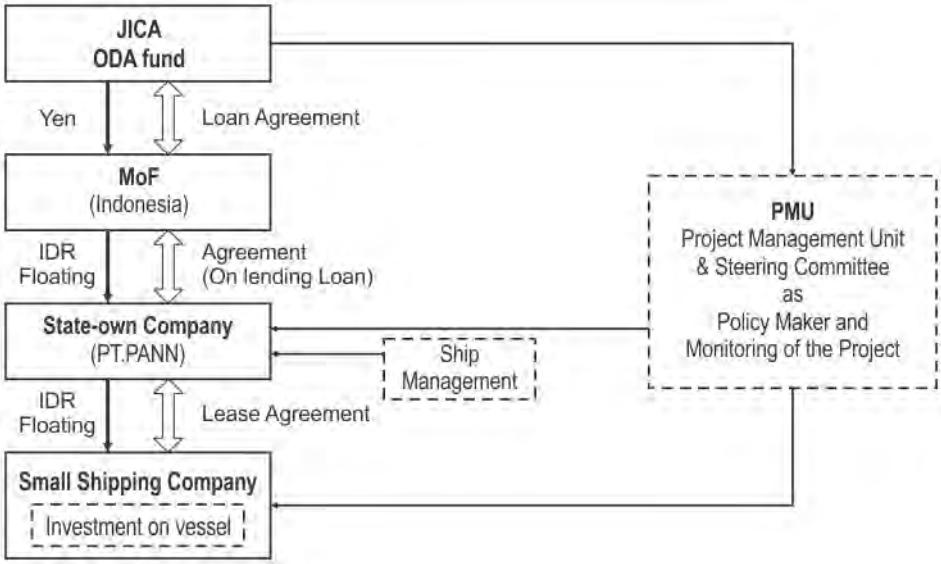


Figure 1.2.3 JICA Expert's Scheme (as of September 2010)

2) Recent Government Efforts to Appoint an Executing Agency

PT. PANN, a state-owned ship leasing company since 1974, is experienced in ship financing services, particularly for small to medium shipping companies. It is thus regarded as capable and suitable as an executing agency of the proposed public ship finance program.

In view thereof and through the coordination efforts of the JICA Long-term Expert on Shipping Policy, the relevant agencies concluded in 2010 that PT. PANN should undertake the Executing Agency's role. In this connection, the following recommendation letters were issued for inter-ministerial communication:

i. From Shipping and Sea Traffic Director of DGST to Transportation Director of BAPPENAS on 9th August 2010;

ii. From Transportation Director of BAPPENAS to the Ministry of Finance (Investment Management System Director, Debt Strategy and Portfolio Director and Head of Financial Risk Management Center) on 13 August 2010; and

iii. From the Minister of State-owned Enterprises (MSOE) to the Minister of Finance on 10 December 2010.

However, PT. PANN is in a financial predicament due to historical government debt. To appoint PT. PANN as an executing agency by the Government, a set of urgent measures to address the financial issue are necessary.

The applicable business restructuring measures by the Government to PT. PANN may be divided into two policy areas:

- Financial restructuring including a measure of stopping the accrual of PT. PANN's debt (already implemented since 2007) and debt-equity-swap; and
- Corporate restructuring, such as spinning off of PT. PANN's core business (ship leasing) into a new corporation which would enable it to increase fund raising, including foreign government loan and to cut its cost with a financially healthy corporate profile.

In pursuing this goal, PT. PANN and the relevant government agencies have worked together in the course of this Study. The activities are mainly reported in Section 6.7 of this report.

1.3 Implication for the Project

This introductory chapter shows the scope of the JICA Survey and quickly reviews previous proposals for a public ship finance program (PSFP) in Indonesia. The most recent proposal made by a JICA expert was done in 2010, and it anticipated that PT. PANN would take the executing agency's (EA) role under a subsidiary loan agreement with the MOF. Three (3) separate letters were later issued by the MOT's DGST, BAPPENAS, and MSOE to appoint PT. PANN as such.

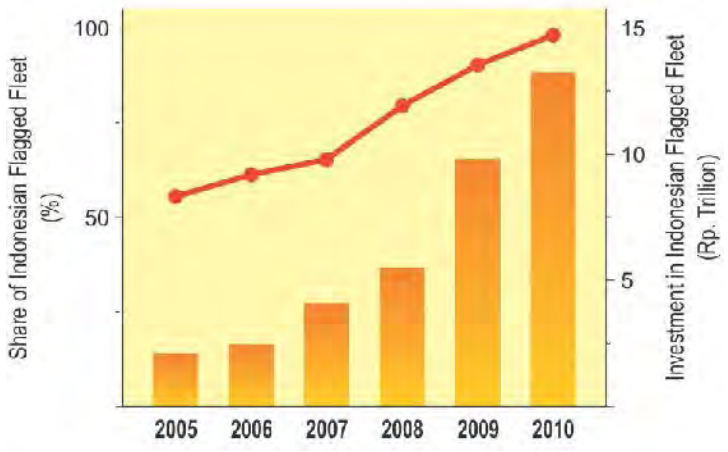
Since 2010, the JICA Survey Team has exerted continuous effort in identifying the PSFP's role in the current domestic shipping situation, as well as in designing feasible financing programs and exploring PT. PANN's role as executing agency.

2 SECTOR APPRECIATION

2.1 Remarkable Change after the Issuance of INPRES No.5/2005

In line with economic development, domestic maritime cargo has sharply increased by 50% during the period 2005-2010.

It is remarkable that the national fleet tonnage has expanded at a much higher pace than the cargo growth. As a result, the share of the national fleet in transporting domestic maritime cargo has also increased from 55.5% to 98.1% during the same period. At present, the country's cabotage right is almost fulfilled.



Source: Analyzed by JICA Survey Team based on DGST Data

Figure 2.1.1 Cabotage Rate and Ship Investment, 2005-2010

Table 2.1.1 Domestic Shipping Profile, 2005-2010

	2005	2010
Domestic Seaborne Cargo	206 million tons	309 million tons
Share of National Fleet	55.5%	98.1%
No. of National Fleet (1)	6,012 vessels	9,945 vessels
Estimated Ship Investment (2)	53.7 trillion rupiah (Rp 37.6 trillion of which is arranged by loan/lease.)	

Note (1): Refer to Table 2.1.3.
Note (2): Conversion assumptions used: (1) 1US$ = Rp 94,000, (2) 1 JY = Rp 101.95, (3) 1S$ = Rp 6,551 during the period. Resource assumption in ship investment between loan/lease by financial institutions and own fund: 70% and 30%
Source: DGST

The number of national shipping companies has been constantly increasing after the issuance of KM No.33/2001. It was required that the applicant should own a cumulative of at least 175 GT for securing a shipping company license. Total companies as of 2009 reached 2,140: consisting of 1,758 general shipping companies and 382 special shipping companies.

The number of general shipping companies or the companies which have no limitation in the Indonesian shipping market doubled between 2002 and 2009. The number of special shipping companies or industrial carriers providing shipping services to some cargo owners in a dedicated manner, increased by 1.6 times during the same period.

Table 2.1.2 Trend in National Shipping Companies, 2002-2009

Company Type	2002	2003	2004	2005	2006	2007	2008	2009
General Shipping Companies (SIUPAL)	889	1,030	1,153	1,274	1,382	1,485	1,612	1,758
		15.9%	11.9%	10.5%	8.5%	7.5%	8.6%	9.1%
Special Shipping Companies (SIOPSUS)	238	267	300	317	322	346	370	382
		12.2%	12.4%	5.7%	1.6%	7.5%	6.9%	3.2%
Total	1,127	1,297	1,453	1,591	1,704	1,831	1,982	2,140

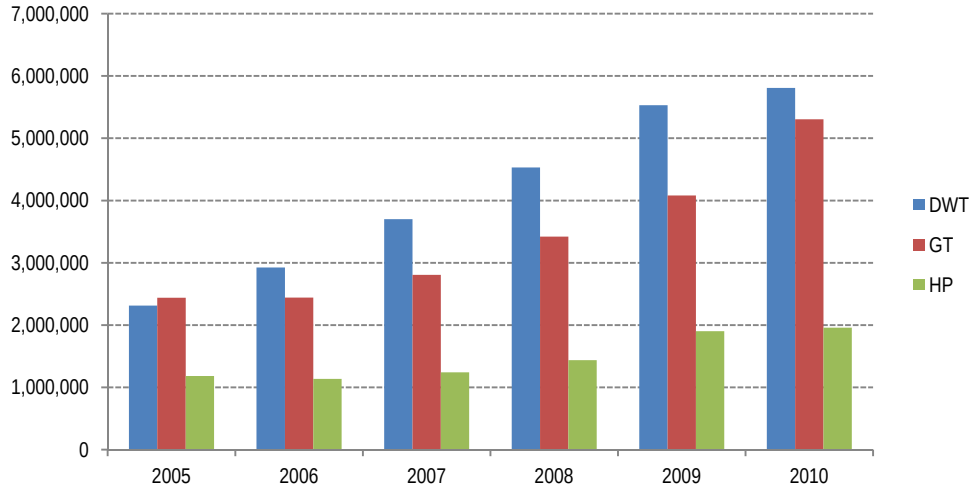
Source: DGST

The increase in the national fleet vessels came hand in hand with the growth in the number of shipping companies as described above. It seems that the number of national flag vessels also significantly increased in 2008 and 2009. In terms of vessel population, the combined general shipping (SIUPAL) and special shipping (SIOPSUS) vessels increased to 9,945, posting an average annual growth of 11% for the past five years starting in 2005. The aggregate fleet volume reached 5.8 million DWT, 5.3 million GT and 2.0 million HP in 2010. It should be noted that increased fleet tonnage rates measured in both DWT and GT are bigger than the unit growth rate in total, indicating procurement of bigger vessels in recent years.

Table 2.1.3 Trend in National Flagged Vessels, 2005–2010

Year	Unit	DWT	GT	HP
2005	6,012	2,313,240	2,438,959	1,182,711
2006	6,428	2,923,875	2,440,893	1,134,166
2007	7,154	3,701,184	2,804,803	1,241,847
2008	8,165	4,530,275	3,421,240	1,435,528
2009	9,164	5,531,902	4,080,138	1,900,764
2010	9,945	5,808,497	5,304,179	1,957,787
Change (2010/2005)	1.65	2.51	2.17	1.65

Source: DGST



Source: DGST

Figure 2.1.2 Growth of National Flagged Vessels, 2005-2009

Such rapid national tonnage development can be attributed to a strong will by the government, which is attested by a series of legal documents as follows:

- The Presidential Instruction (INPRES) No. 5/ 2005 for the empowerment of the national shipping industry
- The Government Regulation (Peraturan Pemerintah, PP) No.44 the Year of 2005 for Ratification of International Convention on Maritime Liens and Mortgages 1993. It is expected that by ratifying this International Convention, it will attract the creditor to finance the procurement of Indonesian flag vessel.
- The Ministry of Transport Regulation No.71 the Year of 2005 regarding the Road Map towards realizing full (100%) domestic cargoes shipment by Indonesian flag vessels by January 1st 2011.
- The Ministry of Transport Regulation No.72 of 2005 was issued to review the port service charges as previously provided in the Ministry of Transport Decision No.KM 50 of 2003 regarding Kind, Structure and Classification of port service charges. It is stated that Indonesian flag vessels operated in domestic trade as port services users are charge in Rupiah (IDR), while foreign flag vessels are charged in US Dollar.
- The Ministry of Transport No.KP. 104 A of 2006 pertains to the forming of National Surveillance Committee on Quality Standard of Indonesian Crew.
- The Ministry of Transport and the Ministry of Trade Join Regulation No.KM 19 of 2006 and No.20/M-DAG/PER/4/2006, refer to the Carriage of Government Owned Import Cargoes by Indonesian flag vessels operated by national shipping companies.
- The Ministry of Energy Resources and Machinery No.26 of 2006 refer to the supply of fuel oil guarantee for Indonesian flag vessels under liner services arrangement.
- The Ministry of Transport Regulation No.25 of 2006 pertains to the simplification of procedure for vessel procurement and changing of vessel's flag.
- The Shipping Law No.17/2008

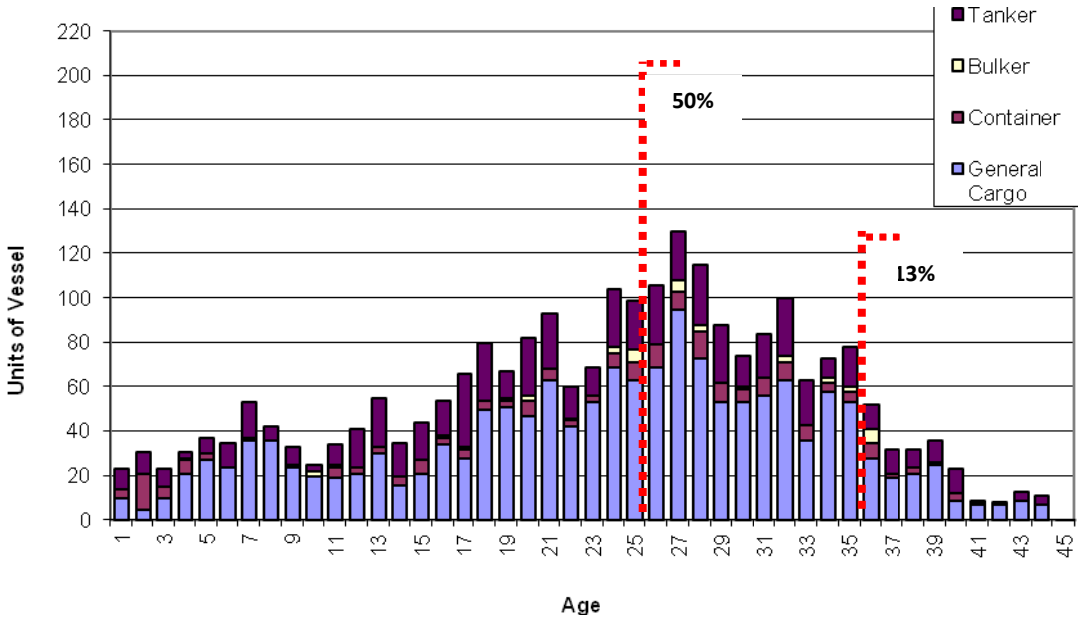
These legal documents, as a whole, encourage private investment in the national fleet with improved investment environments.

2.2 Contemporary Sector Development Issues

Today, chartered foreign flagged vessels take a marginal role in the domestic shipping sector. National tonnage shortage, which used to be the predominant sector development issue, has been almost solved. Nowadays, we observe that poor fleet quality and sustainable fleet development are growing concerns as the contemporary sector development issues.

About half of the national flagged vessels are over 25 years, except for tugs and barges, which are characterized as having short economic life. Recent investment flow into the national tonnage has not contributed to rejuvenating the fleet profile.

Table 2.2.1 shows the breakdown of the 2009 general shipping companies' vessels by type. Although cargo liner services are provided by the fleets of general cargo ships (24 years on the average), container ships (22 years) and RORO ships (23 years), all the types exceed over 22 years in terms of average ship age. As for cargo tramper services, rather large-sized vessels are also aging such as bulker (26 years) and tanker (22 years).



Source: Based on DGST Company and Vessel Registry Data, 2009

Figure 2.2.1 Composition of Cargo Vessels by Age, 2009

Table 2.2.1 National Flagged Vessels Owned by General Shipping Companies, 2009

Ship Type	Ships		Total GT		Ave. GT	Ave. Age
	No.	%	No.	%		
Container	209	2.7	1,067,911	11.1	5,110	22
General Cargo	1,580	20.4	2,611,852	27.1	1,653	24
Bulker	43	0.6	728,520	7.6	16,942	26
Barge	2,170	28.1	2,023,004	21.0	932	10
Tug Boat	2,195	28.4	341,669	3.5	156	14
Landing Craft	314	4.1	93,621	1.0	298	12
Tanker	649	8.4	1,811,116	18.8	2,791	22
Ro-Ro	66	0.9	259,103	2.7	3,926	23
Passenger	227	2.9	433,190	4.5	1,908	15
Others	277	3.6	254,860	2.6	920	18
Total	**7,730**	**100.0**	**9,624,846**	**100.0**	**1,245**	**17**

Note: Vessel records without information on GT and age were not counted in this profile.

Source: DGST

Such contemporary sector development issues must be attributed to several interrelated factors, as follows:

(1) Difficult Access to Ship Finance by Small-sized Shipping Companies

The domestic shipping industry must meet a variety of shipping needs over the country. Many small shipping companies provide diversified services. Their shares in the industry are estimated at 78% of all general shipping companies and 44% of all operating vessel numbers. Due to the country's vast sea territory with diversified local shipping needs, it is understood as an inherent industrial nature (refer to Table 2.2.2).

However, small shipping companies hardly access Indonesian banks due to low creditability and they have no connections with foreign banks. Even when they receive some bank loans, shorter loan period and higher interest rate is always arranged. Some actual bank lending conditions were offered with requirements of significant collateral up to 50%, high equity share up to 35% of the ships' price, and higher interest rates over 13% (refer to Table 2.2.3).

As results, most of their fleets have been left behind without adequate modernization and replacement even in recent years.

Table 2.2.2 Profile of the General Shipping Companies, 2009

Company Size[1]	No. of Companies	No. of Vessels										
		Tankers	Gen. Cargo	Container	Tugboats	Barges	Bulkers	Landing Craft	Others	RoRo	Passenger	TOTAL
Small	1,374	338	906	19	849	680	10	259	171	8	156	3,396
(%)	78.2	52.0	57.1	9.1	38.1	31.2	22.2	82.5	62.0	11.9	64.7	43.6
Medium	348	252	573	69	1,078	1,189	21	52	83	47	48	3,412
(%)	19.8	38.8	36.1	33.2	48.4	54.6	46.7	16.6	30.1	70.1	19.9	43.8
Large	36	60	109	120	300	308	14	3	22	12	37	985
(%)	2.0	9.2	6.9	57.7	13.5	14.1	31.1	1.0	8.0	17.9	15.4	12.6
TOTAL	1,758	650	1,588	208	2,227	2,177	45	314	276	67	241	7,793

Note[1] : Classification of company sizes in the report:

- Small : companies owning only 1 vessel or owning vessels with an aggregate of 5,000 GT
- Medium : companies owning 2 vessels or owning vessels with an aggregate of more than 5,000 to 50,000 GT
- Large : companies owning more than 2 vessels with an aggregate of more than 50,000 GT

Source: Calculated based on DGST Company and Vessel Registry Data, 2009.

Table 2.2.3 Loan Conditions of Surveyed Shipping Companies

Case No.	Bank Loan Conditions			
	Duration (Years)	Interest Rate/yr (%)	Equity (%)	Other Conditions[1]
1 – a) Govt. Bank	2.5	13.2		N.D.
1 – b) Govt. Bank	3	16.0	30	
2 N.D.	3	14	30	N.D.
3 – Private Bank	4	N.D.	N.D.	N.D.
4 – Govt. Bank	6	14.0	35	Credit Investigation
5 – a) Private Bank	N.D.	16.0	15	
5 – b) Govt. Bank	N.D.	14.5	20	Collateral House = Rp4 B
6 N.D.	N.D.	15.0	35	N.D.

Note: N.D. – Not Disclosed

Source: JICA Study on Public Ship Finance and Shipping Industry 2010

(2) Insufficient New Ship Delivery

Only a populous archipelagic country needs a sizeable domestic shipping industry like Japan, Indonesia, and Philippines. Historically, Indonesia has been an importing country of Japan's second-hand vessels. Many shipping companies in Indonesia, however, face difficulty in finding suitable second-hand vessels in the market. One reason is that Indonesian flagged vessels (9,945 vessels, 13.4 million GT as of 2010) is growing sharply and already overtook the size of Japan's domestic shipping fleet (8,013 vessels, 4.6 million GT as of 2010) in the early 2000s. Therefore, it is a structural issue and the national shipping industry must change its attitude of only waiting for hand-me-down ships.

New shipbuilding must be an alternative way, although it is not common among

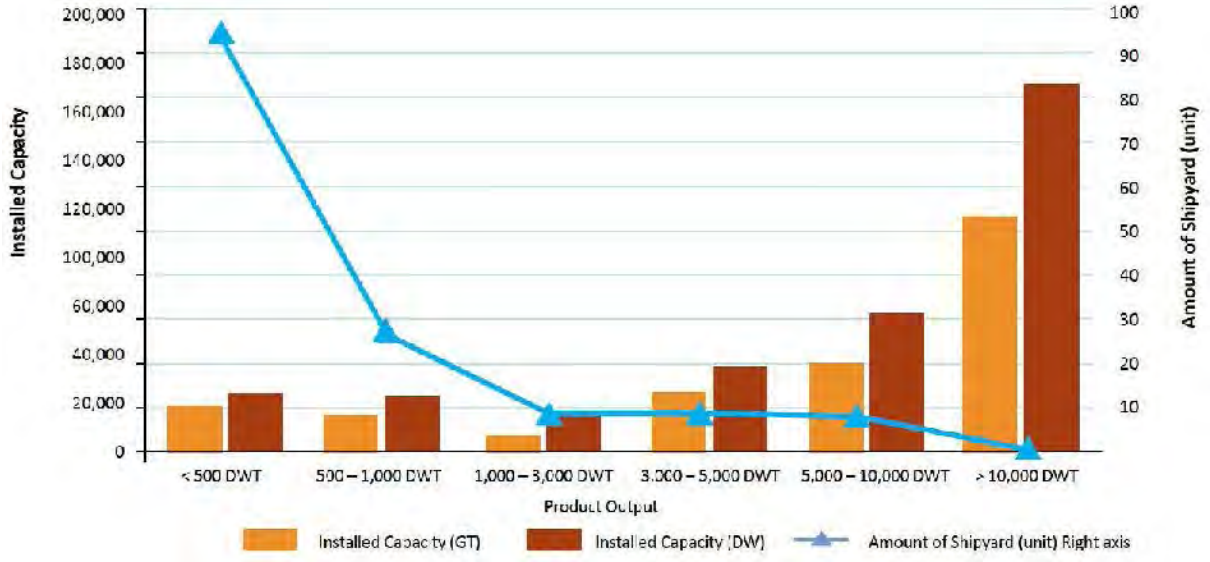
Indonesian shipping companies. Local shipyards are not capable of delivering a variety of domestic shipping vessels in terms of both quality and cost except for simply engineered vessels, such as tugs and barges.

Moreover, Commercial banks are not supportive in providing long-term loan service for expensive and durable newly built vessels. We observed that there are multi-faceted reasons, as follows:

- No tax incentives have been applied to the shipbuilding industry;
- Many shipyards are located on leased lands from PELINDO or others. Those yards have insufficient property collateral to receive bank loans;
- Suitable lands for addition and expansion of shipyards are not available anywhere. The candidate lands must meet several requirements including considerable water depth in front, oceano-meteorological suitability, access road, environmental preservation, local labor force, and so on.

Batam Island is exceptional. The Government has introduced tax incentives to the shipbuilding and repairing industry since the 1990s. The island has been treated as a special district and many Singaporean shipyards have invested their second yards, particularly ship repairing yards due to land scarcity in Singapore. Currently there are over eighty (80) shipyards that have located in Batam.

As a result, the Indonesian shipbuilding industry has imbalanced shipbuilding capacity by ship size. Many shipyards are capable of shipbuilding less than 1,000 DWT. Less than 10 shipyards can deliver new vessels over 1,000 DWT including a few yards that receive ship orders over 10,000 DWT, mainly from abroad.



Source: MP3EI, 2011

Figure 2.2.2 The Capacity of the National Shipbuilding Industry (New Shipbuilding)

(3) Poor Ship Management and Congested Ship Repairing Yards

Lastly, the improvement needs of the shipping supporting industries must be addressed. Efficient ship operation is a key in obtaining the anticipated return from costly ship investment. Crowded shipyards with lengthy ship repairing works however seriously reduce the number of commissionable days in actual ship operation. The Survey reveals that the actual ship repairing volume of 7.7 million GT in 2010 exceeded the aggregated ship repairing capacity of 7.4 million GT at 334 shipyards throughout the country. Shipyard capacity expansion is therefore an urgent issue.

On the other hand, there is a large room for shipping companies to reduce docking time by means of adequate docking preparation in advance such as procurement of spare-parts and identification of repairing items. To do so, the internationally prevailing practice is contracting out to professional ship management companies. In Indonesia, ship management is not popular and thus it should be disseminated at every level of shipping service.

Maritime accidents mostly occur as a result of interrelated causes. KPLP statistics have several accident types. Sunken vessels may happen due to inadequate seaworthiness. Poor engine maintenance and wrong engine operation may bring about fire on vessel. Vessel collision and vessel aground are mostly attributed to human errors in navigation. In some years, numerous human losses were recorded, indicating serious accidents involving passenger vessels, which must deserve priority.

Better ship repair and ship management services must work against maritime accidents.[1]

Table 2.2.4 Ship Accidents, 2005-2009

No.	SHIP ACCIDENT DATA	2005	2006	2007	2008	2009
A	**TYPE OF ACCIDENT**					
1	Sunken	25	48	63	54	41
2	Fire	36	23	27	22	26
3	Collision	21	23	20	15	16
4	Aground	18	10	23	17	19
5	Ship that caused the endangered human life and property losses	25	15	26	29	22
	Total Accident	**125**	**119**	**159**	**137**	**124**
B	**VICTIMS AND LOSSES**					
1	Human Losses (people)	131	223	221	83	247
2	Cargo Losses (ton)	550	Nil.	16,211	59,825	33,805
3	Vehicle Losses	0	0	93	0	0

Source: KPLP, 2010

[1] To drive this point among fleet quality related engineers in the shipping industry and among government officers, the JICA Survey Team conducted onboard surveys and organized ship management workshops in Jakarta and Surabaya (refer to Section 4.2 and its related annexes).

2.3 Analysis of Financing Needs of Shipping and Shipyard Industries through Interviews and Questionnaire Survey

1) Survey Outline

Interviews and questionnaire surveys were conducted from April to July 2011 to get a concrete and complete picture of future investment needs of, and interests, to the PSFP among shipping and shipyard companies. Both surveys were interrelated and thus entrusted to an Indonesian consulting firm, PT. Sarga Prima Konsultan.

Interview Survey

The Interview Survey was conducted in 22 port cities with the following objectives:

- To understand local shipping and shipyard business conditions through individual interviews and consultation meetings among stakeholders;
- To introduce PSFP and request the interviewees to cooperate with the Questionnaire Survey as respondents; and
- To familiarize the JICA Survey Team members who accompanied with the Interview Survey Team with local maritime communities and their business conditions.

Before going to the survey, the lists of candidate companies to meet up were made based on the database compiled in the DGST Shipping Company Registry (2007 and 2009 version) for the list of shipping companies, and from IPERINDO for the list of shipyards.

After that, the survey team contacted the port authority of the target location to coordinate the preparation of kick-off meeting with the companies in the lists. The invitation lists were crosschecked with the port authorities as there are already inactive companies or conversely there may be newly established companies. The survey in each port was started with a kick-off meeting at the port administration office, for the study team to explain about the purpose of the study and the field visit. In the company visit and interview, the study team asked particularly about the condition of the company and its future investment plan.

As a result, sixty-one (61) shipping companies and twenty-five (25) shipyards have been interviewed.

Questionnaire Survey

The Questionnaire Survey was conducted to collect data and information from potential end-users regarding company profile, owning asset, financial conditions, asset procurement plan, and industrial view/opinion. Used questionnaires are attached in Annex 2.1.

Questionnaires were distributed by post and/or e-mail to 1,300 shipping companies and 200 shipyards which were selected randomly from 1,959 and 341 companies, respectively. The sources used to select the companies are the Directory of Shipping Company (2007 and 2009 version) issued by DGST, and IPERINDO for the list of shipyards. During the port visits, questionnaires were additionally given to shipping companies selected by port authorities. In total, 1,357 questionnaires were sent to the shipping companies and shipyards. At the same time those companies were asked to provide their financial information or fill our questionnaire about their financial conditions.

As a result, only 64 shipping companies and 16 shipyards answered the questionnaire. Since some companies are identified as outstandingly big companies, a threshold of aggregate DWT is set at 50,000 tons. As a result, 4 out of 64 companies have been excluded from this analysis. Table 2.3.1 shows the number of companies by main vessel type.

Table 2.3.1 Number of Shipping Companies by Main Vessel Type

Main vessel type	Number
Tanker	2
General Cargo / Container	26
Bulk Carrier / Barge	20
Passenger Ship	6
Others	6
Total	60

Source: Questionnaire Survey entrusted by JICA, 2011

Background Information about Survey Implementation

The interviewees and meeting participants showed strong interests in their asset procurement. Many showed their investment plans and some of them have recently procured as similarly indicated in the result of the questionnaire survey.

PT. PANN was not popular among local stakeholders. Before interview/consultation meeting, the Survey Team must have explained PT. PANN and its ship leasing service. Since PT. PANN has no branch office, its weak local connection is noted.

The shipping and shipyard directories compiled by DGST and IPERINDO were not adequately updated. 180 questionnaires, consisting of 124 shipping companies and 56 shipyards, were delivered back due to wrong address.

Besides, the survey team faced difficulty in requesting the shipping companies which received the questionnaire to fill out by phone call. The team could not catch any office clerk or nobody's answer at 137 shipping companies. At many company offices, the team could not reach suitable managers who enable to fill out the questionnaire by phone. Those activities imply land staff working conditions at small shipping companies, i.e. limited resource allocation to office operation.

Among no responded, not small companies seemed intentional. At least 15 companies refused to answer the questionnaire as they do not have any interest in PSFP. Some inquired about PSFP by themselves. After explaining the PSFP's uncertain implementation schedule and others, most of them disappeared without submitting the questionnaire. It implies that greater participation is expected to submit the same questionnaire if the survey is implemented after PSFP is mobilized.

2) Interviews Survey

Throughout the interviews, it was recognized that most companies show an interest to the PSFP but they expect a low interest rate of less than 10%, a longer repayment period of at least 10 years and an easy procedure for application. Shipping companies are also curious to know whether they can lease second-hand vessels through this program and to know the age limit of vessels. Furthermore, many shipping companies suggest there are

few seafarers to be employed and port facilities should be improved. Regarding shipyards, the need for floating docks has been identified. Brief and qualitative summaries by port are as follows.

Semarang: There are increasing demands to transport coal, fertilizer and CPO by barge and general cargo vessels. A shipping company says the port facility is still poor and it takes a long time to anchor.

Surabaya: Most of shipping companies in Surabaya operate general cargo and container vessels, and some of them also have tankers. The operation types are mostly tramper. In general, the shipping companies expressed they will not be so interested in this project if the interest rate is high. They have heard about PT. PANN but they have never proposed a loan since the interest rate is very high.

Merak: Private ferry operators serving on the Merak – Bakauheni route look for RORO passenger vessels of around 3,000 GRT. Due to scarce stock in the second-hand vessel market, new shipbuilding is an alternative worth considering in their business plans. There are two external capacity constraints, viz, ferry terminals and ship repairing yards nearby.

Batam: Both the shipping and shipbuilding companies are mostly engaged in passenger business or in related export/import business due to its proximity to Singapore and Malaysia. They may not be targets for the study purpose. Around ninety (90) shipyards are in operation but the larger ones are normally the subsidiaries of Singaporean companies. On the other hand, some smaller shipyards are owned and managed by Indonesians.

Tanjung Pinang: Shipping and shipbuilding activities are relatively growing steadily even though the economy of Tanjung Pinang is rather small compared to Batam. Some companies showed strong interest on this project to respond to their fast growing demand in domestic shipping industry such as shipping fresh fishes, barge needs for shipping rock, wood and wood chip, building tug boats and repairing fishing boats.

Kupang: The existing multi-purpose terminal shifted to a dedicated container terminal with the installation of gantry cranes to meet the increasing container ship calls. General cargo vessels offset surplus and deficit of the island's agricultural/fishery products. Ferries provide service between Timor Island and its smaller neighbor islands. Due to inadequate fleet seaworthiness, however, the service must be suspended during hazardous waters.

Makassar: In general, the types of vessel owned or operated by the shipping companies are container, barge and RORO. The problem of ship repairing is lack of dock space in Makassar therefore they have to go to Tanjung Priok, Semarang or Surabaya. The companies consequently need to pay extra cost for fuel and time. Currently, Makassar needs more ships to carry 40,000 tons of dry bulk cargo and 20,000 tons of general cargo a year. Shipping companies have already known PT. PANN but they have never asked leasing because of high interest rates.

Bitung: There are some traditional shipping companies suggesting that they should be included in this project because they also support domestic shipping for inter-island connectivity and they need to expand their business, i.e. to procure steel vessel.

Ambon: Today, container vessels calling at Ambon are mostly full-container vessels even though portside cranes are not productive. According to the branch managers of liner container operators, more full-container vessels will be assigned in line with port capacity

expansion. A multi-purpose vessel, carrying passenger, container and vehicle altogether, will become popular rather than conventional general cargo vessels in order to ply daily between Ambon and its subordinate islands in the Maluku region.

Jayapura: There were many small vessels that were operated to carry logs before 2003 but they are no longer used since illegal logging was prohibited. However, small vessels are still needed in some areas. Shipping companies are mostly engaged in tug boat, barge and LCT for carrying cargo and equipment. They mainly serve Papua Island and its surroundings. A shipbuilding company intends to upgrade the workshop to be a proper small shipyard and to deliver fiberglass fishing boats and passenger ferry boats.

Biak: Shipping is very important to support the citizen's daily life since Biak is a small island which is located close to Papua Island. Most of the shipping and shipbuilding companies have a strong interest on this project to cope with their vision in accordance with the growth of domestic shipping demand. Biak really needs shipyards especially for ship repair to avoid going to Sorong and Jayapura. It will be more convenient and efficient for the ships to do docking and repairing in Biak.

Sorong: Container shipping growth is observed. In the port, 4 liner container operators occupied their exclusive container handling space. Since new Arar container port is under construction, more and larger full-container vessels are expected. The port feeder services heavily rely on wooden-hull vessels' tramper services except government subsidized shipping services. Such feeder vessels must be modernized for better seaworthiness and scheduled service.

Pontianak: The sea transport in Pontianak has a good prospect because its hinterland produces palm oil and mining. There is an increasing need for tugs and barges.

Dumai: Generally, shipping companies provide services for passenger ferry, commodities imported from Malaysia and Singapore, oil and general cargo. Most of shipping companies in Dumai are not the headquarters but branch offices and there are no more shipyards except for very small ones for ship repairing.

Pekanbaru: Shipping companies transport crude oil, raw materials for pulp industry, rice and coals. There is no shipyard in Pekanbaru.

Banjarmasin: Most shipbuilding companies run business of building / repairing tug and barge. They have plans to expand capacity and to improve facility.

Balikpapan: As a business hub of Kalimantan economy, many shipping companies place their offices here. Semayang Port is a busy port attracting various domestic shipping vessels. Due to a shallow river port nature, however, a shallow-draft and wide-bottom container vessel is desirable. Although there is a growing demand of RORO passenger service, the operators hesitate to assign more vessels because there is no dedicated terminal with parking area available in the port.

Samarinda: Shipping companies mostly operate tug, barge and LCT, which are procured by local shipyards. Investment needs are large for both shipping and ship building companies.

Palembang: There are needs of tugs, barges, cargo ships and oil tankers.

Padang: Both shipping companies and the port authority think it is important to develop sea transportation in West Sumatera. There are high demands for coal and cement in

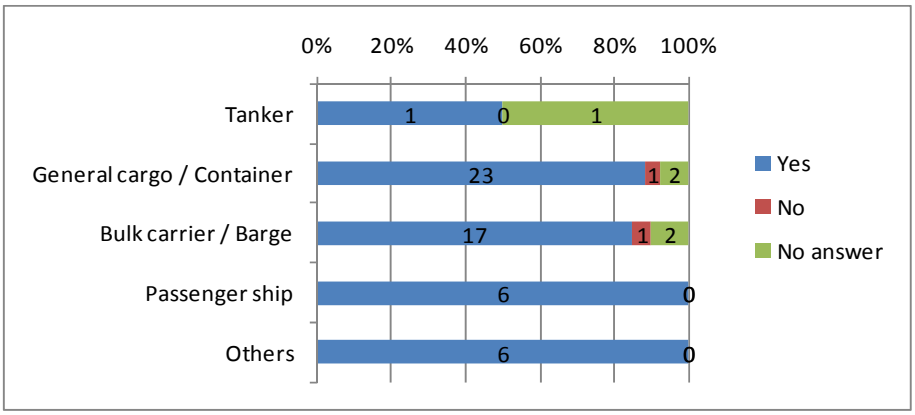
many parts of Indonesia while there are currently only 4% of shipping companies from West Sumatera handling those businesses and there are a limited number of ships due to lack of financial resources. Additionally the traffic volume of ferry passengers from Padang to Mentawai is large, too. Regarding shipbuilding industry, there is only one shipyard operating in Padang, which is a state-owned enterprise, thus this new financial scheme could not be applied to that shipyard. However, since the shipyard is the only one in the west coast of Sumatera and the condition is poor, it is necessary to be revitalized.

Belawan: Tugs and barges are required to carry coal here. Some companies have succeeded in accessing loans from commercial banks.

Lhokseumawe: There were three headquarters of shipping companies, but they are not active now, and the other shipping companies have branch offices only. The port administrator says they need to improve the port facility, to procure passenger ships and to establish a ship management company so as to develop shipping businesses in Lhokseumawe.

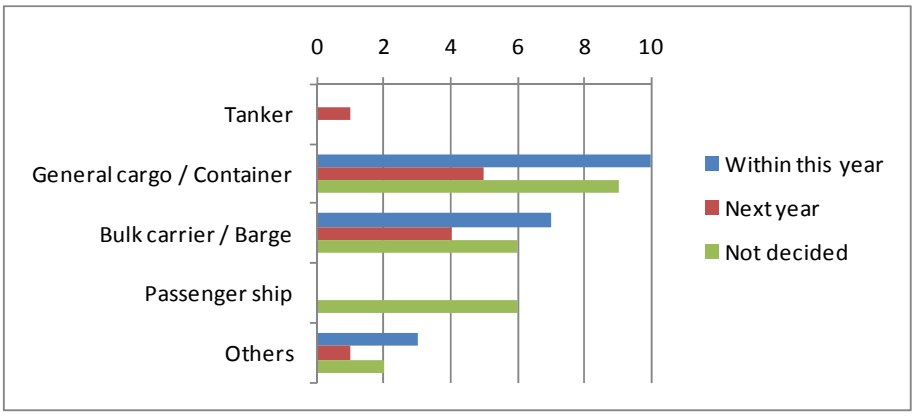
3) Questionnaire Survey

Their procurement plan of vessels is shown in Figures 2.3.1 and 2.3.2. Most companies have intentions to expand their business and about 60% of the companies with any expansion plan need to procure vessels in the near future. According to the statistics in Table 2.3.2, most of the shipping companies will procure the same type of vessel as that they mainly have now, that is, they want to strengthen their main business field. However companies focusing on general cargo / container or bulk carrier / barge plan to procure only general cargo or barge, respectively. Our estimate on future fleet profile predicts that the demand for general cargo vessels and barges will increase more slowly compared to container vessels. It can be pointed out that shipping companies might not have easy access to financing if they had such kind of gaps within their markets.



Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.1 Plan to Purchase Vessels



Source: Questionnaire Survey entrusted by JICA, 2011

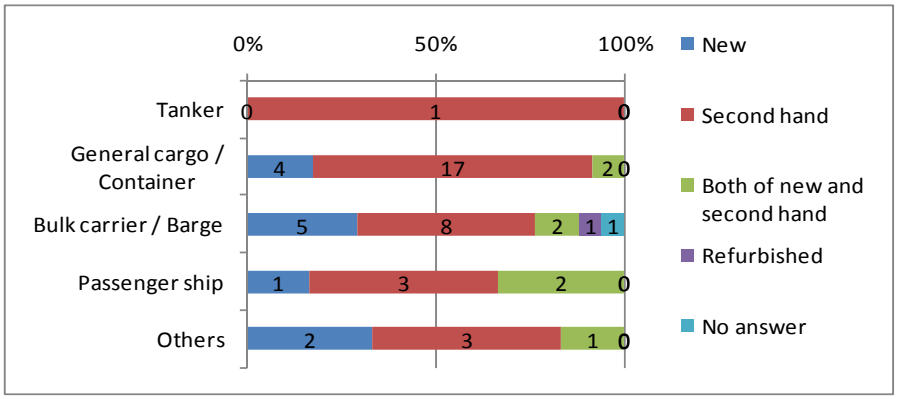
Figure 2.3.2 Planned Time to Purchase Vessels (multiple answers allowed)

Table 2.3.2 Planned Vessel Type by Current Main Vessel Type

Current main vessel type	Tanker	General cargo / Container	Bulk carrier / Barge	Passenger ship	Others	Combination of several types	No answer	Total
Tanker	1	0	0	0	0	0	0	1
General cargo / Container	1	14	1	1	2	3	1	23
Bulk carrier / Barge	2	0	11	0	1	2	1	17
Passenger ship	1	0	0	4	1	0	0	6
Others	0	0	1	0	5	0	0	6
Total	5	14	13	5	9	5	2	53

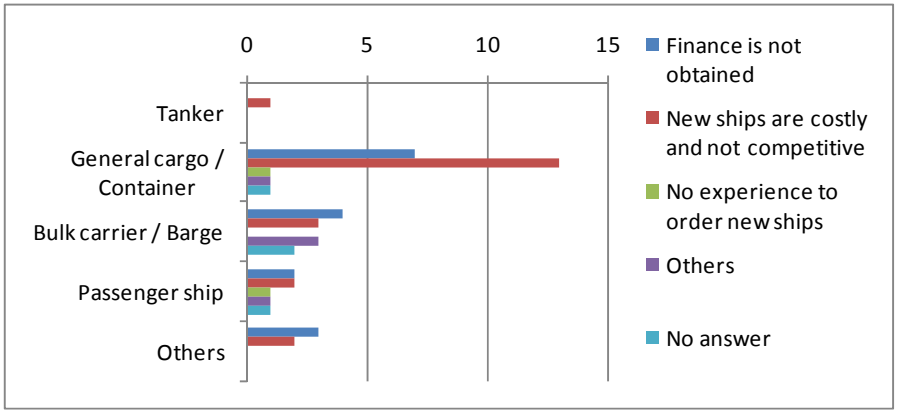
Source: Questionnaire Survey entrusted by JICA, 2011

Most of (60%) the shipping companies prefer second-hand vessels to new ones for future investments, as shown in Figure 2.3.3. Shipping companies planning not to procure new vessels consider that a new vessel requires large initial cost and is not appealing to the market with respect to the cost (Figure 2.3.4). Table 2.3.3 is a cross tabulation between current main vessel type and future purchasing plan, which shows that companies mainly using second-hand vessels tend to stick to introducing second-hand vessels in the future. This preference will not raise any problems as long as vessels are well maintained. However, considering the current situation of ship management in Indonesia, introducing more old vessels could cause more accidents, although shipping companies have a right to procure second-hand vessels so as to meet the market needs. Therefore, strict ship management is crucial.



Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.3 Preference to New or Second-hand Vessels If Having a Purchasing Plan



Source: Questionnaire Survey entrusted by JICA, 2011

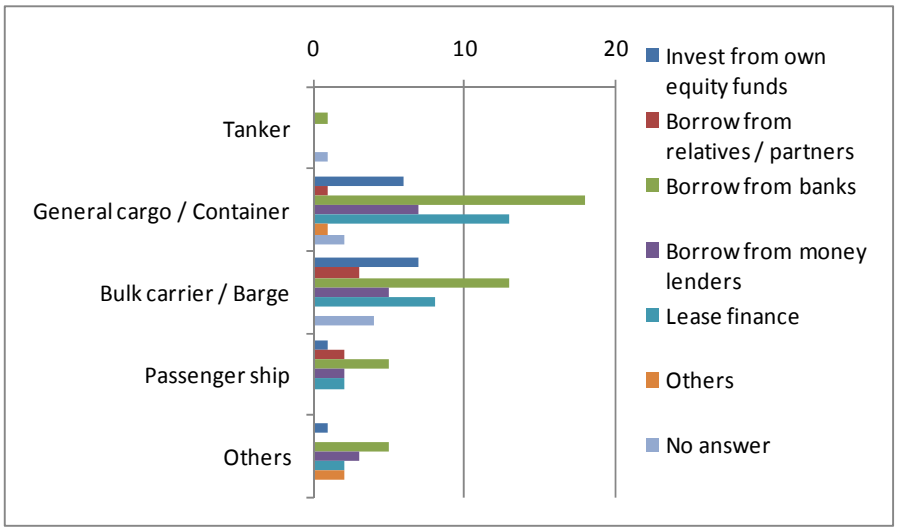
Figure 2.3.4 Reason Not to Need New Vessels (multiple answers allowed)

Table 2.3.3 Preference to New or Second-hand Vessels by Current Main Type

Current main	New	Second hand	Both	Refurbished	No answer	Total
New	8	4	4	0	0	16
Second hand	4	22	3	1	0	30
Not identified	0	6	0	0	1	7
Total	12	32	7	1	1	53

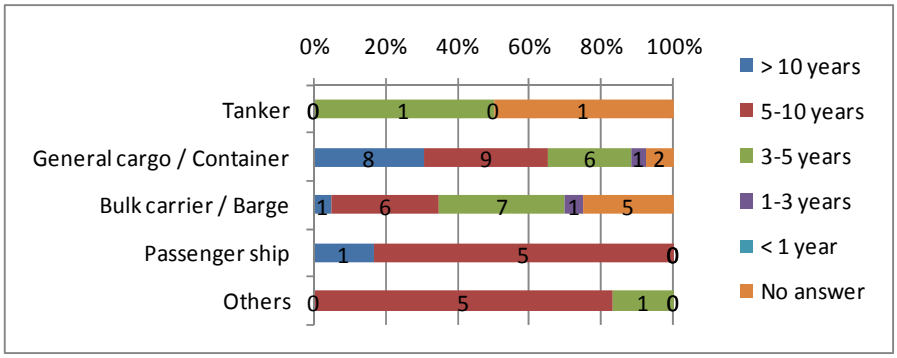
Source: Questionnaire Survey entrusted by JICA, 2011

Many shipping companies are facing serious difficulties in financing according to Figures 2.3.5 to 2.3.8 and their statements. Companies tend to try borrowing from commercial banks first. However banks do not offer an affordable interest rate and usually require fixed assets as collaterals like land or houses. Furthermore, offered repayment period is too short for the long life period of vessels (more than 20 years). Therefore shipping companies look for other non-bank financers including lease companies or try to raise funds from their own equities. This situation obviously prevents medium- and small-sized shipping companies from expanding their business and makes them miss business opportunities. They long for financing with a low interest rate up to 10% and a long repayment period of 10 years or more. The PSFP, through a lease company, can fill their needs.



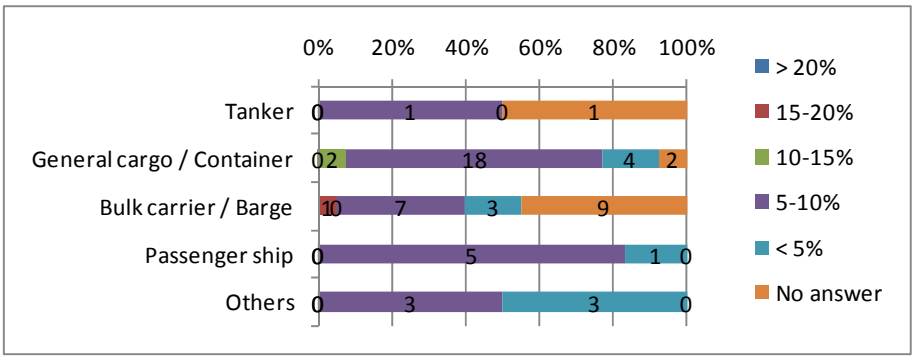
Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.5 How to Raise Funds - Shipping Companies (multiple answers allowed)



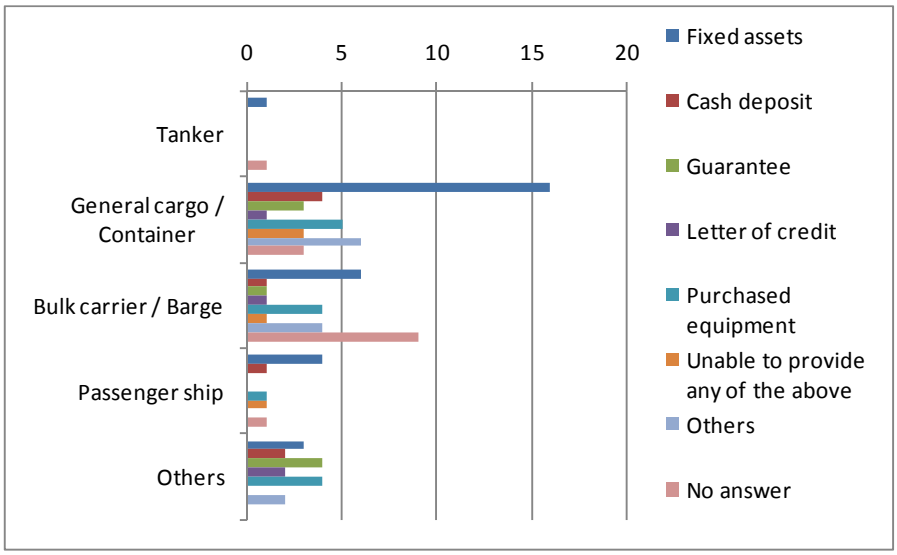
Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.6 Preferable Repayment Period – Shipping Companies



Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.7 Preferable Interest Rate – Shipping Companies



Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.8 Collateral / Securities Ready to Be Provided – Shipping Companies (multiple answers allowed)

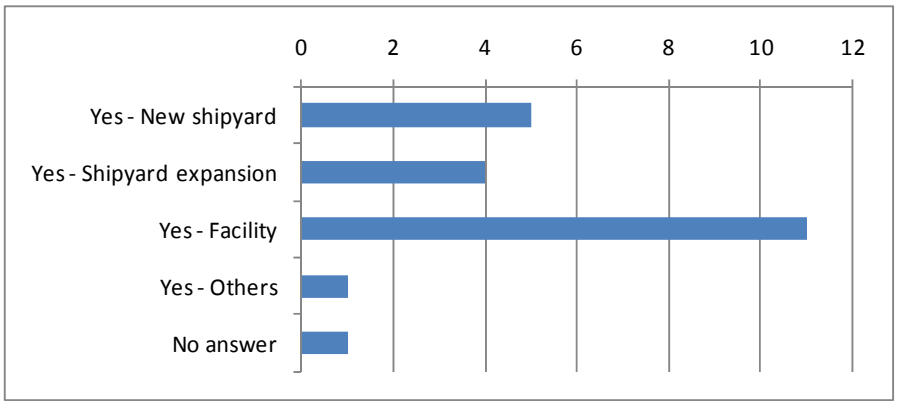
Secondly, opinions from shipyards are analyzed. Fifteen (15) out of sixteen (16) companies do ship repairing business and 11 companies work on new ship building (Table 2.3.4). The companies are analyzed as a whole since there is a large overlap in their business.

Table 2.3.4 Number of Shipyards by Business Type

Business Type	Number
Ship building, repairing and other business	7
Ship building and repairing	4
Ship repairing and other business	4
Other business only	1
Total	16

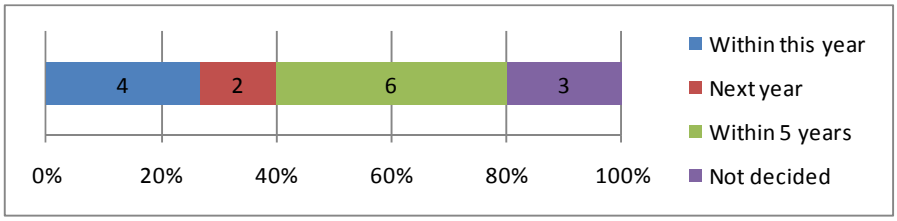
Note: "Other business" includes repairing ship machineries and equipments.
Source: Questionnaire Survey entrusted by JICA, 2011

As shown in Figures 2.3.9 and 2.3.10, almost all shipbuilding companies have plans to expand their shipyard and/or facility in the near future. Investments to facilities are especially desired but rapidly increasing demand of fleet also requires more capacity of shipyards. Thus, expanding shipyards or constructing new shipyards is necessary, too.



Source: Questionnaire Survey entrusted by JICA, 2011

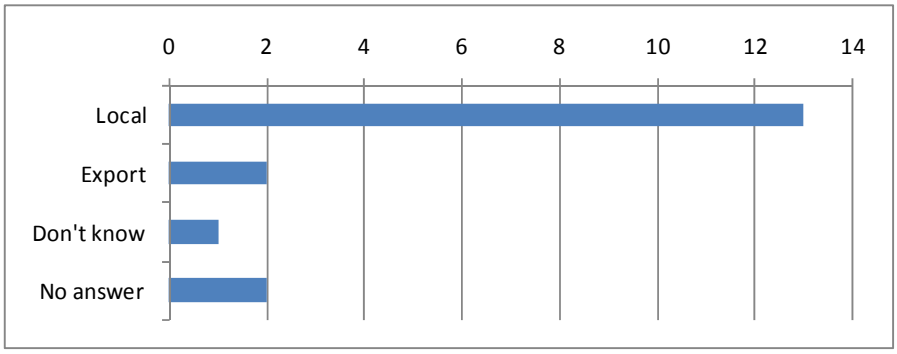
Figure 2.3.9 Plan to Expand Shipyard or Facility



Source: Questionnaire Survey entrusted by JICA, 2011

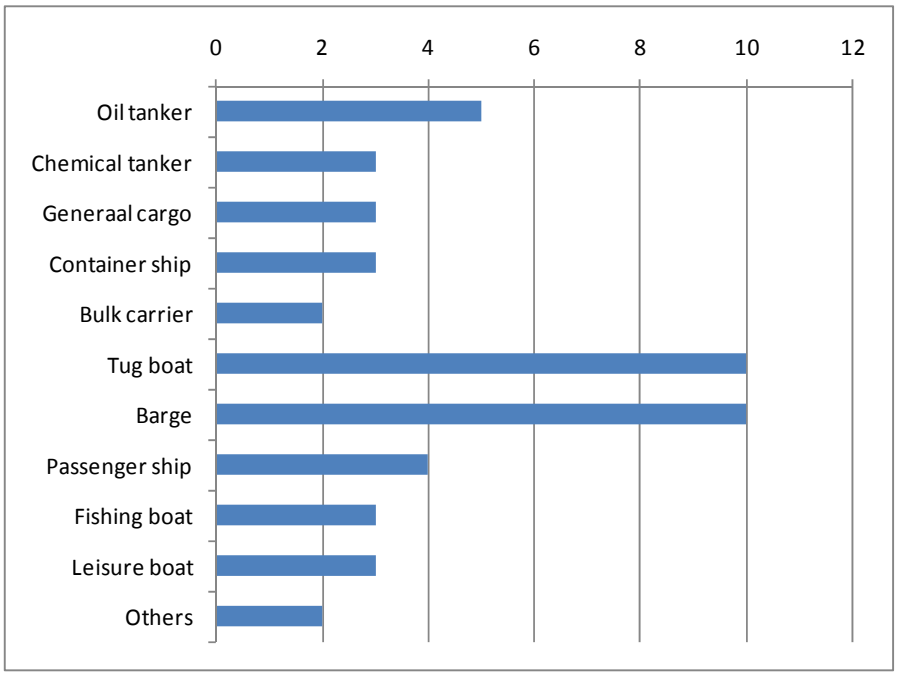
Figure 2.3.10 Planned Time of Expansion

Regarding business fields, at least thirteen (13) companies target the domestic market (Figure 2.3.11). These companies are interested in tugs, barges and smaller vessels (Figures 2.3.12 and 2.3.13). This strategy may satisfy a demand from medium- and small-sized shipping companies, as mentioned earlier, but it goes counter to the trend of the whole market, that is, containerization and bigger vessels.



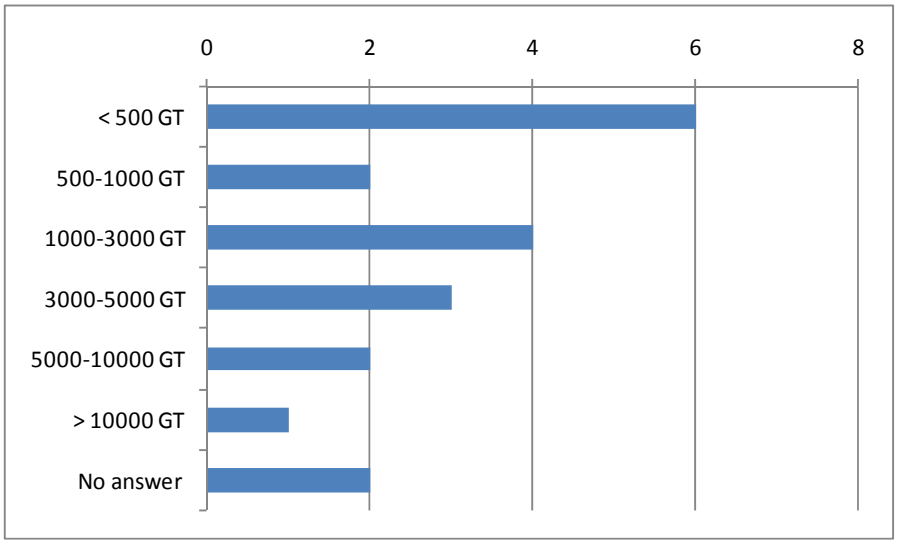
Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.11 Market Focused on in the Future



Source: Questionnaire Survey entrusted by JICA, 2011

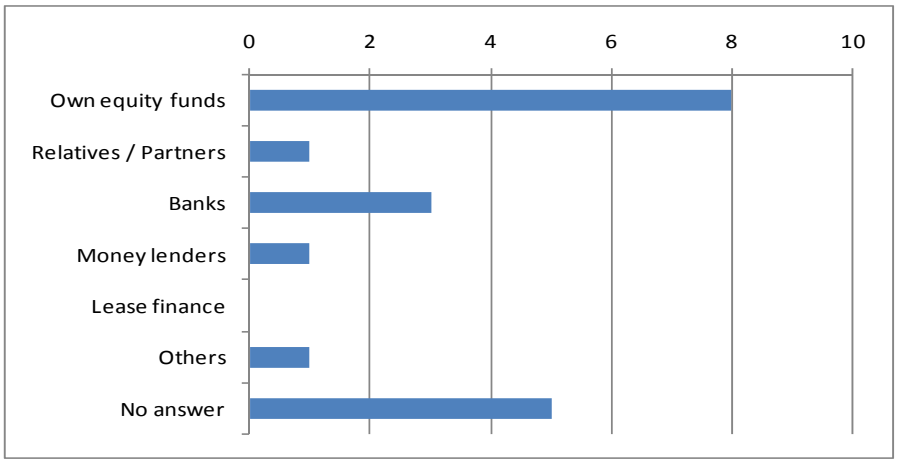
Figure 2.3.12 Interested Vessel Type If Focusing on Domestic Market



Source: Questionnaire Survey entrusted by JICA, 2011

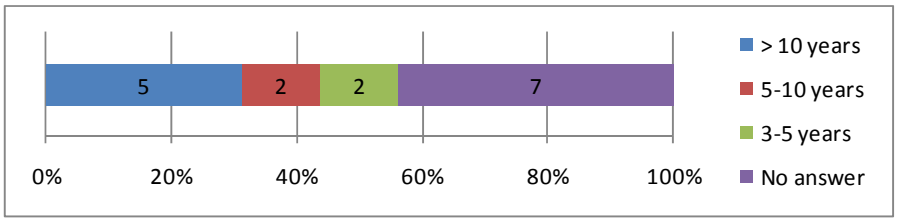
Figure 2.3.13 Interested Vessel Size If Focusing on Domestic Market

Shipyards experience difficulty in financing, too. As they cannot get affordable loans from banks due to a high interest rate, a short repayment period and the requirement for collaterals, they just rely on their own equity. The PSFP will help shipyards in financial aspects although they still have other issues such as hiring skillful technicians and procurement of materials, as well as other financial problems.



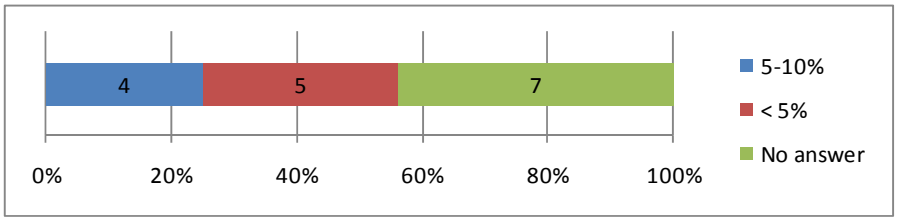
Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.14 How to Raise Funds - Shipyards (multiple answers allowed)



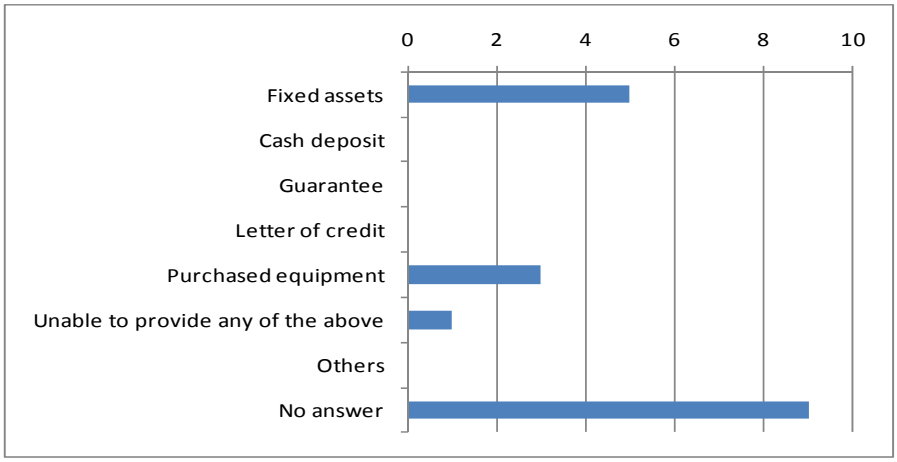
Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.15 Preferable Repayment Period – Shipyards



Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.16 Preferable Interest Rate – Shipyards



Source: Questionnaire Survey entrusted by JICA, 2011

Figure 2.3.17 Collateral / Securities Ready to Be Provided – Shipyards (multiple answers allowed)

2.4 Revision of Domestic Shipping Traffic Demand Towards 2024

This section aims to forecast shipping requirements for domestic sea cargo movement in Indonesia, particularly vessel capacity acquisition.

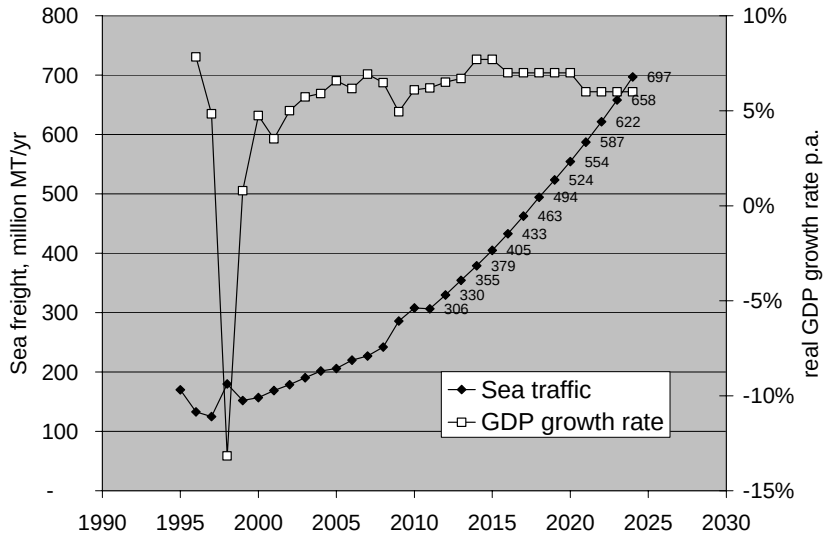
In 2002, STRAMINDO estimated the future fleet requirement for Indonesia. The STRAMINDO forecast in 2002 was based on available sea freight data from 1996 to 2001. During that period, the economy of Indonesia was in chaos and just recovering from the Asian financial crisis, and sea freight traffic was in a flux. It is therefore necessary to update the STRAMINDO forecast using more recent data to re-calibrate the STRAMINDO model for long-term forecast of sea freight demand and fleet requirement

1) Domestic Sea Traffic

Domestic sea freight is dependent on the economy of Indonesia. It was determined from domestic sea freight data (source: DGST) and GDP (source: Statistics Indonesia) for the period 1996 to 2010 that the elasticity of domestic sea freight to GDP is 0.98. The estimated elasticity that is very close to one means that domestic sea freight growth rate is almost equal to GDP growth rate. The annual GDP growth scenario assumed in 'Master Plan Study on Port Development and Logistics in Greater Jakarta Metropolitan Area' (JICA 2011, Draft Report) was adopted in this study. The GDP growth scenario is as follows:

- 6.2% p.a. in 2011 increasing to 7.7% by 2014
- 7.7% p.a. in 2015
- 7.0% p.a. from 2016 to 2020
- 6.0% p.a. from 2020.

Figure 2.4.1 illustrates the estimated domestic sea freight traffic and the assumed GDP growth rate up to 2024. Domestic sea freight traffic was estimated to increase from approximately 300 million MT at present to nearly 700 million MT by 2024.



Source: JICA Survey Team

Figure 2.4.1 Estimated Domestic Sea Freight and Assumed Future GDP Growth Rate

2) Domestic Sea Freight by Mode of Carriage

Data from DGST breaks down the 2005 to 2010 domestic sea traffic into 13 commodity types, similar to the commodity classification utilized in STRAMINDO. Table 2.4.1 details the commodity breakdown including the typical mode of carriage by commodity as determined from the 2002 STRAMINDO database. Using the typical mode of carriage used for each commodity in 2002, the breakdown of sea traffic into break bulk/container, dry bulk and liquid bulk was estimated and is shown in Table 2.4.2. It appears that growth in sea traffic is largely due to the increase in dry bulk traffic and, to a lesser extent, the increase in break bulk/container traffic. The increase in liquid bulk traffic has been small. In the last five years, dry bulk cargo increased at a higher rate than break bulk/container traffic. In the future, it is expected that the key driver of domestic freight cargo will gradually shift from dry bulk to break bulk/container cargo, although dry bulk traffic is assumed to continue its high growth shown in the last five years.

General cargo/container traffic is consumption driven and its growth will accelerate as the purchasing power of Indonesians increases. A likely shift to manufacturing and consolidation of industrial base of production will also contribute to the acceleration of break bulk/container traffic. Under this assumed future scenario, future sea traffic by mode of carriage was estimated up to 2024. Figure 2.4.2 illustrates the estimated sea traffic by mode of carriage up to 2024 and is summarized as follows:

- Break bulk/container traffic will increase from 94 million MT per year to 275 million MT per year.
- Dry bulk traffic will increase from 106 million MT p.a. to 266 million MT per year.
- Liquid bulk traffic will increase from 108 million MT p.a. to 156 million MT per year.

Table 2.4.1 Breakdown of Sea Traffic by Commodity and Type of Packaging

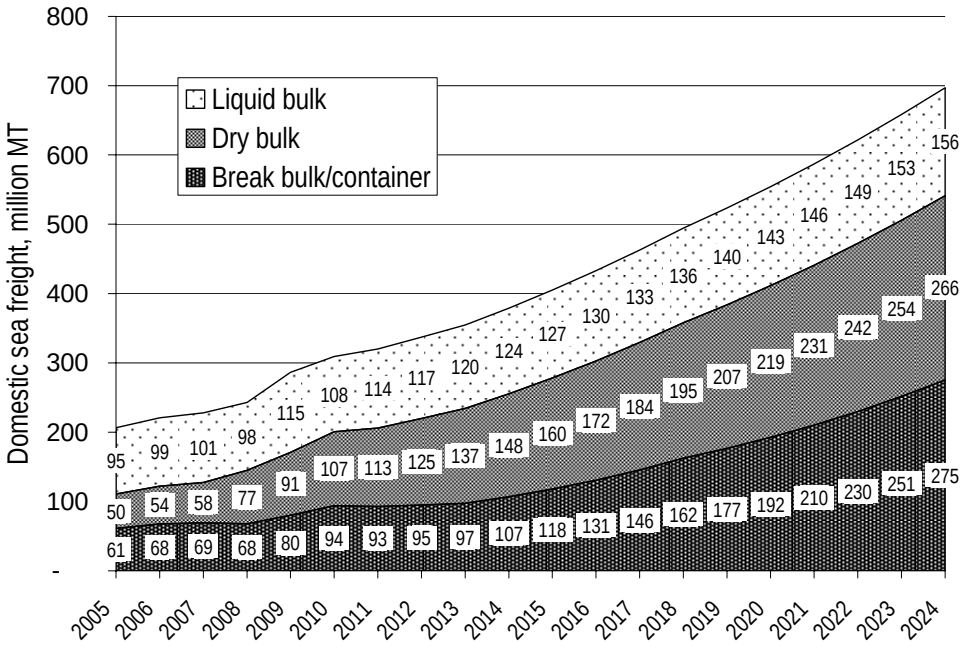
No	Commodity	2005	2006	2007	2008	2009	2010	Growth rate, % p.a.	Typical mode (2002)
1	General Cargo	38.0	43.6	44.3	45.3	53.4	62.7	10.5%	Break bulk, Container
2	Wood	8.3	8.4	8.4	7.2	8.4	9.9	3.5%	Break bulk
3	Fertilizer	6.2	6.4	6.5	6.2	7.3	8.6	6.8%	Break bulk, Dry bulk
4	Cement	6.7	7.3	8.0	7.2	8.5	9.9	8.2%	Break bulk
5	Rice	1.3	1.4	1.4	1.4	1.7	2.0	9.2%	Break bulk
6	Fresh Product	0.3	0.4	0.4	0.5	0.5	0.6	15.1%	Break bulk, Container
7	CPO	4.4	5.8	6.0	6.0	7.1	8.3	13.5%	Liquid bulk
8	Other Grains	2.5	2.7	2.7	2.5	3.0	3.5	7.0%	Break bulk
9	Mine & quarry	5.0	5.4	5.5	5.4	6.4	7.5	8.4%	Dry bulk
10	Agricultural Grain	1.3	1.5	1.5	1.4	1.7	2.0	8.8%	Container, Dry bulk
11	Other liquid	1.7	1.9	2.1	2.8	3.3	2.9	10.9%	Liquid bulk
12	Coal	41.3	45.0	48.6	67.8	80.0	93.8	17.9%	Dry bulk
13	Oil/petroleum	89.2	91.0	92.5	89.1	105.0	97.2	1.7%	Liquid bulk
	Total	206.3	220.8	228.0	242.9	286.4	309.0	8.4%	

Units: million MT
Source: sea traffic from DGST, packaging type from STRAMINDO

Table 2.4.2 Estimated Breakdown of Sea Traffic by Mode of Carriage

No.	Mode of carriage	2005	2006	2007	2008	2009	2010	Growth rate, % p.a.
1	Break bulk/container	60.9	67.7	69.1	67.9	80.1	93.9	9.1%
2	Dry bulk	50.0	54.3	58.1	77.0	90.8	106.5	16.3%
3	Liquid bulk	95.3	98.7	100.6	97.8	115.4	108.4	2.6%
	Total	206.3	220.7	227.9	242.8	286.3	308.9	8.4%

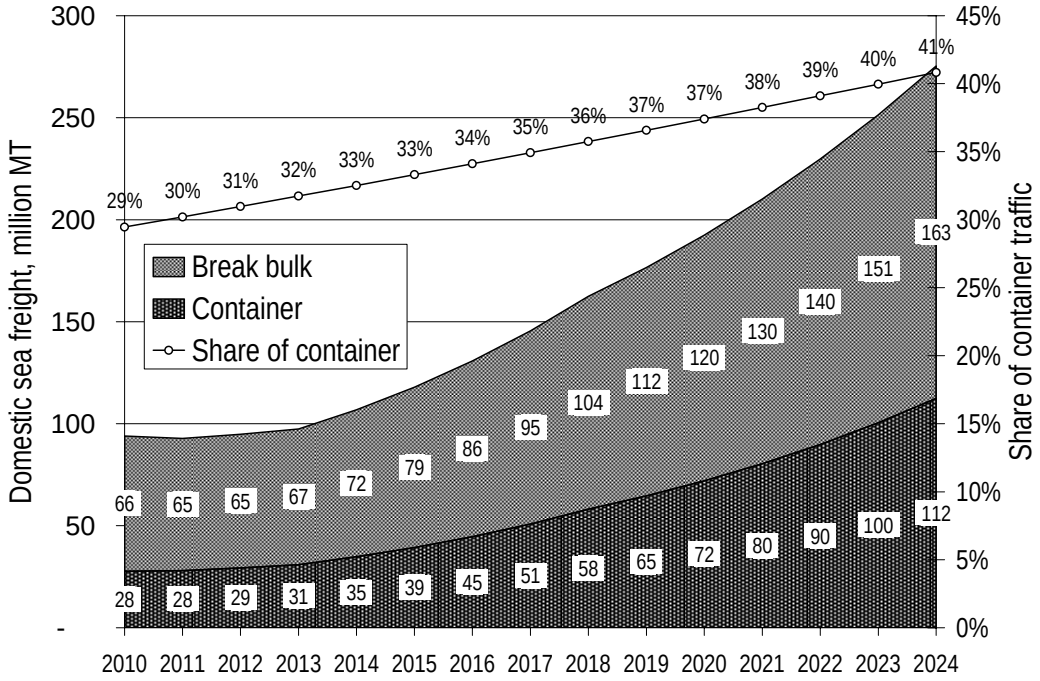
Units: million MT
Source: sea traffic from DGST, data aggregated by JICA Survey Team



Units: million MT
Source: projected by JICA Survey Team

Figure 2.4.2 Estimated Future Domestic Sea Freight by Mode of Carriage

According to the statistics from DGST, Indonesian-flagged vessels carried 2.3 million TEUs of domestic container traffic in 2009. Assuming a load factor of 10 MT/TEU (STRAMINDO 2002), the current domestic container traffic is approximately 23 million MT. From the total break bulk and container traffic of 80.1 million MT (in Table 2.4.2), the break bulk traffic can be estimated to be 57 million MT. According to STRAMINDO, container traffic was 11.9 million MT and break bulk traffic was 32.4 million MT in 2002. The growth rate for the period 2002 to 2009 for container traffic was calculated to be 9.9% p.a. and 8.4% p.a. for break bulk traffic. The assumed higher growth rate in container traffic means that it is envisaged that there would be a shift towards containerization. It is however likely that the 8.4% p.a. growth in break bulk traffic will not be sustained in the long term and growth in container traffic will increase faster. For instance, STRAMINDO estimated that the container traffic will comprise approximately 40% of the break bulk/container traffic, up from 29% at present. Assuming these growth rate scenarios and the estimated future break bulk/container traffic as the control total, the future container and break bulk sea traffic up to 2024 was estimated and illustrated in Figure 2.4.3.



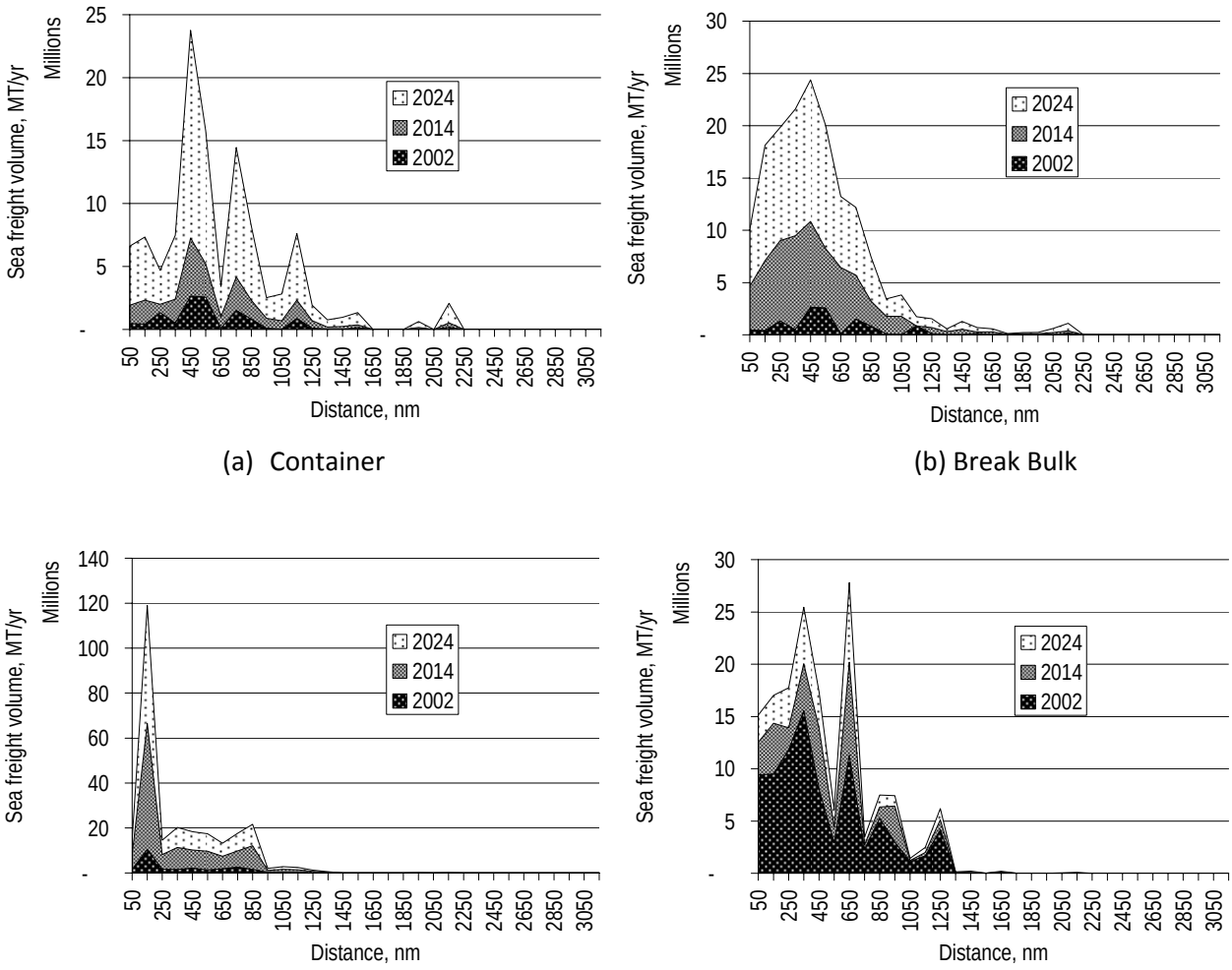
Units: million MT
Source: projected by JICA Survey Team

Figure 2.4.3 Estimated Future Domestic Sea Freight by Break Bulk and Container

3) Update of STRAMINDO Sea Freight Volume by O-D

The 2002 STRAMINDO study utilized field data to develop the origin-destination (OD) matrix for domestic sea freight for the year 2002. The OD matrix categorized total sea freight volume by origin port and destination port. The origin and destination ports includes 130 ports, which comprise 100 commercial ports, and 30 hypothetical ports representing the aggregate of all non-commercial ports in each 30 provinces in Indonesia. The 2002 STRAMINDO OD matrix includes sea freight OD volume by commodity type and mode of carriage. The STRAMINDO study also forecast future sea freight OD matrix for the years 2014 and 2024.

The STRAMINDO origin-destination (OD) forecast was adjusted using the sea traffic forecast by mode of carriage that was estimated in this section. Figure 2.4.4 illustrates the 2002 sea freight volume distribution by distance, as well as adjusted future sea freight volume distribution by distance for 2014 and 2024. Origin-destination sea freight volumes for intermediate years are interpolated using the 2002, 2014 and 2024 OD matrices.



Source: projected by JICA Survey Team

Figure 2.4.4 Estimated Future Domestic Sea Freight by Distance and by Mode of Carriage

2.5 Revision of Domestic Shipping Fleet Investment Requirement

1) Calibration and Validation of the STRAMINDO Fleet Model

The STRAMINDO fleet model was utilized to estimate future fleet requirement up to 2024. The STRAMINDO fleet model estimates the fleet that can service a given sea freight OD matrix at the lowest cost. The STRAMINDO domestic sea freight OD matrix updated in the preceding section was used as the key input for the model.

The STRAMINDO fleet model was calibrated using the 2002 sea freight demand and the 2002 fleet inventory (source: DGST). The 2009 updated sea freight OD matrix was input to the STRAMINDO fleet model and an estimate of the 2009 fleet was generated. To validate the STRAMINDO fleet model, the estimated 2009 fleet was compared with the 2009 fleet inventory data compiled in the 'Study on Public Ship Finance and Shipping Industry' (JICA 2010). Table 2.5.1 summarizes the calibration and validation results of the STRAMINDO fleet model. The difference between total DWT for each vessel type estimated by the STRAMINDO model and data is within a tolerable 20%. The STRAMINDO fleet model was further adjusted to reflect the 2009 fleet data. An additive correction factor was calculated as the difference between 2009 model and data DWT by vessel size and type. The additive factor was applied to model estimates for future years.

Table 2.5.1 Calibration and Validation Results of the STRAMINDO Fleet Model

	2002 (calibration data set)			2009 (validation data set)		
Vessel type and size	Model, DWT	Data, DWT	Model / data	Model, DWT	Data, DWT(1)	Model/Data
Container (>10T DWT)	257,670	253,000	102%	685,061	864,000	79%
Container (<10T DWT)	500,738	480,000	104%	982,099	1,268,000	77%
Container Sub-total	758,409	733,000	103%	1,667,160	2,132,000	78%
Conventional (>10T DWT)	509,956	543,000	94%	776,379	1,160,000	67%
Conventional (<10T DWT)	2,084,432	1,896,000	110%	3,539,971	4,060,000	87%
Conventional Sub-total	2,594,388	2,439,000	106%	4,316,350	5,220,000	83%
Bulker (>15T DWT)	419,386	399,000	105%	1,652,361	1,963,521	84%
Bulker (<15T DWT)	204,592	188,000	109%	571,193	284,479	201%
Bulker Sub-total	623,977	587,000	106%	2,223,553	2,248,000(3)	99%
Tug and barge(2)	647,239	717,000	90%	2,627,163	n/a	
Tanker (>15T DWT)	1,008,562	945,000	107%	1,515,644	1,817,368	83%
Tanker (<15T DWT)	1,264,814	1,202,000	105%	1,434,273	1,804,864	79%
Tanker Sub-total	2,273,376	2,147,000	106%	2,949,917	3,622,232	81%
ALL (excl. barge)	6,250,150	5,906,000	106%	11,377,441	13,222,232	84%

Note:
(1) Data was expressed in terms of GT. This was converted to DWT using DWT:GT factors determined from the DGST ship database which includes the GT and DWT of registered vessels.
(2) Tug and barge estimate includes only vessels used for sea-going voyages (i.e. excluding barges used in rivers or short coastal services.
(3) 2010 data.

Source: projected by JICA Survey Team

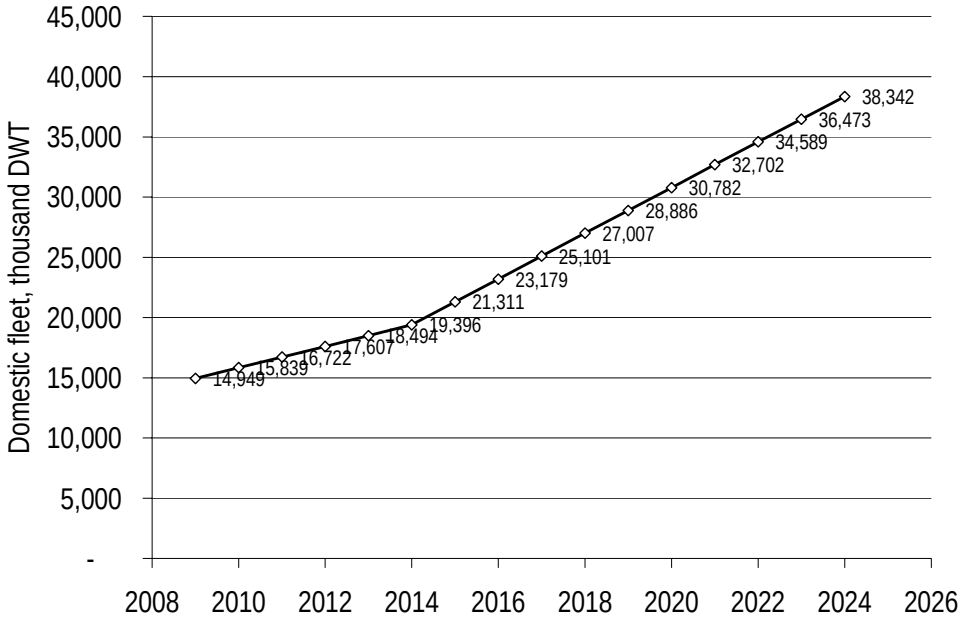
It should be noted that there are errors and approximations in the 2009 fleet inventory data. Moreover, the 2009 fleet inventory data is terms of GT, while the STRAMINDO model output is in terms of DWT. To convert GT to DWT, a multiplier of 2 was applied

which was derived from the 2001 DGST ship inventory data which includes GT and DWT of vessels. The conversion factor is a preliminary estimate which needs to be confirmed.

It is recommended that policy analysis stemming from the STRAMINDO model estimates should take into consideration the extent of uncertainties in the STRAMINDIO model as well as sea traffic and fleet inventory data.

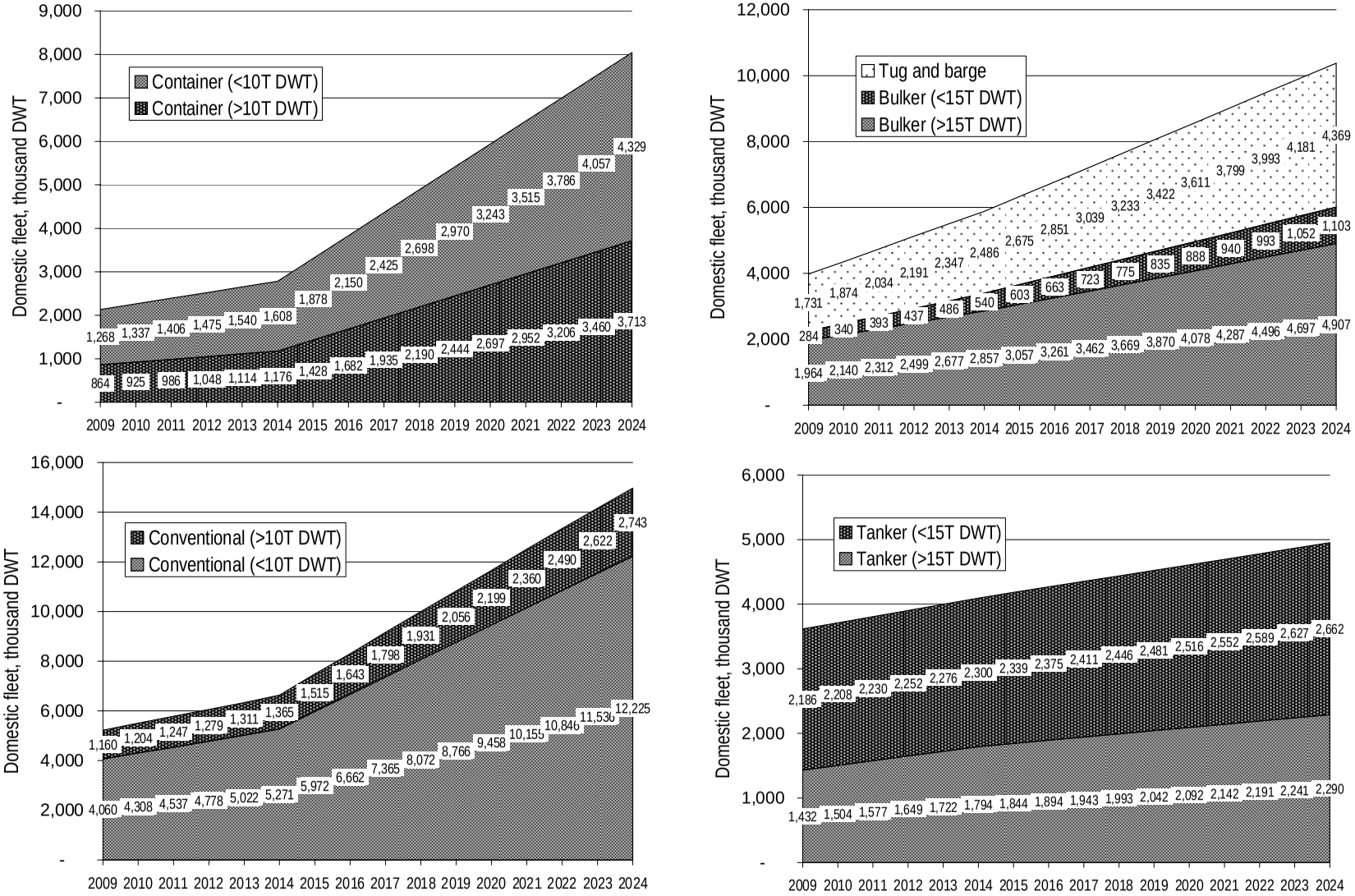
2) Future Fleet Profile

The future operational fleet requirement was determined using the STRAMINDO fleet model and updated future domestic sea freight volume estimates. Figure 2.5.1 illustrates the estimated growth in domestic fleet capacity, which was estimated to increase from 17 million DWT at present to 38 million DWT in 2024 to be able to cope with growth in domestic sea traffic. Break down of fleet capacity by vessel type and size is shown in Figure 2.5.2.



Source: projected by JICA Survey Team

Figure 2.5.1 Estimated Future Domestic Fleet



Source: projected by JICA Survey Team

Figure 2.5.2 Estimated Future Domestic Fleet by Vessel Type and Size

3) Fleet Acquisition Requirement

To achieve the necessary fleet capacity at any given year, fleet acquisition must be able to supply additional capacity and replace retired ageing vessels. As an assumption, vessels purchased and retired comprise the following:

- 33.3% of acquired vessels are between 0-4 years old
- 33.3% of acquired vessels are between 5-9 years old
- 33.3% of acquired vessels are between 10-14 years old
- Vessels are gradually retired once they reach 30 years old, i.e. 50% of vessels of the same age are retired each year and all vessels over 35 years old are retired.

A more aggressive fleet renewal assumption was adopted for tankers such that tankers would be at most 25 years old by 2021 onwards as suggested by DGST. The following assumptions were made:

- 50% of acquired tankers are between 0-4 years old
- 50% of acquired tankers are between 5-9 years old
- From 2011 to 2015 tankers are gradually retired once it reaches over 25 years old, i.e. 50% of tankers of the same age are retired each year. From 2016 onwards, gradual retirement starts when the tanker reaches over 23 years old.
- From 2011 to 2015, tankers over 35 years old are retired. From 2016 to 2021 tankers over 30 years old are retired. From 2021 onwards, tankers over 25 years old are retired.

The annual vessel acquisition requirement is dependent on the current age distribution of vessels. The current age profile of vessels was sourced from the fleet inventory data compiled in the 'Study on Public Ship Finance and Shipping Industry' (JICA 2010) and summarized in Table 2.5.2.

It is only the number of RORO vessels which cannot be predicted based on maritime cargo forecast by commodity. It is unique that RORO vessels can transport break cargo on trucks and in containers with chassis, vehicles and passengers. RORO vessels have an inherent advantage, i.e., seamless service. In the case of Indonesia, RORO's shipping advantage depends on motorization and good port access roads in islands except Java.

The RORO fleet increased from 52 thousand DWT in 2002 to 146 thousand DWT in 2009, an annual growth rate of 16%. The DGST decided to build and own RORO fleet for subsidized pioneer shipping. The DGLT intends to develop 39 new ferry routes using small to medium RORO vessels by 2020, according to the DGLT's Ferry Blueprint, 2011. Associated with private undertaking to develop more inter-island RORO routes, it is likely that the RORO fleet will continue to grow.

From the viewpoint of shipping markets, RORO shipping focuses on break bulk carriage in competition with general cargo shipping rather than fluctuated passengers and vehicles without cargo. Therefore, it is predicted that part of the general cargo vessel demand will shift to RORO vessel demand from 10% in 2012 to 26% on the assumption that break bulk cargo except for container shipping would grow by 7% annually and RORO shipping would grow by 16% continuously until 2024. Since RORO vessels over 10,000 DWT are not practical for domestic shipping, all RORO vessels will be below 10,000 DWT per unit.

Table 2.5.2 Current Age Profile of Domestic Fleet Capacity

Vessel Type and Size	0-4 y	5-9 y	10-14 y	15-19 y	20-24 y	25-29 y	30-34 y	over 35 y	Total
Container (<10T DWT)	18%	2%	13%	7%	8%	28%	15%	8%	100%
Container (>10T DWT)	4%	0%	17%	19%	22%	13%	18%	9%	100%
Container	*13%*	*1%*	*14%*	*12%*	*13%*	*22%*	*16%*	*8%*	*100%*
Conventional (<10T DWT)	3%	2%	3%	9%	14%	28%	25%	16%	100%
Conventional (>10T DWT)	3%	0%	6%	9%	25%	22%	31%	3%	100%
Conventional	*3%*	*2%*	*3%*	*9%*	*17%*	*26%*	*26%*	*13%*	*100%*
Bulker (<15T DWT)	4%	0%	0%	0%	44%	10%	13%	30%	100%
Bulker (>15T DWT)	5%	0%	12%	14%	4%	52%	12%	0%	100%
Bulker	*5%*	*0%*	*11%*	*12%*	*9%*	*47%*	*12%*	*4%*	*100%*
Tug and barge	*17%*	*15%*	*26%*	*22%*	*6%*	*5%*	*6%*	*2%*	*100%*
Tanker (<15T DWT)	8%	8%	12%	17%	10%	20%	16%	9%	100%
Tanker (>15T DWT)	0%	0%	0%	16%	32%	42%	11%	0%	100%
Tanker	*4%*	*4%*	*6%*	*16%*	*21%*	*31%*	*13%*	*5%*	*100%*

Source: JICA Public Ship Finance and Shipping Industry Report (2010)

The estimated annual vessel acquisition requirement to maintain sufficient vessel capacity to meet future growth in domestic sea traffic is summarized in Table 2.5.3 which is expressed in terms of thousand DWT. On the average it is estimated that, for the period 2012 to 2024, the average annual vessel acquisition would be approximately 2,600 thousand DWT per year.

Taking the latest ship price into account, future domestic fleet investment requirement is calculated in Table 2.5.4. The overall ship investment requirement during the same period is Rp 280 trillion or Rp 21.5 trillion per year on the average.

Table 2.5.3 Domestic Fleet Acquisition Requirement

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Container (<10T DWT)	332	190	165	356	354	327	308	301	298	295	293	292	292	3,804
Container (>10T DWT)	245	137	107	285	281	288	294	294	296	298	293	292	291	3,402
Container	577	327	271	640	635	615	603	596	593	593	587	584	584	7,205
Conventional (<10T DWT)	1,459	570	406	787	745	683	652	621	607	604	567	547	535	8,782
Conventional (>10T DWT)	297	191	151	222	188	216	194	186	205	223	172	164	149	2,558
RORO (<10T DWT)	195	198	202	205	209	213	216	220	224	228	232	236	240	2,819
Conventional/RORO	1,951	959	759	1,214	1,142	1,112	1,062	1,027	1,036	1,055	971	947	924	14,159
Bulker (<15T DWT)	189	69	67	73	69	81	79	91	86	85	69	68	55	1,082
Bulker (>15T DWT)	448	444	427	441	445	329	281	247	240	234	254	255	270	4,315
Bulker	637	513	494	514	513	410	361	338	326	319	323	323	325	5,396
Tug and barge	275	207	172	215	198	212	219	213	214	214	251	263	270	2,921
Tanker (<15T DWT)	630	263	157	123	208	145	126	118	104	107	95	93	90	2,259
Tanker (>15T DWT)	488	339	252	187	284	175	136	117	83	90	91	103	121	2,467
Tanker	1118	602	409	310	492	319	262	235	188	198	186	196	211	4,727
Total	4,557	2,608	2,105	2,893	2,981	2,668	2,506	2,408	2,357	2,379	2,318	2,314	2,314	34,409

Units: Thousand DWT
Source: projected by JICA Survey Team

Table 2.5.4 Domestic Fleet Investment Requirement

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Container	5,885	3,335	2,764	6,528	6,477	6,273	6,151	6,079	6,049	6,049	5,987	5,957	5,957	73,491
Conventional/RORO	13,267	6,521	5,161	8,255	7,766	7,562	7,222	6,984	7,045	7,174	6,603	6,440	6,283	96,281
Bulker	4,332	3,488	3,359	3,495	3,488	2,788	2,455	2,298	2,217	2,169	2,196	2,196	2,210	36,693
Tug and barge	367	276	229	287	264	283	292	284	285	285	335	351	360	3,897
Tanker	16,397	8,829	5,999	4,547	7,216	4,679	3,843	3,447	2,757	2,904	2,728	2,875	3,095	69,315
Total	40,248	22,450	17,513	23,112	25,211	21,584	19,962	19,092	18,353	18,581	17,849	17,818	17,905	279,677

Units: Rp Billion
Source: projected by JICA Survey Team

2.6 Shipyard Capacity Assessment

1) Existing Capacity

Indonesian shipyards form a vital supporting industry to domestic shipping to sustain the initiative of modernizing Indonesian domestic vessels in terms of new building and repairing existing vessels. The current status of shipyards' location and capacity is shown in Table 2.6.1.

Table 2.6.1 Annual Capacity of Indonesian Shipyard by Area

Location of Shipyard	Annual Capacity of New Building (GRT)	Annual Capacity of Repair (GRT)
Aceh	12,325	21,800
Sumatera Utara	20,000	5,500
Propinsi Riau	394,300	982,120
Sumatera Selatan	14,000	60,000
Sumatera Barat	6,075	17,000
Jambi	7,400	72,000
Sumatera Selatan	39,740	734,600
Lampung	46,500	105,400
Jawa Barat+Banten	355,150	876,110
DKI Jakarta	80,689	1,722,735
Jawa Tengah	31,550	254,000
Jawa Timur	103,830	1,646,200
Bali dan Nusa Tenggara Barat	2,200	61,000
Kalimantan Barat	12,260	19,600
Kalimantan Timur	41,270	143,960
Kalimantan Selatan	3,935	143,960
Sulawesi Utara	5,460	20,520
Sulawesi Selatan	41,200	362,600
Sulawesi Tenggara	2,166	19,760
Maluku	8,700	75,000
Irian Jaya	6,160	53,200
Total	1,234,909	7,397,065

Source: Ministry of Industry

The annual capacity in 2010 of the 334 shipyards in the country totals only 1,234,909 Gross Tonnage for new building and 7,397,065 Gross Tonnage for repair . Small shipyards with a capacity of building ships measuring up to 1,000 Gross Tons (GT) or 1,500 DWT account for the largest part of the total capacity. The major new building shipyards are located in Jawa Barat, Banten, DKI Jakarta and Jawa Timur, and their total capacity accounts for 40% of the whole Indonesian shipyard capacity.

The shipbuilding industry is still dominated by state owned companies including PT. PAL, PT. Dok Perkapalan Surabaya, and PT. Dok Kodja Bahari. The main private companies are PT. Dumas Surabaya, PT. Daya Radar Utama, PT. Mariana Bahagia-Palembang, Labroy Shipbuilding Batam, Pan-United Batam, ASL Shipyard-Batam, Batamec-Batam and Bristoil Offshore Indonesia-Batam.

2) Recent Industry Performance

Due to the boom of shipping and shipbuilding industry in the world during a couple of years ago and the cabotage principle, which is implemented by phases since 2005, national shipyards have been significantly growing in the new building and ship repairing, and reached 483,000 GRT with Sales Revenue of Rp10,000 Billion for new ship building and 7,700,000 GRT with Sales Revenue of Rp2,900 Billion for ship repair.

These production and revenue figures have already exceeded the target set by MOI.

Table 2.6.2 shows that production and sales revenue of new building have been growing steadily, however, revenue of export vessels has reached the amount of 834 million US$ in 2009, and also had 88% share among new building sales revenue.

With regard to new building, the annual capacity is 1.2million gross tonnage for the whole of Indonesian shipyards. The new building record in 2010 is 0.48million gross tonnage with production efficiency of only 40%. It is assumed that the low efficiency is caused by obsolete facility and equipment and lack of the production management.

Table 2.6.2 Production and Sales Revenue of New Building and Export of New Building

Year	New building		New Building (Export)
	Gross Tonnage	Rp (Billion)	US$ (Million)
2006	200,500	4,750	294.10
2007	335,000	6,250	354.20
2008	350,000	7,400	603.40
2009	402,500	8,500	834.62
2010	483,500	10,200	801.78*

Note: *Record of New Building (Export) in 2010 until September 2010
Source: Ministry of Industry

Ship repair recorded 7.7million Gross Tonnage in 2010, which exceed existing repairing capacity of all shipyards in Indonesia. Therefore, the expansion and improvement of ship repair facility and equipment is urgently needed against the growing the number of domestic vessels.

The demand for docking capacity is determined by the total number of vessels or gross tonnage of vessels which are required to undergo regular annual docking. In a normal case, necessary docking capacity will be estimated based on 1) the vessel with age less than 15 years shall dock every 2 years, and 2) the vessel with age more than 15 years should dock once every year. According to IPERINDO, estimated necessary dock capacity will be around 60% -75% of total number of vessels.

Compared with the annual capacity of 7.4 million gross tonnage for shiprepair, the total shiprepair gross tonnage is 6.5 million in 2009 and 7.7 million in 2010, showing efficiencies of 88% and 104%, respectively. In 2009, the total number of vessels repaired is 9,170 with 10,722,739 GRT. If the factor of 60%-75% is applied in a normal case, the required docking capacity will be 6.4 – 8.0 million GRT which corresponds to the actual shiprepair tonnage of 6.5 million GRT.

Table 2.6.3 Ship Repairing Record

Year	Ship Repairing	
	Gross Tonnage	Rp (Billion)
2006	4,200,000	1,350
2007	5,200,000	1,950
2008	5,600,000	2,100
2009	6,500,000	2,400
2010	7,700,000	2,900

Source: Ministry of Industry

3) Urgent Capacity Expansion Need

In year 2015, the estimated total GRT of vessels will be 13,940,000 GRT, and the docking capacity will need 8.4 – 10.4 million GRT in the normal case. In 2011, repairing docks at major shipyards have been fully occupied, and vessels are forced to wait for 2-3 months to dock. Considering the actual status of docking repair, additional docking capacity is needed.

Therefore, the docking capacity in 2015 will need around 1.8 million Gross Tonnage additional capacities. Normally, docking repair is done at graving dock or slipway or floating dock. The standard docking periods at graving dock and floating dock is a maximum 10 days. In case of a floating dock with a capacity of 10,000 GRT, the annual docking capacity will be around 300,000 gross tonnage. In order to fill required docking capacity until 2015, at least six (6) additional floating docks with total capacity of 10,000 GRT, The replacement of obsolete equipment and the improvement of repairing efficiency will be needed.

4) Policy Direction for Sustainable Industry Development

In addition to the above-mentioned urgent docking capacity expansion, the shipbuilding and repairing industry needs a sustainable sector development scenario so as to respond to the domestic shipping fleet expansion and modernization as projected in the previous section.

The Ministry of Industry prepared the roadmap 2025 of Indonesian maritime industry. The roadmap sets the following strategies as a result of the SWOT analysis (refer to Table 2.6.3):

- Make domestic market as base load for expansion of shipbuilding industry through the utilization of domestic ships & services.
- Strengthen and develop the shipbuilding industry cluster.
- Increase competitiveness by strengthening and deepening the industrial structure to increase the local content and competitiveness of shipbuilding industry.
- Develop domestic supporting industry (material and component industries)
- Establish human resource training centre.
- Master technology by developing the National Ship Engineering & Design Centre.
- Attract foreign investment.
- Improve business climate (tax, interest, etc.)

Table 2.6.4 SWOT Analysis of Current Shipbuilding Industry in Indonesia

Strength	Opportunities
1. Archipelago country with vast sea area. 2. Experienced in building ships. 3. Have maritime educational institutions. 4. Skilful human resource in maritime affairs. 5. Established National Maritime Design and Engineering Center (PDRKN/NaSDEC). 6. Batam as Bonded Zone.	1. Increasing domestic demand, the base load for shipbuilding industry development and export. 2. Relocation of shipbuilding industry from developed countries. 3. Has Non Bank Finance Institution for development of maritime industry 4. Has INPRES No.5/2005 regarding development of national shipping industry.
Weaknesses	**Threats**
1. Less support from banking. 2. Old production facilities. 3. Weak laws and policies on maritime industry. 4. High dependency on imported material and component. 5. Delivery time.	1. Weak coordination among related institutions at central, provincial and regional government levels. 2. More advance competitor countries in ASEAN and Asia (China). 3. Less government commitment to maritime sector. 4. Investment climate that not sided with local investors outside Batam, while facilities are enjoyed more by foreign companies.

Source: Ministry of Industry

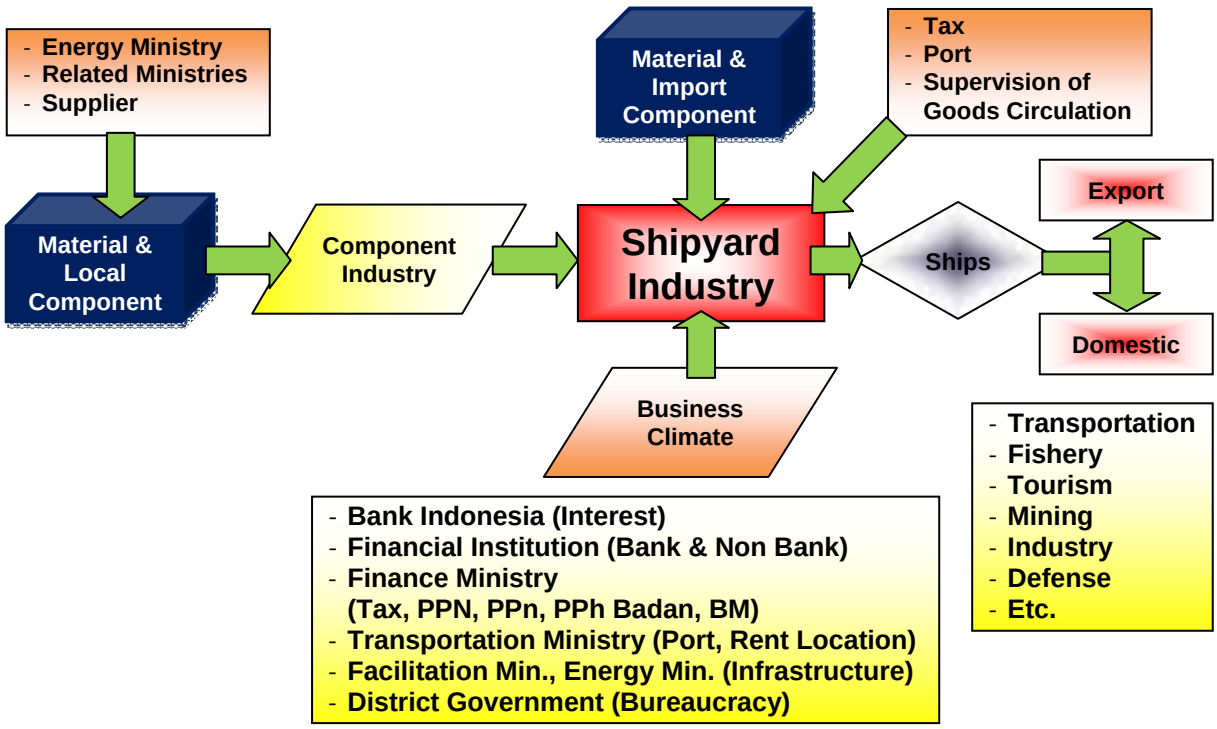
To cope with the demand in the market, the MOI sets up the target of improvement for Indonesia shipbuilding industries to prepare:

a) **Production Technology** by modernizing production facilities, strengthening design and engineering, and employing skilled manpower

b) **Production Capacity** by increasing the production capacity

c) **Production Management** by improving production management capability in order to reduce delivery time and increase competitiveness

The roadmap is illustrated in Figure 2.6.1.



Source: Ministry of Industry

Figure 2.6.1 Scheme of Shipbuilding Industry Development

2.7 Implication for the Project

This chapter attempted to understand the domestic shipping sector in its entirety based on available statistics, surveys of local shipping companies and shipyards, traffic demand forecast, and shipyard capacity analysis.

Firstly, it should be remembered that the domestic fleet conditions before and after 2005 are quite different. Today, the country has almost fulfilled the requirements for cabotage rights with tremendous ship investments, which the JICA Survey estimated to be 53.7 trillion rupiah, made between 2005 and 2010. Institutional development through many laws and regulations supported this ship finance expansion of the Indonesian tonnage.

The Survey, however, points out that there are contemporary sector development issues, such as aging fleet and inadequate fleet quality, as a result of the difficulty experienced by small shipping companies in accessing ship finance, insufficient new-ship delivery, and poor ship management as well as congested shipyards. Therefore, the PSFP must be designed to address these contemporary issues. With the current ship finance flow, a sizeable PSFP is not required. However, alternatives to commercial ship finance must work.

In the JICA Survey, a local consulting firm was contracted to conduct two supplemental surveys, i.e., an interview survey and a questionnaire survey, focusing on small shipping companies and local shipyards and visiting 22 port cities nationwide. Most of the shipping companies surveyed have their respective ship procurement plans. Their preference is for second-hand ships. The major reasons for not selecting new ships are that new ships are costly and not competitive and that financing cannot be obtained. However, companies that acquired new ships in the past showed their preference for new ships. It is possible to change the minds of those who prefer second-hand ships by introducing more attractive ship finance schemes together with competitive ship operation. Surveyed shipyards also expressed their need for new investment but few prepared scheduled plans. The most popular targets of their investment plans are small vessels or tugs and barges, indicating their small capacity and low technology capability. The investment plans of the surveyed shipping companies and shipyards were prepared based on current financing opportunities. The PSFP therefore must meet their current needs and at the same time pave the way for developing a quality domestic shipping system as an innovative financing scheme.

The JICA Survey revised the traffic demand forecast for domestic shipping which was prepared by JICA STRAMINDO in 2004. Assuming a constant economic growth and balanced regional development as envisioned by the government, domestic sea traffic will increase by 2.3 times between 2010 and 2024. The domestic shipping fleet will increase accordingly. The Survey estimated fleet acquisition cost to reach Rp 280 trillion between 2012 and 2024 or Rp 21.5 trillion yearly on the average. Since the ship acquisition cost in 2010 is estimated at Rp 18.9 trillion, the same magnitude of ship investment is anticipated. By ship type, all will be necessary, even domestic tanker shipping which will be gradually taken over by overseas shipping. The Survey identified substantial tanker investment needs up to 2016 to replace the aging tanker fleet. In the break bulk carriage, the Survey expected more modern unitized vessels such as container vessels and RORO vessels rather than conventional general cargo vessels in the light of tonnage growth. To modernize the domestic shipping fleet, the PSFP should prioritize the modern, rather than the conventional, shipping operation and the replacement of old vessels with much

younger ones.

The Ministry of Industry assessed shipbuilding and repair capacity at domestic shipyards. In 2010, the actual ship repair works of 7.7 million GT exceeded the assessed capacity of 7.4 million. This explains the current dock congestion wherein vessels are forced to wait for 2 to 3 months. An additional dock capacity of 1.8 million GT will urgently be needed by 2015. The PSFP should address dock shortage because it is a big obstacle in maintaining fleet quality and encouraging shipping companies to invest in high-quality vessels.

3 SHIP FINANCE

3.1 Financial Sector in Indonesia

1) Overview

The Indonesian financial sector has been increasing its role in the economy but still its size and contribution is rather small. The depth of the financial sector is often referred by the ratio of financial sector asset over GDP. The size of financial sector of Indonesia is 103.6%, just over its GDP.

Table 3.1.1 International Comparison of Financial Sector in Asia

	Total Financial Assets	Credit to Private Sector	Equity Market Capitalization	Private Bonds	Public Bonds	GNI per capita
	(% of GDP)	(% of GDP)	(% of GDP)	(% of GDP)	(% of GDP)	(Atlas Method, in US$)
China	542.5%	114.5%	189.8%	0.2%	0.4%	$ 2,360
Malaysia	383.5%	108.8%	180.2%	4.4%	7.1%	$ 6,540
India	298.3%	47.4%	155.4%	0.7%	0.2%	$ 950
Thailand	210.6%	84.2%	79.8%	1.4%	1.2%	$ 3,400
Brazil	205.1%	49.8%	104.3%	2.9%	3.6%	$ 5,910
Pakistan	150.2%	29.4%	48.9%	0.6%	1.3%	$ 870
Philippines	128.7%	23.8%	71.6%	1.7%	11.3%	$ 1,620
Indonesia	103.6%	25.4%	48.9%	2.1%	1.1%	$ 1,650
Sri Lanka	60.8%	34.0%	23.3%	0.3%	0.2%	$ 1,540
Bangladesh	54.8%	37.7%	10.0%	...	...	$ 470

Source: World Development Indicators, 2008 (data for 2007) and Bringing Finance to Pakistan's Poor, 2009, World Bank

Comparatively, this is much smaller than other Asian countries such as India, Malaysia or China registering 542.5%, 383.5%, and 298.3% respectively, and just behind the Philippines with 128.7%. Due to the public-sector dominant characteristics of the country, the ratio of the credit amount to the private sector is very small in Indonesia.

2) Financial Markets

Indonesia has been implementing a series of financial sector reform programs since the 1997/1998 Asian financial crisis. The key framework law is the 1998 Banking Act, which Bank Indonesia has been implementing since 2004. Its banking sector reform program is called API (*Arsitektur Perbankan Indonesia*) through which BI aims to establish a firm and sustainable banking sector with its sound and health financial situations through the integration, mergers and acquisition among banks and contributing to the economic development of the country. With these efforts, the number of commercial banks reduced from 239 in 1997 to around 121 in 2010.

In terms of bank density, Indonesia stays behind other countries, namely one branch for every 12,457 inhabitants and over 110km^2. This might lead to an issue of access to finance, particularly when applied to small- and medium-sized enterprises located in remote areas.

Table 3.1.2 Bank Density International Comparison

	Population per Branch	Land Area per Branch (sq km)
India	14,888	44
Indonesia	12,547	110
Mexico	11,924	236
Brazil	9,331	470
U.S.	3,568	117
France	2,331	22
Japan	1,959	6
Germany	1,479	6

Source: "Brazil: Access to Financial Services", World Bank, 2004.

3) Interest Rates

Money Market and Short-term Rates

Most banks use the 3-month time deposit interest rate to reflect their cost of funds. Some banks use the average time deposit rate (1 to 24 months deposits). However, the pricing of the credits is done by most banks on the basis of movements in the Jakarta Interbank Offered Rates (JIBOR), and the rates offered by the main large banks. The recent level of JIBOR 3-month rate is 7.14% in June 2011. As for the policy lending rate, BI announces monthly a BI Rate. The recent rate is fixed at is 6.75% for July 2011 that has been unchanged since February.

Table 3.1.3 Indonesia Key Interest Rates (Short-term)

TYPE OF DEPOSITS	2010				2011	
Maturity	Mar	Jun	Sep	Dec	Mar	Jun
BI Rate	*6.50*	*6.50*	*6.50*	*6.50*	*6.75*	*6.75*
Bank Indonesia Certificate						
1 Month	6.27	6.26	-	-	-	-
3 Months	6.56	6.60	6.64	-	-	-
6 Months	6.68	6.72	6.73	6.26	-	-
9 Months	-	-	6.84	6.60	6.72	7.36
JIBOR						
1 Day	6.25	6.23	6.21	5.66	6.29	6.12
1 Month	6.65	6.52	6.46	6.27	6.85	6.88
3 Months	7.07	6.93	6.95	6.64	7.05	7.14

Source: Bank Indonesia

Capital Market and Long-term Rates

The Indonesian capital markets have been steadily growing, but the government bond has occupying a major volume though corporate bonds and shares show increase. The government bond share was around 74% in 2009.

Table 3.1.4 Growth of Securities Issuance

(Unit: trillion Rupiah)

Type of Issuance	2005		2006		2007		2008		2009	
	Value	Total Issuers	Value	Total Issuers	Value	Total Issuers	Value	Total Issuers	Value	Total Issuers
Public Offering	3.56	8	3.01	12	17.18	24	23.48	17	4.09	13
Right Issue	6.23	16	9.98	17	30.15	25	55.46	25	15.67	15
Obligations	8.25	22	11.45	15	31.38	39	14.10	20	31.09	29
Governance Bonds (SBN Gross)	47.00	1	61.00	1	100.00	1	126.20	1	144.70	1
Total	**65.04**	**46**	**85.44**	**44**	**178.71**	**88**	**219.24**	**62**	**195.55**	**57**

Source: Bapepam-LK, Capital Market and NBFI Master Plan 2010-2014

The 10-year Rupiah denominated government bond has been considered as the key benchmark long-term rate. The recent level was around 7% and the medium-term trend has been showing gradual downward trend due mainly to the strong economy of the country, as endorsed by the views of the major rating agencies for the sovereign ratings.

Source: Bloomberg

Figure 3.1.1 Indonesia Government Bond 10 year Yield

Table 3.1.5 Indonesia Sovereign Ratings

Rating Agency	Rating	Outlook
Moody's Investor Service	Ba1	Stable
Standard & Poor's	BB+	Positive
Fitch Ratings	BB+	Positive
Japan Credit Rating Agency	BBB-	Stable
Rating & Information Inc.	BB+	Positive

Source: Bank Indonesia

4) Banks and Non-Bank Financial Institutions

The banks, with its 81% share in terms of financial assets, are the major players, when compared with Non-bank financial institutions. As for the branch network they are heavily concentrated in Java, Sumatra, i.e. in the western part of the county, leading to some issues on access to finance. Leasing companies are classified as a part of finance companies, with a dominant share by those who are engaged in automobile finance.

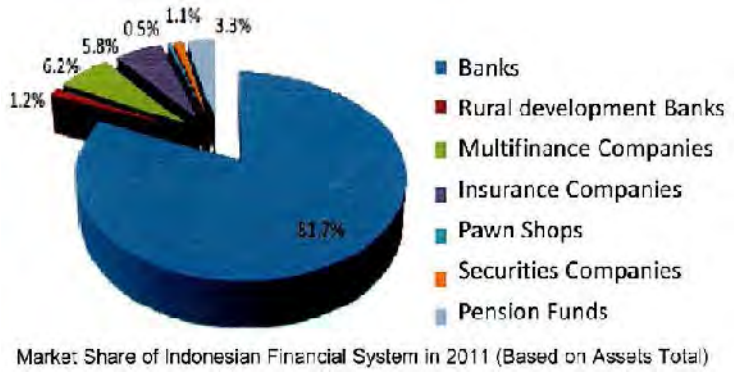


Figure 3.1.2 Indonesian Financial Structure (2011)

The banks, regulated under the Banking Act No. 7 of 1992, are divided into two categories, commercial banks and rural banks. In terms of number of banks, there are 121 commercial banks out of about 2,000 banks in Indonesia. Bank Mandiri, Bank Negara Indonesia (BNI) and Bank Rakyat Indonesia (BRI) are the major three public sector banks directly owned by the government.

Non-bank financial institutions (NBFIs) do not take up a significant role in the economy. Indonesia's NBFI sector share is only about 20% of the total financial system. This is still relatively a lower proportion compared with other developing countries. Among NBFIs, the leasing/multi-finance industry is important for some regional economies and SMEs, particularly those involved in fields such as construction material and automobile financing. The leasing companies heavily rely on their funding sources from banks, and many finance companies have joint financing arrangement with banks.

The strong advantages for their customers are:

a) Easy and simple collateral arrangements,

b) Availability of medium- to long-term financing to purchase equipment,

c) Higher loan-to-value ratio available than provided by banks, and

d) Flexible contracting arrangements.

In short, the financial system in Indonesia, while still dominated by the banking sector, is diversifying rapidly. In particular, finance companies play an increasing role in credit provision. Capital markets are expanding not only in size but also their equities and corporate bond markets are growing relative to the government securities market.

5) General Overview of Lending to Indonesian Economy

Lending by the Indonesian banks registered 1,783 trillion Rupiah at the end of 2010 (Table 3.5.6 and Table 3.5.7) with the annual growth rate of 20.52% during the last five years.

Table 3.1.6 Banking Sector Lending by Volume

Lending by Volume				(Unit: Rupiah billion)	
	2006	2007	2008	2009	2010
Agriculture	45,999	57,203	67,828	77,394	92,525
Mining	13,896	25,336	30,541	41,559	60,495
Manufacturing	182,689	204,141	269,578	246,188	274,330
Energy	7,136	7,479	18,176	23,894	33,625
Construction	32,887	43,769	58,150	63,765	63,426
Services	163,790	214,804	259,953	301,883	346,226
Transport & Communcation	**26,306**	**36,551**	**62,139**	**73,002**	**75,488**
Business Services	78,463	109,304	152,389	152,061	136,582
Services	11,570	13,458	15,287	16,580	149,992
Others	234,031	292,133	379,832	450,482	550,913
Total	796,767	1,004,178	1,313,873	1,446,808	1,783,601

(Source: Bank Indonesia)

Table 3.1.7 Banking Sector Lending Growth Trend

Lending Growth (year to year)					(Unit: %)
	2006	2007	2008	2009	2010
Agriculture	18.34	24.36	18.57	14.10	19.55
Mining	43.34	82.33	20.54	36.08	45.56
Manufacturing	6.99	11.74	32.05	(8.68)	11.43
Energy	25.60	4.81	143.03	31.46	40.73
Construction	19.16	33.09	32.86	9.66	(0.53)
Services	17.27	31.15	21.02	16.13	14.69
Transport & Communcation	**25.36**	**38.95**	**70.01**	**17.48**	**3.41**
Business Services	7.54	39.31	39.42	(0.22)	(10.18)
Services	18.41	16.32	13.59	8.46	804.65
Others	8.42	24.83	30.02	18.60	22.29
Total	12.31	26.03	30.84	10.12	23.28

(Source: Bank Indonesia)

Lending to Transport Sector

As for the lending activities to different economic sectors, manufacturing, business services and service have been strong sectors. While the manufacturing sector has been showing a steady decline from 23% in 2006 to 15% in 2010, the service sector has been maintaining a share of around 20%. (See Table 3.1.8 below)

The transport & communication sector does not show a substantial share at around 3-5%, compared with other sectors, but has been making a steady growth. Due to unavailability of data, the Study team was not able to get the data on the marine transport *per se*, but this sector could estimate its growth in parallel to the whole economic development.

Table 3.1.8 Banking Sector Lending Share by Sector

Lending Share by Sector					(Unit: %)
	2006	2007	2008	2009	2010
Agriculture	5.77	5.70	5.16	5.35	5.19
Mining	1.74	2.52	2.32	2.87	3.39
Manufacturing	22.93	20.33	20.52	17.02	15.38
Energy	0.90	0.74	1.38	1.65	1.89
Construction	4.13	4.36	4.43	4.41	3.56
Services	20.56	21.39	19.79	20.87	19.41
Transport & Communcation	**3.30**	**3.64**	**4.73**	**5.05**	**4.23**
Business Services	9.85	10.88	11.60	10.51	7.66
Services	1.45	1.34	1.16	1.15	8.41
Others	29.37	29.09	28.91	31.14	30.89
Total	100.00	100.00	100.00	100.00	100.00

(Source: Bank Indonesia)

Lending to Small- and Medium- sized enterprises (SMEs)

According to Micro-, Small- and Medium-sized Enterprise Act (MSME Act) 2008, the definition of SMEs is given as follows:

(Small-size enterprise)

- Net asset: more than Rp. 50 million
- Annual sales: more than IDR 300 million up to Rp. 2,500 million

(Medium-size enterprise)

- Net asset: more than Rp. 500 million up to Rp. 10 billion
- Annual sales: more than Rp. 2.5 billion up to Rp. 50 billion

The Study Team understands that the classification of SMEs under the MSME Act may target smaller companies compared with those in the targeted shipping and shipbuilding industries under this Study.

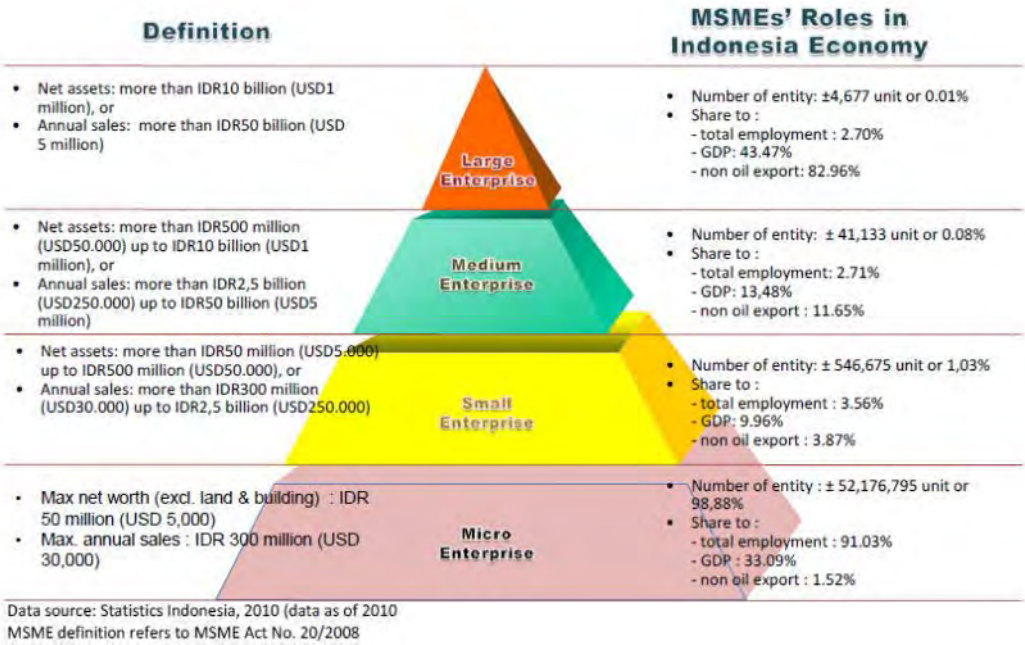
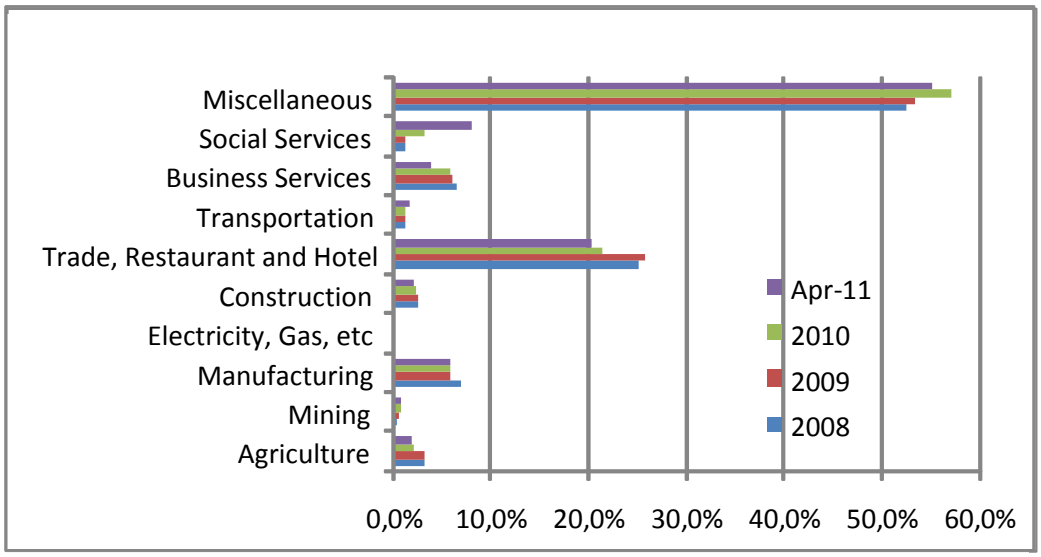


Figure 3.1.3 Classification of Enterprises

Under the classification above, the commitment from the banking sector to SMEs in transport sector stays less than 5% in recent years.



Source: Bank Indonesia

Figure 3.1.4 Lending to MSMEs

Credit Guarantee Agency - JAMKRINDO

SMEs are always facing difficulties when raising funds for their new investments. JAMKRINDO (Perum Jaminan Kredit Indonesia) is a public agency specializing in the credit guarantee to companies, especially SMES incorporated since 2008. It was originally established to guarantee for cooperatives in 1970, and then expanded its scope of business to include MSMEs since 2000.

The credit guarantee is offered to SMEs satisfying the following conditions.

- Guaranteeing Finance:
  Both working and investment lending / finance
- Lending / Financing Institutions:
  Commercial banks, rural banks and other finance companies
- Guarantee Limit:
  Up to IDR 80 billion
- Guarantee Coverage:
  Up to 100% (Usually 70%)
- Guarantee Fee:
  0.45-2.00% p.a.

Companies wishing to use this credit guarantee firstly apply to their financial institutions and each financial institution will make its review and appraisal process. Upon successful appraisal, the financial institution will file an application to JAMKRINDO.

So far, when the Study Team conducted its interview with JAMKRINDO, they replied that it is possible to consider but so far they do not have any portfolio in the shipping and

shipbuilding sector. The Study Team also considers the maximum limit is rather small for investment under this Study but it may be worthwhile considering for smaller enterprises.

6) Readiness of Indonesian Financial Sector for Shipping / Shipbuilding Industries

The precedent analyses to outline the financial sector in Indonesia are summarized from the viewpoint of financing readiness for the shipping and shipbuilding industries, as follows:

Indonesian financial sector depth is shallow compared with other Asian countries. SMEs, in particular, are confronted with difficult and multifarious requirements when trying to access financial assistance from banks, and thus end up with self-financing for their business development.

Commercial banks are the strong player in the financial sector and among others, the state-owned commercial banks have strong presence.

The transportation sector is strategically important for the economy, as confirmed through the interviews with commercial banks and Bank Indonesia. But it is not evident in terms of volume of lending, and some financier stated that the shipping industry has been considered as one of the risky industries.

Non-Bank Financial Institutions have been growing fast in the economy but their main focus is automobile financing. Finance companies rather stay in short-term maturity oriented finance and do not have sufficient capacity for shipping businesses. NBFI's financing largely rely on loans from banks in either floating or fixed rate borrowings.

JIBOR has been increasing its recognition as the benchmark rate whereas **BI Rate** stays as the leading policy rate referred by SBI rate and other financial and capital market rates. For the envisaged PSFP, JICA Survey Team considers to apply the SBI Rate as its benchmark rate due to the nature of government policy intervention.

JAMKRINDO, a public credit guarantee agency, could be invited to the financial structuring of the envisaged finance. Its role, however, is rather secondary one for credit enhancement when reinforcing the end users' credit worthiness.

3.2 Current Financial Situations and Financing Needs of Shipping Companies and Shipyards

This section uses the results of the field interview survey and questionnaire survey as the same basis as what Section 2.3 has analyzed. However, this section deals with reviews and analysis of the companies that submitted both their company profiles and financial information satisfactorily filled up for the above-captioned purpose.

1) Overview of Financial Situation of Shipping Companies and Shipyards

As reported in Section 2.3, 60 shipping companies and 16 shipyards participated in the Questionnaire Survey. Results of the survey showed that due to self-financing practices, most of the companies did not submit financial statements for credit surveys. In this JICA Survey, local accountants supported them in preparing their financial statements to ensure that they comply with the Indonesian accounting system. As a result, 10 shipping and six shipbuilding companies submitted or resubmitted their financial statements. It is thus too ambitious to make an overview of the surveyed companies regarding their finances, but by looking into each one and the general characteristics of the surveyed companies, the Study Team was able to summarize its views and assessments as shown below.

(1) Shipping Companies

The ten (10) companies that responded are located from Sumatra to Papua, including Kalimantan, Java and Sulawesi. The number of owned vessels varies from one (1) to twenty-nine (29) with the total tonnage ranging from 151 to 17,469 tons. Due to the small scale nature of their businesses, the financial situation has been quickly changing throughout the years.

On the *Income Statement*, the average operating profit level is Rp. 15.1 billion (Highest 35.8 billion, Lowest 0.7 billion) and the Cost of Sales registers in average at Rp. 10.8 billion (H. 28.8, L. 0.0) and ends up with Earning after Tax in average Rp. 1.7 billion (H. 8.6, L. -0.1). The average Net Profit Margin is registered at 11.8% (H. 55.4, L. -21.5). Due mainly to the nature of the vulnerability of this business sector, a wide range of difference is observed.

As for the *Balance Sheet*, the average Total Assets is about Rp. 21.1 billion (H. 45.1, L. 0.8). The key features of the B/S are the Equity amount and its ratio to Total Assets has an average of a high 69.8% (H. 100.0, L. 32.4) and also the low Long-Term debt to Total Asset ratio of 22.3% (H. 66.7, L. 0.0). In fact, out of 10 companies, five have some Long-Term debt balance indicating that, in spite of their strong investment demand, they did not rely on the long-term borrowing from banks or they might have repaid rather soon with a relatively shorter medium term borrowing maturity.

The Current Assets level is high and thus the Cash Ratios or Current Ratios for Liquidity are considered sufficiently high, though their Asset Turnover is relatively low due to the high level of the Fixed Assets compared to its Revenue.

As for the *Cash Flow*, most of the companies seem to sell out some of their fleet with shrinking Operating Cash Flow, but the Study Team estimates that the companies are looking for the next investment opportunities.

A summary table is shown in Table 3.2.1 and a comparison table is shown in Table 3.2.2.

Table 3.2.1 Financial Summary – Shipping Companies

Shipping Companies

Income Statement (in Million Rp)	Average
Operating Revenue (net)	15,135
Cost of Sales	10,848
Total Opertaing Expenses	1,362
Interest	770
Tax	212
EAT	1,793

Balance Sheet (in Million Rp)	
Cash & Cash Equivalent	490
Total Current Assets	6,929
Fixed Assets (net)	10,226
Total Fixed Assets	12,314
Total Assets	21,185
Current Liabilities	1,692
Longterm Liabilities	4,715
Equity	14,778

Cash Flow (in Million Rp)	Average
Net Cash flow from Operating Activities	-475
Net Cash flow from Investing Activities	-64
Net Cash flow from Financing Activities	-560
Net Increased / Decreases in Cash	-261

Ratio Analysis	
Profitablity Ratios	
Net Profit Margin	11.8%
Return on Equity (ROE)	45.8%
Return on Investment (ROI)	28.9%
Liquidity Ratios	
Cash Ratio (CAR)	201.6%
Current Ratio	1902.6%
Efficiency Ratios	
Asset Turnover	71.4%
LT Debt to T. Assets	22.3%
Equity to T. Assets	69.8%

Source: Made by JICA Survey Team based on the Questionnaire Survey

Table 3.2.2 Financial Comparison – Shipping Companies

Company	SHP-01	SHP-02	SHP-03	SHP-04	SHP-05	SHP-06	SHP-07	SHP-08	SHP-09	SHP-10	Average
Location	Padang	Padang	Padang	Jakarta	Semarang	Semarang	Makassar	Samarinda	Ambon	Biak	
Total Tonnage	750	375	703	N.A.	N.A.	1,771	948	716	890	151	675.4
No. of Vessels	6	5	1	N.A.	N.A.	17	1	10	2	3	4.5
Income Statement (2010 in Million Rp)											
Operating Revenue (net)	1,695	1,642	2,493	38,721	16,073	35,845	15,232	31,676	673	7,304	15,135
Cost of Sales	1,027	919	806	28,769	8,550	25,169	9,137	27,855	0	6,252	10,848
Total Opertaing Expenses	104	367	305	2,240	2,514	1,660	3,510	1,579	817	519	1,362
Interest	0	0	0	5,736	360	0	1,605	0	0	0	770
Tax	10	38	0	1,282	224	479	0	0	0	87	212
EAT	205	318	1,382	695	4,401	8,696	873	1,065	-145	444	1,793
Balance Sheet (2010 in Million Rp)											
Cash & Cash Equivalent	265	215	255	436	413	1,052	411	1,434	415	6	490
Total Current Assets	1,001	344	884	16,884	7,363	12,210	5,749	24,186	661	6	6,929
Total Non-Current Assets	171	503	3,217	42,807	14,461	8,091	39,389	3,372	10,135	997	12,314
Fixed Assets (net)	171	503	3,217	42,807	14,461	8,091	18,509	3,372	10,135	997	10,226
Total Assets	1,171	846	5,099	59,691	21,823	22,927	45,138	43,215	10,795	1,145	21,185
Current Liabilities	135	28	0	4,021	48	2,023	2,327	5,211	3,117	7	1,692
Longterm Liabilities	0	0	0	21,500	3,480	0	8,236	13,172	0	767	4,715
Equity	1,036	818	5,099	34,171	18,295	20,904	34,576	24,831	7,679	371	14,778
Cash Flow (2010 in Million Rp)											
Net Cash flow from Operating Activ	-64	318	0	-8,622	-1,250	-1,479	3,349	2,485	0	509	-475
Net Cash flow from Investing Activ	-64	322	0	201	-1,251	-4,654	3,349	945	0	509	-64
Net Cash flow from Financing Activ	0	-348	0	0	-360	0	-3,317	-973	0	-603	-560
Net Increased / Decreases in Cash	-64	-26	0	201	2,024	-4,654	32	-28	0	-94	-261
Ratio Analysis											
Return on Equity (ROE)	16.5%	36.6%	27.1%	2.1%	27.3%	45.6%	2.6%	4.4%	-1.9%	298.0%	45.8%
Return on Investment (ROI)	48.2%	48.2%	31.0%	12.9%	31.4%	43.6%	9.3%	6.2%	3.7%	53.9%	28.9%
Cash Ratio (CAR)	196.6%	758.5%	0.0%	10.9%	853.6%	52.0%	17.7%	27.5%	13.3%	85.7%	201.6%
Current Ratio	743.5%	1213.7%	0.0%	419.9%	15227.6%	603.5%	247.0%	464.1%	21.2%	85.7%	1902.6%

Source: Made by JICA Survey Team based on the Questionnaire Survey

In summary, the shipping companies that responded are, on the average, relatively healthy in its financial status mainly supported by the high level of Equity. Some of them are considered to be ready for the new investments.

(2) Shipbuilding Companies

Six companies submitted their financial information. They are located in Sumatra, Kalimantan, Java and Papua.

On the *Income Statement*, the average Operational Revenue size of those six companies is Rp. 24.7 billion (H. 89.6, L. 0.2) with the average Cost of Sales registered at Rp. 18.1 billon (H. 58.6, L. 0.1) and Earning after Tax average of Rp. 0.6 billion (H. 1.5,L. -0.2). The Net Profit Margin average is around 2.4% (H. 55.7, L. -0.6), which is lower when compared with that of Shipping companies above.

As for the *Balance Sheet* items, the Total Assets average is Rp. 32.1 billion (H. 103.3, L. 0.4), where the Fixed Assets occupies about 50% (H. 87.5, L. 17.9) of the Total Assets. The Equity Ratio is lower than that of shipping companies but still keeps 32.5% (H. 93.9, L. 28.8). Long-term Debt again remains low by reflecting the fact that only two companies out of those six companies have long-term debt balance.

The *Cash Flow* shows that companies are actively investing in its facilities by acquiring new finance. Among them are Janata Marina Indah and Permata Barito S&E.

Similarly with the answered shipping companies, two tables are indicated as summary of the answered shipbuilders and their comparison below.

Table 3.2.3 Financial Summary – Shipbuilding Companies

Shipbuilding Companies

Income Statement (in Million Rp)	Average
Operating Revenue (net)	24,734
Cost of Sales	18,135
Total Opertaing Expenses	4,838
Interest	1,175
Tax	190
EAT	602

Balance Sheet (in Million Rp)	
Cash & Cash Equivalent	1,000
Total Current Assets	12,550
Fixed Assets (net)	15,903
Total Fixed Assets	15,903
Total Assets	32,107
Current Liabilities	10,075
Longterm Liabilities	8,826
Equity	10,427

Cash Flow (in Million Rp)	Average
Net Cash flow from Operating Activities	1,035
Net Cash flow from Investing Activities	-3,295
Net Cash flow from Financing Activities	3,421
Net Increased / Decreases in Cash	127

Ratio Analysis	
Profitablity Ratios	
Net Profit Margin	2.4%
Return on Equity (ROE)	15.3%
Return on Investment (ROI)	13.4%
Liquidity Ratios	
Cash Ratio (CAR)	108.4%
Current Ratio	381.6%
Efficiency Ratios	
Asset Turnover	77.0%
LT Debt to T. Assets	27.5%
Equity to T. Assets	32.5%

Source: Made by JICA Survey Team based on the Questionnaire Survey

Table 3.2.4 Financial Comparison – Shipbuilding Companies

Company Location	SPB-01 Palembang	SPB-02 Banjarmasin	SPB-03 Banjarmasin	SPB-04 Semarang	SPB-05 Semarang	SPB-06 Biak	Average
Income Statement (2010 in Million Rp)							
Operating Revenue (net)	2,293	17,555	5,285	33,401	89,637	230	24,734
Cost of Sales	916	13,310	3,784	32,114	58,614	70	18,135
Total Operating Expenses	100	2,456	716	1,489	24,096	173	4,838
Interest	0	0	169	0	6,883	0	1,175
Tax	0	404	106	0	631	0	190
EAT	1,277	1,502	637	-186	378	2	602
Balance Sheet (2010 in Million Rp)							
Cash & Cash Equivalent	749	1,832	1,953	670	791	2	1,000
Total Current Assets	2,004	11,013	2,876	34,606	24,686	115	12,550
Total Non-Current Assets	446	5,655	4,804	8,314	75,951	245	15,903
Fixed Assets (net)	446	5,655	4,804	8,314	75,951	245	15,903
Total Assets	2,450	32,102	7,778	46,606	103,345	363	32,107
Current Liabilities	150	2,096	3,537	32,855	21,722	90	10,075
Longterm Liabilities	0	1,120	0	0	51,839	0	8,826
Equity	2,300	12,217	4,240	13,751	29,784	273	10,427
Cash Flow (2010 in Million Rp)							
Net Cash flow from Operating Activities	350	-2,617	1,446	1,680	5,449	-97	1,035
Net Cash flow from Investing Activities	300	-17,033	-132	-5,673	2,782	-12	-3,295
Net Cash flow from Financing Activities	0	16,918	0	6,279	-2,670	0	3,421
Net Increased / Decreases in Cash & Cash Equi	300	-115	-132	606	112	-12	127
Ratio Analysis							
Return on Equity (ROE)	62.9%	13.1%	16.0%	-1.9%	1.3%	0.6%	15.3%
Return on Investment (ROI)	52.8%	5.8%	11.0%	0.8%	13.4%	-3.6%	13.4%
Cash Ratio (CAR)	499.6%	87.4%	55.2%	2.0%	3.6%	2.2%	108.4%
Current Ratio	1336.1%	525.4%	81.3%	105.3%	113.6%	127.8%	381.6%

Source: Made by JICA Survey Team based on the Questionnaire Survey

In short, the shipbuilding companies that responded show, on the average, a low profit margin with relatively high Cost of Sales. The recent investment activities resulted in rapid increase in Fixed Assets. Equity level increase did not cover sufficiently the strong investments. The level of Equity is considered still reasonable but if they implement new investment activities, additional equity would be needed.

2) Investment Needs

(1) Shipping Needs

The results of the field surveys conducted during the study clearly show that the demand to procure ships among the eligible shipping companies/owner/operator is very obvious.

However, due to the vastly varying indigenous regional characteristics of Indonesia, the type of cargos and the demand thereof varies depending upon the characteristics of each area.

On the one hand, freight demand for coal, petrochemical products, machinery and miscellaneous goods etc., has been increasing clearly due to the economic growth throughout Indonesia.

Therefore, investment needs for the ship differs depending on what cargo the ship will be intended to transport within a region or whether the ship will be required to transport industrial materials or goods between regions. These cargo demands and the investment needs of ship are categorized as shown in the table below.

Table 3.2.5 Cargo Demand and Investment Needs

	Type of Cargo	Investment Requirement
Regional	Cement Oil products Machinery Daily consumables	General Cargo RORO Container Landing Craft Tanker
Inter-regional	Coal Oil products Machinery Cement Vehicles	Bulk Carrier Tanker Container RORO

Source: JICA Survey Team based on field survey results

On top of the cargo demand, passenger-cargo ship is required in the rural areas and RORO passenger ship is required in the specific area such as Merak-Bakahuni (Java/Sumatra) ferry route.

Up to now, these ships were procured with short-term finance from local banks, the export credit/finance exclusively provided by the exporter or self-finance. Therefore, the ship owner/purchaser could procure the ship with small initial investment in the second-hand market.

However, in order to cope with the vigorous cargo demand, ship owners visited by the Study Team are enthusiastic about the possible procurement of ships, as explained in the foregoing sections.

Therefore, the introduction of a public ship finance scheme which can offer concessional conditions with no mortgage requirement for the procurement of the ship is attractive for those shipping companies, and they showed keen interest to procure container ships and Ro/Ro ships, which are mostly desired in the Indonesian domestic shipping market, by utilizing this financing scheme as mentioned in the table above.

(2) Shipbuilding/Repairing Needs

In principle, Indonesian flag ship should be repaired in Indonesia. Under the cabotage policy completed in 2010, the repairing requirements for domestic ships with over 25 years of age, which accounts for almost half of the total fleet, became stringent.

Investment needs on the ship repairing dock (floating dock) where large-scale bulk carrier of Indonesian domestic shipping can dry up are very high, as such it will be the core demand in the field. Moreover, a lot of shipyards are using heavy equipment, e.g., lifting cranes, and workshop machines, that are superannuated or already obsolete and the renewal of those equipments would be highly required.

On the other hand, there is demand to update the production facility for the new shipbuilding by utilizing the ship finance scheme, especially since the review of the import

duty for the marine equipment is scheduled and there could be new windows of opportunity to import these equipments.

The eligible shipbuilder/repairer will be both SOEs and private entities.

3.3 Commercial Banks

This section analyzes commercial banks with regard to their recent ship finance services, and focuses on four (4) state-own banks, viz, Mandiri Bank, Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI) and Indonesia Eximbank, since they have a right to apply for and utilize foreign government loans. Finally, the report explores opportunities and constraints if one of them would work as an executing agency for public ship finance by Japanese ODA loan.

1) Recent Ship Finance Service

The data on the number of vessels and the amount of loans/credits given out by banks and non-bank financial institutions, excluding lease finance, from 2005 up to 2010 were derived by DGST. A summary is shown in Table 3.3.1 below, which shows that the total amount of loans/credits disbursed to the shipping companies substantially increased during the period, particularly in 2007 and onward. A total of 1,343 ships were acquired since 2005 and the total loans given during the period amounted to Rp. 37.288 trillion. The highest loan amount for a single year was made in 2010, posting an increase of 34% from the previous year. It is notable that about 66% of total loans/credits are given in foreign currency from 2005 to 2010, but a big 72% in 2010 alone.

Table 3.3.1 Summary of Loans/Credits Extended for Vessel Acquisition

Year	Unit Acquired	Loans/Credits by Currency		Total Amount
		(in Rupiah)	(in Foreign Currency)	(in Trillion Rupiah)
2005	154	1,201,465,127,000	US$97,264,046	2.116
2006	184	654,901,140,000	US$193,817,053	2.477
2007	163	1,152,378,665,000	US$315,361,075	4.117
2008	255	2,073,139,580,000	US$366,206,376	5.515
2009	201	3,848,748,916,369	US$625,297,221 S$1,100,000 JY 850,000,000	9.820
2010	386	3,751,831,303,774	US$1,043,292,959	13.243
(Total)	(1,343)	12,682,464,732,143	equiv. to Rp. 24,605,389,895,423	37.288

Note 1: Conversion Rates Used are: For data Year 2005 – 2009, Rp.9,400/US$; RP.101.95/J. Yen; Rp.6,551/S$; For data Year 2010, Rp.9,097/US$ sourced from World Development Indicators 2011
Note 2: Inclusive of newly built vessels and second-hand vessels
Source: DGST

In 2009, three (3) state-owned banks alone (Bank Mandiri, BNI and BRI) provided loans equivalent to Rp. 2,795,080 million for procurement of 95 ships out of 201 ships procured that year; that is 28% in amount and 47% in the number of ships. In 2010, these banks provided loans equivalent to Rp. 3,908,474 million for procurement of 126 ships (out of 386 ships); that is 30% in amount and 33% in the number of ship. Breakdown of loans extended by these banks in 2010 by currency is given in Table 3.3.2 below. The breakdown shows the difference in attitude of the banks to the shipping sector.

- Bank Mandiri and BNI are very aggressive in extending loans/credits to the shipping sector, while BRI is not;
- Bank Mandiri is more aggressive in US$ denominated loans than BNI, while BRI is

limited to loans in Rupiah only.

Table 3.3.2 Summary of Loans Extended by Three Major Banks in 2010

Bank	Unit Acquired	Loans/Credits by Currency		Total Amount
		(in Rupiah)	(in US$)	(in Rupiah)
Bank Mandiri	63	1,070,912,300,000	US$76,475,000	1,766,605,375,000
BNI	47	1,745,338,862,128	US$20,696,210	1,933,612,284,498
BRI	16	208,256,165,000	-	208,256,165,000
(Total)	(126)	3,024,507,327,128	equiv. to 883,966,497,370	3,908,473,824,498

Note: Conversion Rates Used are Rp.9097/US$
Source: DGST

Other major banks contributing in loan provision for vessel acquisition in 2010 are: PT. Bank Permata, PT. Bank CIMB Niaga, PT. Bank International Indonesia and PT. Bank OCBC NISP.

2) Bank Mandiri

(Bank Profile)

PT Bank Mandiri (Persero) Tbk was formed on 2 October 1998, as a part of the Government of Indonesia's bank restructuring program. In July 1999, four state-owned banks namely Bank Bumi Daya, Bank Dagang Negara, Bank Exim and Bapindo were amalgamated into Bank Mandiri. The history of these four banks can be traced back over 150 years, and together they encapsulate the development of the Indonesian banking sector.

Each of these four legacy banks played an integral role in the development of the Indonesian economy for generations. Today, Bank Mandiri continues this tradition of more than 140 years of delivering expertise in banking and financial services throughout Indonesia.

Immediately following the merger, Bank Mandiri embarked on a comprehensive process of consolidation. Most visibly, Bank Mandiri closed overlapping branches and reduced their combined workforce.

The transformation process in Bank Mandiri is focused on wholesale transaction, retail payment/deposit, and retail financing businesses, while in the cultural area the focus is on the development of corporate cultural values that are more specific to each work unit.

Currently, Bank Mandiri business mostly provides comprehensive financial solutions to both private and state-owned corporations, commercial enterprises, small, and micro businesses and retail customers through 1.370 domestic and 7 overseas branches, including representative offices, supported by subsidiaries operating in the fields of investment banking, syariah banking, life insurance, micro credit and consumer finance products and services.

Bank Mandiri's business goal for the next five years is to accelerate market penetration so as to become the leading player in the wholesale transaction banking, retail deposit and payment, and retail financing segments. Bank Mandiri is convinced that with determination and consistency, its focus on these three areas will generate growth and improve

profitability so as to support the vision of Bank Mandiri to be one of the top 5 banks in ASEAN by the end of 2014, and one of the top 3 by the end of 2020, in terms of market capitalization. Bank Mandiri's determination to achieve this vision is a concrete manifestation of commitment to providing maximum return to its customers, shareholders and stakeholders in a comprehensive, consistent and sustainable manner over the long term.

(Meeting)

In the meeting with the JICA Team[1], several key strategies of Bank Mandiri on the shipping and shipbuilding sector in Indonesia were presented, as follows:

a) Bank Mandiri considers the Transportation sector as one of the strategic areas like Oil & Gas, Energy, Food Processing, Machinery, etc. The shipping business is considered as one of the important areas.
b) Credibility of shipping businesses is carefully examined at Mandiri, for example, the state-owned shipping company is one of the important customers of the bank.
c) When running banking operations, especially after the restructuring of the banking sector in 1998 crisis, "Governance" is given the highest priority at Bank Mandiri.
d) As for the appraisal / review process, either Commercial Banking Units or Business Banking Centers, both of which are deployed as the regional decision-making body throughout the country, will firstly examine and propose new application to be processed internally.
e) The general "Loan to Value" ratio applied is 70%, but sometimes it may go higher, e.g. 90%.
f) The maturity of a loan may, in general terms, go between 5 to 7 years.
g) The benchmark interest rate is currently JIBOR and not SBI or BI referred rates, both of which do not reflect the real market. The JIBOR reference is usually the 3-month rate.
h) Bank Mandiri has been managing JBIC Two Step Loan and thus will be easy to manage another one.

3) Bank Negara Indonesia (BNI)

(Bank Profile)

PT Bank Negara Indonesia (Persero) Tbk (BNI) was established by the Government of Indonesia in 1946. For a time, BNI served as the central bank for the young republic that recently gained its independence, before assuming the status of a commercial bank in 1955.

BNI strives to become a Bank with superior performance that delivers satisfactory returns on investment for shareholders, to be the bank of choice through excellent service quality, and to be a dominant player through the provision of high quality products and services in its market segments.

[1] Mr. Indarto, VP Agro Group responsible for transport sector, at the bank HQ on 13 May 2011

In 1996, BNI became the first State-Owned Enterprise (SOE) bank to go public when it listed 25% of its shares at the Jakarta Stock Exchange (the current Indonesia Stock Exchange). In 2000, the Government of Indonesia undertook a recapitalization exercise for BNI. Next, in 2007 and again in 2010, BNI undertook rights issues in order to improve its capital structure. Also in 2010, the Sharia Business Unit within BNI was spun-off to a separate subsidiary, PT BNI Syariah.

As of 31 December 2010, the Government of Indonesia held 60% of the shares of BNI, with the remaining 40% held by the public, comprising individual and institution shareholders, domestic as well as overseas. With total assets of Rp 248.6 trillion at year-end 2010, BNI currently stands as the 4th largest bank in Indonesia by size of assets, lending and third-party funds. BNI serves individual, commercial and corporate customers with a comprehensive range of banking products and services delivered through an extensive distribution networks comprising 1,148 outlets and 5 overseas branches at New York, London, Tokyo, Hong Kong and Singapore, more than 5,000 proprietary ATMs, and modern Internet banking and Mobile banking facilities giving convenient access to customers.

(Meeting)

In the meeting with the JICA Team[2], BNI disclosed actual ship finance service and its related business plan, as follows:

- Impact of INPRES No. 5/2005 on the bank's operation: It surely gave impact to the shipping industry in increasing vessel procurement and to the bank in assisting the successful cabotage implementation. As a result, the bank has sharply increased ship loan number and amount since the issuance of INPRES No.5/2005.
- Ship loan amount in the coming years: It will be determined by the risk management division. If the NPL (non-performing loan) becomes larger, the amount must be reduced. In fact, the NPL in 2011 slightly increased.
- Prioritized ship finance: The bank does not care about shipping service type. It must be subject to the decision of the ship owner and shipping operator. The bank will check an applicant and the feasibility of a project based on the 5C principles (capacity, character, capital, condition and collateral). The bank provides ship loan based on RM (relation management), not on project finance.
- Popular ship loan types: Many ship loans have been provided with several conditions such as loan period (5-7 years), interest rate (11-12%), collateral requirement (20-30%) and additional collateral subject to the assessed risk.
- Different treatment by business size: The bank categorizes applicants into 3 – small, medium and large and treats them differently.
- New shipbuilding: The bank can provide new shipbuilding loan. At present, there is one new shipbuilding project financed by the bank at Daya Radar Utama Shipyard, Jakarta. In this regard, the bank has a bad experience with PT. PAL in the past.
- Relation with PT. PANN: The bank keeps a good business relation with PT. PANN, providing loan and asks for PT. PANN's assistance in appraisal of second-hand

[2] Mr. Krisna Suparto (Managing Director), Mr. Babas Bastaman (Deputy General Manager) and Ms. Amerita (Ship Finance Officer) on 29 September 2011

vessel procurement, free of charge. Unlike PT. PANN, the bank also finances fishing vessels.

4) Bank Rakyat Indonesia (BRI)

(Bank Profile)

PT Bank Rakyat Indonesia (Persero) Tbk is one of the biggest and oldest banks in Indonesia, founded on 16 December 1895.

BRI strives to become a leading commercial bank that always prioritizes customer satisfaction. To make it happen, BRI has been a commercial bank which raised deposits from the customers and distributed back in the form of loan and earns profit from spread between deposit interest and loan interest, as well as from fee based income. BRI is a foremost bank due to its reputation as one of the biggest bank in Indonesia and the most profitable micro banking in the world. The challenge for BRI is to ensure satisfaction to every customer in each business segment. That is why BRI should possess clear measurement and criteria to meet customer satisfaction.

Since its inception, BRI has focused on banking services in Micro, Small to Medium size Enterprises (MSME/UMKM). This then inspired many parties to utilize MSMEs as the backbone of national economy. As one of the biggest state-owned companies in Indonesia, most of BRI shares are owned by the State of Republic of Indonesia (56.7%) and the rest is owned by public (43.3%). The market capitalization of BRI market share at the end of 2010 reached Rp. 129.7 trillion or 4.1% of total market capitalization at Indonesia Stock Exchange.

BRI is the bank with the biggest network in Indonesia. At the end of 2010, BRI has 7,004 network all over Indonesia, consisting of 18 Regional Offices, 14 Regional Audit Offices, 413 Branches, 470 Sub Branches, 822 Cash Offices, 4,649 BRI Units and 617 Teras BRI. To give service to its customers, BRI provides 6,085 ATM, which are integrated to more than 25,000 ATM Network (Link ATM Bersama, and Prima). Besides that, BRI has 100 kiosks, 71 CDM (Cash Deposit Machine), 13,631 EDC (Electronic Data Capture). BRI customers can also access e-banking service facility that consists of 24-hour phone banking, SMS Banking and Internet banking.

(Meeting)

In the meeting with the JICA Team[3], BRI explained actual ship finance service and discussed ship finance related issues, as follows:

- Impact of INPRES No. 5/2005 on the bank's operation: The bank has not taken an active role in ship finance regardless of INPRES No.5/2005.
- Ship loan amount in the coming years: The bank now provides ship loan only to state-owned enterprises such as PT. ASDP, Pertamina, PT. Timah, PT. PAL and PT. DKB. The bank service has not extended to private companies. The bank's ship loan amount in the future depends on the business plans of the mentioned SOEs.
- Prioritized ship finance: The bank checks only company profile. There is no difference with other business sectors.

[3] Mr. Asmawi Syam (Managing Director), Mr. Ahmad Baiquni (Managing Director), Budi Purwanto (General Manager) and Mr. Duwi Agus Pramudya (Division Head) on 3 October 2011

- Different treatment by business size: In principle, the bank treats big and small companies on a level playing field. In individual financing arrangements, the bank may request more collateral from a small company.
- New shipbuilding: The bank has no experience to finance a new shipbuilding project.
- Relation with PT. PANN: The bank keeps a good relation with PT. PANN. The bank officers frequently ask PT. PANN's expert opinion about ship collateral value and other shipping related matters.

5) Indonesia Eximbank

Indonesian Export Financing Institution or Lembaga Pembiayaan Ekspor Indonesia, (LPEI) in Indonesian language, was established by Law No.2 Year 2009 concerning Indonesian Export Financing Institution dated 12 January 2009 with the objective of export promotion. The institution, established as a special financial institution owned by the Indonesian government, can be called Indonesia Eximbank for short as provided in Article 47 of the Law. The scope of work of the bank extends from financing, guarantee and insurance, as well as consultation services. It also can provide national export financing under the framework of both conventional financing and Shariah-based financing.[4] The predecessor of the bank is PT. Bank Ekspor Indonesia (Persero) or BEI, established in August 1999 on Government Regulation No. 37 Year 1999.

Through the issuance of Government Regulation No.9 Year 2011 concerning Loan Giving Procedures from Government to Indonesian Export Financing Institution, the bank is now able to receive loans from the Government, sourced from either the Government revenue or foreign loan (Article 3) in Rupiah and/or foreign currency (Article 2).

The process and procedures to request and obtain sub-loans from MOF are provided in Part 2 Loans Originated from Foreign Loans of the regulation, as summarized below:

[4] Detailed tasks of Indonesia Eximbank are provided in Article 12 and 13 of the Law.

CHAPTER II
LOAN PLANNING

Part One
Loans Originated from Pure Rupiah
Article 5

(1) LPEI prepare Activity Plan proposal to be funded from loans from Pure Rupiah.
(2) Proposed Activity Plan as referred to paragraph (1) loading at least:
    a. defrayed activity; and
    b. Loan amount.
(3) Proposed Activity Plan as referred to paragraph (1) after agreed by LPEI Directors Board submitted to Minister of Finance (hereinafter called Minister).

Article 6

(1) Minister to assess the feasibility of the proposed Action Plan as referred to in Article 5
(2) Minister may approve entirely, in part, or refuse the proposed Action Plan proposed by LPEI.
(3) Agreement as a whole, in part, or rejection as referred to in paragraph (2) shall be notified in writing to LPEI.

Article 7

Further provision concerning the procedures for submission and assessment of the proposed loan Action Plan from Pure Rupiah is regulated by Minister Regulation.

Part 2
Loan Originated from Foreign Loans
Paragraph 1
Proposed Action Plan
Article 8

(1) LPEI prepares Action Plan proposals to be funded from subsidized foreign loan.
(2) Proposed Action Plan as referred to in paragraph (1) at least contains:
    a. activities funded; and
    b. loan amount.
(3) Proposed Action Plan as referred to in paragraph (1) after being approved by LPEI's Board of Directors shall be submitted to Minister.

Paragraph 2
Assessment
Article 9

(1) Minister conducts feasibility assessment on Proposed Activity Plan as referred to in Paragraph 8 by considering
    a. LPEI financial ability to refund;
    b. LPEI Loan cumulative maximum boundary; and
    c. Loan absorption ability by LPEI.
(2) Minister can agree entirely, in part, or refuse the proposed Activity Plan proposed by LPEI.
(3) In the case of proposed Activity Plan as referred in article 8 agreed entirely or in part, Minister submits the proposed Activity Plan to Minister of National Development Planning, along with budget requirement and usage plan.

Article 10

(1) Minister of National Development Planning conducts assessment of the proposed Activity Plan as referred to in Article 9 paragraph (3) based on national development priority related with exports.
(2) Based on result of assessment of the proposed Activity Plan as referred to in paragraph (1), Minister of National Development Planning delivers activity recommendation to be financed from foreign loan to Minister.

Paragraph 3
Loan Proposal To Foreign Lender Candidate
Article 11

(1) Based on recommendation as referred to in Article 10 paragraph (2), the Minister proposes loan proposal to foreign lender candidate.
(2) In proposing the loan proposal to foreign lender candidate, Minister considers:
    a. real requirement of Government financing;
    b. Government ability to reimburse;
    c. cumulative maximum limit of Government debt;
    d. capacities of foreign loan source; and
    e. debt risk.

6) Opportunities and Constraints to Implement PSFP

The previous sections analyzed four (4) state-owned banks. They have a right to utilize foreign government loan through a subsidiary loan agreement with MOF, Indonesia. In regard to ship finance, Bank Mandiri and BNI show active performance since 2005. BRI shows moderate records only related to meeting ship finance needs of SOE. Eximbank has no capacity to provide ship finance service to end-users. Again, the assessment of the four (4) state-owned banks is comparatively summarized in Table 3.3.3.

Public ship finance can be defined as alternative and innovative ship finance compared with ordinary commercial ship finance. It must meet the INPRES No.5/2005 instruction, more specifically 'Develop an innovative financing scheme for encouraging national fleet development' from 3) of b. Financial Institution in 2. Finance. (Refer to Section 5.1 in the report).

Table 3.3.3 Comparison of 4 State-owned Commercial Banks

No.	Description	Bank Mandiri	BNI	BRI	Eximbank
1.	Total Asset: 2010 2009 2008	Rp 449.8 tril. 394.6 358.4	Rp 248.6 tril. 227.5 201.7	Rp 404.3 tril. 316.9 248.1	Rp 20.6 tril 12.972
2.	Number of Employee 2010 2009	 25,236 22,909	 19,315 16,738	 37,644 36,998	 175 137
3.	Branches 2010 Outlets 2010	1,370 + 7 OS + 1,000 micro branches	1,145 + 5 OS 1,148	413 + 470 SB + 4,649 unit + 817 Teras 822	- -
4.	ATM 2010 2009	6,496 4,996	5,004 4,003	6,085	-
5.	Earning After Tax 2010 2009 2008	Rp 9,218 bil. 7,155 bil. 5,313 bil.	Rp 4,102 bil. 2,484 1,222	Rp 11,470 bil. 7,310 bil.	Rp 196.6 bil. 35.1 bil. -
6.	Profit Margin 2010 2009	7.6 %	5.8 % 6.0 %	10.77 % 9.14 %	15.74 % 9.85 %
7.	ROA 2010 2009 2008	3.4 % 3.0 % 2.5 %	2.5 % 1.7 % 1.1 %	4.64 % 3.73 % 4.18 %	1.55 % 1.29 % -
8.	CAR 2010 2009	14.7 %	18.6 % 13.8 %	13.76 % 13.20 %	39.89 % 42.11 %
9.	Non Performing Loan/Gross 2010 2009	 2.4 % 2.8 %	 4.3 % 4.7 %	 2.78 % 3.52 %	 5.88 % 5.77 %
10.	EPS 2010 2009	Rp 439.38 341.72	 Rp 56.92	Rp 956.72 Rp 609.50	-
11.	Gov't Share 2010 Public Share 2010	66.68 % 33.32 %	60 % 40 %	56.75 % 43.25 %	100 % 0 %
12.	No. of Deposit Accounts 2010 (in terms of Rupiah)	 10,989,739 (Rp 362.2 tril)	 7,900,000 (194.4 tril.)	 N/A (Rp 331.3 tril)	 -
13.	Productivity (Operating Income/No. of employee) 2010 (in million)	 Rp 1,139.9	 Rp 972	 Rp 833.7	 Rp 1,412.9
14.	Financing for ships (Loan) 2010	Rp 1,766.6 bil (63 vessels)	Rp 1,933.6 bil (47 vessels)	Rp 208.3 bil (16 vessels)	N/A

Note: (1) OS = Overseas, (2) SB = Sub Branch, (3) No branch of Eximbank, only supported by 3 marketing offices in Surabaya, Medan and Makassar, (4) Total Deposit in BRI is Rp 331.25 trillion (consist of Simpedes 76.26, Britama 47.33, Giro BRI 77.36 and Depo BRI 130.30).

Source: Bank Profiles

Alternatives and innovation must be designed into ship finance operation and management. These may include project finance rather than RM-based finance, treating ship as loan collateral, financial support to small-scale companies, and technical support for better investment asset utilization (detailed descriptions are shown in Chapter 5).

Taking such characteristics into account, the strengths and weaknesses of four state-owned banks which can act as the executing agency (EA) in a public ship finance program (PSFP) were analyzed. Eximbank, however, was exempted since it has no retail financing capacity. The three banks of Mandiri, BNI, and BRI were compared to each other and with PT. PANN.

(Opportunities)

- The banks are all in good and qualified financial conditions to submit a PSFP proposal to the government.
- The PSFP will further encourage the EA bank to provide ship finance service.
- With the PSFP, the EA bank will be able to contribute to the government policy implementation.
- The PSFP fund will be widely spread throughout the country due to the nationwide EA bank branch network.
- The EA bank can offer sub-loans to end-users. Some end-users appreciate loan arrangement rather than lease.
- The EA bank may take exchange risk and thus it may provide sub-loans in both rupiah and dollar.
- The EA may arrange a combined approach which tap the PSFP fund into ship investment and use its own fund to support working capital for the same shipping company.

(Constraints)

- The PSFP fund at SBI rate is no longer attractive. The banks can use other resources with lower interest rates, such as internal bank deposit and inter-bank call with JIBOR.
- Profit margin under the PSFP, e.g. 2-4%, seems not attractive. The banks are now enjoying a fairly fat margin of 6-7% because of strong loan requests for both working capital and investment fund from big and financially healthy companies.
- Bank Mandiri and BNI are likely to pay little interest to expanding financing services to small shipping companies. BNI clearly stated their different treatment of small shipping companies. While Bank Mandiri did not comment on this point, its lending records in 2010 clearly indicate its preference for large shipping companies.[5] BRI has so far not dealt with private shipping companies at all.

[5] Bank Mandiri's ship loans in 2010 excluding undistinguishable borrowers: large companies – Rp 806 billion equivalent, medium – Rp 486 billion equivalent and small – Rp 218 billion equivalent according to the company size classification in the report (Table 2.2.2)

- The banks currently adopt RM-based decisions rather than the project finance approach. They do not treat financed ships as collaterals and usually request real property as collaterals.
- The banks have no technical staff inside to check ship value and maintenance condition. When necessary, they hire consultant for short time and/or ask assistance from PT. PANN.

It is acknowledged that Bank Mandiri and BNI have expanded their financing channels to accommodate private shipping companies since 2005. Although they may further increase ship finance in the market, both banks have no intention and capacity to implement the PSFP. BRI is believed to be even more reluctant to do so. To better understand how the JICA Team arrived at this conclusion, some critical points are provided below.

(1) The three banks (i.e., Bank Mandiri, BNI, and BRI) have decided not to participate in the PSFP as EA after a series of meetings among BAPPENAS, DGST, BI and the JICA Expert for Shipping Policy in 2010. They only allowed to meet the JICA Survey Team on the condition that the PSFP EA issue would not be raised again.

(2) The banks do not think an SLA at SBI rates is an attractive resource under the current overdeposit situation.

(3) According to the banks, they do not have a mandate to extend ship finance to small shipping companies. They check the companies without technical attention to ship asset. They do not treat financed ships as collaterals and instead require real property as collateral. This is considered a normal procedure for a commercial bank but this is quite different from what the PSFP is going to require.

3.4 PT. PANN

1) Corporate Profile

In 1974, the government formulated a plan for national commercial shipping sector to support the economic growth and national development, and then enacted Government Regulation No. 18 of 1974 on the Share of Participation of the Republic of Indonesia to Establish a State-Owned Company in the Development of National Merchant Fleet. Based on this Government Regulation, PT. *Pengembangan Armada Niaga Nasional*, abbreviated PT. PANN (Persero), was established in May 1974 with the aim to develop national shipping[6]. The major objectives of the establishment of the company can be briefly stated as below[7]:

(a) The company shall implement and support the government programs in the national development in general, particularly procurement of merchant fleets, floating tools and other supporting equipment.

(b) The company shall carry out vessel procurement by means of ordering new vessels and purchasing commercial vessels and equipment for shipping to be resold, leased or rented. The objects to be financed by the company include docks and shipbuilding equipment and facilities.

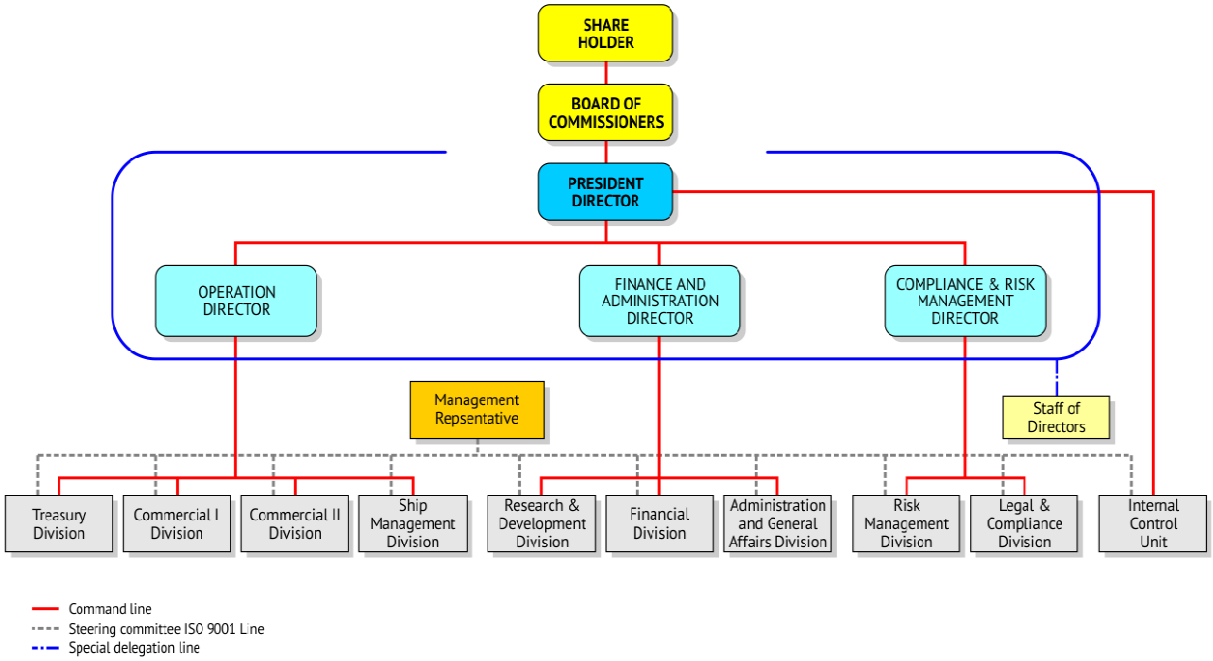
(c) The company may also establish and/or run other businesses required to carry out the above-mentioned line of businesses.

The existing corporate organization chart is illustrated in Figure 3.4.1.

PT. PANN's core business is ship lease and the company has created their solid basis of operation in terms of customer relationship and business capability. Currently, thirty-one (31) customers have eighty (80) vessels leased from PT. PANN. From the eighty (80) vessels, twenty-four (24) Caraka Jaya vessels, which were built in early 1990 with finance from Japan EXIM Bank and other international banks, are leased under 20-year lease period, and these vessels are still the mainstay of their operations and profit. Many bulk cargo and container vessels, even though they are second-hand, have been leased under 10 – 12-year lease periods.

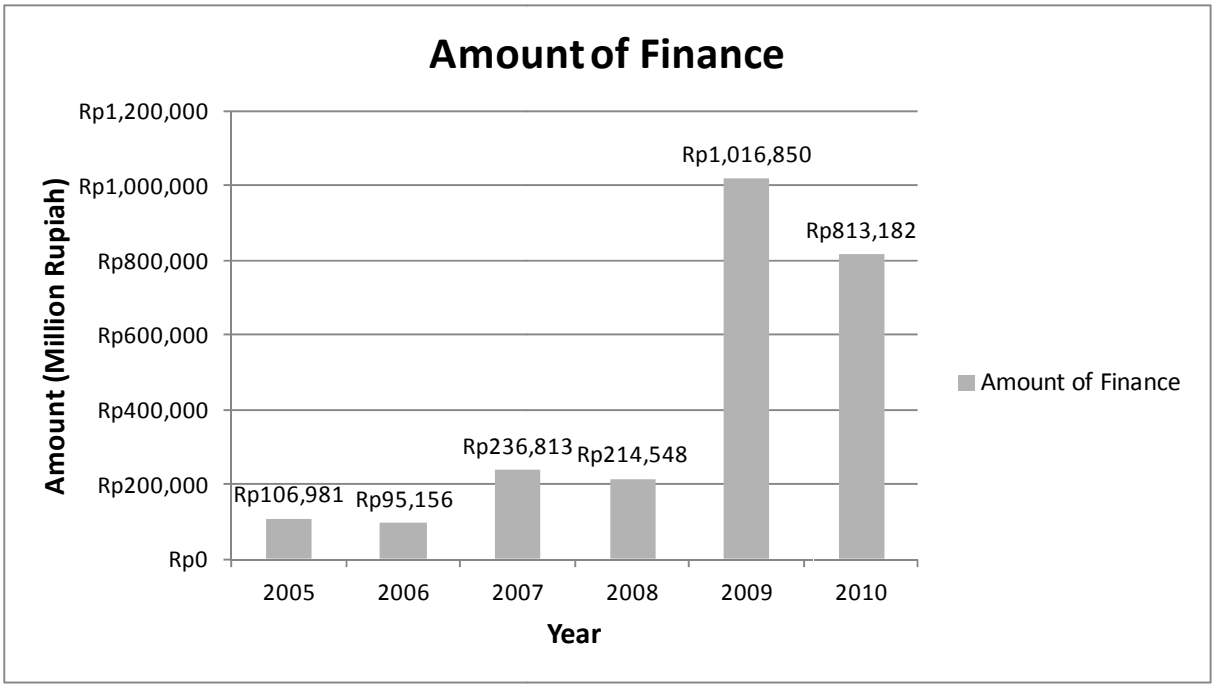
The number of vessel leased and financing amount during 2005 and 2010 are shown in Figure 3.4.2 and Table 3.4.1. Both of them expanded remarkably in 2009 and 2010.

[6] 93% of the company's paid capital is owned by the Ministry of State-Owned Enterprises and 7% by Bank Mandiri.
[7] Quoted from Company Profile



Source: PT. PANN

Figure 3.4.1 PT. PANN Organization Chart



Source: PT. PANN

Figure 3.4.2 Amount of Ship Lease by Year

Table 3.4.1 PT. PANN / Ship Lease by Type of Vessel

(in million Rp.)

Year	Financing Amount by Type of Vessel (Number of Vessel)								Total
	1 General Cargo	2 Bulk Carrier	3 Container	4 Tanker	5 Landing Craft	6 Barge	7 Tugboat	8 Crew Boat	
2005			29,885 (2)	2,975 (1)	18,981 (3)	19,344 (2)	27,020 (2)	8,776 (1)	106,981 (11)
2006	44.178 (3)		35,978 (2)	15,000 (1)					95,156 (6)
2007			141,484 (4)			41,672 (6)	53,657 (6)		236,813 (16)
2008	5,000 (1)		61,152 (2)	33,693 (1)		28,099 (2)	23,000 (2)	63,604 (1)	214,548 (9)
2009		159,127 (1)	167,691 (6)	211,378 (4)		17,058 (1)	334,350 (4)	127,246 (3)	1,016,850 (19)
2010	30,695 (1)	399,969 (4)	255,807 (2)	23,695 (1)			103,016 (1)		813,182 (9)
Total	79,873 (5)	559,096 (5)	691,997 (18)	286,741 (8)	18,981 (3)	106,173 (11)	541,043 (15)	199,626 (5)	2,483,530 (70)

Source: PT. PANN

Among the eight (8) types shown in the table above, the vessels categorized from type 1 (General Cargo) to type 5 (Landing Craft) leased out are all second-hand. Some vessels belonging type 6 (Barge) to type 8 (Crew Boat) are new ships. The factors contributing to the expansion of financing amount are:

(1) The average amount per vessel leased out has been rising in general; it surged in the last 2 years.

(2) Financing of new vessels e.g., barge, tugboat and crew boat, started in 2007 and has been active since then, both in terms of amount and number, particularly tug boat boosted in 2009. The high unit cost of these new vessels contributed to the expansion of total financing amount. The needs for coal transportation by barge and tugboat from mining point to transshipment point stands as the background of the phenomenon.

(3) The average Dead Weight Tonnage (DWT) and Horse Power (HP) per vessel leased out has been getting bigger, particularly DWT surged in 2010.

(4) Among the eight (8) vessel types, bulk carrier and container are the two major vessel types that have inflated in terms of capacity, both in DWT and average DWT, during the period.

Besides the core business, i.e., ship leasing, PT. PANN dealt with leasing other assets such as fishing boats, aircraft and hotel in the 1990s upon the request of the government. Two government projects eventually became long-term, nonperforming loans of the company, placing the company in financial predicament. They are:

- Boeing 737-200 Aircraft Project (SLA No. 775 for Aircraft): The initial loan amount was US$ 89.6 million issued in November 1994.
- Mina Jaya Fishing Vessel Project (SLA No. 779 for Fishing Boats): The initial loan amount was US$ 182.3 million issued in December 1994.

2) Financial Analysis

Operation results of PT. PANN are summarized in the table below.

Table 3.4.2 Recent Operation Results of PT. PANN, 2005 - 2010

(unit: billion Rp.)

Year	2005	2006	2007	2008	2009	2009Restated	2010
Consolidation							
Operating Income	68	55	70	96	245	245	291
Profit (Loss) before Tax	21	36	44	59	79	559	293
Net Profit (Loss)	24	36	45	59	81	561	294
Total Assets	1,709	1,738	1,987	2,161	2,960	2,181	2,926
Total Liabilities	3,258	3,408	3,455	3,570	4,288	5,476	5,927
(Loan from Government)	(1,671)	(1,670)	(1,669)	(1,667)	(1,666)	4,342	4,152
Total Equity	- 1,549	- 1,513	- 1,468	- 1,409	- 1,328	- 3,295	- 3,001
ROA	1.4%	2.1%	2.3%	2.7%	2.7%	25.7%	10.0%
Core Business							
Operating Income	68	55	70	96	245	245	291
Profit (Loss) before Tax	24	36	44	59	79	55	107
Net Profit (Loss)	30	36	45	59	81	57	108
Total Assets	887	916	1,164	1,339	2,103	2,104	2,851
Total Liabilities	n.a.	n.a.	318	433	1,150	1,141	1,780
(Loan from Government)	n.a.	n.a.	(11)	(9)	(8)	(8)	(6)
Total Equity	n.a.	n.a.	846	906	987	963	1,070
Return on Assets (ROA)	3.4%	3.9%	3.9%	4.4%	2.5%	2.7%	3.8%

Source: PT. PANN Annual Report 2009 and Business Plan 2011 - 2015

In order to understand the quality of the asset and capability of lease operation as their core business, financial analysis was conducted by JICA Survey Team based on the company's financial data and Annual Report 2009; the result of analysis is given in the table below. Data used for the analysis is shown in Annex 3.1 for reference.

Table 3.4.3 Financial Analysis of PT. PANN's Core Business (Year 2007 – 2010)[8]

References				Medium Ratio	Maximum Ratio	2007	2008	2009	2009 (Restated)	2010
Kep -100/MBU/2002 (note)	*For Non Finance Companies*					***Core Business***	***Core Business***	***Core Business***	***Core Business***	***Core Business***
a Return on Equity (ROE)	Earning After Taxes	x 100%		7.90%	15%	5.29%	6.77%	8.58%	6.08%	10.61%
(Profitability Ratio)	Average Equity									
b Return on Investment	EBIT + Depreciation	x 100%		10.5%	18%	N/A	N/A	N/A	N/A	N/A
(Profitability Ratio)	Total Asset									
c Cash Ratio (CAR)	Cash and Cash Equivalen + short term securities	x 100%		15	>35	92.29%	18.13%	10.63%	9.61%	77.53%
(Liquidity Ratio)	Current Liabilities									
d Curent ratio	Current Asset	x 100%		100%	125%	139.46%	97.42%	82.68%	75.25%	218.80%
(Liquidity Ratio)	Current Liabilities									
e Collection Period (COP)	Receivables	x 365		180	<35	43	40	15	15	14
(Activity Ratio)	Net Sales									
f Inventory TurnOver (ITO)	Cost of Good Sold	x 365		180	<60	N/A	N/A	N/A	N/A	N/A
(Activity Ratio)	Average Inventory									
g Total Asset TurnOver	Total sales	x 100%		75%	<120	6.04%	7.18%	11.45%	11.64%	10.20%
(Activity Ratio)	Total Asset									
h Equity to Total Asset	Equity'			20%	<40 %	72.69%	67.63%	46.17%	45.75%	37.54%
(Activity Ratio)	Total Asset	x 100%								
(Source: PT. PANN; Calculation by JICA Survey Team)										

Following conclusions have been derived from reviewing Table 3.4.2 and 3.4.3.

(1) Together with the amount of finance by type of vessel shown in Table 3.4.1, PT. PANN's business base in terms of amount of finance has been getting stronger and expanding.

(2) Profitability, in terms of ROE and ROA, is also improving.

(3) Liquidity ratios in terms of cash ratio and current ratio were below medium ratios in 2009 due to the sharp increase in lease finance amount which inevitably scaled up the balance sheet. The increase in long-term bank loans in that year did not fully cover the increase in net investment in lease (long term), which led to the increase in current liabilities by 14% year on year. The total of current assets actually decreased by 11% year on year, particularly cash and cash equivalents. All of these changes resulted in the decrease of liquidity ratios. But these ratios sharply jumped in 2010 far over theh maximum ratios due to the sharp increase in cash and cash equivalents and succeeding long-term bank loans.

(4) Collection Period and Total Asset Turnover are the areas of concern, which means that the efficiency of the asset is below the average of the SOEs. But this is because of the lack of appropriate ratios. Decree of the Ministry of SOEs No. KEP-100/MBU/2002 does not provide ratios for health rating appraisal to be applied to financial services SOEs. Medium and Maximum Ratios used in Table 3.4.3 above are for non-financial services, so those ratios are shown only for reference.

As supplemental analysis, profitability has been reviewed in more detail. Gross Profit Ratio reflects efficiency with which a firm produces its products or provides its services. The gross profit earned should be sufficient to recover all operating expenses and to build up reserves after paying all fixed interest charges.

[8] Medium and Maximum Ratios and all reference ratios are derived from Decree of the Ministry of SOEs No. KEP-100/MBU/2002 concerning Health Rating for SOEs.

Net Profit (before Tax) ratio is used to measure the overall profitability. The ratio is very useful since if the net profit is not sufficient, a firm shall not be able to achieve a satisfactory return on its investment. Obviously, the higher the ratio the better is the profitability. As shown in the figure, PT. PANN has maintained high net profit ratio, for example, 37% in 2010. Their operation and profitability in the core business have been very well managed.

Interest Expense Ratio shows that interest payment is becoming a major expense account relative to the total operating revenues, accounting for almost 40% in 2010 from just 11% in 2007. Therefore, the low-cost fund-raising is one of the most critical issues facing the company, and the PSFP by Japanese ODA loan, if availed, would be able to expand their business base and improve their profitability substantially.

The General and Administrative Expense Ratio are going down, which is in exact opposite direction of the interest expense account and toward the desirable trend.

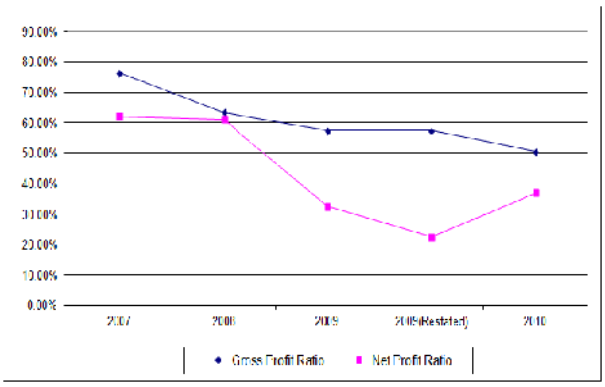


Figure 3.4.3 Profitability Ratio

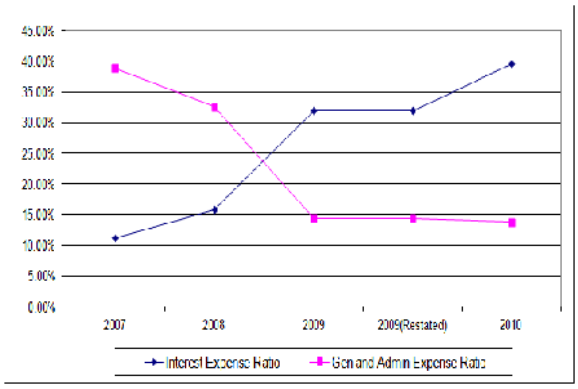


Figure 3.4.4 Other Costs Ratio

Source: PT. PANN

3) Operation Analysis

The JICA Team conducted, as a part of the general assessment of PT. PANN, a review of PT. PANN's procedural steps and initiated the dialog with them on the related capacity of the proposed executing agency.

PT. PANN has several variations of the appraisal procedures starting from the new vessels to procurement of the second-hand vessels and the credit supervision for the existing portfolio vessel. As an example, the JICA Team went through a new vessel appraisal procedure, which is attached in Annex 3.2 Flow of Vessel Procurement and Leasing Operation.

4) Business Plan 2011-15

PT. PANN prepared and submitted its business plan for 2011-2015, together with the company's organizational restructure plan, to MOF in April 2011 at the ministry's request for their review and approval. The PANN business plan for 2011-2015 consists of five (5) chapters as follows:

(1) Company's Current Conditions: It introduces the company's history, financial highlight in recent years and financial and non-financial problems which the

company is faced with.

(2) Potential in the Maritime Transport Market: This chapter introduces recent government regulatory initiatives such as INPRES No.5/2005 on Empowerment of the National Shipping Industry and Law No.17/2008 on Shipping, and identifies potential market target for PT. PANN.

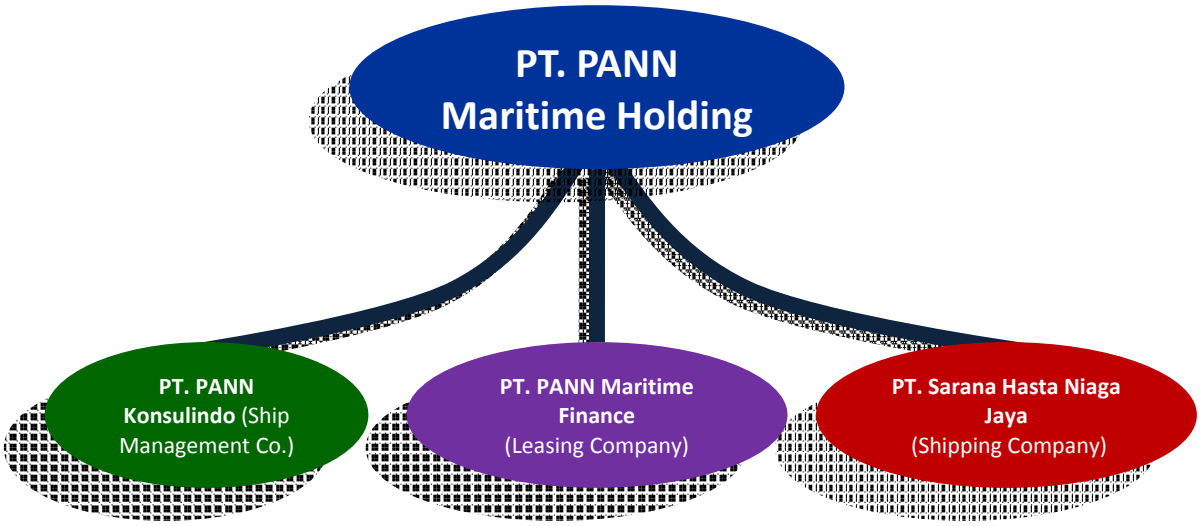
(3) Corporate Development Plan: It proposes business restructuring and debt restructuring.

(4) Financial Projection: It shows the annual financing plan with net income after tax and its dividend pay-out plan to settle all obligations of interest and penalty within 20 years.

(5) Contribution to the Government: It spells out expected contributions during the business plan period, including tax, loan repayment, dividend and other multiplier effects.

The business plan proposes to establish a subsidiary of PT. PANN or referred to as PT. PANN Maritime Finance (tentatively named) while the main company will be renamed as PT. PANN Maritime Holding (also tentative). It intends to spin off the core business assets to PT. PANN Maritime Finance. On the other hand, the non-performing aircraft and fishing boat debt still remains with PT. PANN Maritime Holding. The business restructuring allows PT. PANN Maritime Finance to concentrate on its core ship leasing business in healthy financial conditions. The historical financial obligations will be settled through payment of dividends by PT. PANN Maritime Finance.

In the future, PT. PANN envisages that three (3) subsidiary companies will be run under PT. PANN Maritime Holding. PT. PANN Konsulindo for ship management and PT. Sarana Hasta Niaga Jaya for shipping were established.



Source: PT. PANN

Figure 3.4.5 Future Organization of PT. PANN (idea)

The PT. PANN business plan expects further and continuous expansion of lease finance assuming a yearly average growth of 31.25% or 12 trillion rupiah during the planning

period, "focusing on ocean going vessels and off-shore class C vessels[9]" since off-shore class C vessels are still served wholly by foreign flagged vessels. The financial plan does not show its breakdown into ship type or foreign/domestic trade.

Table 3.4.4 PANN's Financial Plan

Year	Total of Financing (million Rp)	Growth (%)
2011	1,547,000	65.13
2012	1,806,600	16.78
2013	2,222,025	22.99
2014	2,931,000	31.91
2015	3,500,000	19.41
Total	**12,006,625**	**Averages= 31.25**

Source: PT. PANN Business Plan 2011-2015 (as of May 2011)

In regard to the company's restructuring plan submitted to the MOF together with the business plan for the period 2011–2015, the background of the restructuring process and its status as determined during the JICA Survey are given in Section 6.7.

[9] Off-shore Class C vessels include jack-up rig, drill ship, submersible rig and cable laying ship.

3.5 Implication for the Project

This chapter began with an overview of the financial sector in Indonesia, followed by a more specific financial analysis of shipping companies and shipyards based on the results of the questionnaire survey. Commercial banks, primarily three state-owned commercial banks, were analyzed to determine recent incremental ship finance flows and bank operating characteristics. Finally, PT. PANN's current operation and future business plan were analyzed from various viewpoints. This section gives a summary of this chapter.

The Indonesian financial sector has developed in a stable manner since the Asian crisis 1998. But the depth of financing service is still shallow when compared with international levels. Commercial banks have a major role, while non-bank financial institutions have been growing rapidly, currently at 20% share. It is advantageous to support medium- to long-term asset procurement with simple collateral arrangements. As to lending sectors, transport is recognized as a strategically important sector as attested to by recent sharp increases in lending volumes. Taking such financial sector analysis into account, PT. PANN, the only ship leasing company in Indonesia, is expected to play a bigger role from its current marginal position.

Financial analysis based on the answered questionnaires returned by the 10 shipping companies and six shipyards reveals that shipping companies are more proficient compared with shipyards. Shipping companies intend to procure various vessels but financing means are limited, either through own equity or short-term loans. This limits their choices to economical, second-hand vessels. Shipyards eagerly need repair docks to meet current demand. But it is difficult to find financing sources. Since the number of respondent-companies is not many, it is difficult to get the average image from their consolidated figures because of large data variation among them. This in turn is partly explained by their changeable situations which are largely affected by economic and market conditions. Even though a small company shows healthy financial statements in the latest year, a banker may not give it sufficient credit limit. Due diligence on the company's investment plan and a careful valuation of asset collaterals are then important.

The recent ship finance services offered by commercial banks were analyzed. The ship finance to Indonesian vessels has sharply increased and done mainly in rupiah and US dollar currencies. The three state-owned banks (Bank Mandiri, BNI and BRI) account for around 30% of the total ship finance and they are a dominant rupiah financier to shipping companies. Dollar finance is popular among dry and liquid bulk shipping operators who have long-term contracts in dollar. Since the PSFP intends to provide loans in rupiah, it is good for liner shipping operators and other general cargo shipping operators due to their wide and small-consignment client base, and for bulk shipping where carriage contracts are set in rupiah.

The three state-owned banks were also analyzed to understand their ship finance operation and their suitability to work as the executing agency of the PSFP. The analysis showed that these banks prioritize state-owned shipping companies. BRI's service is open only to SOEs in shipping. Bank Mandiri and BNI provide ship finance to private companies based on RM or checking company only. They do not pay attention to financed ships. Both banks have adopted such an operating method to ship finance borrowers since 2005. Unless the PSFP fund at SBI rate is attractive and the operating method is totally changed, the JICA Survey must conclude that commercial state-owned banks are not suitable to serve as EA for the PSFP. They show typical commercial banking service in ship finance

in Indonesia. It must be duly taken into account when designing an innovative and alternative public ship finance in Indonesia.

Before the JICA Survey, PT. PANN was endorsed by the DGST, BAPPENAS and MSOE as the EA of the PSFP due to its mission for national commercial fleet development as its company name and related experience and capability. The Survey analyzed other aspects such as financial and operational characteristics and its future plan. Since 2005, PT. PANN has exerted efforts to expand its ship finance services which became remarkable during the period 2009–2010. Despite a sharp lease on fleet expansion, PT. PANN has kept its financial conditions stable. According to PT.PANN's Business Plan 2011-2015, the company will continue to expand its business under a new company structure, i.e., one holding company with three subsidiaries (ship leasing, shipping and ship management) to establish a total ship finance service group. The JICA Survey observed that PT. PANN has fully mobilized its capacities to provide ship leasing services since 2009. Therefore, the PSFP must be designed for PT. PANN to handle it within its capacity. PT. PANN's vision of a total ship finance service, rather than lending only, benefitting many small shipping companies is commendable. The PSFP can be designed to first demonstrate total ship finance service by using Japan fund and technical assistance. However, this means that PT. PANN will become multifunctional; thus the PSFP organization must be carefully designed to avoid any conflicts between government policy implementation and PT. PANN's business interests including its subsidiaries.

4 SHIP MANAGEMENT

To ensure fleet quality control under PFSP, recent conditions of ship management practice in domestic shipping in Indonesia were reviewed, as well as the administration by DGST in relation with the ISM (International Safety Management) Code.

The ISM code became effective in 1998 and ship management in the world was consolidated by its enforcement. The ISM Code is Resolution A.741 (18) “International Management Code for the Safety Operation of Ship and for Pollution Prevention (ISM Code) adopted at the general meeting of IMO on November 3, 1993. ISM Code, Regulation 2 Application, describes that “The chapter of ISM Code applies to ships, regardless of the date of constructions, as follows;”

- Passenger ships including high speed craft, not later than 1 July 1998
- Oil tankers, chemical tankers, gas carriers, bulk carriers and cargo high speed craft of 500gross tonnage and upwards, not later than July 1998
- Other cargo ships and mobile offshore drilling units of 500 gross tonnage and upwards, not later than July 2002.

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. To put it another way, in order to ensure the safety operation and environmental preservation, the establishment and implementation of the safety management system are the objectives of the ISM Code.

4.1 Review of Recent Ship Management Practice

1) Safety Management (ISM Code)

The Directorate of Marine Safety in DGST is responsible for Ship Management, and issues the Document of Compliance (DOC) to the Company and the Safety Management Certificate (SMC) to the ship after their evaluation and audit in accordance with the ISM code. The Indonesia Classification Society (BKI: Biro Klasifikasi Indonesia) on behalf of DGST also issues these Certificates.

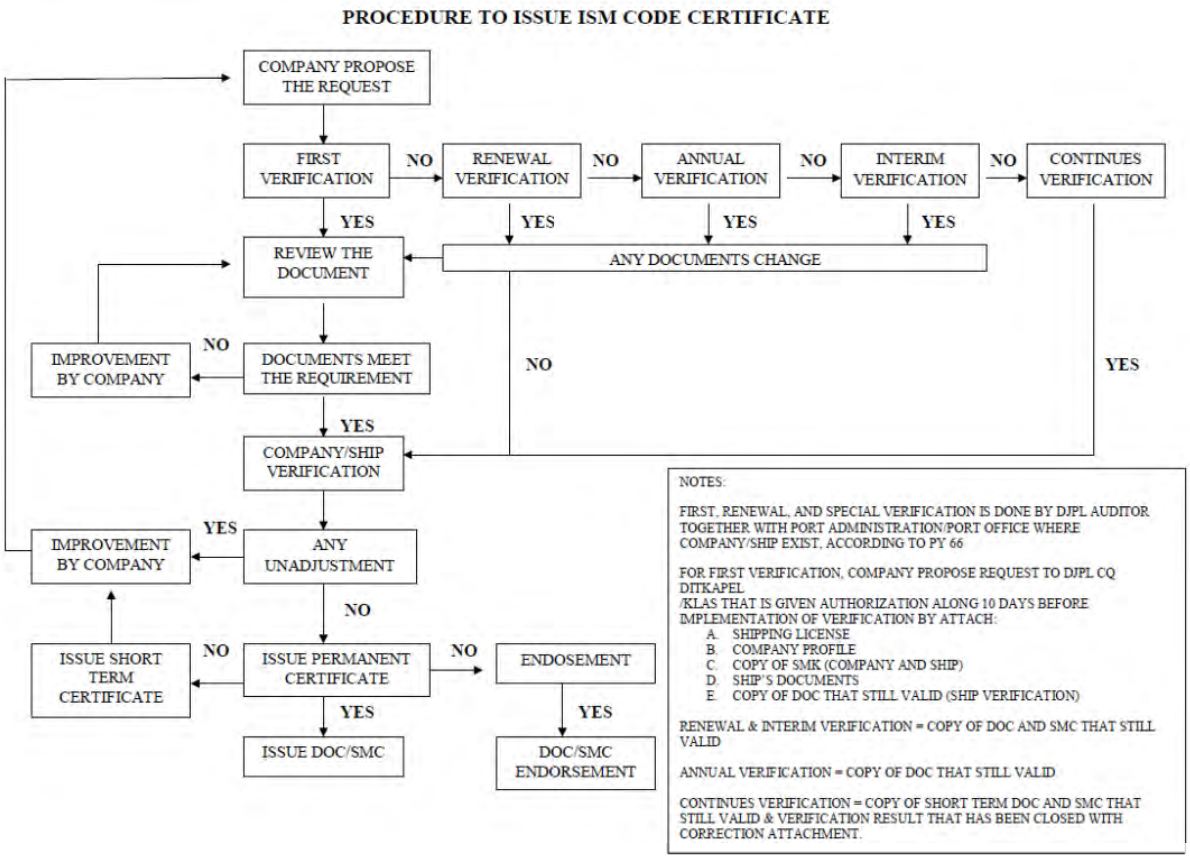
The Decision of Director General - *Keputusan Direktur Jenderal Perhubungan Laut No.: PY67/1/6.96*, for safety management system in compliance with ISM Code by IMO was issued on July 12, 1996 for Indonesian flagged international and domestic vessels. It is mandatory to all engaged in domestic shipping in Indonesia to secure the Document of Compliance (DOC) and the Safety Management Certificate (SMC) in accordance with this Decision based on ISM Code.

Table 4.1.1 Application of ISM Code to Domestic Vessels

	Type of Vessel	Effective Date of Rules
1	➢ Passenger Ship, High Speed Craft, Ferry >300GT ➢ Chemical Tanker, Cargo high Speed Craft >500GT	July/1/1998
2	➢ Other Tanker with Liquid Gas Tanker >500GT	July/1/1999
3	➢ Bulk Carrier >500GT	July/1/1999
4	➢ Passenger Ferry 100<GT<300 ➢ Container Ship >500GT	July/1/2002
5	➢ Mobile Offshore Drilling Unit >500GT	July/1/2003
6	➢ Another Cargo Ship >500GT	July/1/2004
7	➢ Chemical Tanker, Gas carrier Cargo High Speed Craft >150GT	July/1/2006

Source: DGST

In order to support the implementation of ISM code to domestic shipping, Minister Regulation No.65 of Non-Conventional Vessel Standard for Indonesian flagged vessel was issued in 2009 as safety regulations for domestic shipping. For acquiring DOC and SMC for domestic shipping, the same procedure of evaluation as international shipping in accordance with ISM Code shall be required.



Source: DGST

Figure 4.1.1 Procedure to Issue ISM Code Certificate

2) Shipping Company

In compliance with the requirements for domestic shipping, a domestic shipping company needs to at least obtain a Document of Compliance (DOC) for the company and a Safety Management Certificate (SMC) for the ship. At the end of 2008, 499 shipping companies out of the 1,366 shipping companies registered in Indonesia obtained DOCs.

However, most small and medium shipping company is facing difficulty to implement the ISM code even though they have acquired DOCs and SMCs.

The reasons of difficulty to implement ISM code are;

a) Management Cost

b) Lack of capable staff

In terms of management cost, it is too hard for medium and small shipping companies to employ a ship management staff to implement ISM for their small number of owned ship.

In addition, most medium & small shipping companies are facing difficulty in recruiting qualified and skilled seafarers due to low wage. Relevant training program for development of their seafarers' skills is also not provided by small and medium shipping company.

3) Ship Management Company

There are two (2) Indonesian companies (PT. Samudera Indonesia Ship Management and PT. PANN Konsulindo) registered in Indonesia as independent Ship Management Company in addition to twenty six (26) companies based in foreign countries. Large scaled Indonesian shipping companies have in-house ship management units to provide its service to their own vessels and/or other companies.

Table 4.1.2 shows the outline of two (2) ship management companies operating in Indonesia, and one (1) under preparation. Tables from 4.1.3 to 4.1.5 show the Clarification of Ship Management (ISM Code) of each Indonesian Ship Management Company/Shipping company in-house ship management Unit.

Table 4.1.2 Profile of Ship Management Companies

	Ship Management Company A	Ship Management Company B	Ship Management Company C
Establishment	1995	Under preparation	2006
DOC	Yes	Yes	Yes
ISO	ISO9001	ISO9001	None
Employment	50	70	12
Managed Vessel	82	32	6

Note: These three (3) companies are interested in participating in this Project.
Source: Information collected by JICA Survey Team

Companies A and B have started to provide ship management services to international shipping when they were ship management divisions of their parent companies, and they have been applying its quality to domestic shipping. Companies A and B have established

and have been implementing safety management system in compliance with ISM Code, as well as crew training at their own facility.

Company C started its services for domestic shipping in 2006, however, the necessary documentation required by ISM Code needs improvement.

As a recent trend, the demand for ship management services is increasing.

JICA study team interviewed the officials of these three (3) companies and clarified their ship management system. The result of the clarification of ship management implemented by these ship management companies shows that these companies are well organized and managed for providing ship management services in compliance with the ISM Code. Although the three (3) companies need some improvement in their ship management system, however, it is judged that they are qualified to support the PSFP.

Table 4.1.3 Clarification of Ship Management (Company "A") (1/2)

Q. No.	SURVEY ITEMS			RESULT				REMARKS
				GOOD	NON-CONFORMITIES			
1	**ISM Documents**	**Manual**	**Initial**	Certificated by **IACS Class**	Used from other company	Mix up with other companies	English Indonesian	
2			**ISM Requirements**	Good **They said**	Not revised or Implementation	Lack of Requirement		
3		**Procedures**		**Good**				
4		**Check Lists**		**Good**	Lack of Lists	Lack of check points		
5		**Filling**		**Well filled**				
6		**Organization Structure**		**Yes** Flow-charts	Not clear / No D/P	Difficult understand	Lack of staff	
		Master's Override Power		**Yes**	Missing			
7		**SMS document Control**		**Yes**	No listed / Missing Drawings / Priority items			
8	**Crewing**	**Self employ**		**Yes**	No Crew assessment	No Bio data	No check lists	
9		**Manning companies**		Yes or **No**	No souses	No assessment		
10	**Education**	**Education**		**Yes** Book/ Seminar	No supply book	No conduct		
		Briefing before onboard		**Yes**	No			
11		**ISM study**		**Yes**	No education	Not supply materials		
12		**On Job Training**		**Yes**	Not carry out			
13	**Document Control**			**Good**	Difficult to approach	Out of control		
14	**Maintenance Plan &Records**	**Interval Schedule Plan**		**Yes**	Lack of equipments items			
15		**Records**		**Yes**	No report / Over due	No follow-up with schedule plan		
16		**Dock Repair Specification Standard Form**		**Issued**	Nil	Poor specification	Ship's job order only	
17	**Budget Plan**			Yes	Nil	Over-budget		

Clarification of Ship Management (Company "A") (2/2)

Q. No.	SURVEY ITEMS		RESULT				REMARKS GOOD
			GOOD	NON-CONFORMITIES			
18	Insurance	Hull	Yes	High Plem	Lot of Claim		
19		Machesney	Yes	High Plem	Lot of Claim		
20		P & I Club	Yes	High Plem	Lot of Claim		
21	Check Lists	Purchase Inspection Form	Issued	Nil	No report		
22		Management Inspection	Issued	Nil	No record		
23		Attending Reports	Yes	Nil	No record		
24	Arrangement	Spare Parts	Good	No serial No.	Lack of Budget	Supply route problem	
25		Stores	Good	Lack of Budget			
26		LO Analysis	Checked	Missing Quantity	No record	No analyses	
27		FO	Recorded	Missing Quantity	No record	No Format	
28	Non-Conformities Reports	Sign by in-charge	Yes	No sign	No check		
29		Categorized by D/P & Sign	Yes	No. judge	No remarks		
30		Corrective Action taken	Yes	No. decision	No record	No action	
31		Follow-up & Closed	Yes	No follow-up	No closed	No	
32	Near miss/Analysis		Yes	No check	No analysis record		
33		Internal Audit function	Good	Lack of skill	Always same person		
34		Audit Report/Result	Yes	No records	No filed	No any finding	
35	Risk Assessment	Office	Issued	No issued	No format		
36		Ships	Issued	No issued	No format		
37	Top Management Review	Master's Review Report	Yes	No report	No format		
38		Top Management Committee	Yes	No meeting	No attached any evidence		
39		Information/Agenda	Yes	No issued	No distribution to related persons		
40	Out sousing Consultant		Yes	Satisfied, Not satisfied, Is any assessment?, (Yes, No)			
41			Yes	Can't find, Can't afoot due to cost, Need			

Source: Data collected and formatted by JICA Survey Team

Table 4.1.4 Clarification of Ship Management (Company "B") (1/2)

Q. No.	SURVEY ITEMS			RESULT				REMARKS
				GOOD	NON-CONFORMITIES			
1	**ISM Documents**	**Manual**	**Initial**	Certificated by **IACS Class**	Used from other company	Mix up with other companies	English Indonesian	
2			**ISM Requirements**	Good **They said**	Not revised or Implementation	Lack of Requirement		
3		**Procedures**		**Good**				
4		**Check Lists**		**Good**	Lack of Lists	Lack of check points		
5		**Filling**		**Well filled**				
6		**Organization Structure**		**Yes** Flow-charts	Not clear / No D/P	Difficult understand	Lack of staff	
		Master's Override Power		**Yes**	Missing			
7		**SMS document Control**		**Yes**	No listed / Missing Drawings	Priority items		
8	**Crewing**	**Self employ**		**Yes**	No Crew assessment	No Bio data	No check lists	
9		**Manning companies**		Yes or **No**	No souses	No assessment		
10	**Education**	**Education**		**Yes** Book/ Seminar	No supply book	No conduct		
		Briefing before onboard		**Yes**	No			
11		**ISM study**		**Yes**	No education	Not supply materials		
12		**On Job Training**		**Yes**	Not carry out			
13	**Document Control**			**Good**	Difficult to approach	Out of control		
14	**Maintenance Plan &Records**	**Interval Schedule Plan**		**Yes**	Lack of equipments items			
15		**Records**		**Yes**	No report / Over due	No follow-up with schedule plan		
16		**Dock Repair Specification Standard Form**		**Issued**	Nil / Poor specification	Ship's job order only		
17	**Budget Plan**			Yes	Nil	Over-budget		

Clarification of Ship Management (Company "B") (2/2)

Q. No.	SURVEY ITEMS		RESULT				REMARKS GOOD
			GOOD	NON-CONFORMITIES			
18	Insurance	Hull	Yes	High Plem	Lot of Claim		
19		Machesney	Yes	High Plem	Lot of Claim		
20		P & I Club	Yes	High Plem	Lot of Claim		
21	Check Lists	Purchase Inspection Form	Issued	Nil	No report		
22		Management Inspection	Issued	Nil	No record		
23		Attending Reports	Yes	Nil	No record		
24	Arrangement	Spare Parts	Good	No serial No.	Lack of Budget	Supply route problem	
25		Stores	Good	Lack of Budget			
26		LO Analysis	Checked	Missing Quantity	No record	No analyses	
27		FO	Recorded	Missing Quantity	No record	No Format	
28	Non-Conformities Reports	Sign by in-charge	Yes	No sign	No check		
29		Categorized by D/P & Sign	Yes	No. judge	No remarks		
30		Corrective Action taken	Yes	No. decision	No record	No action	
31		Follow-up & Closed	Yes	No follow-up	No closed	No	
32	Near miss/Analysis		Yes	No check	No analysis record		
33		Internal Audit function	Good	Lack of skill	Always same person		
34		Audit Report/Result	Yes	No records	No filed	No any finding	
35	Risk Assessment	Office	Issued	No issued	No format		
36		Ships	Issued	No issued	No format		
37	Top Management Review	Master's Review Report	Yes	No report	No format		
38		Top Management Committee	Yes	No meeting	No attached any evidence		
39		Information/Agenda	Yes	No issued	No distribution to related persons		
40	Out sousing Consultant		Yes	Satisfied, Not satisfied, Is any assessment?, (Yes, No)			
41			Yes	Can't find, Can't afoot due to cost, Need			

Source: Data collected and formatted by JICA Survey Team

Table 4.1.5 Clarification of Ship Management (Company "C") (1/2)

Q. No.	SURVEY ITEMS		RESULT				REMARKS
			GOOD	NON-CONFORMITIES			
1	Type of Ship	Oil Tanker ( ) GT					
		Tug Boat ( ) PS					
		Container/Gen Cargo (3401) GT	Yes (3 Ships)				MV. SEMARANG CJN III-35, MV., CIREBON CJN III-36, MV. PANJANG CJN III-41
		Ro-Ro ( ) GT					
2	ISM Documents	Manual – Initial	Certified by Directorate General of Sea Transportation	Used from other company	Mixed up with other companies	English Indonesian	
3		ISM Requirements	Good	Not revised or Implemented	Lack of Requirements		
4		Procedures	Good				
5		Check Lists	Good	Lack of Lists	Lack of check points		
6		Filling	Well filled				
7		Organization Structure	Yes Flow-charts	Not clear / No D/P	Difficult to understand	Lack of Staff person	
8		Master's Override Power	Yes	Missing			
9		SMS document Control	Yes	Not listed / Missing Drawings / Priority items			
10	Crewing	Self employ	Yes	No Crew assessment	No Bio-data / No check lists		
11		Manning companies	Yes or No	No Companies Source	No assessment		
12	Education	Education	Yes Book/ Seminar	No supply book	No Education Training		
13		Briefing before onboard	Yes	No			
14		ISM study	Yes	No education	No supply materials		
15		On Job Training	Yes	No			
16	Document Control		Good	Difficult to access	Out of control		
17	Maintenance Plan &Records	Interval Schedule Plan	Yes	Lack of equipment items			
18		Records	Yes	No report / Over due	Not followed up with schedule plan		

Clarification of Ship Management (Company "C") (2/2)

Q. No.	SURVEY ITEMS		RESULT				REMARKS
			GOOD	NON-CONFORMITIES			
19		**Dock Repair Specification Standard Form**	Issued Directorate General of Sea Transportation	Nil	Poor specification		Ship's job order only
20	**Budget Plan**	Yes	Nil	Over-budget			
21	**Insurance**	**Hull**	Yes	High Cost	Lot of Claims		
22		**Machinery**	Yes	High Cost	Lot of Claims		
23		**P & I Club**	Yes	High Cost	Lot of Claims		
24	**Check Lists**	**Purchase Inspection Form**	Issued	Nil	No report		
25		**Management Inspection**	Issued	Nil	No record		
26		**Attending Reports**	Yes	Nil	No record		
27	**Arrangement**	**Spare Parts**	Good	No serial No.	Lack of Funds	Supply route problem	
28		**Stores**	Good	Lack of Funds			
29		**LO Analysis**	Checked	Missing Quantity	No record	No analysis	
30		**FO**	Recorded	Missing Quantity	No record	No Format	
31	**Non-Conformities Reports**	**Sign by in-charge**	Yes	Not signed	Not checked		
32		**Categorized by D/P & Sign**	Yes	No Decision	No remarks		
33		**Corrective Action taken**	Yes	No Decision	No record	No action	
34		**Follow-up & Closed**	Yes	Not followed up	Not closed	No	
35	**Near miss/Analysis**		Yes	Not checked	No analysis record		
36		**Internal Audit function**	Good	Lack of skill	Always same person		
37		**Audit Report/Result**	Yes	No records	No file	No any finding	
38	**Risk Assessment**	**Office**	Issued	Not issued	No format		
39		**Ships**	Issued	Not issued	No format		
40	**Top Management**	**Master's Review Report**	Yes	No report	No format		
41	**Review**	**Top Management Committee**	Yes	No meeting	Not attach any evidence		
42		**Information/Agenda**	Yes	No issued	No distribution to related persons		
43	**Outsource Consultant**		Yes	Satisfied, Not satisfied, Is there any assessment?, (Yes, No)			
44			No	Can't find, Can't afford due to cost			
45	**Technical Staff**		Yes (2) Persons	Lack of Skills, Lack of Experiences			

Source: Data collected and formatted by JICA Survey Team

4.2 Evaluation of Current Ship Management Practices with Suggested Improvements

1) Shipping Companies Survey Result

(1) ISM Manual, Procedures and Checklists

Many shipping companies apply the ISM Code, the standard manual, procedures and checklists of which were prepared by third parties. However, these are insufficient and do not match the scale of the companies, the technical staff level and the actual situation of the vessels. Additionally, their Safety Management System (SMS) has not yet been implemented when they started their ISM system.

The present manuals were discovered to have the following problems and issues:

- Cover page

  The Control Number, distributed to whom, and company name, etc. are not identified on the cover page. The Index is just a chapter title only.

- Definitions of special marine and ISM/ISO words

  Definitions and explanation are not listed on the first page, therefore crew could not understand.

- Title of each chapter

  The header of the manual pages is used as a procedure. The manual and procedures are mixed-up.

- Actual work flow of manual

  The present title of the manual required by the ISM Code is not clear. It is not easy to find the necessary works by the office staff and crew of vessels, therefore the manual flow by numbering of Chapters must be changed. The layout must follow the actual work process, so that it is easy to find and understand by the office staff and vessel's crew, as shown in the following table:

Table 4.2.1 Composition of Present and Recommended Manuals

PRESENT MANUAL
Safety Management Procedure
Operational Procedure
Navigation Procedure
Cargo Radio Procedure
Special Procedure
Special Operation
Ship Environment Procedure
Ship Oil Handling Procedure
Cargo Handling Procedure
Ship Maintenance Procedure
Ship Maintenance Plan
Ship Equipment Maintenance Procedure
Ship Document Procedure
Non-conformity
Training Procedure

CHAPTER	NEW MANUAL (Recommended)
	Policy
	Definitions
1	Top Management
2	Organization
3	Document Control
4	Crew
5	Education and Training
6	Safe Operation of Vessel
7	Environment Protection
8	Ship Equipment Maintenance
9	Order Requests & Purchases
10	Emergency
11	Safety
12	Internal Audit
13	Assessment
14	Non-conformity & Corrective action
15	Risk Assessment
16	Top Management Review

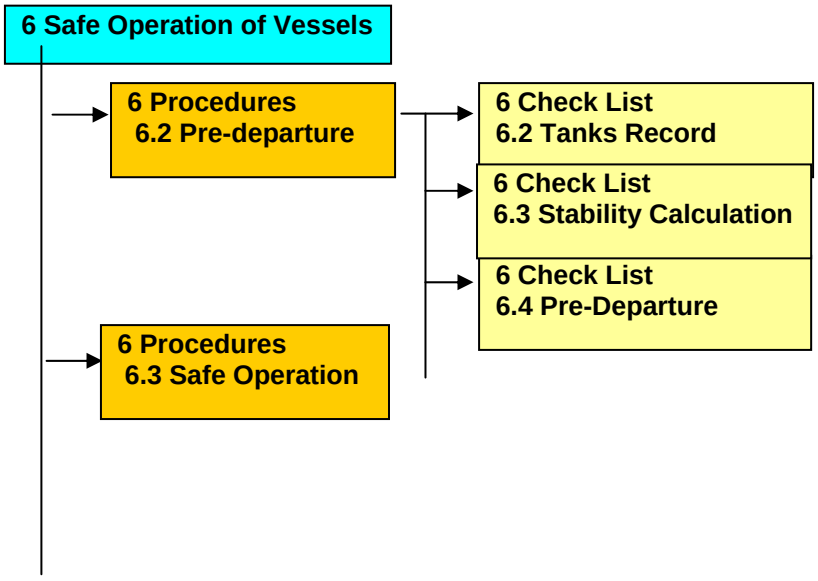
Source: JICA Survey Team

The ISM system must be totally revised as per sample ISM cover page and index. See 'Index and Definition Sample' in Annex 4.1.

- Related documents

  It is very difficult to find necessary works and studies in the present ISM document.

  The relations of the revised manual, procedures and check lists must show at last a page by chapter.



Source: JICA Survey Team

Figure 4.2.1 Example of Chapter Cover

(2) Top Management

The top management of many small companies consists of family members and the Designated Person is also a member of the family or a relative.

The appointed Designated Person should be an outsider, who understands the ISM Code and with marine technical background in order to assess and evaluate categories for non-conformity and to formulate and implement appropriate corrective decisions and actions with due regard both to safe operation of vessels and to cost reduction.

(3) Organization

The shore-based staff in the office does not have the technical skills and capability for safe operation, analysis of accidents, proper corrective action and judgment, etc. Due to insufficient skills and inadequate marine technical background, they can't understand what happened to the vessels and explain to the top management the appropriate corrective actions to take.

(4) Crew

The quality of domestic crew is very weak compared to other countries and to Indonesian international trade vessels because of the low salary. It is difficult to find qualified crew for small shipping company. The re-training and education system is almost non-existent.

The new education and re-training system for domestic shipping crew should be prepared by the government organization or national marine schools at major ports.

(5) Education

The education system is one of the major problems in Indonesia. The examination for marine license is quite difficult compared to other Asian countries. Additionally, there are some difficulties to understand the foreign language manuals at second-hand vessels. Furthermore, there are few chances for upgrade training as well as building up one's experience through technical transfer from experienced crew.

These issues should be solved urgently by institutional improvement of education system by the Government in cooperation with related maritime organization.

(6) Document Control

All reports and checklists have been filed in the office and onboard, in compliance with the ISM requirement, but there is no feed-back to vessels on the result of analysis and corrective actions to be taken because of the insufficient format of the reporting system. A new format check list must be issued

(7) Safe Operation of Vessels

The safe operation of vessels depends on the type and size of vessels, but many companies are using the same contents of manual for all kinds of vessels. The operation manual should be prepared separately for each type and size of vessel.

(8) Ship Equipment Maintenance Plan

The maintenance plan shall be prepared depending on the vessel's age, condition, navigation area, hours, etc. Vessel's maintenance interval also shall be reviewed and changed, if needed.

(9) Internal Audit function

According to the ISM audit requirement, the Auditor can't audit his own section (office and vessels) to avoid hiding his own faults and errors, but it is very hard to find additional staff to do the job since a very limited number of persons understands the marine technical background of ship operation, hull, machinery, survey and regulations. There is also the lack of capable staff due to the limited financial resources of small shipping companies.

It is difficult to find non-conformities if the internal audit are carried out by the same person due to the same perspectives and level of technical know-how.

The internal auditor must be done by a different person with different viewpoints and higher technical know-how. It must be out-sourced to avoid hidden problems in audit.

(10) Non-conformity and corrective action

Appropriate forms have not been issued; therefore it is difficult to take action.

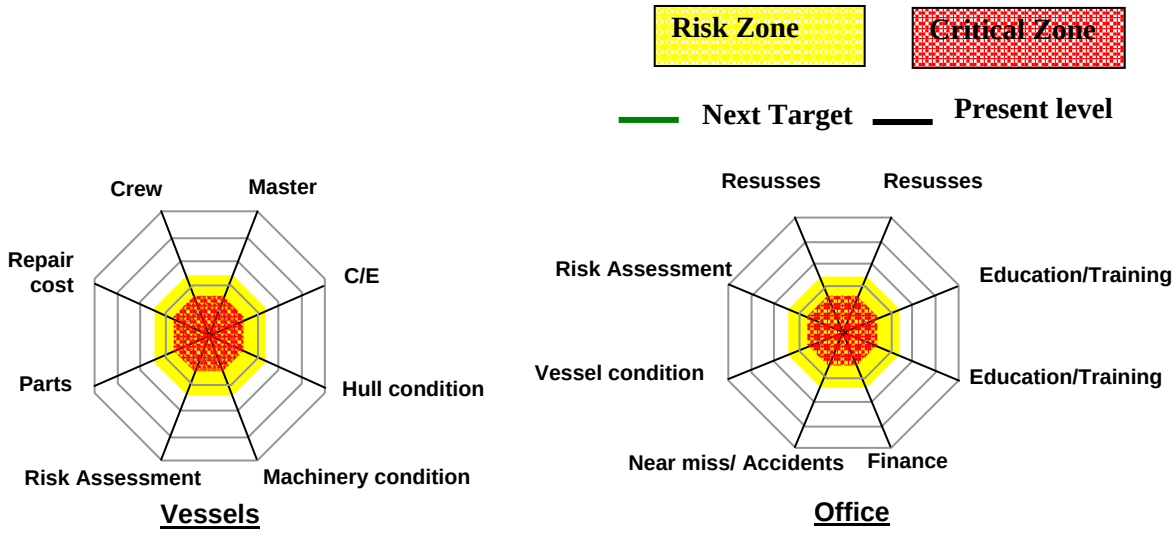
(11) Office Internal Audit Function

Few persons know about the ISM Code and its requirements

(12) Risk Assessment Report

Risk Assessment Reports have not been attached to reports of internal audit of all vessels and office for implementation for fields of improvement such as possibility of risk, time requirement and estimated cost to show to top management. Therefore, top management cannot decide to take necessary action because they do not have any technical idea.

See 'Risk Assessment Report' in Annex 4.2.



Source: JICA Survey Team

Figure 4.2.2 Example of Risk Assessment Chart

(13) Top Management Review

Top management cannot function appropriately for the proper implementation of the requirements of the ISM Code due to the lack of technical data as discussed in Item (12).

The technical person in-charge must prepare supporting documents as evidence to use at the time of Top Management Review so that it will be easy to decide on the implementation targets and comparing safety and cost performance.

2) Onboard Survey Result

(1) Maintenance Condition

The condition of hull maintenance such as chipping and painting and cleanness in the accommodation area and engine room is quite in good condition, but actual running condition is a very critical situation due to the lack of reporting system and analysis skills.

(2) ISM Code Education

This is one of the major problems for safe operation of domestic vessels in the Indonesian waters.

Almost all of the vessel's crews do not know the ISM requirements, even the meaning or definition of words and how to apply in actual situation. Implementation without basic education of ISM Code is further complicated by the present manual that is difficult to understand because of non-compliance with the requirements and lack of information.

From the viewpoint of safe and economical operation of vessels, this is the first priority for implementation.

There is a strong need to prepare a locally designed textbook containing a variety of case studies that will be distributed among marine schools and shipping companies.

(3) Engine and Deck Log-book

During the onboard survey, all vessels used standard Log-book but it is hard to evaluate and analyze it because there is not enough space to record data. The present format of the Log-book must be revised.

(4) Fuel oil and LO Records

It is suggested that a new format of oil record books be issued and approved by DGST. See 'Oil Record Book' as a sample in Annex 4.3.

(5) Ship Equipment Maintenance Guidelines

The instruction books of old vessels were missing and/or in another language, therefore it is difficult for the crew to study maintenance, overhaul, adjusting and analysis, etc. Even though the manufacturer's instructions are kept onboard, the manufacturer's instruction is only good for those with basic knowledge of marine background, but there is not enough information and/or guidelines.

Those support information or studies must be covered in the new revised procedures and checklists of the ISM manual

(6) Data Records

The present main engine data record is not enough to analyze the engine condition to be checked at port. It will be improved by new Engineer's Log-Book and Checklist

(7) Analysis Capabilities

Many vessels are in very critical condition, even those owned by major shipping companies, because of insufficient know-how of hull construction, class, rules & regulations and maintenance of vessels based on our onboard survey reports.

(8) Damage and Corrective Action Request

The report from the vessels does not contain sufficient information and space for Non-conformities, categories, analysis, necessary corrective action, arrangements and approval, etc., and is not signed by authorized persons. The Report form must be revised.

(9) Class Survey Know-how

The Class survey is not sufficient in itself, even if a perfect survey is done. The survey is done for just a part of a very limited area because of the short period of surveyor's attendance. It is just a minimum requirement of rules and regulations. The shipping company and crew must be responsible for the proper class survey work. The survey guidance booklet must be prepared by the owner.

(10) Ship Internal Audit Function

The internal audit has been carried out by the superintendent in-charge. It must be said that such an arrangement is inadequate. If carried out by himself, he may hide problems of Non-Conformity.

Internal audit should be undertaken by outsourcing to avoid hidden problems and for the report to be evaluated from a different viewpoint and checklist.

(11) Master's Review

During the onboard survey, the Consultants did not find any Master's Review record. This is one of the important reports at the time of Top Management Review.

3) Other Related Issues and Problems

(1) Survey System

The Class survey is not only for new vessels as SOLAS and IACS requirement. Even five (5) year old vessels that were built by Indonesian shipyards and operated by major shipping companies can avail themselves of this service.

(2) Dock Repair Order Specification

The repair period of many vessels takes very long because of insufficient repair details and specifications, such as accessory works and spare parts preparation. New dock repair standard form should be prepared.

(3) Technical Support and Technology Transfer

If second-hand vessels were purchased from foreign owners, it would be very difficult for crew and office technical staffs to find detailed and important instructions since all equipment manuals, instruction books, drawings are in foreign language. Furthermore, even though foreign manufacturers will send technical information in such a form of [*XXX TECHNICAL NEWS*] for accident or modification information, etc. However, if vessels were re-sold to other countries, the manufacturers could not find the new owners.

It is recommended that ship management companies and/or associations, together with technical consulting companies, establish a technical call center for support to small shipping companies and to regularly conduct seminars for introduction of upgraded information. Additionally, if any problem occurs, owners can visit or call the office to receive advice. It will be operated by an open class membership system and all expenses are to be covered from this membership fee.

(4) New Ship Management Companies

Many of domestic small shipping companies are faced with difficulty to maintain their vessels in good condition and safe operation due to the following critical requirements:

- To employ a good leader and highly skilled technical staff;
- To employ qualified crew;
- To face financial problems with confidence;
- To get technical advice and information from other sources;
- To give appropriate advice to vessels;
- To comply with ISM Code requirements, rules and regulations, etc.;
- To provide training and supplemental education to crew, etc.; and,
- To manage very high cost of dock repair and spare parts due to small scale fleet.

To solve these problems, small shipping companies are recommended to utilize other ship management companies on a contract basis on the following matters:

- Crew arrangement & education
- Maintenance of vessels
- Fleet insurance for scale merit to reduce cost
- Spare parts and dock arrangement

(5) Leasing Company

PT. PANN, the only ship leasing company in Indonesia, conducts ship inspections at various timings, such as ship procurement, delivery and termination of a leasing contract.

It is suggested to PT. PANN that third party inspector(s) with a well-designed checklist be utilized.

See 'Leasing in/out Check list' as a sample in Annex 4.4.

(6) Purchase of Second-hand Vessels

When starting to negotiate for the purchase of vessels, the important check points and timelines must be known to all relevant and pertinent persons to avoid losses due to missed works and unfair practices.

During the superficial inspection of vessels, the Company dispatches specialist inspector/s from an independent inspection company or consultant company for vessel inspection, but the results of the inspection reports are quite different depending on the technical level of inspectors.

The format of the Detailed Standard Inspection Report must be supplied to the inspector.

(7) Education

It is found through the study that the knowledge of the crew and office staff regarding the ISM Code, Port State Control and analysis of engine condition is very weak. Thus re-training and education on practical and actual operation shall be required by schools or associations for implementation of up-grading the competency of crew and office staff.

The teaching materials shall be prepared by relevant authorities and experts and provided to all maritime schools.

The participants of the training course shall be required to take an examination before the training to check their level of comprehension.

4) Technology Transfer

The workshops were held in Surabaya and Jakarta on 26 October and 28 – 29 October, respectively, to give lectures on "Practical Ship Management" to people from shipping companies, colleges, ship management companies, DGST, and so on. Each workshop contains an introduction of Ship Management under PSFP, an introduction of ISMA and a short training course on ship management.

Each workshop was successfully conducted with about 40 participants per workshop. The participants actively asked questions mainly on technical issues. Hereunder is the summary of the questions and answers.

Q. How can we assess the checklists and the implementation of ship management?
A. All checklists must be reviewed and revised first. The present checklists are just mark sheets with YES and NO only, and it is difficult to take appropriate corrective actions after such inspections.

Q. How can we increase the level of understanding of shipping companies and crews on the ISM code?
A. We recommend that DGST, INSA, colleges and BKI tie up to issue technical bulletins so as to share technical information among all marine industries. Additionally, these authorities should give survey guidance, ISM code education, SOLAS regulation, standard of a well-maintained vessel, standard of procedures

to dock and other necessary educational materials by themselves.

Q. While Japanese domestic shipping defers introducing the ISM code, how do you work on ship management?

A. The ISM code has been introduced to tanker shipping in Japan at the request of cargo owners. Other shipping companies form small groups that outsource to ship management companies in order to reduce cost and gain advantage of economies of scale.

Q. What is the difference between a crack propagated in 45 degrees and one in 90 degrees on a propeller shaft?

A. A crack in 45 degrees is caused by a twist of the shaft made by engine torque and propeller mass. On the other hand, a crack in 90 degrees is due to a deflection or a bend.

Q. We replaced an engine with the same type but the revolution and speed became lower than before. Why does it happen?

A. Perhaps the type of a diffuser (nozzle ring) of a turbo charger is different. The serial number of the turbo charger should be checked.

Q. The same bearing is always damaged. Why does it happen?

A. That is due to a deformation of a bearing holder because of heating expansion and/or shrinkage. Therefore you should adjust the condition of contact between the lateral face of the bearing and the inner side of the bearing holder.

There were requests to JICA in addition to the questions above.

- Give standard ship management manual and other documents to Indonesian ship owners.
- Support superintendent training courses.
- Indonesia imports many Japanese ferries, which cause damages in Indonesia in spite of the fact that no such accident was experienced in Japan. Please find out the cause of that.

More detailed information about the workshops is attached to Annex 4.5.

4.3 Ship Management Related Institutional Development

1) Current Status of Rules and Regulations

Shipping Act No.17 of 2008 was issued to replace the previous Shipping Act No. 21 of 1992. The scope of the Act is broad and comprehensive, and covers mostly all aspects of the shipping, including the meaning of water transportation, ports, maritime safety and security and marine environmental protection.

The Indonesian Government has ratified International Convention on Maritime Liens and Mortgages 1993 under PP RI. No. 44/2005 and is preparing towards the ratification of International Convention on Arrest of Ship 1999. The purpose of ratification unifies the legislation of Indonesia on arrest of a ship and mortgage with other Asian nations, and it aims at promotion of ship finance to procure Indonesian flagged ship. Moreover, Minister of Transport issued rules and regulations KM65 Non-Convention Vessel Standard in 2009 for the domestic vessels in terms of shipbuilding, life saving & safety equipment and a safety management including sea environment.

Since the State Oil Company, PERTAMINA and State Electric Company, PLN began to set up longer-term chartering contracts in implementing the Cabotage principle, the environment for shipping companies, in terms of ship procurement, has improved.

Shipping Act No.17, 2008 Chapter 169 describes Safety Management and Pollution Prevention from Ship and stipulates the requirement for Document of Compliance (DOC) and Safety management Certificate (SMC).

Article 31 of the same Act describes the establishment of Ship Management Service. In compliance with this Article, Ministerial Decision for ship management is now under preparation by the DGST. The DGST has been amending and preparing to issue a Ministerial Decision (KM) for Ship Management.

At present, the establishment of a Ship Management Company is only by registration to the Ministry of Trade. However, after issuing and upon effectiveness of the KM for Ship Management, the license for ship management shall be acquired from DGST for establishment of a Ship Management Company.

2) Indonesian Ship Management Association (ISMA)

Due to the increase in demand for ship management services, seventeen (17) ship management companies/shipping company in-house units are active and providing services to both international and domestic shipping in Indonesia. In this context, and with the recommendation of DGST, the Indonesia Ship Management Association was established as a private organization in June 2011.

The main objectives of the Indonesia Ship Management Association (ISMA) are;

a) To promote the importance of ship management for safety operation of ship;

b) To promote safety in sea transportation of domestic cargo;

c) To contribute to the development of economic activities;

d) To collect and transmit information on ship management;

e) To provide education and training for seafarer’s capacity development;

f) To establish a communication network of ship management professionals.

The name and logo of Indonesia Ship Management Association (ISMA) has been registered as a patent, and the committee has prepared the article of association.

Figure 4.3.1 Logo of Indonesia Ship Management Association

Table 4.3.1 List of Ship Manager in Indonesia

No.	Ship Manager
1	PT. Samudera Indonesia Ship management
2	PT. Pelayaran Tempuran Emas Tbk
3	PT. Perusahaan Pelayaran Samudera Gesuri Lloyd
4	PT. Pelayaran Caraka Tirta Perkasa
5	PT. Pelayaran Nasional Indonesia
6	PT. Pelayaran Nusantara Nusa Tenggara
7	PT. Meratus Line
8	PT. Djakarta Lloyd (Persero)
9	PT. Andhika Lines
10	PT. Tanto Intim Line
11	PT. PANN Konsulindo Ship management
12	PT. Fabila Offshore Shipping
13	PT. Pelita Samudra Shipping
14	PT. Transocean Indonesia
15	PT. Arpeni Pratamo Ocean Line
16	PT. Bumi Laut
17	PT. Berlian Laju Tanker/JBLT

Source: ISMA

4.4 Necessary Considerations to Strengthen Fleet Quality Control in PSFP

1) Role and Contribution of Ship Management in Strengthening Fleet Quality Control

The objectives of Ship Management are to maintain the seaworthiness of a vessel, lengthen the useful economic life of said vessel and to reduce operating and maintenance costs through programmed maintenance, the synthesis of which brings about positive effects to the ship owner's business activity. As a result, ship management provides a guarantee, in part, for the success of the ship financing scheme.

Therefore, ship management plays an important role in the domestic shipping modernization program through public ship finance scheme by securing the quality of the asset and the loan guarantee.

2) Status of Ship Management

The share of used vessel operated by Indonesia domestic shipping is about 80%, and nearby 80% of Indonesia shipping companies are small scale shipping companies that owns only one or owning vessels with an aggregate of 5,000 GT in terms of the number of companies.

As reported in Section 4.1 2), it is understood that small domestic shipping companies are facing difficulty in implementing ship management system well due to high management cost and lack of capable staff.

Training of staff, time, and financial support (cost) are all required to improve the present ship management system for small shipping companies, which are the potential borrowers of PSFP.

Therefore, to implement the project smoothly and steadily, the utilization of qualified and experienced Ship Management Companies is recommended as the most proper way.

3) Crew Management

Ship Management has many aspects that depend on the crew's ability. Moreover, there are also high rates of the crew expense included in Ship Management expenses.

KPI (*Kesatuan Pelaut Indonesia*) is issuing the minimum standard salaries for international and domestic seafarers, however, most Indonesian domestic crew's allowance depends on the hiring conditions and quite low, when compared with international shipping.

Hence, a capable crew is usually taken by an international shipping company, which offers a superior compensation package. As a result, recruiting a qualified crew, especially a senior officer, to domestic shipping is quite difficult.

Maintaining the quality of crew is the most important issue in ship management. However, small scale shipping companies cannot support the education and training of crew due to the limited number of crew and budget. In order to maintain qualified seafarers, the provision of incentives to seafarers is indispensable. Consecutive improvement of hiring conditions for seafarers through Ship Management Company is also needed.

4) Required Functions of Ship Management Company for Vessel Procurement

Most of the shipping companies do not have adequate knowledge of the procurement process or technical planning for the procurement of vessels. PT. PANN is also required to establish the standard procurement procedure, especially for inspection system.

In the case of building a new ship, the procurement of the suitably designed vessel, cooperation with the Indonesia maritime industry, i.e., a shipyard, and a supporting industry, is indispensable. However, most of Indonesian shipyards do not have sufficient capability to develop new ship model and suitable design.

The function of technical assistance for vessel procurement is therefore required for ship management. Concerning this issue, the PMU and the Consultant shall support the Executing Agency and Ship Management Company in developing the vessel procurement scheme.

5) Supporting Industry

The Ministry of Industry is promoting the modernization of shipyard facilities, since 80% of the 250 shipyards in Indonesia can construct vessel up to 1,500DWT (1,000 gross ton) only due to their antiquated facilities. The Ministry of Industry, in accordance with INPRES No. 5/2005, has identified the following as important issues to satisfy the future vessel demand:

a) Modernization of production/building/repairing facilities

b) Strengthening of design and engineering capability

c) Need for overseas technical assistance to develop the National Design and Engineering Center (NASDEC), established in 2006, together with the Institute of Technology of Surabaya, for ship design.

d) Employing skilled manpower

e) Increasing production capacity

f) Improving production management capability

- Long Term Target (2010—2025)

1) To develop building and repair facility up to 300,000DWT

2) To build special vessels (Frigate, LPG carrier)

3) To develop shipbuilding component industry

4) To develop the National Shipbuilding Design and Engineering Center

Due to the increase of Indonesian flagged vessels by the application of the Cabotage Principle, repair facilities of the domestic shipyards are fully occupied and the demand exceeds the capacity of the facilities. It is caused by: 1) shortage of facilities compared with the number of Indonesian flagged vessels; and 2) old and inefficient facilities and equipment.

To improve docking and repair works, such as shortening the docking/repair period, and in order to support the development of domestic shipping, the modernization and enhancement of shipyard repairing facilities is needed urgently.

6) Ship Management Scheme under PSFP

The role and contribution of ship management under the PSFP is to ensure the fleet quality control and the loan guarantee for the borrowers. Due to the difficulty of implementation of ship management by medium and small shipping companies, the utilization of professional ship management companies as a mandatory requirement is recommended.

The service of ship management to be provided by ship management company under PSFP consists of:

(1) Crew management

To provide education and training for crew and deployment of qualified crew

(2) Procurement management

To procure ship stores of paint, wires & ropes, consumables, pipes, chemicals, cooking utensils, etc, spare parts and lubricating oil,

(3) Insurance management

To arrange insurance of Hull & Machinery, P & I, LOT and War Risk Insurance

(4) Technical management

To manage running repair, afloat inspection & survey and docking repair

(5) Safety operation management

To manage safety operation and to prevent accidents

(6) Cost management

To manage annual cost of crew expense, store & supplies expense, insurance fee, lubrication oil expense, and analyze actual expenses

(7) Internal audit in accordance with ISM Code

(8) Technical services of ship inspection & survey, supervision of new building, preparation of docking order, technical advice and information for safety operation, etc.

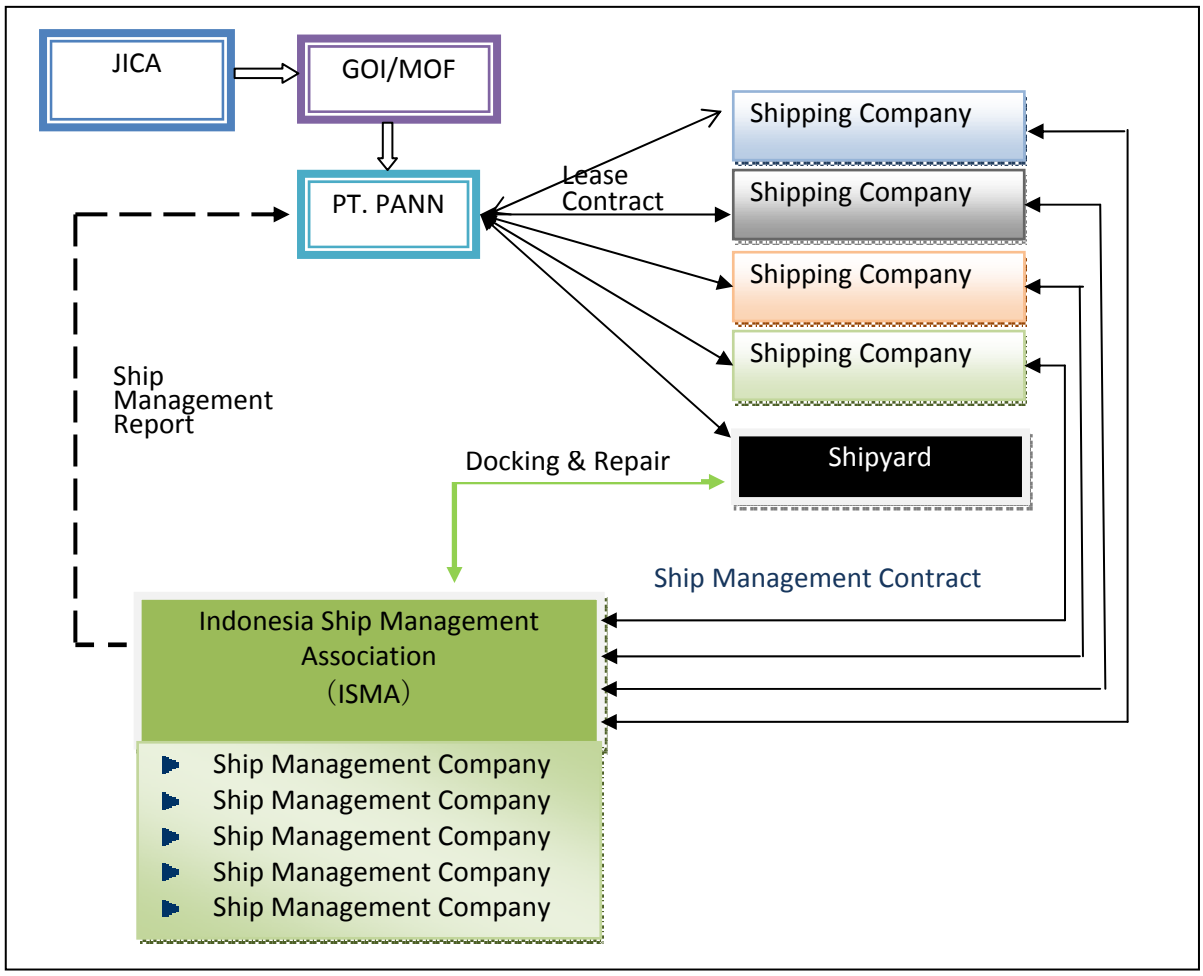
A Ship Management Company, PT. PANN Konsulindo, a subsidiary company of PT. PANN, has started its ship management services in 2009. Due to its limited number of superintendents (SI), PT. PANN Konsulindo may not provide ship management services to all of leased ship procured under PSFP. Therefore, PT. PANN agreed to utilize other experienced and qualified ship management companies for providing ship management services to leased ships procured under PSFP.

As described in 4.1 3), two (2) ship management companies (PT. Samudera Indonesia Ship Management and PT. PANN Konsulindo) and one (1) shipping company having in-house ship management division (PT. Arpeni Pratama Ocean Lines) are deemed to be qualified to participate in the scheme of PSFP.

As described in 4.3 2), the Indonesia Ship Management Association has been established with a recommendation of DGST. Its members now consist of seventeen (17) ship management companies and shipping companies with in-house ship management division including the above mentioned three (3) companies.

To support the PSFP scheme, DGST, PT. PANN, ISMA and other stakeholders confirmed that members of ISMA will provide ship management services to leased ships procured under PSFP. The members of ISMA have individual expertise and professional skills in various types of ship, therefore, a shipping company will be able to choose an appropriate ship management company based on the type of ship among ISMA members.

The figure below shows the scheme as discussed above, and the roles of ship management under PSFP.



Source: JICA Survey Team

Figure 4.4.1 Proposed Ship Management Service in PSFP

Figure 4.4.1 shows:

(1) Selection of Ship Management Company by Shipping Company

The Shipping Company that utilizes a public ship finance program (PSFP) has to choose a Ship Management Company among the members of ISMA, make a Ship Management Contract, and receive ship management services from contracted Ship Management Company. The Ship Management Contract between the Ship Management Company and the Shipping Company shall be approved by PT. PANN.

(2) Ship Management Report

According to the content of the ship management services described in Ship Management Contract, the Ship Management Company shall submit the periodical management report to the Shipping Company and PT. PANN to ensure the safety and efficient operation of the ship.

(3) Cooperation with Indonesian Shipyard

ISMA, with a member of Ship Management Company, cooperates with qualified Indonesian shipyards for repair and docking work of managed ships to maintain its quality and for prevention of technical problems.

The Ship Management Company prepares accurate docking orders and makes a confirmation with the shipyard prior to docking for efficient and well organized works at shipyard.

4.5 Financial Effects of Ship Management

1) Introduction

By contracting out ship management services to a ship management company, ship owners will be able to expect more efficient ship operation and maintenance, which will bring about the following benefits:

- The annual average commissionable days of ships will increase owing to the proactive maintenance system and fewer mechanical or other physical troubles.
- Ship life will substantially extend as a result of more adequate ship management.
- Ships' operating efficiency will improve in terms of speed, fuel consumption, etc.
- The reduction in accidents or malfunctioning will reduce repair costs and eventually result in lower insurance costs.

It is important to convince potential PSFP end-users about the financial effects of ship management. For this purpose, profitability between two cases, i.e., one with a ship management company and another without, were compared.

2) Conditions for the Financial Analysis

a. Ship management fee is assumed to be Rp 50 million per month per ship taking the current tariff into account;

b. In return, the commissionable days will increase from the current average of 346 days to 359 days for container ships and from 338 to 359 days for conventional ships;

c. Ship life is assumed to be 30 years without a ship management contract. It is generally said that ship life can be extended up to five or 10 years if the ship is appropriately maintained. Hence, it is also assumed that its life can extend by as much as 20% of the remaining ship life at the time of contract. For instance, if the ship is 10 years old at the time of contract, the ship can be operated until it is 34 years old; and if it is 20 years old at the time of contract, it can be used until it is 32 years old;

d. Ship speed will increase by as much as the number of years extended, assuming a certain relationship between ship age and operating speed by ship type. For instance, if the extended life is two years, ship speed becomes the same as that of a ship two years younger; and

e. Although the daily maintenance cost will increase, it will be offset by the reduction in repair and insurance costs.

3) Financial Analysis

Table 4.5.1 shows the comparison of the two cases of "with" and "without" a ship management contract. As a model ship for the simulation, a container ship with 10,000 DWT and 20 years old was assumed. In the case of "with" contract, the total operating cost increased due to an increase in the number of round trips. In addition, the ship management fee was added to the operating cost; however, the revenue increased much

more than the incremental cost. The net operating profit therefore increased compared to the "without" contract case. In this simulation, the profit in the case of "without" contract is Rp 16.7 billion, while that in the case of "with" contract is Rp 20.6 billion. In addition, ship life extended by as much as two years in the case of "with" contract owing to good ship maintenance.

Table 4.5.1 Profit Comparison for the Cases with and without Ship Management

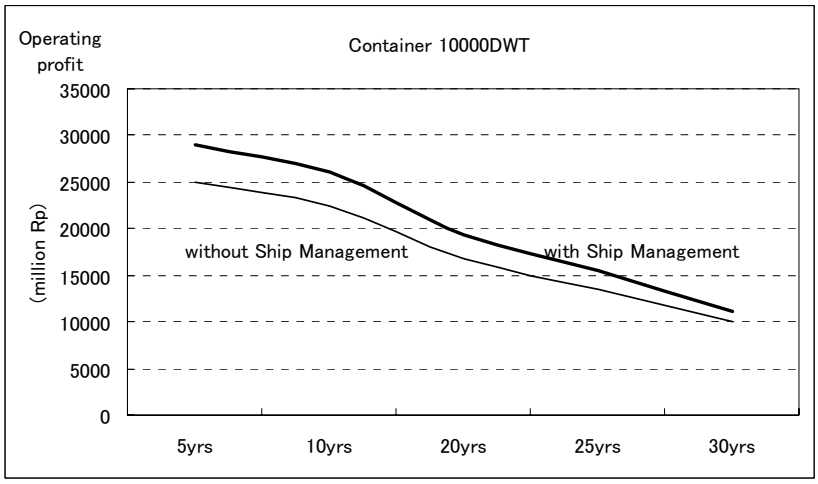
Container 10000DWT	Age : 20yrs old	
	without	with
Typical Distance (mile)	585	585
Speed (knot)	14.0	14.6
Commissionable days	346	359
Average waiting time at port (hr)	12	12
Cargo handling speed (TEU/hr/gang)	10	10
Load factor	0.5	0.5
Cargo weight capacity (MT)	8,000	8,000
Days on the sea	3.48	3.34
Days at port	2.78	2.78
Total days per Round Trip	6.26	6.12
Total Number of Round Trip	55	59
Total Cargo Carried (mil ton)	0.44	0.47
Fixed Operation Cost (mil Rp/yr)	32,920	31,616
Distance related cost (mil Rp/mile)	4,635	4,875
Cargo related cost (mil Rp)	11,497	12,208
Call related cost (mil Rp)	532	565
Sub-total (mil Rp)	49,583	49,264
Ship Management Fee (mil Rp/yr)	0	600
Total Cost (mil Rp)	49,583	49,864
Freight/TEU (mil Rp)	1.5	1.5
Annual Revenue (million Rp)	66,327	70,429
Profit	16,744	20,565

Source: JICA Survey Team

JICA STRAMINDO examined the profit generated by ship management according to ship types and ship sizes. There are two unique findings worth noting in this report, to wit:

(1) Younger vessels enjoy higher profit than older vessels if they have the same conditions of ship type, size and operating pattern. In other words, as a ship becomes older, the advantage (or profit) derived from ship management will decrease, as illustrated in Figure 4.5.1.

(2) Ship management is financially attractive to large vessels. Ship management tariff is determined based on service items regardless of ship size. Sufficient advantage can be expected for vessels over 3,000 DWT. In the case of small ships, ship management contracts should be simplified.



Source: JICA STRAMINDO 2004

Figure 4.5.1 Change in Ship Management Profit by Ship Age

In 2010, the average cargo vessel in the Indonesian fleet was 4,158 DWT. Judging from the previous analysis, ship management coverage pointed in Section 4.4 6) may be applicable to average-sized vessels.

In the above financial exercise, ship management profit could be gained based on the various assumptions such as higher commissionable days, extension of ship life, etc. However, these are based on the assumptions that the proposed ship management system functions well in terms of ship inspection and maintenance, crew training, etc. For this purpose, promoting competent ship management companies and changing shipping companies' policy from short-term ship maintenance to long-term ship management are crucial.

4.6 Ship Management Capacity Development Plan to Be Implemented under PSFP

1) Background

The development of management-class human resources is one of the most important issues for modernizing the domestic shipping business. The necessity of professional expertise in ship management has been recognized.

In Indonesia, the ISM code regulated by IMO is adopted in the government regulations to apply to domestic shipping. However, judging from the results of an on-board survey, domestic ships are not well maintained and safety management is not implemented due to the lack of knowledge and proper checking /maintenance work, even though the shipping company obtained the DOC (Document of Compliance) and the SMC (Safety Management Certificate).

This may be common in nations with less developed ship management system. Particularly, small and medium shipping companies are not able to implement ship management due to the weakness of their management base.

Under PSFP, ship management company shall provide services to shipping companies and would be required to ensure that the vessel always complies with rules and regulations, is run in a safe and cost efficient manner without threat to the environment and is maintained so as to preserve, as far as possible, its asset values. The ship management company must also take responsibility for its actions.

The DGST, as a policy implementation body for ship management, will utilize the PSFP to demonstrate ship management practices as a showcase and then promote it all over the country. If possible, the PSFP should maintain financed vessels and contribute to other vessels' quality management as a sort of technical spill-over effect.

Nowadays, with the increase of in the number of ships, the importance of ship management is growing. However, there is a shortage of qualified SIs (Superintendents) who are responsible for ship management. Ergo, development and capacity building are urgently needed in response to the demand by shipping companies and ship management companies for implementation of the ship management system.

In Indonesia, since there is no systematic training program for SIs (Superintendents), the systematic training program for SIs (Superintendents) will be prepared and the training course will be implemented both to improve and to expand ship management under the PSFP.

2) Course Outline

(1) Implementation Body

ISMA, representing the ship management companies in Indonesia, is considered to be the most appropriate body to implement a ship management training program.

The DGST will give advice on the training program in line with ship management-related institutional development efforts. The accreditation of the course will be made by the DGST.

The PSFP will participate in the program by sending lecturers, both foreign and domestic ship management experts of the PMC. Under the PSFP implementation mechanism, the training programs are regarded as capacity development activities. The TOR for PMC includes this task (refer to Annex 6.3). The PMU will monitor such activities and assess their impact and report to the SC/PWG.

Universities in Jakarta and/or Surabaya are enjoined to participate in implementing training programs because a greater program impact at a wider scope than ISMA member companies is anticipated. University teaching staff, such as naval architects and shipping experts, may join the programs as lecturers and to prepare training textbook.

(2) Course Preparation

A systematic training textbook will be prepared by a working group consisting of ISMA, DGST, PSFP/PMC, and key universities, if possible. This textbook will be created from the practical point of view covering: 1) basic level; 2) intermediate level; and 3) advanced level, with the following contents:

- Outline of Shipping Business
- Basic Concept of Ship Management
- Conventions and Rules & Regulations
- Insurance
- Reporting and Data Management
- Information & Technology
- Manning Management
- Operation Management
- Risk Management and Safety Management
- Inspection and its related business
- Handling of Marine Casualty
- Procurement Management
- Cost Management
- Maintenance and Repair
- Inspection and Docking Repair
- Supervision of New Ship Building

(3) Participants

The participants for the basic course shall be those with Seafarer Certificate Class III, or above, and with at least three (3) years of experience working on board a vessel, or equivalent.

The participants for intermediate or advance course will be for those with completion certificate of basic course or intermediate course, respectively.

(4) Course Levels

Taking into account the nature of the participants, the course should be categorized to three levels of Basic, Intermediate and Advanced. The period of the course should be as short as possible. Therefore, the training course will be prepared in accordance with the syllabus consisting of five (5) sessions as shown in Table 4.6.1.

(5) Number of Courses

It is practical to assume that courses are to be held two (2) times a year. Each session will be held for four (4) days and once a month. Therefore, the period of a course will be around 20 days and participants will complete the course within six (6) months.

Table 4.6.1 Ship Management Training Sessions

1. Shipping Business and Ship Management
● Outline of Shipping Industry, Shipping Company and Ship Management Business ● Interpretation of technical terms ● IMO Rules & Regulations ● Classification Society ● Shipping Contract ● Certificates ● Ship Management Contract ● IT System Management for Ship Management
2. Safety Management and Sea Casualty
● Maintenance of Hull and Machinery ● Legal Inspection and Docking ● Case Study of Problems & Trouble Shooting (Problem Solving) ● Procurement Management ● Reporting ● Cost for Ship Management ● Outline of Specific Ship (Construction, Operation, Inspection, Maintenance)
3. Management of Manning and Ship Operation
● Manning Business ● Deployment of Seafarers ● Training and Education ● Working Conditions ● Fuel Oil Management ● Management of Cargo Handling ● Port State Control ● Supervision of New Ship Building ● Brokerage
4. Management of Ship Quality and Cost
● Risk Management and Risk Assessment ● Root Cause Investigation ● PSC ● Quality and Environment Management ● Outline of TMSA (Tanker Management & Self-Assessment) ● Outline of KPIs (Key Performance Indicators) ● Security System ● Company Action to Marine Casualty ● Insurance, P&I ● Rescue
5. Field Study
● Construction Procedure of New Ship Building at Shipyard ● Docking/Repairing Work Procedures at Shipyard ● Maintenance and Inspection Training of Main Engine ● Others

Source: JICA Survey Team

4.7 Implication for the Project

This chapter dealt with ship management. Nowadays, ship management has become one service industry which provides outsourced professional services to help shipping companies. It is considered effective to maintain fleet quality and to improve fleet operating efficiency particularly for small shipping companies which find it difficult to employ full-time technical staff. Therefore, this chapter tried to incorporate ship management into the proposed PSFP.

The ISM Code shows the most comprehensive framework to ensure seaworthiness in vessel quality and guide ship management technically. The Indonesian government decided to adopt the ISM Code even to the domestic fleet. Section 4.1 reviewed the ISM Code-related institutional framework developed by the DGST and its practice by shipping companies and ship management companies.

Provided that the ISM Code-related certificates, documents and practices were adequately complied with, satisfactory seaworthiness can be ensured in the domestic fleet. However, Section 4.2 revealed that the reality does not reflect the ISM Code, as shown by the results of onboard surveys. The results showed that companies require qualified ship management services and identified needed technology which can be met by the PSFP.

Section 4.3 introduced ship management-related institutional development especially the creation of the Indonesian Ship Management Association (ISMA) in June 2011. ISMA members can provide ship management services to PSFP-financed vessels. Section 4.4 institutionalized such service delivery with the following expectations:

- PSFP-financed vessels will be adequately maintained regardless of shipping operator's capacity;
- ISMA members will be motivated to improve their services to obtain ship management contracts for PSFP-financed vessels. To encourage them, the PSFP will provide technology transfer among superintendents; and
- The DGST will dispense advice, monitor the project and disseminate PSFP practices on ship management as good practices to non-participating domestic shipping companies.

Section 4.5 analyzed the financial impact of ship management by comparing the "with" and "without" ship management contract cases. In principle, shipping companies will spend on a ship management contract (additional cost), but the contract will reduce fixed operating costs such as repair and docking, insurance, crew management, and others. If the reduced cost offsets the additional cost, a shipping company can enjoy improved ship performance (faster sailing, more commissionable days, and longer ship life), resulting in larger profit. But ship management is not a cure-all. Less significant effects are expected on old ships and small ships. Even though the PSFP puts ship management as an obligatory condition, ship management contracts must be flexible to meet each financed vessel's condition.

Finally, Section 4.6 embodied a ship management training program which will be organized by ISMA, DGST, PMC of PSFP, and, hopefully, key universities in order to develop qualified superintendents.

5 PUBLIC SHIP FINANCE PROGRAM (PSFP)

5.1 PSFP Related Policy Framework

INPRES No.5/2005

On March 28, 2005 The President of Indonesia signed the Presidential Instruction No.5, of 2005, for the empowerment of the national shipping industry with the re-introduction of cabotage for domestic/interisland trade, whereby all domestic/inter-island cargoes must be carried by Indonesian flag vessels by 2010. The word “re-introducing” explains that the concept of cabotage has actually been one of the main principles incorporated in Indonesian Government Policy on Sea Transport Services since some 50 years ago, However until 2005 the policy of cabotage had been poorly implemented.

In addition to re-introducing the concept of cabotage as the main goal, the Presidential Instruction also spells out the necessary concerted efforts related to the empowerment of the national shipping industry.

Two items, viz: “3) of b. Financial Institution in 2. Finance” and “c. of 4. Industrialization”, instruct the implementation of public ship finance program and its technology transfer, in the case of new shipbuilding.

As for the instruction regarding financial institution, considerable achievements have been observed in 1) and 2) or expanding ship finance by state-owned commercial banks and PT. PANN. However, “3) an innovative financing scheme” rather than ordinary commercial-based financial service has not been introduced yet.

Outline of INPRES No.5/2005

1. Trade

a. *By virtue of this INPRES, domestic cargo shall be carried by Indonesia flag vessel and operated by the national shipping company as early as possible.*
b. Import central/local governments’ cargo by the national shipping company.
c. *Encourage long-term carriage partnership between the shipper and the national shipping company.*

2. Finance

a. Taxation
   1) Re-arrange tax facility for the national shipping and shipyard industries.
   2) Revise tax policy for supporting national shipping and shipyard industries and give incentives.
   3) Apply penalty to national shipping and shipyard companies with partaking of incentives if they invest in other business
b. *Financial Institution*
   1) *Encourage national banks to actively finance the national shipping industry.*
   2) *Develop non-bank financial institutions involved in shipping.*
   3) *Develop an innovative financing scheme for encouraging national fleet development.*
c. Insurance
   1) *The vessels under certain conditions shall be insured at least for hull & machinery.*
   2) *Cargo and passengers carried by the national shipping company shall be insured.*
   3) Setting policy for national insurers to meet international shipping insurance standards

3. Transportation

a. Sea Transportation
   1) *Organize domestic shipping operation by Indonesian flagged vessels*
   2) *Reorganize shipping network by giving incentives to liner routes*
   3) *Reorganize re-flagging procedure*
   4) *Accelerate ratification of the international convention on maritime liens and mortgage with domestic legislation.*
   5) *Accelerate ratification of the international convention on arrest of ship with domestic legislation.*
   6) *Provide supporting measures to traditional shipping*
   7) *Establish an information forum for cargo and space in vessel (IRMK)*

b. Port
   1) Reorganize port management for effective and efficient services
   2) Reorganize international and cross border ports
   3) *Develop port infrastructure and facility for offering the optimum services*
   4) *Improve port management for enabling gradual separation of regulator and operator's roles and competition among terminals and ports*
   5) *Exempt port charges if no service is provided*
   6) *Reorganize procedures of ships, cargoes and passengers in ports*

4. Industrialization

a. Encourage the growth and development of the shipping industry, by way of:
   1) Develop centers for design, research and development
   2) *Improve standards and components of vessels*
   3) *Foster ship chandlers and related industries*
   4) Give incentives to national shipping companies that build their vessels in domestic shipyards

b. Newly built ships by government budget must be constructed at domestic shipyard.

c. *When tapping foreign fund in the abovementioned ships (b.), maximum use of local materials and transfer of technology are required in shipbuilding.*

d. Maintenance and repairing by government budget must be done at domestic shipyards.

5. Energy and Mineral Resources

Provide guarantee in fueling for Indonesia flag vessels in domestic shipping

6. Education and Training

a. *Develop education and training centers for seafarers with IMO standards*
b. *Improve cooperation between the education and training centers and the seafaring service user*

Note: Measures in *italic* font were recommended by STRAMINDO

MP3EI

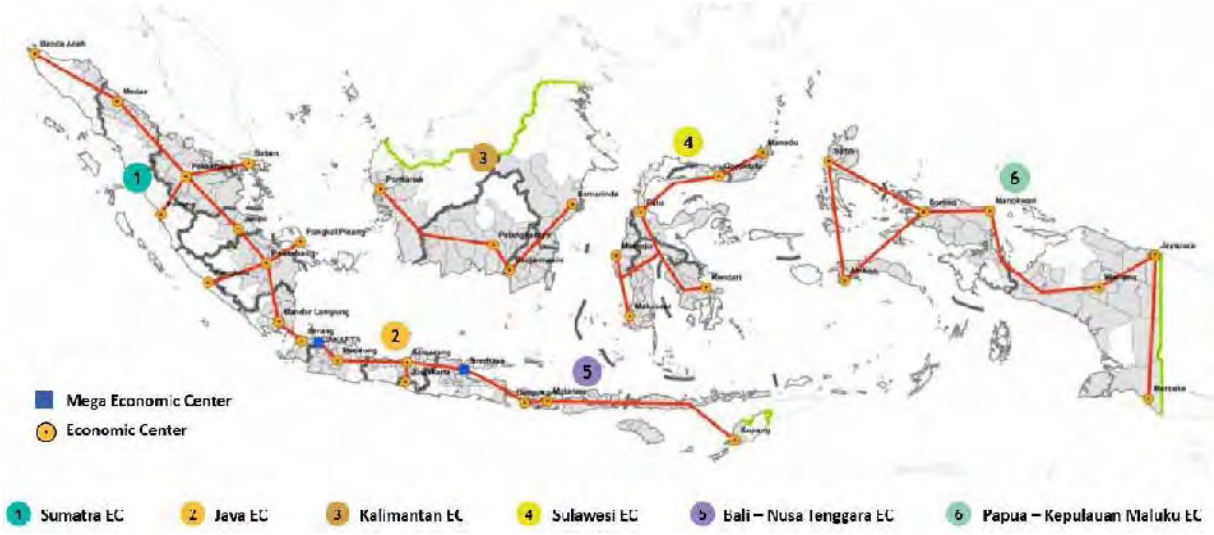
MP3EI (The Master Plan for the acceleration and Expansion of Economic Development of Indonesia) made by the Coordinating Ministry of Economic Affairs in 2011 is an ambitious government document to transform Indonesia into one of the top 10 economies in the world by 2025.

The implementation strategy of MP3EI will integrate three (3) main elements:

(1) Developing the regional potentials in six (6) Indonesian Economic Corridors: Sumatra, Java, Kalimantan, Sulawesi, Bali-Nusa Tenggara, and Papua-Maluku Islands;

(2) Strengthening national connectivity locally and internationally where national connectivity is composed of intra-economic corridor connectivity, inter-economic corridor connectivity and international trade logistics; and

(3) Strengthening human resource capacity and science & technology to support the development of major programs in every economic corridor.



Source: MP3EI, CMEA

Figure 5.1.1 MP3EI Economic Corridors

In relation to this Study, MP3EI shows the following development directions:

- Shipping is regarded as one of major economic activities.
- The PSFP will be implemented by JICA ODA loan with a two-step scheme.
- The Sumatra Economic Corridor, particularly the east coast, is considered good location for shipyards. The development of the shipbuilding industry is expected to replace the role of Java Corridor where there will be more restrictions for the development of heavy industries.

5.2 Objective and Desired Solutions by PSFP

1) Objective

Public ship finance is alternative ship finance to ordinary commercial ship finance. It must be innovative according to INPRES No.5/2005. Also it should be carefully designed to take a complementary role with commercial finance for domestic shipping development as a whole.

In Indonesia, there are contemporary sector development issues to address poor and aging fleet quality rather than only quantitative fleet requirements. They include (i) difficult access to ship finance by small-sized shipping companies, (ii) insufficient new ship delivery, and (iii) poor ship management and congested ship repairing yards. (Refer to Section 2.2)

With the aforementioned considerations, the overall PSFP objective is set as follows:

- To modernize and expand the domestic shipping fleet by providing financial assistance, particularly to small enterprises engaged in domestic shipping and shipping-related industries in Indonesia, thereby contributing to strengthening inter-island connectivity.

2) Solutions

In order to design public ship finance in Indonesia, the JICA Team has forged out several solutions to address the above-mentioned contemporary issues and realize the projected future investment requirements. They are:

Innovative public ship finance
In simple terms, it is defined as the use of public fund to finance procurement of ships. To date, the government cabotage policy, represented by INPRES No.5/2005 on the Empowerment for the National Shipping Industry, has successfully guided increasing ship finance flow into the national shipping industry. Thus, it becomes meaningless if public finance would only compete with commercial finance.

Instead, public ship finance must be innovative as stated in Article 2, b. 3) of INPRES No.5/2005. Innovativeness can be brought about by total service delivery rather than just financing. The total service delivery can be provided to even small to medium shipping companies, when effective technical assistance is associated with attractive financing service, e.g., longer financing period with lower interest rate. In this regard, the JICA Survey has identified some technical assistance which shows synergy with financing service, i.e. (i) planning assistance in ship investment, (ii) procurement supervision of new and second-hand vessels, and (iii) advice on ship management for financed vessels.

New shipbuilding with technical transfer through package deal
Domestic shipyards have considerable shipbuilding capacity, 1.3 million GT in 2010. In many ship types, however, shipbuilding experience is limited and technical knowledge is inadequate, so they have no choice but to use imported parts and equipment. Shipbuilding management, such as time control and costing, is not satisfactory too. As a result, they exacerbate the industry's weaknesses, e.g., low ship quality and delayed delivery. Except for simple unit building, such as tug and barge, shipping companies may feel reluctant to order new shipbuilding from domestic shipbuilders.

The package deal model under a joint venture scheme between a national shipyard and a modern foreign shipyard is effective to solve such drawbacks. Particularly, it benefits local shipbuilders when a JV agreement includes technology transfer. Synergy is also expected between shipbuilding technology advancement and ship repairing improvement. In this connection, it should be noted that new shipbuilding must be done in a domestic shipyard with technology transfer when using foreign government loans in accordance with Article 4, c of INPRES No.5/2005.

Urgent ship repairing capacity expansion

According to the financial analysis by the JICA Survey, new investment in shipyard is promising under the currently overcrowded situation. However, many shipyards show unfavorable financial performance and thus actual investment is observed to be limited. New shipyards and dry docks will require large lands and yard with waterfront. Many banks are still reluctant to finance them. Today, mobile lease assets are considered efficient to urgently expand ship repairing capacity such as floating dock and tower crane. When lease charge payment is suspended for a certain period, it can be moved easily to another lessee (shipyard).

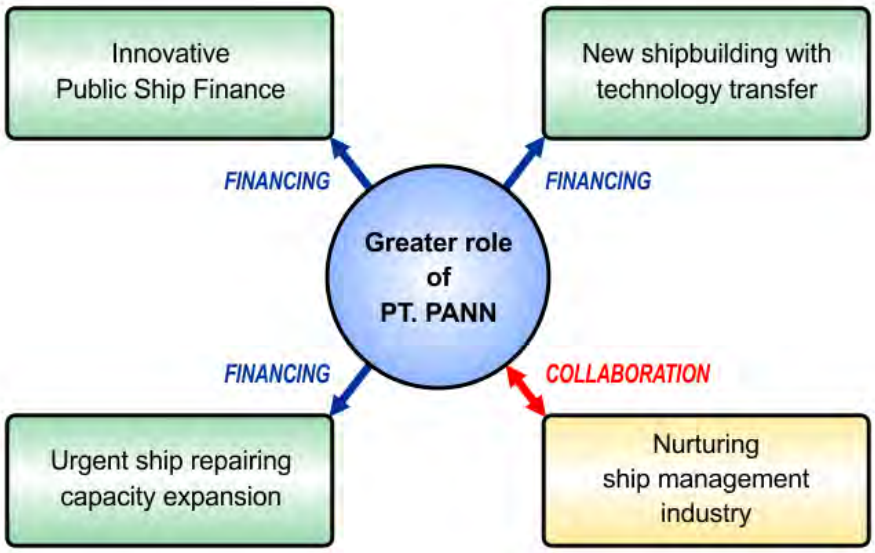
Nurturing the ship management industry

In the modern shipping world, ship management is a growing concern. Ship management service can help the ship owner in regular ship maintenance, efficient docking arrangement, seafarers' recruitment and onboard training, discounted marine insurance, etc. depending on the coverage of a ship management service contract. Due to the increase of ship management needs in the country, the Indonesia Ship Management Association (ISMA) was founded in 2011, with the recommendation of DGST. Ship management service contributes to protect vessels from unnecessary asset devaluation and thus, it is considered to provide a guarantee, in part, for the ship financing scheme. There is a strong need to promote the ship management industry in Indonesia to be a full-fledged one.

Greater role of PT. PANN

PT. PANN, a state-owned ship leasing company, has extended financial support to and nurtured these small shipping companies since its inception. PT. PANN has intensive knowledge and determination to understand shipping business, naval engineering and ship management. However, its business scale is not sufficient compared with the potential needs. Other archipelago countries' experience like Japan and Philippines shows that a dedicated ship finance institution is inevitable for domestic shipping development.

Sadly, commercial banks are good at financing large amounts with low interest rates only to creditable shipping companies with satisfactory transaction records in the past. They are generally not familiar with shipping business. They cannot hold and operate a financed vessel when a borrower goes bankrupt. They are reluctant to finance unfamiliar small to medium shipping companies, unless offering a short-term and high-interest loan with sufficient real property collateral. We observe that only PT. PANN is capable of executing the innovative public ship finance in Indonesia.



Source: JICA Survey Team

Figure 5.2.1 Solutions to Achieve the PSFP Objective

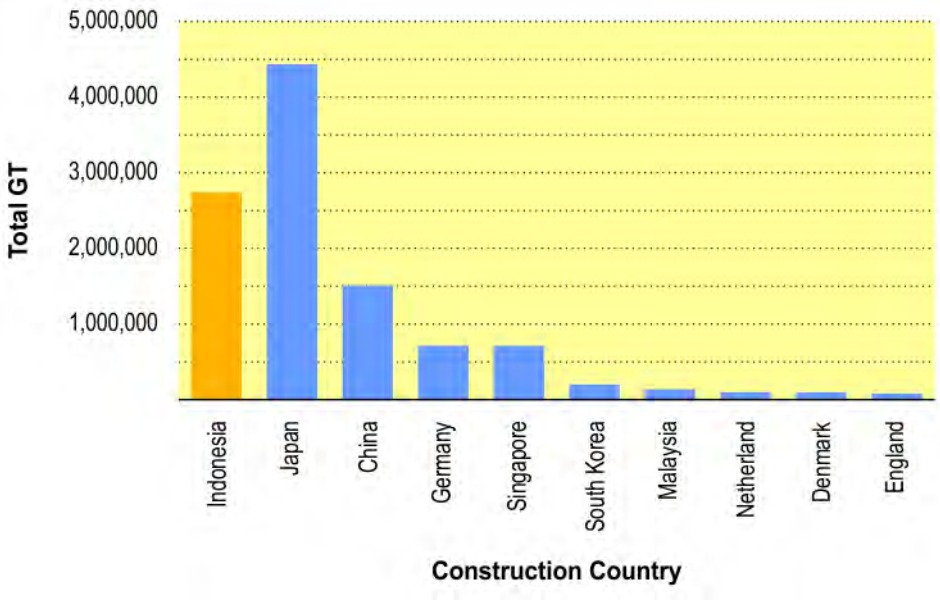
5.3 PSFP Sub-project Targets

1) Selection of Sub-project Targets

Based on the careful review of the future domestic shipping demand and identification of the shipping service improvement needs, and backed up with the information on the existing needs of the potential end-user of the PSFP, it is obvious that the expansion of the domestic shipping fleet is an urgent matter. However, in order to contribute to the sound growth of domestic shipping, the sub-projects should not be selected without any restrictions. The PSFP should be strategic in management and operation. Even though the PSFP fund may account for only several percent of all ship and shipyard investment needs in the coming several years, it is expected to give indirect effect to other investments and actual shipping and shipyard services as a catalyst for industry modernization.

Strengthening new shipbuilding technology and capability is one prevailing development agenda in recent policy documents such as the MP3EI. It is logical to modernize and expand the domestic shipping fleet in line with economic growth all over the country. Currently, second-hand vessels are a major asset class for domestic shipping companies to procure. But this practice cannot continue as before when looking for quality vessels in the market.

Japan is the largest second-hand ship exporter to Indonesia. Japanese made vessels account for 52% of the current Indonesian flagged vessels in terms of GT except for those domestically built. But the Indonesian domestic shipping fleet exceeded the Japanese fleet in the early 2000s. This can partly explain why Indonesian shipping companies feel the increased difficulty in finding good second-hand vessels in the market. Locally built vessels are small, i.e., 750 GT on the average, and mostly simply structured like tug and barge in comparison with Japanese vessels imported by Indonesia, which can weigh as much as 2,566 GT on the average and are available in a variety of types.



Source: DGST

Figure 5.3.1 Indonesian Flagged Vessels by Origin

For the PSFP to be utilized effectively in the capacity building of domestic shipping, there should be a proposition of some type of ships that correctly reflect the future demand of cargo and possible operators under the new building scheme. As mentioned in the previous section, new shipbuilding with technology transfer to the Indonesian shipbuilding industry is one solution which can be realized in the PSFP.

As reported earlier, most of the small shipping companies hardly have access to attractive finance sources. They need to replace obsolete vessels with good ones. Young second-hand vessels are still a practical solution to modernize and expand the domestic fleet as long as they are available in the market.

The procurement process for ships in Indonesia varies depending on the global shipping market, as trading of second-hand ships are handled by the broker/buyer as a matter of daily business. Small shipping owners/operators tend to procure ships without giving due consideration to safety, as well as the condition and efficiency of the ships, and focusing more on immediate profit with lower capital investment. Thus, extreme care is needed when procuring second-hand vessels. The PSFP will deal with this as one sub-project target: second-hand vessel procurement and modification. Lastly, congested shipyards become a crucial issue. Lack of ship repairing capacity at present becomes critical, causing demurrage of the ship. Short stays in docks for repair cannot assure quality maintenance. The major causes of this issue are simply the low number of docking facilities and low productivity of obsolete heavy equipment, i.e., cranes in the shipyard.

Ship repairing capacity should be enhanced in order to maintain the safe and efficient operation of the ship. It is considered an urgent requirement. Without substantial improvement for efficient ship repairing service, shipping companies may continue to be reluctant to decide costly ship investment. Under such situations, old and cheap second-hand vessels may be their choice at best. The PSFP will deal with shipyard capacity expansion by taking their urgent investment needs into account.

Therefore, the Preparatory Survey has selected three (3) sub-project targets which are eligible for financial and technical assistance in the proposed PSFP. Again, they are:

(1) new shipbuilding with technology transfer;

(2) second-hand vessel procurement and modification; and

(3) urgent shipyard capacity expansion.

2) Scope and Criteria of Sub-project Targets

(1) New Shipbuilding with Technology Transfer

The PSFP will deal with new shipbuilding with some distinguishable scopes and criteria in comparison with ordinary commercial finance. They include:

i. To prioritize sub-projects to meet the project objective, particularly in strengthening inter-island connectivity;

ii. To focus on growing ship demand segments or scarce ship supply in the second-hand market;

iii. To bear in mind the most desirous ship types by the possible end-users of the PSFP;

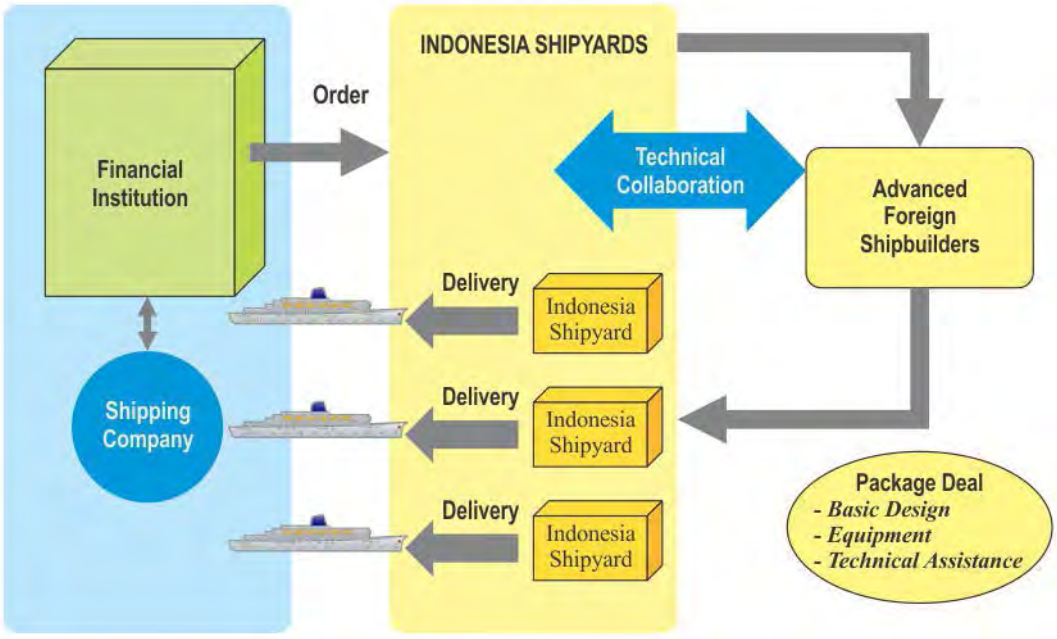
iv. To select a couple of ship types for domestic shipyards which are difficult to construct by their own experience and resource;

v. To arrange technical collaboration of domestic and advanced foreign shipyards through the package deal model (refer to Figure 5.3.2);

vi. To reduce construction costs by collective material/equipment procurement in the same ship-type construction;

vii. To provide long-term finance service, i.e., up to 15 years; and

viii. To request end-users to maintain ship assets in good conditions during the financing period by means of adequate ship management.



Source: JICA STRAMINDO II (2005)

Figure 5.3.2 Package Deal Model

(2) Second-hand Vessel Procurement and Modification

The most prevalent ship acquisition method in Indonesia is to procure second-hand vessels. There are a variety of needs in the domestic shipping industry. The PSFP copes with this segment with the following service scopes and criteria:

i. To provide finance service to small-scale shipping companies who find it difficult to access commercial banks;

ii. To conduct ship inspection prior to the procurement contract;

iii. To procure a ship having enough seaworthiness and being less than 20 years at least;

iv. To rehabilitate and modify the procured vessel so as to maintain sufficient seaworthiness and become more suitable for the new owner's business plan;

v. To provide finance service for sufficient ship working period, 10 years at the

maximum; and

vi. To request end-users to maintain ship assets in good condition during the financing period by means of adequate ship management.

(3) Urgent Shipyard Capacity Expansion

The JICA Survey has concluded that urgent shipyard capacity expansion is inevitable to meet the PSFP objective. The PSFP will cope with this sub-project target with the following scopes and criteria:

i. To select effective sub-projects to urgently expand shipyard capacity;

ii. To finance mobile assets which are suitable for leasing service;

iii. To prioritize shipyards that provide services to the PSFP fleet (newly built and second-hand) by way of new shipbuilding, modification of second-hand vessels, docking services for repair, and periodic survey; and

iv. To request end-users (shipyards) to maintain sub-project assets in good condition during the financing period.

3) Priority and Other Considerations for Sub-project Targets

Among three sub-project targets, the JICA Survey Team has set policy priorities and other considerations which are critical and useful for effective PSFP implementation.

Policy Priority

- 'New Shipbuilding with Technology Transfer' deserves high policy priority. It will supply new and modern vessels to the domestic shipping industry and thus it will fully meet the project objective – 'to modernize and expand the domestic shipping fleet'. Both INPRES No.5/2005 and MP3EI address new shipbuilding technology. Only this target segment can fulfill such policy direction.
- 'Second-hand Vessel Procurement and Modification' is regarded medium as policy priority. It will be able to supply vessels younger by several years compared with the existing fleet profile. But the state-of-the-art modern vessels cannot be found in the second-hand market. The Questionnaire Survey found second-hand vessel preference among small shipping companies. This segment can meet such demand.
- 'Urgent Shipyard Capacity Expansion' is rated from medium to low. Presently, local shipyards suffer from an overdemand issue or a capacity shortage issue. It adversely affects shipping companies such as reluctant attitude toward high-quality ship investment and underutilized ships because of long waiting time for docking. Although shipyards are a supporting element in the domestic shipping system, the current situation is serious enough to be rated at medium. After the bottleneck is removed, however, this target segment will be re-rated as "low."

Synergy Effect

- High synergy is expected between 'New Shipbuilding with Technology Transfer' and 'Urgent Shipyard Capacity Expansion'. New shipbuilding will be done in a domestic shipyard which has enough and available docking capacity over one year. If the current dock shortage issue cannot be solved in the coming several years, the new shipbuilding project may not find a suitable shipyard while an end-user may be

afraid of underutilizing new ships after construction due to congested shipyards. From the shipyard side, the PSFP will be able to improve both capacity and technology when the two sub-project targets are synchronized in implementation.

- Simultaneous implementation of 'Second-hand Vessel Procurement and Modification' and 'Urgent Shipyard Capacity Expansion' expects middle-level synergy effect. Shipyard capacity improvement will benefit the second-hand vessel operators within the PSFP. Second-hand vessels to be procured under the PSFP will be adequately modified at local shipyards. As a result, shipyard technology improvement will be expected to some extent. However, the resulting synergy must be lower than the first case.
- No synergy is found between 'New Shipbuilding with Technology Transfer' and 'Second-hand Vessel Procurement and Modification'. Rather, they are both alternatives.

Financing Volume and Its Flexibility

- 'New Shipbuilding with Technology Transfer' must be large, e.g., over Rp 200 billion per sub-project. There are two reasons. Firstly, new shipbuilding which requires technology transfer does not cope with simple structured and small ship types. A package deal is effective to reduce shipbuilding cost when more than three vessels are built continuously or simultaneously based on the same ship drawings. Therefore, it is not flexible to split one package deal into two or more sub-projects.
- On the contrary, 'Second-hand Vessel Procurement and Modification' will require small to medium volume fund per sub-project. For example, one general cargo vessel (1,000 DWT, 20 years) would be more or less Rp 10 billion including procurement and modification. Larger and younger vessels are generally more expensive. One ship deal is common in this category and thus it is highly flexible.
- Financing volume depends on asset type for 'Urgent Shipyard Capacity Expansion', from several billion rupiah to over 100 billion rupiah. Possible asset types, such as dock, crane and other equipment, can be packaged under one sub-project or can be individually arranged. It is also considered highly flexible.

Table 5.3.1 Comparison of Sub-project Targets

	(1) New Shipbuilding with Technology Transfer	(2) Second-hand Vessel Procurement and Modification	(3) Urgent Shipyard Capacity Expansion
Policy Priority	High	Medium	Medium to Low
Synergy Effect	High with (3)	Medium with (3)	High with (1) Medium with (2)
Financing Volume	Large	Small to Medium	Small to Large
Flexibility in Financing Volume	Low	High	High

Source: JICA Survey Team

5.4 Preliminary Identification of New Asset Construction under PSFP

The PSFP takes a bottom-up rather than a top-down approach as was done in previous government projects such as the Caraka Jaya domestic fleet project. In the Caraka Jaya project (1988–1997), the government intended to design vessels, order vessel construction from domestic shipbuilders and assign the vessels. No operator was present at the construction site. Finally, unpopular Caraka Jaya vessels became a traumatic experience for the government and the shipping industry. The PSFP's bottom-up approach starts from an end-user's proposal.

In order to facilitate discussions on the PSFP mechanism and implementation modality, the JICA Survey Team preliminarily identified sub-projects particularly those that require new asset construction. Second-hand vessels can be treated on an ad hoc basis. On the other hand, new asset construction requires more coordination among the EA, shipbuilder/manufacturer and end-user. It also requires a longer time for preparation and construction. Therefore, such efforts must be appreciated by relevant government agencies, PT. PANN, and JICA to concretize sub-project images.

This section reports some concrete images of new asset construction consisting of new shipbuilding and shipyard facility, as a result of preliminary identification.

1) New Shipbuilding

Taking the scope and criteria of 'New Shipbuilding with Technology Transfer' into account, two modern liner ships and one tramper ship are selected. Two liner types, i.e., container vessel and RORO vessel, are preliminarily designed for secondary routes in order to expand modern liner shipping services to strengthen inter-island connectivity. This is why two ship types are middle-class in size. One tramper is a middle-class refined oil tanker for local distribution.

(1) 300TEU Container Vessel

Analysis of Ship Demand

Container ships have become the dominant fleet in carrying cargo in terms of tonnage capacity and extent of routes among scheduled shipping services. Container ships not only grew in numbers, but newer container ships became much bigger, in anticipation of growing domestic trade to be brought about by sustained economic growth.

The need for new container ships would be influenced more by the need to replace obsolescent container ships in view of the age of the ships or because of the increasing demand of the market or the need to opt for more efficient ships, in terms of fuel consumption and crew complement.

The STRAMINDO fleet model was utilized to estimate future fleet requirement up to 2024. The STRAMINDO fleet model estimates the fleet that can service a given sea freight OD matrix at the lowest cost.

The estimated annual container vessel acquisition requirement to maintain sufficient vessel capacity to meet future growth in domestic sea traffic is summarized in Table 5.4.3. Container vessel acquisition in the table is expressed in terms of thousand DWT.

Table 5.4.1 Domestic Container Fleet Acquisition Requirement

	2012	2013	2014	2015	2016	2017	2018
Container (<10T DWT)	332	190	165	356	354	327	308
Container (>10T DWT)	245	137	107	285	281	288	294
Total, Container	577	327	271	640	635	615	603
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**Total**
Container (<10T DWT)	301	298	295	293	292	292	3,804
Container (>10T DWT)	294	296	298	293	292	291	3,402
Total, Container	596	593	593	587	584	584	7,205

Units: Thousand DWT
Source: JICA Survey Team

Preliminary Ship Design

Container vessel is selected as a candidate sub-project within the new building regime because of the dynamic demand for containerization in lieu of the traditional general cargo handling. The 300 TEU Container Vessel is selected with realistic and practical backdrop taking into consideration the ship owner/operators' opinion, route to be deployed, and port conditions in rural areas.

If we look at the primary shipping routes, along with long-term market trend, container vessels are expected to become bigger in size each year, even in the domestic shipping. However, the size of the shipping company/operators eligible for finance under the PSFP will be small and they mainly deploy their fleet to secondary or tertiary routes to connect rural to rural and/or major to rural ports. Therefore, the container vessel with rather shallow draft, and equipped with self loading/unloading gears, and can call on rural ports is selected.

Although a high demand for 300 TEU type Container Vessel is expected, it is hard to find it in the second-hand market.

The design features are the same as proposed in the STRAMINDO II. The main features in its design are;

- special consideration on the wider and shallow draft shape is given especially in the hull shape to decrease hull resistance;
- crane for container handling can be optionally equipped depend on the service routes;
- simple and reliable operation and maintenance is considered.

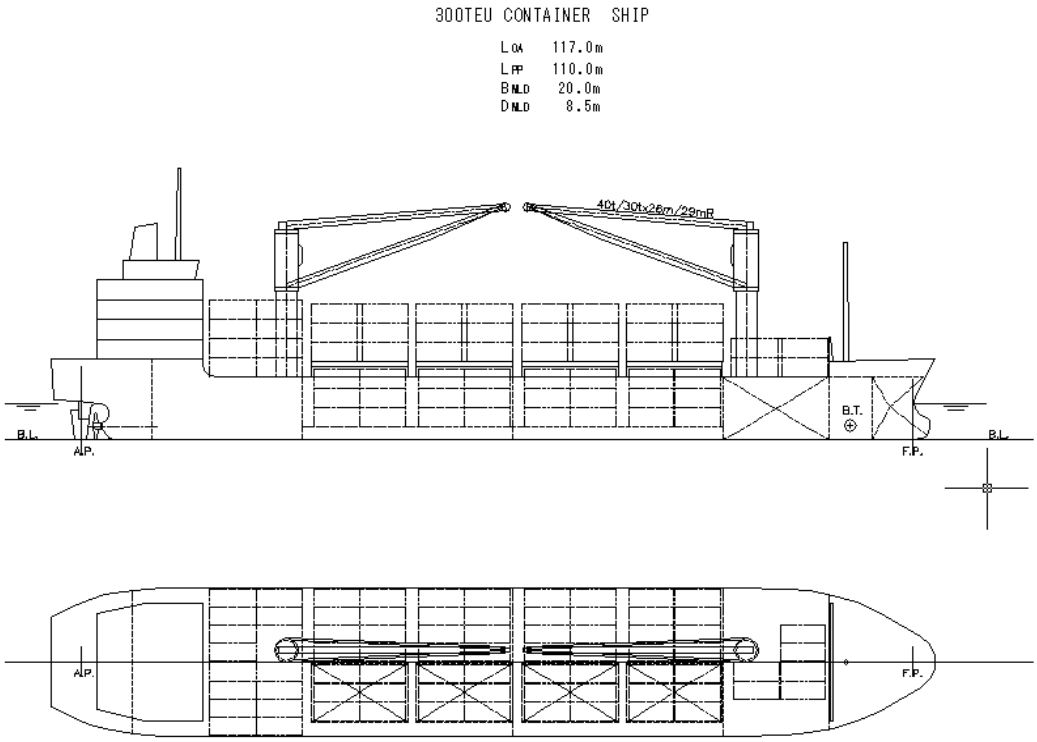


Figure 5.4.1 Image and Indicative Specifications of Container Vessel

Particulars of the 300 TEU Container Vessel is as follows:

1.	Dimensions	
	Length (over all)	abt. 117.00m
	Length (pp)	110.00m
	Breadth (mld)	20.00m
	Depth (mld)	8.50m
	Draft (mld)	5.00m
2.	Gross Tonnage (International)	abt. 6,500 tons
3.	Classification Society	International Classification Society
4.	Cruising Range	Ocean Going
5.	Container Loading Capacity (homogeneous)	
	In Hold	106 TEU
	On Deck	(192) 256 TEU
	Total	(300) 362 TEU
	(ref container)	60 TEU
6.	Deadweight	
	Total Deadweight	5,150 tons
	Containers	4,200 tons
7.	Complement	24 persons
8.	Speed	
	Normal Output of M/E with 15% sea margin	abt. 13 knots
9.	Endurance	6,000 n.m.
10.	Tank Capacity	
	Diesel Oil Tank	abt. 100 m^3
	Fuel Oil Tank	abt. 400 m^3
	Fresh Water Tank	abt. 150 m^3
	Water Ballast Tank	abt. 400 m^3
11.	Main Engine	Low-speed Diesel 1 set
	Max. Continuous Output (MCO)	2,240 kw

Normal Continuous Output (NCO)	2,016 kw
12. Main Generators	2 sets
Output	550 kw (each)
13. Cargo Handling Equipment	
40t/30t x 26m/29m Deck Crane	2 sets
14. Bow thruster	
5 tons thrust	1 set

The estimated cost of the 300 TEU Container Vessel is approximately 1.3 billion Japanese Yen subject to its being built in an Indonesian shipyard with the package supply of major equipment and design and technical assistance from an advanced country.

(2) RORO Passenger Vessel

Analysis of Ship Demand

The conventional ships would still have its market share in moving break bulk cargo, especially in ports that lack specialized cargo handling facilities and/or RORO ramps to handle container and RORO ships.

Nonetheless, the new conventional ships to be deployed should be designed to match the market it is envisaged to serve, in terms of capacity, speed, etc. The new vessels would also have to employ new technologies as regards safety, fuel efficiency, compliance with emission standards, navigational aids, and effective ship management, among others.

The ship operators would need financial assistance to be able to build or procure and deploy such vessels in domestic shipping. A better option would be for government to build or procure these modern vessels and lease them out to shipping operators, thus unburdening the ship operators with the huge initial capital investment (fixed cost) and just concentrate on the lease payments and other operating costs (variable costs).

This scheme would be a great boost to ship owners who would want to improve their service with more efficient vessels. The general public would also be benefited by the improved service and would be encouraged to travel more as the service becomes more reliable and comfortable.

The PSFP could be the opportune time to encourage the use of ROPAX vessels in lieu of the pure passenger vessels. The role of domestic shipping in long-distance passenger service has been greatly reduced by the advent of low cost carriers (LCCs). The long distance routes have all been dominated by the LCCs, leaving just the Class D passengers and the short distance passengers for domestic shipping.

However, domestic cargo has continued to be the domain of domestic shipping. Nonetheless, domestic shipping must find ways to improve the productivity, efficiency and effectiveness of its services. A RORO ship transports break bulk cargo more efficiently than the conventional general cargo vesseln.

The ROPAX seems to fit this role perfectly. The RORO operations ensure the simple and efficient method of loading and unloading cargo. While the carriage of passengers increases the revenue potentials since the carrying limit of the RORO ship is rarely exceeded.

The ROPAX ships can be deployed in feeder routes to distribute the containers from the

major hub ports to the feeder ports. The use of ROPAX vessels in smaller ports would mean that there would be no particular need to employ container cranes but still enjoy high productivity, especially when compared with the usual container crane operations at most ports.

There are many islands that are just a short sea distance away from a neighboring island, and located within protected waters, for which a small RORO ship would be appropriate. The prospective clients of these small RORO ships would be the cargo shippers using small vans for delivery of goods and passengers taking their own cars and motorcycles. It has been noted that Indonesia has been experiencing a high growth in motor vehicle ownership, thus creating a market for RORO ships.

As is true with RORO operations, no specialized equipment is needed at the port, even a simple port ramp will do, if the tidal difference is not a problem.

The need for new fleet acquisition for ships other than container ships was also estimated. The following tables show the results of the estimates.

Table 5.4.2 Domestic Fleet Acquisition Requirement

	2012	2013	2014	2015	2016	2017	2018
RORO (<10T DWT)	195	198	202	205	209	213	216
	2019	2020	2021	2022	2023	2024	Total
RORO (<10T DWT)	220	224	228	232	236	240	2,819

Units: Thousand DWT
Source: JICA Survey Team

Preliminary Ship Design

The size and type of the RORO will vary depending on the passenger and cargo demand and conditions of the ports of call. Small RORO may be required to connect islets; on the other hand, bigger RORO will be required in the trunk line. Thus the ideal RORO that will meet the operators' expectation cannot be easily found in the second-hand market.

In this study, therefore, a typical design of the RORO expected to be deployed in the Merak/Bakahuni route is considered. The design features are as follows;

- two sets of ramp door at fore and aft are equipped;
- simple and reliable operation and maintenance is considered.

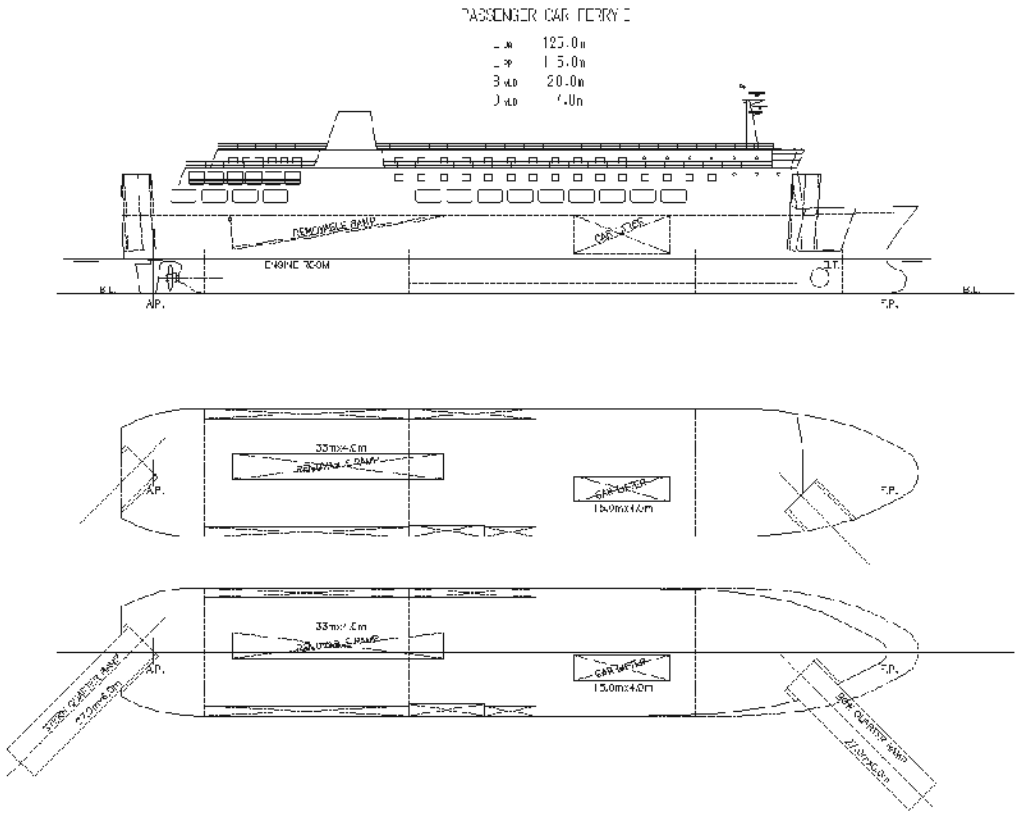


Figure 5.4.2 Image and Indicative Specifications of a RORO Passenger Vessel

Particulars of the 3000GT RORO Passenger Vessel is as follows:

1.	Dimensions	
	Length (over all)	abt. 93.00m
	Length (pp)	85.00m
	Breadth (mld)	16.00m
	Depth (mld)	11.00m
	Draft (mld)	4.50m
2.	Gross Tonnage (International)	abt. 3,000 tons
3.	Classification Society	International Classification Society
4.	Cruising Range	Near coastal
5.	Cargo Capacity	
	Trailer/Truck	17
	Container	36 TEU
6.	Passenger	150
7.	Deadweight	1,000 tons
8.	Complement	20 persons
9.	Speed	
	Normal Output of M/E with 15% sea margin	abt. 12 knots
10.	Main Engine	Middle -speed Diesel 2 set
	Max. Continuous Output (MCO)	735 kw x 2
	Normal Continuous Output (NCO)	625 kw x 2
11.	Main Generators	2 sets
	Output	550 kw (each)
12.	Ramp Door	
	Higed type with flap (30 tons)	2 sets
13.	Bow thruster	
	5 tons thrust	1 set

The estimated cost of the 3000GT RORO Passenger is approximately 1.9 billion Japanese Yen subject to its being built in an Indonesian shipyard with the package supply of major equipment and design and technical assistance from an advanced country.

(3) Tankers

Analysis of Ship Demand

The estimation of future domestic tanker fleet replacement followed the same procedure as the estimation of domestic container fleet, except that a more aggressive fleet renewal assumption was adopted for tankers such that tankers would be at most 25 years old by 2021 onwards. The following assumptions were made:

- 50% of acquired tankers are between 0-4 years old.
- 50% of acquired tankers are between 5-9 years old.
- From 2011 to 2015 tankers are gradually retired once it reaches over 25 years old, i.e. 50% of tankers of the same age are retired each year. From 2016 onwards, gradual retirement starts when the tanker reaches over 23 years old.
- From 2011 to 2015, tankers over 35 years old are retired. From 2016 to 2021 tankers over 30 years old are retired. From 2021 onwards, tankers over 25 years old are retired.

Table 5.4.3 Domestic Tanker Fleet Acquisition Requirement

	2012	2013	2014	2015	2016	2017	2018
Tanker (<15T DWT)	630	263	157	123	208	145	126
Tanker (>15T DWT)	488	339	252	187	284	175	136
Tanker	1,118	602	409	310	492	319	262
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**Total**
Tanker (<15T DWT)	118	104	107	95	93	90	2,259
Tanker (>15T DWT)	117	83	90	91	103	121	2,467
Tanker	235	188	198	186	196	211	4,727

Units: Thousand DWT
Source: JICA Survey Team

Pertamina is the major oil player in Indonesia with 95% share of all oil transportation. It has been implementing its tanker modernization program with the objective of increasing tanker ownership ratio from the current 25% to 50% in 2016 by procuring newly built tankers. Pertamina is operating 40 owned tankers and 21 additional tankers are under construction.

However, they are not interested in availing themselves of a two-step loan. They finance their vessel acquisition through bank-syndicated loans. From all indications, the same arrangement would continue in the future.

Concerning tanker chartering, Pertamina has been operating 110~120 tankers under time charter contracts. In 2009-2010, in compliance with the cabotage principle, Pertamina provided tanker operators long term charter contracts to younger age tankers. Afterwards, Pertamina has been making charter contracts for 1~2 years, renewable for 6 months, as

an option. If it is not readily available, or the type of tanker is hard to come by, they would go for a long term charter contract.

In 2011, as a result of their modernization program, the average age of tankers operated Pertamina became 18 years. Furthermore, Pertamina will replace 10 old and small sized tankers with new ones, which will be built in Indonesia, under time charter contract.

These domestic tanker contractors of Pertamina are the most plausible clients for the public ship finance project. PT. PANN, together with the tanker operator, could coordinate with Pertamina on the type of tanker that Pertamina is planning to get into a long-term charter. The contractor would then secure the long-term contract, and apply to PT. PANN for a tanker charter-lease. This way PT. PANN would have the confidence that the tanker operator would be able to meet the payment terms of the vessel lease. Pertamina will also benefit by having secured the type of tanker they would need for their logistics system.

The most important issues to consider for tanker operation are safety of operation and avoidance of damage to the environment. MARPOL Convention requires that for international shipping black oil tankers of more than 600 DWT must be of double hull construction and white oil tanker of less than 5,000 DWT must be double bottom, and tankers that are more than 25 years old shall be phased out. The Ministry of Communications issued Ministry Decree “KM.66 Year 2005 for Operation Procedure of Single Hull Tanker”, which does not require double hull construction and phase-out for over 25 years old oil tanker engaged in domestic shipping. However, the recent trend is that the major foreign oil companies require a double hull construction for white oil tanker less than 5,000 DWT for domestic shipping, even prior to adoption of MARPOL Convention by the government.

Under such situations, the DGST suggested to the JICA Survey Team to adopt a different ship phase-out policy for the tanker fleet, i.e., earlier retirement schedule than other ship types, as described in the beginning of this section.

Preliminary Ship Design

Based on the demand forecast, liquid bulk cargo will increase to 156 million MT in 2024 from 108 million MT in 2011 or an annual growth rate of 2.6% in average, which is rather a moderate assumption than the container and conventional vessels. However, the renewal demand of the tanker is more aggressive than the other vessels due to:

- Pertamina is the major oil player in Indonesia with 95% share of all oil transportation and promoting its modernization program both in charter contract and owned vessels,
- Market requirements on tanker construction have become stringent i.e. double hull construction will be required even in domestic operation, in line with the MARPOL requirements and abandonment of obsolete tanker over 25 years old.

These domestic tanker contractors of Pertamina are the most plausible clients for the PSFP and thus a real demand of tanker vessels exists.

The type of the Tanker Vessel will be Petroleum Product Carrier and its size will be of 3,500 DWT, as the PERTAMINA preferred standard model. The tanker is designed specifically for domestic services taking the following conditions into consideration:

- special consideration on the wider and shallow draft shape from the aspect of

port to be called;

- double bottom construction from the safety aspect;
- simple and reliable operation and maintenance is considered.

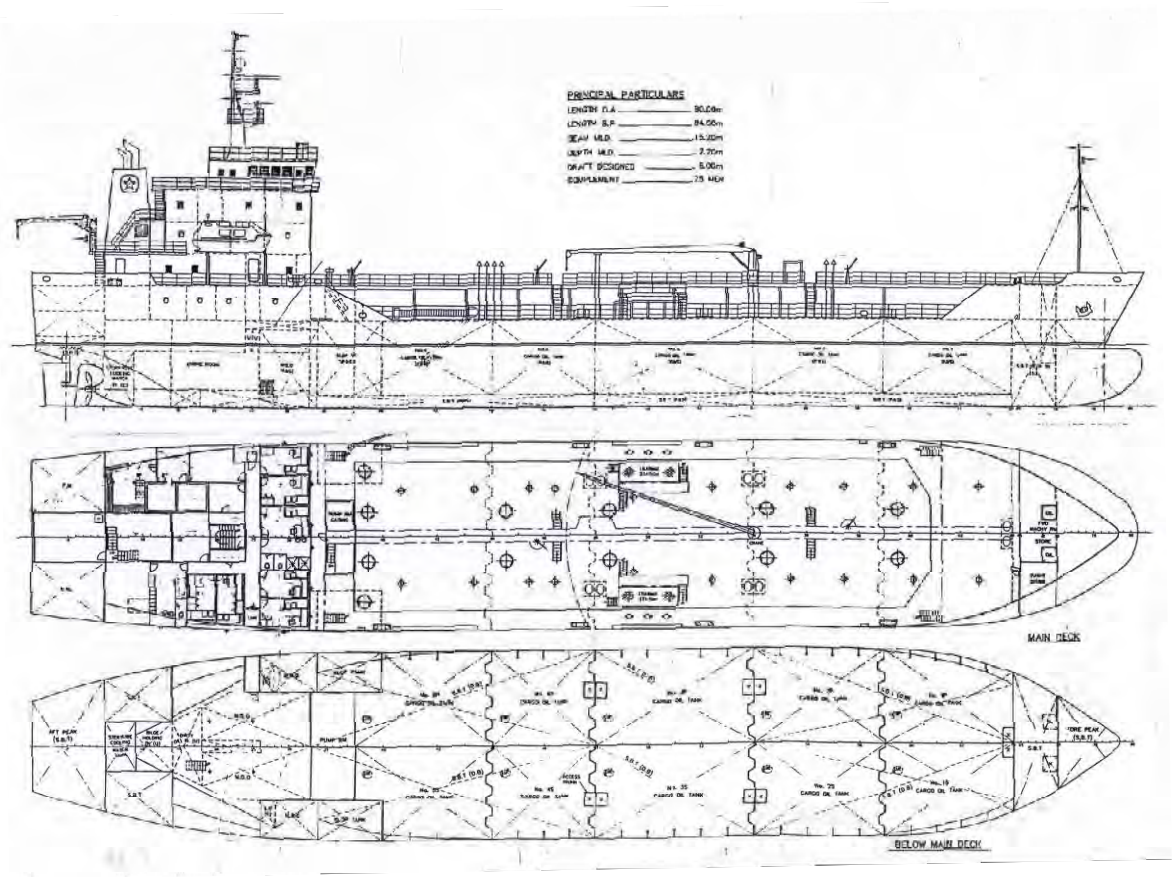


Figure 5.4.3 Image and Indicative Specifications of an Oil Tanker

1.	Dimensions	
	Length (over all)	abt. 90.00m
	Length (pp)	84.50m
	Breadth (mld)	15.00m
	Depth (mld)	7.40m
	Draft (mld)	5.00m
2.	Dead Weight at Design Draft	3,500 tons
3.	Classification Society	International Classification Society
4.	Complement	25 persons
5.	Speed	
	Normal Output of M/E with 15% sea margin	abt. 11.7knots
6.	Endurance	5,500 n.m.
7.	Tank Capacity	
	Cargo Tank	abt. 4,700 m^3
	Slop Tank	abt. 170 m^3
	Fuel Oil Tank	abt. 170 m^3
	Fresh Water Tank	abt. 170 m^3
8.	Main Engine	Low-speed Diesel 1 set
	Max. Continuous Output (MCO)	1,620 kw

	Normal Continuous Output (NCO)	1,375 kw
9.	Main Generators	2 sets
	Output	550 kw (each)

The estimated cost of the 3500DWT Tanker Vessel is approximately 900 million Japanese Yen subject to its being built in an Indonesian shipyard with the package supply of major equipment and design and technical assistance from an advanced country.

2) Shipyard Facilities

The Ministry of Industry estimates that an additional docking capacity of 1.8 million GT will be needed by 2015. To alleviate the existing congestion and meet future demand, therefore, floating docks and tower cranes are selected. They directly contribute to capacity enhancement and are manageable as leasing assets and they have quick investment effect.

The most required floating dock capacity is around 10,000 to 15,000 LT (lifting ton) which has the capacity to accommodate a handy sized bulk carrier (up to 50,000 DWT). Indonesian domestic cargo ship ranges from 1,000 to 29,000 DWT on average, thus the proposed floating dock capacity is set at 15,000 LDT which can cover most of the ship repairing demand.

The proposed size of the floating dock and the tower crane is as follows:

- FD Length : about 200m
- FD Width : about 33m (inner size)
- Tower crane : capacity about 100 ton lifting

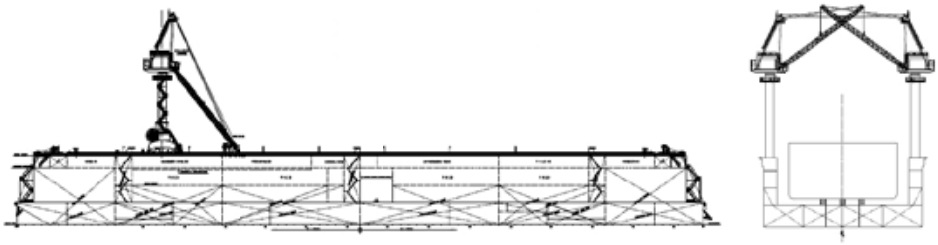


Figure 5.4.4 Floating Dock

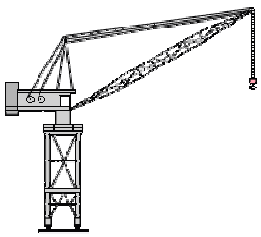


Figure 5.4.5 Tower Crane

5.5 Possible Climate Change Impact by Sub-project Packages

This section discusses the applicable monitoring methods on the possible effects to climate change due to the implementation of the identified sub-project packages to be financed under the Domestic Shipping and Sea Transportation Improvement Project.

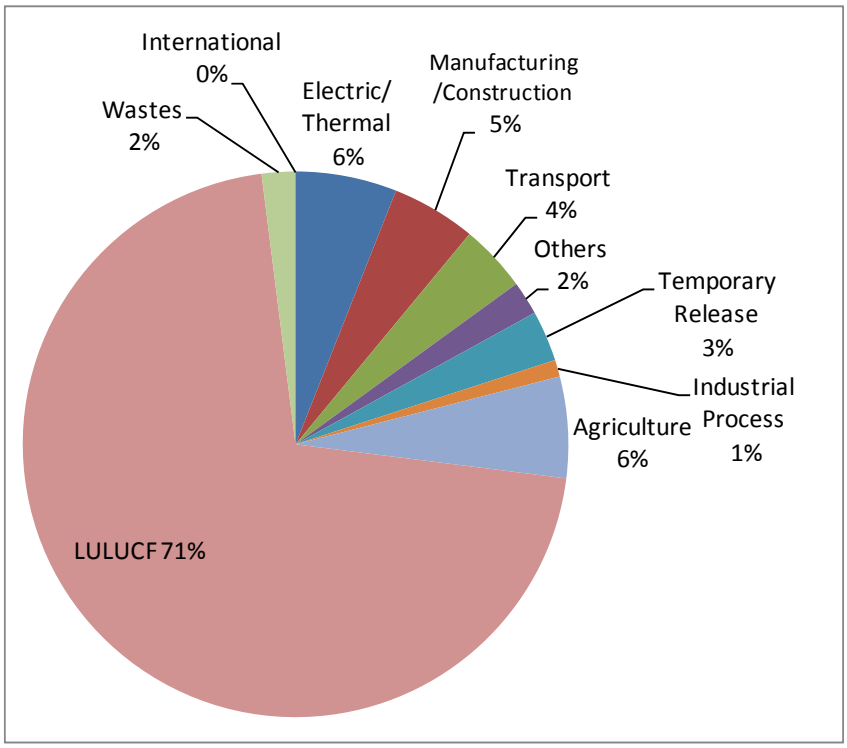
1) Current State of National Laws and Regulations and GHG Emissions from Marine Transportation Related to Climatic Change in Indonesia

Indonesia has announced the "National Action Plan Addressing Climate Change (RAN-PI)" at COP13 held at Bali, in December 2007, and intends to use it as the guide in carrying out a coordinated and integrated effort to tackle climate change. Thereafter, Indonesia submitted the documents of "Nationally Appropriate Mitigation Actions (NAMA)" to the secretariat of United Nations Framework Convention on Climate Change (UNFCCC) in January 2010. The document stated that Indonesia will reduce the volume of GHG emission by 26% by 2020, referenced on a "Business as Usual (BAU)" scenario, domestically and independently, through the introduction of the technology available in the market and the execution and restriction of the environmental policy, among others.

The energy consumption in Indonesia has been increasing rapidly brought about by the high economic growth. The energy consumption growth rate for 1990~2007 reached an average of 6% p.a. The CO_2 discharge volume generated by Bunker oil fuel in 2008 accounts for 385.4 Million Mt- CO_2, or approximately 1.3% of the world's total, the 13th largest country in the world.

On the side of domestic GHG emissions, the energy section contributes about 19%, while the largest GHG emission source is "Land Use, Land-Use Change and Forest (LULUCF), with approximately 1,600 Million Mt- CO_2, accounting for about 71% of the total emissions in 2005 (Figure 5.5.1). This is because of the large GHG emission from forest and peat fire. Therefore, Indonesia, in the wake of its continuous development strategy, puts most serious concern on the energy sector and land-use, land-use change and forestry for the purpose of reducing the GHG emission.

With regard to the CO_2 reduction strategies in the industrial sector, the Ministry of Industry made a roadmap in 2005 (revised November 2008), which prioritized the cement, steel, fiber, fertilizer and chemical industries as the energy-consuming industries that need the most improvement, while the transport sector is not specifically mentioned.



Source: National Action Plan Addressing Climate Change, 2007

Figure 5.5.1 Composition of Greenhouse Gas Sources in Indonesia

Transport sector contributes about 19% to the total CO_2 emissions of the energy sector. Based on the statistics of the World Bank, it is estimated that about 70% of the domestic freight (ton-km) is transported by the land mode and the majority of the rest, or around 30%, is transported by sea. Therefore, the total CO_2emissions in 2008 from domestic shipping is estimated to be about 13 Million Mt- CO_2.

Meanwhile, total cargo freight conveyed by domestic shipping in 2008 was 243.9 Million tons and grew to 309 Million tons in 2010, or about 13% average annual growth rate. It is expected that the annual growth rate after 2011 would be around 6% to 7%.

2) United Nations Framework Convention on Climate Change (UNFCCC) and GHG from Shipping

The Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol) is only applied to the Annex-I countries (developed economies). Indonesia is not obliged to reduce GHG emissions as it is a developing economy, and therefore one of the Annex-II countries,

According to the statistics published by the International Energy Agency (IEA) the CO_2 emission in 2008 from international shipping was 2.0% (approximately 578 Million tons) vis-a-vis the global CO_2 emission (approximately 2 Billion tons), or roughly equivalent to the emission from Germany.

As for the reduction of GHG emission from international shipping, the Kyoto Protocol/UNFCC recommends an individual and special treatment for it, with the prescription that *"The parties included in Annex I shall pursue limitation or reduction of emissions of GHG not controlled by the Montreal Protocol from aviation and marine*

bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively" taking into consideration its specific characteristics that ship moves multilaterally, and responsibilities are shared by and between flag states and port states.

Under this background, the IMO has been developing the regulatory framework on the practical measures with the following actions:

- Second IMO Greenhouse Gas Study 2009 - identified "Technical Measures" and "Operational Measures" for CO_2 emission reduction for international shipping;
- Revision of the International Convention for the Prevention of Pollution from Ships (MARPOL); and
- Deliberation on the "Market-based Measures" as an incentive to promote all measures.

The three measures, 1) Technical Measures, 2) Operational Measures, and 3) Market-based Measures are briefly explained as follows.

(1) Technical Measures

In order to promote the reduction in fuel consumption and the resulting CO_2 emissions, the introduction of more energy efficient ship is required, and therewith the need to develop the measures to be able to quantify the energy efficiency of individual ships when compared to similar, but conventionally-powered, ships. Energy Efficiency Design Index (EEDI) indicates the efficiency that is expected to be achieved by the ship, calculated based on the ship specifications during the design and building of the ship, and the evaluation of the CO_2 emission on a ton-mile basis. EEDI will eventually give an individual rating to each ship.

The equation of EDDI is expressed as follows:

$$\text{EEDI (g/ton mile)} = \frac{\text{CF} \times \text{SFOC (g/kWh)} \times \text{(P - Recovered Power) (kW)}}{\text{DW (ton)} \times \text{V (mile/hr)} \times \text{fw}}$$

Where CF: Carbon Index (CO_2 g/fuel g)

SFOC: Specific Fuel Oil Consumption (g/kw-hr)

P: Maximum Continuous Rating (MCR) of the main engines (Kw)

DW: Deadweight at maximum draft (ton)

V: Ship speed at 75% MCR (mile/hr)

fw: Speed Depression Coefficient (tentatively 1.0)

In the EEDI equation, CO_2 emissions of a particular ship can be calculated by the CO_2 Index multiplied by the assumed fuel oil consumption.

EEDI, expressed in grams of CO_2 emission per ton-mile, is calculated by multiplying the CO_2 emission, as calculated earlier, by the transport capacity of a given ship that is, dead weight by ship speed (mile/hour) at 75% MCR.

(2) Operational Measures

Because the ship would be in operation for many years, it is difficult to reduce the CO_2 emission rapidly by means of just substituting with a new ship with the higher energy efficiency, which uses the above-mentioned EEDI scheme. Therefore, the promotion of the less-energy operation of existing ships is also an important measure.

The underlying principle in reducing CO_2 emission is to navigate efficiently through the following measures: speed reduction, proper ship maintenance, proper navigational route selection taking weather and current information into mind. In view whereof, it is proposed that the "Ship Energy Efficiency Management Plan (SEEMP)" be adopted to persuade the continuous management of ship with: i) Plan; ii) Do; iii) Monitor; iv) Evaluate; and, v) Improve, while the CO_2 emission of the ship is monitored.

For the evaluation measures of SEEMP, "Energy Efficiency Operational Indicator (EEOI) that indicates the efficiency achieved in actual operation of the ship is introduced and its EEOI Guideline is adopted by IMO. The equation of the EEOI is as follows.

$$\text{EEOI (g/ton mile)} = \frac{\text{CF} \times \text{FC (g)}}{\text{Cargo Mass (ton)} \times \text{Sailed Distance (mile)}}$$

Where CF: Carbon Index (CO_2 g/fuel g)

FC: Fuel Consumed (fuel g)

EEOI calculation and the evaluation of the result are granted by Class NK. It is worthy of consideration to apply the services to Indonesian domestic shipping.

These measures for CO_2 reduction under the SEEMP can be the same program to be required under the Ship Management requirements. Besides, utilization of the EEOI will make use of the quantitative monitoring of CO_2 emission.

(3) Market Based Measures

Further discussions are ongoing at the IMO on the procedures to give an incentive to the ship operator that promotes the introduction of the CO_2 reduction measures, including the Technical Measures and Operational Measures as aforementioned. Albeit the International GHG Contribution Fund and Maritime Emissions Trading Scheme (METS) are specifically debated, the METS is not applicable to this project, since the scheme is for the transactions between the ocean going ships or between nations.

3) Review of the Adoptable Measures to the Project

The IMO regulations are only applied to the ships engaged in the international voyage and not applied to the ships operated only in the domestic sea. Also, CO_2 reduction is not obligatory to Indonesia under the Kyoto Protocol as mentioned before.

However, domestic sea freight demand in 2010 is projected to become 1.8 times larger than that of 2010 and CO_2 emissions will increase accordingly.

Indonesia, which declared 26% reduction of CO_2 emission until 2020, needs to reduce CO_2 emission not only dependent on the LULUCF but also on the energy sector. It can apply the Technical Measures and Operational Measures to domestic ships that are expected to be procured under the Project in the following manner:

(1) New Built Ship

Implement the reduction of CO_2 emissions by the introduction of EEDI and thereby deployment of high fuel efficiency ships.

(2) Second-Hand Ship

Monitor the total CO_2 emissions and implement the Ship Management for the CO_2 reduction by means of Operational Measures, which includes SEEMP with the EEOI. Under the SEEMP, the management of the fuel oil consumption through the monitoring of bunkering and ships log is significant. Thus, the establishment of the Ship Management System is of vital importance.

(3) Ship Conversion/Modification

Change ship's main engine to a lower fuel consumption type. In this case, Small-Scale CDM (SSC) will be available. Should the Project be approved as an SSC by the authorities concerned, Indonesia may issue some Certificate of Emission Reduction (CER), and then the developed countries could get benefit in the form of Carbon Credit.

5.6 Implication for the Project

This chapter mapped out the PSFP particularly its policy and financing targets in a hierarchical structure, including PSFP-related government policy, project objective, planned solutions to be mobilized in the PSFP, sub-project targets, concretization of new asset construction images, and possible climate change impacts.

Although there are many policy documents related to domestic shipping, the report introduces only two, INPRES No.5/2005 and MP3EI, since they have a higher authority in the government and specify the role and expectation of the PSFP. The project objective is to harmonize these documents. Therefore, the project objective must be thoroughly practiced. To do so, the PSFP mechanism and implementation modality must be prepared.

The JICA Survey proposes five (5) solutions to be used to achieve the project objective. Innovative ship finance is defined as 'total delivery service rather than just financing' which enables the provision of attractive financial services even to small shipping companies. Other financing solutions are new shipbuilding and capacity addition to the existing ship repairing. PT. PANN as EA must take on a greater role in the project. For realizing total service delivery, the PSFP is keen on ship management for the financed vessels. But the industry association has just been newly founded, i.e., in 2011. Nurturing efforts must be appreciated. The JICA Survey identifies three (3) sub-project targets. They are new shipbuilding and second-hand ships and shipyards and the five (5) solutions are incorporated in their respective scopes and criteria. The PSFP mechanism and modality must be designed to make these five (5) solutions work toward achieving the (3) sub-project targets.

For obtaining more concrete sub-project images particularly for new asset construction, several sub-projects were tentatively selected and preliminarily designed to make the PSFP mechanism and implementation modality doable and give realistic assumptions to project evaluation.

Finally, applicable monitoring methods were analyzed to gauge climate change impact by implementing PSFP sub-projects.

6 PSFP IMPLEMENTATION PLAN

6.1 Implementation Scheme and Preparation Schedule

1) Project Fund and Its Flow

Main Loan

In the JICA Survey, the 5-year ship investment requirement between 2012 and 2016 is estimated at 128 trillion Rupiah. Under a recently expanding investment flow into the national tonnage, the PSFP fund will not need to be a major resource. It is considered that the PSFP will work as a catalyst to guide ship investment towards an improved fleet profile.

The Survey plans to tap 30 billion Yen or 3.2 trillion Rupiah as a PSFP introductory phase between 2012 and 2016 with the following considerations:

- PT. PANN financed 2.4 trillion Rupiah between 2006 and 2010 and will do 12 trillion Rupiah between 2011 and 2015 according to its business plan. In recent years, PT. PANN dealt with less than 19 lease finance projects per year. The Survey considered such benchmarks. It is recommended that in undertaking its role as the EA, PT. PANN should maintain their present organizational structure and size, since rapid personnel increase could adversely affect service quality.
- In the aspect of technology transfer, a small and simple structured ship type is not advisable as a model shipbuilding type. Instead, the desirable ship type is one that is technically difficult but with strong demand in the domestic shipping industry. To enjoy considerable cost reduction, it is also advisable to build more than 3 units of the same ship type.
- Urgent and substantial action is required to effectively expand the existing ship repairing capacity.

The project main loan will come from JICA with an interest rate of 1.4% annually. It has a repayment period of 25 years with 7-year grace period. When the entire loan amount is not fully mobilized within the initial five (5) years, the rest of the amount must be returned to JICA.

The Government of Indonesia (Ministry of Finance) will exchange the project loan to Rupiah and disburse it to PT. PANN, based on a subsidiary loan (S/L) agreement. The interest rate is SBI (Bank Indonesia Certificate) rate plus 1% in accordance with Ministerial Decree No. 259/1993.

The S/L fund will be managed in a project escrow account to be opened and supervised by MOF. PT. PANN will use the fund to acquire/construct leasing assets and deliver them to end-users based on sub-project contracts between PT. PANN and end-users.

Consulting Service Loan

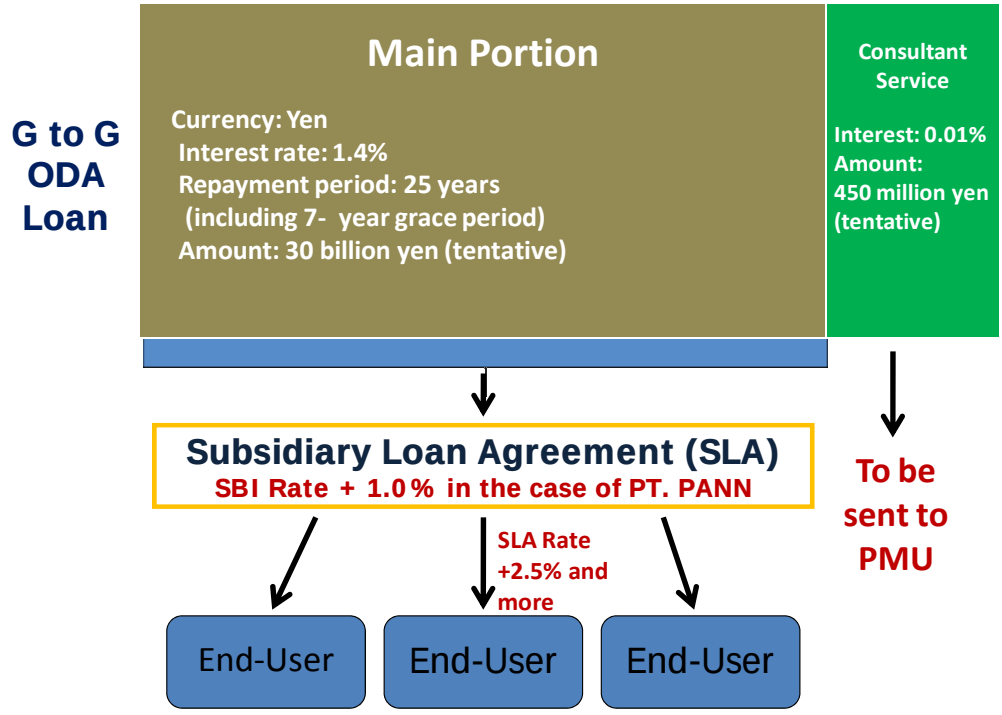
A Project Management Consultant (PMC) will be essential in providing technical assistance to PMU members and end-users, so as to provide total delivery service in the PSFP during the introduction phase. The associated consulting service to the main loan has been elaborated and outlined in the TOR (refer to Annex 6.3). The scope of consulting services covers: (i) sub-project identification, planning and appraisal; (ii)

engineering services and supervision for sub-project implementation; and (iii) capacity development for ship management. The TOR requires a consultant team consisting of foreign consultants (100 person-months) and domestic consultants (190 person-months) for the initial five years. The budget is estimated at 450 million Yen.

Thus, the associated consulting service loan is tentatively set at 450 million Yen or 1.5% of the project main loan amount based on similar Japanese Yen loan supported ship finance projects in the Philippines, ranging from 1.1% to 2.3% of the project main loan amounts. (Refer to Table 6.1.1)

The project loan will include its associated consulting service component, which has the same condition as the project main loan or two-step loan except for the interest rate, which is set at 0.01%. The PMC will be employed by the Government through international bidding and then seconded to the project management unit (PMU).

The Government of Indonesia has received several foreign soft-loan programs. Annex 6.1 introduces one KfW's two-step-loan project and PT. Merpati's aircraft procurement project.



Source: JICA Survey Team

Figure 6.1.1 Proposed PSFP Fund Flow

Table 6.1.1 Similar Ship Finance Experience in the Philippines

Components / Steps	Phase I (L/A No. PH-P151)	Phase II (L/A No. PH-P189)	LIDP (L/A No. PH-P245)
Borrower	GOP	DBP	DBP
Executing Agency	DBP	DBP	DBP
Loan Amount (Sub-loan) (Consulting Services)	15,000 million Yen (14,838) (162)	19,990 million Yen (19,532) (458)	30,380 million Yen (30,000) (380)
Loan Disbursed Amount (Progress in %)	12,700 million Yen (84.7%)	19,383 million Yen (97.0%)	Upcoming program
Exchange of Notes	November 1994	September 1998	n.a.
Loan Agreement (L/A)	December 20, 1994	September 30, 1998 (Effective: Jan. 7, 1999)	Nov. 9, 2009
Accomplishment	New Vessels purchased: 56 Second-hand Vessels Purchased: 52 Ships Repaired: 6	Pax Ferry, Tankers, tugboats and cargo vessels purchased: 29, Improvement of Shipyards: 1, Development & Improvement of Terminals and Ports: 25, Maritime Edu.: 8	Upcoming program

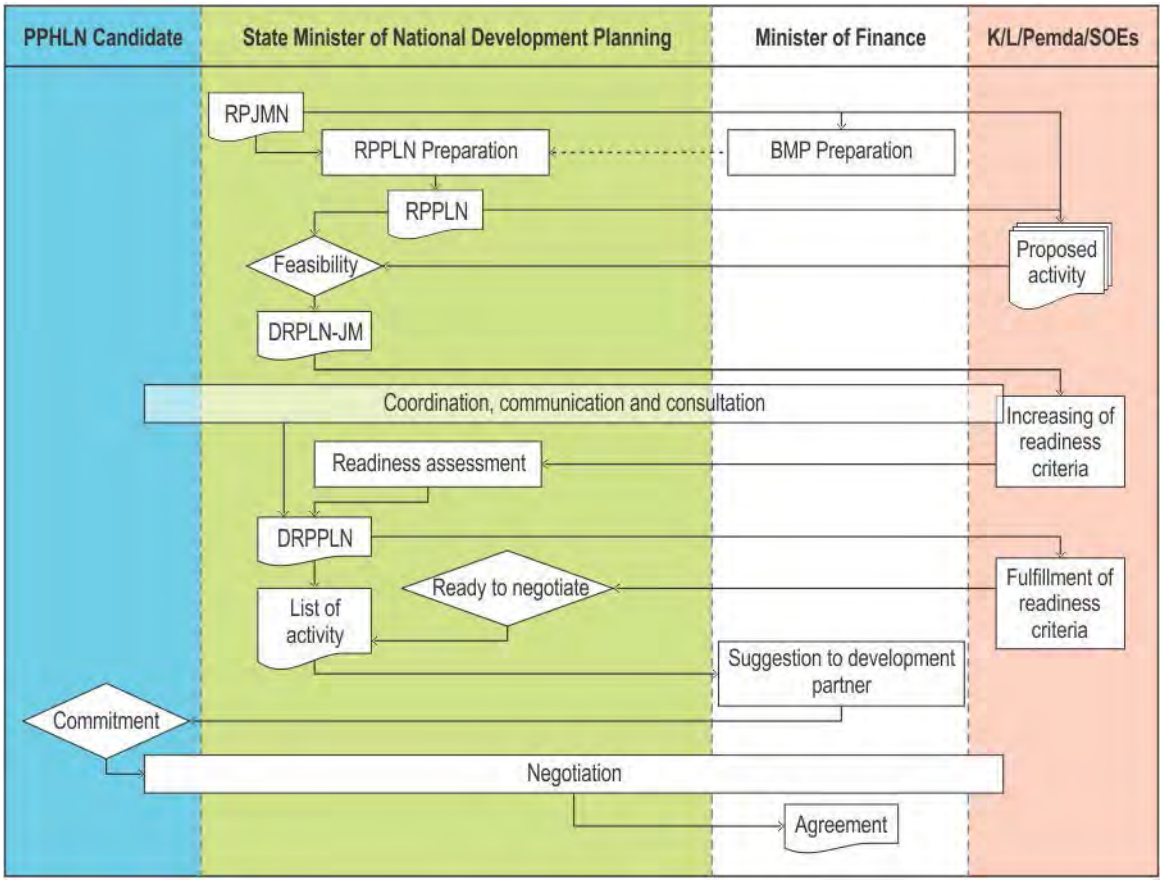
Source: DBP

2) Relevant Regulatory Framework

Procedure for Exploiting Foreign Loan

The present government regulation that enables the government ministry/agency, local government and State-Owned Enterprise (SOE)[1] to apply and utilize foreign loans and grants is Government Regulation No. 10 Year 2011, or PP No. 10/2011, with the title Procedures for Procurement of Foreign Loans and Grants. This new regulation replaced the previous PP 2/2006 with the title Procedures for Procurement of Loans and/or Grants Revenue and Subsidiary Loans and/or Foreign Grants in order to increase efficiency and effectiveness of the utilization of foreign loans and grants. The procedures for planning and applying for foreign loans are illustrated in Figure 6.1.2.

[1] SOE is the Limited Liability Company (PERSERO) as stipulated in Government Regulation No. 12 of 1998 and the Public Company (PERUM) as stipulated in Government Regulation No. 13 of 1998. (Decree of Ministry of SOEs No. KEP-100/MBU/2002)



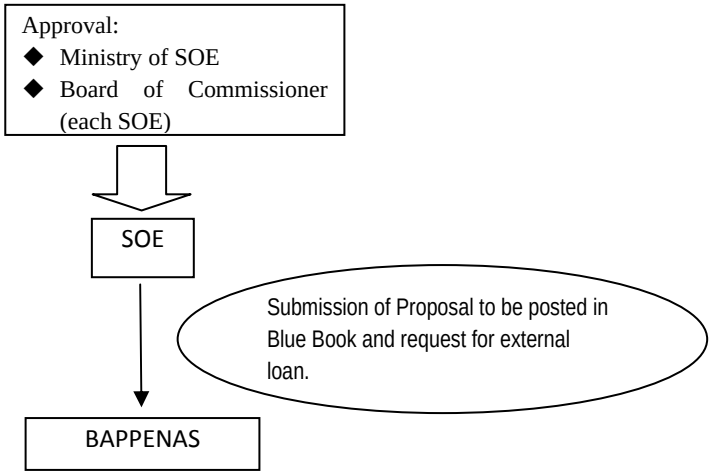
Source: BAPPENAS

Figure 6.1.2 Chronology of Activity Loan Planning

The DRPLN-JM, a document described at the center of the above figure, is commonly called the "Blue Book" compiled by BAPPENAS based on the RPJMN, the National Medium-Term Development Plan, also described at the top of the above figure. The preparation of the Blue Book, which consists of a list of project proposals that are suitable and feasible to be financed by foreign loans and grants for medium-term, is aimed at improving the project preparation process of foreign loans and grants..

Article 12 (1) of PP No. 10/2011 provides that the "Ministry/Agency and SOEs submit proposed activities that can be financed by external loans to the Minister of National Development Planning (BAPPENAS) with reference to the RPJM and considering External Loans Utilization Plan". BAPPENAS will review the technical aspects and feasibility of the proposal. In their review process, BAPPENAS will ask for the recommendation of the MOF.

According to Article 19 (3), the executing agency is required to submit a proposal to the Minister of Finance, whose primary concern is the capability of repayment of the sub-loan. Figure 6.1.3 illustrates the submission flow of SOE's proposal to BAPPENAS.



Source: BAPPENAS

Figure 6.1.3 Submission of Proposal to BAPPENAS

For detailed analysis of the present Government Regulation for foreign loan and further reference to this JICA project, a brief explanatory note prepared by BAPPENAS is attached in Annex 6.2. Projects to be implemented with the assistance of Japanese ODA loans, including this project, need to go through these procedures.

Interest Rate to be Applied to Sub-loan by MOF

The interest rate to be applied to the sub-loan granted by the Ministry of Finance (MOF) based on each Sub-Loan Agreement concluded between the MOF and the executing agency of each project is regulated by Decree of Minister of Finance No. 259/KMK. 017/1993 regarding Sub-Loan, Interest Rate and Loan Channeling Administration Services within the Framework of Foreign Aid. Article 3 of the decree regarding interest rate to be applied depending on the currency and borrower of sub-loan is shown in the box below. Since PT. PANN is a state-owned enterprise, it is understood that the interest rate provided in category 1 of letter b will be applied.

Article 3

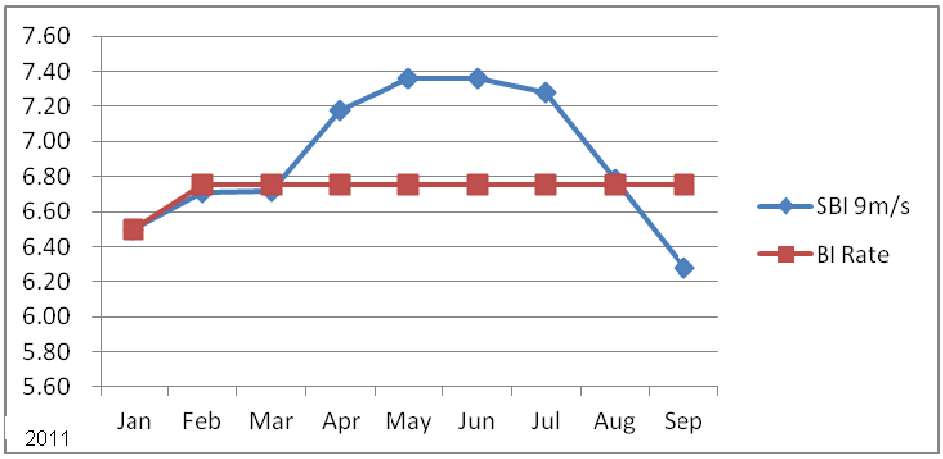
Interest Rate of foreign loan subsidiary is decided by Minister of Finance based on the following classifications:

a. in terms of subsidiary loan to Loan Recipients in foreign currency as referred to in Article 2 letter a, interest rate of subsidiary loan is decided in accordance with interest rate that must be paid by Government to PPHLN[2] plus 0.50% (percent) per year or decided otherwise by Minister of Finance;

b. in terms of loan subsidiary to Loan Recipients in rupiah as referred to in Article 2 letter b, interest rate of subsidiary loan is decided as follows:
   1. for SOEs that included in healthy/very healthy category, interest rate of subsidiary loan is the same with SBI Interest rate plus 1% (percent) per year;
   2. for Banking SOEs, interest rate of subsidiary loan is the same with SBI Interest rate or decided otherwise by Minister of Finance;
   3. for Loan Recipient that do not included in category 1 and 2 above, will be decided case by case as accordance with Project feasibility.

[2] PPHLN: Pemberi Pinjaman Hibah Luar Negeri, meaning Foreign Loan or Grant Lender

SBI rates vary depending on duration and issuance month. The latest quotation of SBI interest rate is 6.28% for 9 months[3], so it is assumed that PT. PANN would receive the sub-loan from MOF at 7.28%. With 2.5% - 3.0% added as their gross margin, PT. PANN would offer around 10%, which would be attractive to potential lessees, who are principally SMEs, when compared with the prime lending rates of 3 major commercial banks. (Refer to Figure 6.1.4 and Table 6.1.2)



Source: Bank Indonesia

Figure 6.1.4 Trend in BI Rate and SBI Rate (9 months)

Table 6.1.2 Prime Lending Rate as at 30 June 2011

(% per year)

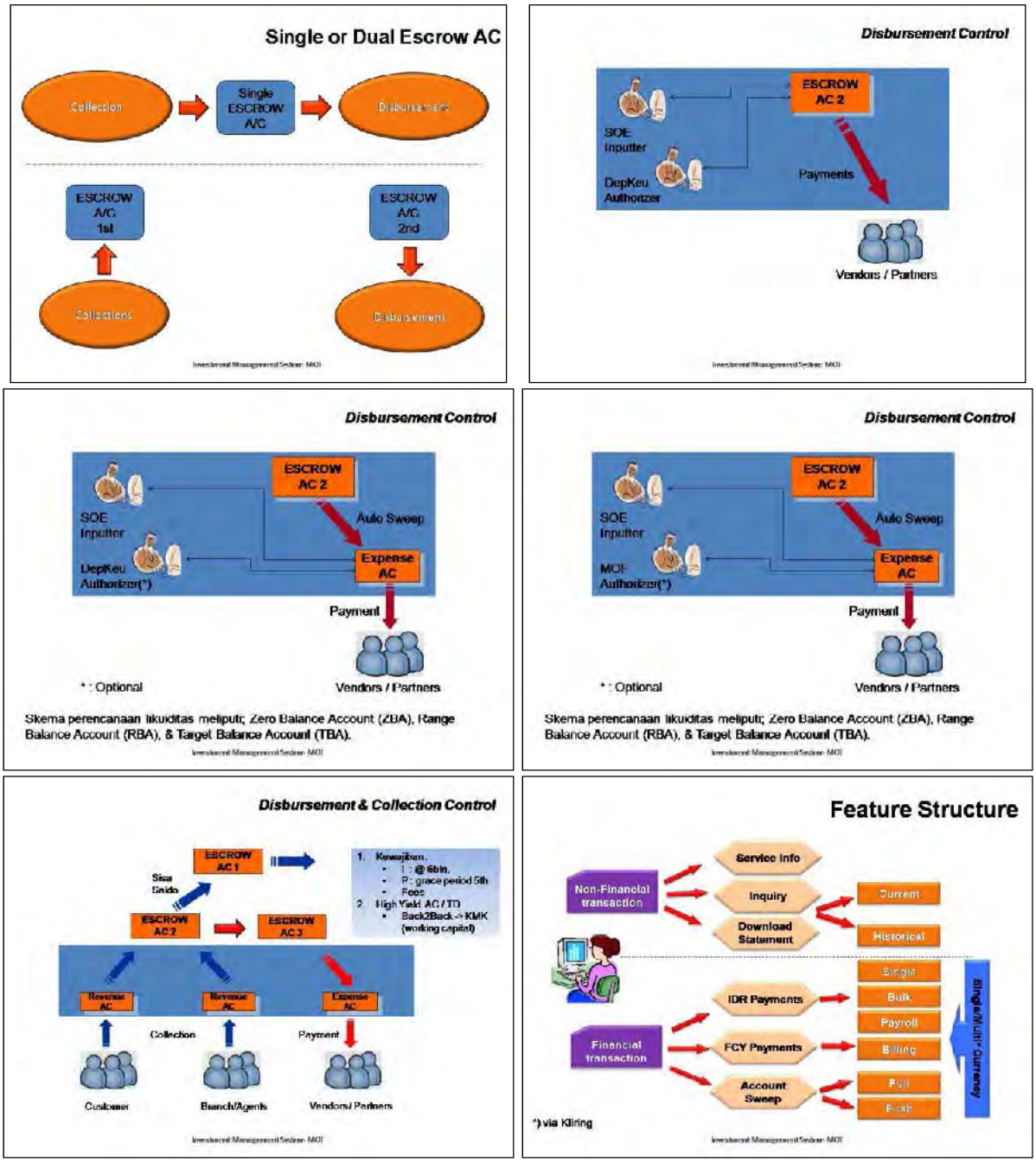
Bank	Prime Lending Rate	
	Corporate Credit	Retail Credit
Bank Mandiri	11.25%	13.00%
BRI	11.10%	13.32%
BNI	11.00%	13.05%

Source: Website of each bank

Escrow Account to be Operated within State-Owned Enterprise

The Escrow Account is a tool for the MOF to supervise fund transactions within a SOE under a subsidiary loan agreement with MOF. It is also a solution to implement a foreign soft loan project by a SOE, which is suffering financial predicament. The Directorate of Investment Management System under the Directorate General of Treasury presented the concept of the escrow account solution as shown in Figure 6.1.5.

[3] The latest interest rate (weighted average rate) of SBI quoted in September 2011 (Source: Website of BI)



Source: MOF

Figure 6.1.5 Operation and Maintenance of Escrow Account as Required by MOF

3) Project Preparation Schedule

Since the commencement of the Preparatory Survey in March 2011 the counterpart agencies, BAPPENAS, DGST of MOT and PT. PANN have intended to appoint PT. PANN as the project executing agency. After numerous internal and inter-ministerial efforts, PT. PANN submitted a project proposal to BAPPENAS on 30 September 2011. Afterwards, there are 13 steps in the process of project preparation that must be undertaken, namely:

(1) Inclusion of the project proposal into BAPPENAS's long list (Blue Book);

(2) G-G meeting on the long list;

(3) Fact finding mission by JICA;

(4) G-G meeting for short listing;

(5) Advance Request from GOI;

(6) Appraisal by JICA;

(7) Official Request from GOI;

(8) Prior Notification by GOJ;

(9) Exchange of Notes (E/N) between GOJ and GOI

(10) Loan Agreement (L/A);

(11) Effectuation of L/A;

(12) Selection of Project Management Consultant (PMC); and

(13) Commencement of the project.

In order to shorten the above process and save time, the Indonesian side may start the preparation of selection of the PMC before the signing of the L/A, and the E/A can conclude the consulting service contract as soon as the L/A is signed.

6.2 Project Organization and Management

1) Project Organization

In the PSFP, PT. PANN will work as the Executing Agency (EA). There would be two-level coordinating organizations.

Steering Committee (SC) / Project Working Group (PWG) Meeting

To undertake overall project supervision, SC or PWG meetings will be held. SC meetings will be convened by the Director General of Infrastructure, BAPPENAS, when necessary to elaborate/amend the initial project framework.

Otherwise, PWG meetings will be organized quarterly by the Director of Transportation, BAPPENAS, and co-chaired by Director of Sea Traffic and Transportation, DGST.

The project overall supervision may include, among others: (i) government policies to be followed; (ii) overall project strategy; (iii) methodology of audit for each sub-project; (iv) evaluation of project impact; and (v) elaboration on project quarterly report to be submitted by the PMU.

One of the important roles of the SC/PWG is to approve a batch of sub-projects to be endorsed by the PMU and reported in a quarterly progress report. Assuming around 15 sub-projects are to be implemented yearly, a quarterly batch of sub-projects would be 3 or 4 on the average.

Anticipated meeting members include BAPPENAS, CMEA, MOF, BI, DGST of MOT, MOI, MSOE and PT. PANN.

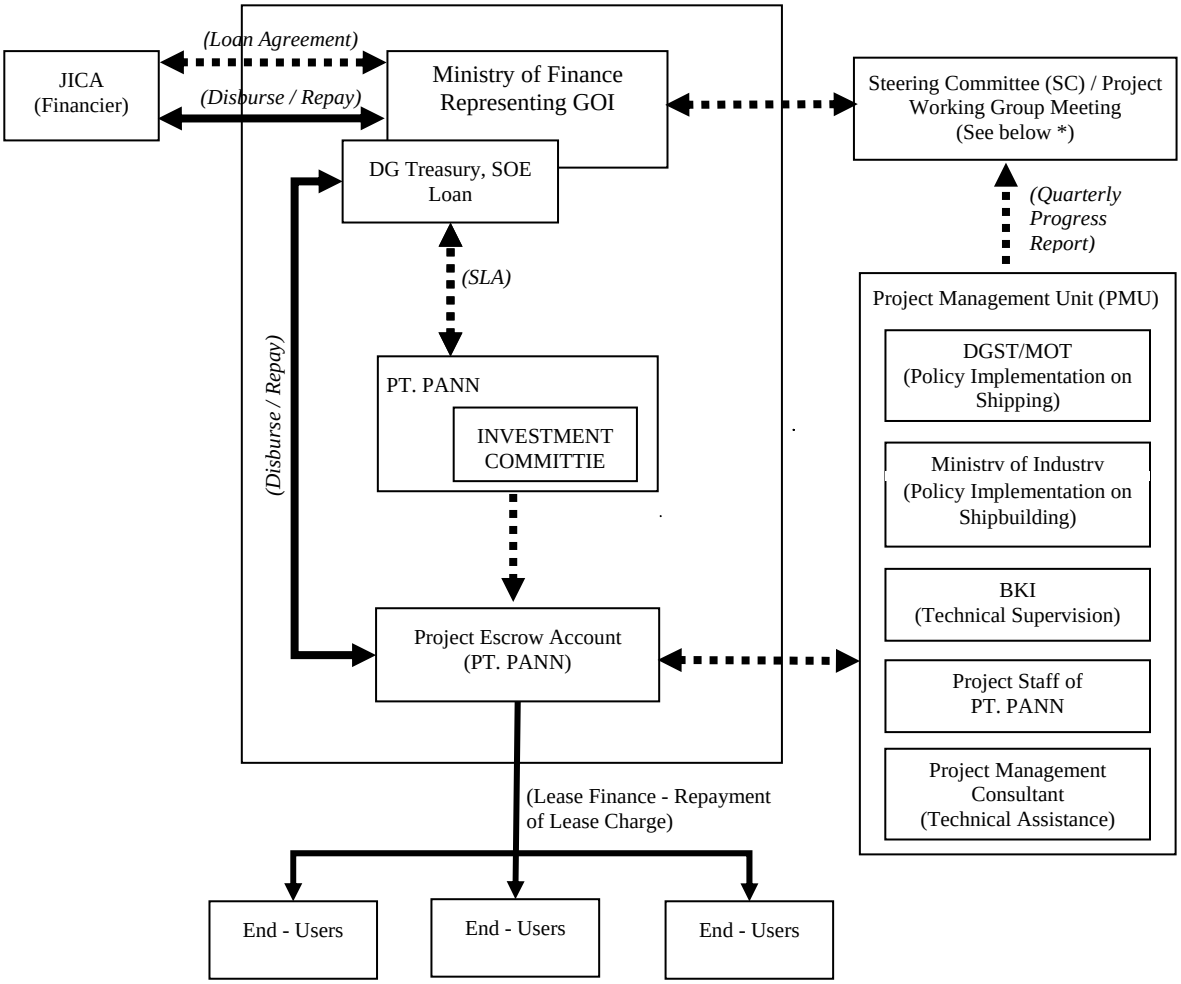
Project Management Unit (PMU)

The PMU, consisting of regular staff (PT. PANN and PMC) and ad-hoc meeting participants (DGST, MOI and BKI), will undertake daily project supervision and technical assistance activity.

Except for the PT. PANN project staff and the PMC, other members will attend related meetings only. Therefore, it is understood that no permanent / semi-permanent government office is required for project implementation.

It should be noted that PT. PANN and the PMU will have to make sure that there would be no conflict of interest among the staff of PT. PANN, who are seconded to work as PMU staff, especially for appraisal and decision-making of each sub-project.

Figure 6.2.1 illustrates the organization for project implementation.



Source: JICA Survey Team

Figure 6.2.1 Organization for Project Operation and Management

2) PMU Operation Plan

PMU Members and Responsibilities

The PT. PANN project staff and PMC will work on a full-time basis. Others will participate in PMU meetings particularly with the following concerns:

- DGST: Policy implementation in regard to shipping, ship safety and other shipping related matters;
- MOI: Policy implementation of shipbuilding and ship-repairing industries; and
- BKI: Technical matters in regard to ship quality

The PMU is responsible mainly for two (2) tasks. The first would be the daily supervision of project implementation while the second is capacity development in the PSFP, including sub-project identification, planning and appraisal, engineering services and supervision for sub-project implementation and capacity development for ship management.

The PMU would prepare quarterly project progress reports which include, among others:

- The status of sub-projects which are in the pipeline, in the process of asset procurement and construction and in operation;
- A quarterly batch of sub-project proposals which the PMU will appraise and endorse to the SC/PWG's approval;
- Records of technical assistance plans and activities;
- Records of sub-project project monitoring plans and activities;
- Other project management matters worth noting for SC/PWG's deliberation.

Quarterly project progress reports will be submitted to the Steering Committee (SC) and the Project Working Group (PWG) meetings. PMU meetings will be held on a monthly and ad-hoc basis under DGST's chairmanship.

Technical assistance, including sub-project identification, planning and appraisal, engineering services and supervision for sub-project implementation and capacity development for ship management, will be mainly provided by the PMC to PMU participants and end-users.

The PMU is also required to keep close communication with JICA.

Sub-project Decision Making

Each sub-project will be subject to the PMU's appraisal. A quarterly project progress report to be prepared by the PMU will include each appraisal result and the request to approve a batch of sub-projects to be financed for deliberation during SC or PWG meetings.

If different decisions are reached between the PT. PANN Investment Committee and the PMU/SC/PWG, the disagreement should be resolved by the following:

- When the PT. PANN Investment Committee decides to implement a sub-project but the PMU/SC/PWG disagrees with it in the light of the PSFP objectives, it is suggested that PT. PANN use a different source rather than JICA's loan.
- Once the PT. PANN Investment Committee decides to implement a sub-project and

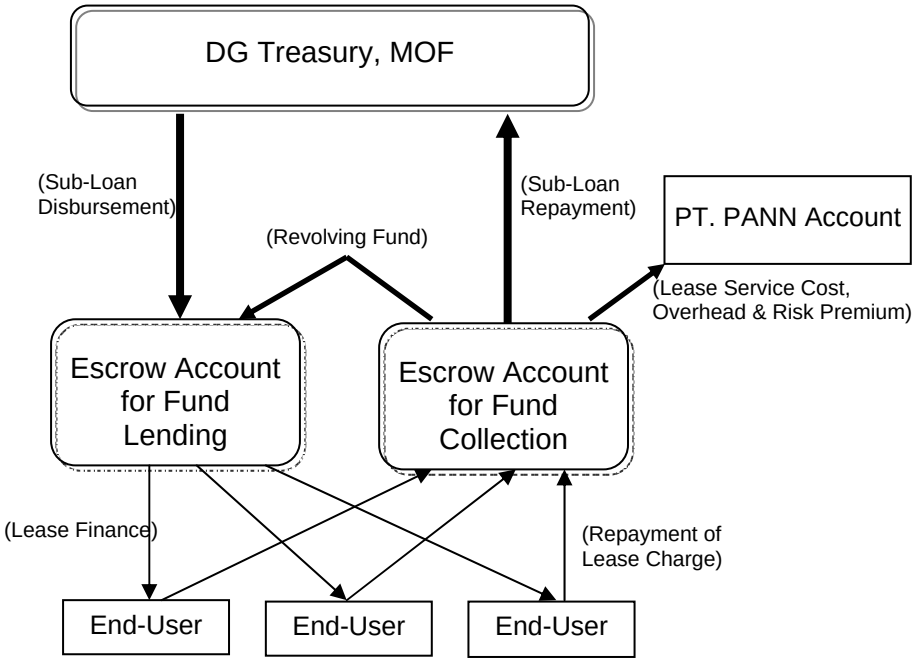
the PMU/SC/PWG agrees, but, after the bidding of new asset construction, such as new shipbuilding and shipyard facility, it becomes obvious that the bidding price is too expensive to make a sub-project feasible, the PT. PANN Investment Committee may suspend or terminate it since PT. PANN must take the business risk.

Account Management

Upon completion of such a sub-project appraisal and approval process, the equivalent fund will be disbursed to a project escrow account in accordance with a subsidiary loan agreement between DG Treasury, MOF and PT. PANN.

The PMU will undertake the same procedure for sub-projects which will be financed from accumulated revolving project fund in the project escrow account as long as the repayment schedule to be designed in the subsidiary loan agreement is satisfied.

It is suggested that at least two escrow accounts shall be opened and maintained for efficient project management. They are the accounts for (1) fund lending and (2) collection, as depicted in Figure 6.2.2.



Source: JICA Survey Team

Figure 6.2.2 Escrow Accounts for Project Management

Employment of Project Management Consultant (PMC)

The PMU will work together with the PMC, which will be employed through an attached consulting service loan to the project loan.

The draft TOR for PMC is shown in Annex 6.3. It is still preliminary and needs to be finalized by the PMU and approved by Steering Committee (SC) and/or the Project Working Group (PWG).

3) Sub-project Approval Criteria

Besides credit risk to be borne by the EA, the PSFP has development policy related criteria which will be checked upon sub-project approval.

The most significant one is whether a sub-project candidate meets the PSFP objective.

- To modernize and expand the domestic shipping fleet by providing financial assistance to enterprises, particularly small-sized, engaged in domestic shipping and shipping-related industries in Indonesia, thereby contributing to strengthening inter-island connectivity

In this sense, vessels for foreign trade and non-shipping use, e.g., mining and tourism must be excluded. A shipyard dock for exporting vessel must be also excluded in the PSFP.

For the purpose of domestic shipping development, it can be generally spelled out from a couple of development policy horizons as follows:

In the light of national economy:

(1) Stronger inter-island connectivity;

(2) Lower shipping cost and/or more convenient transport service; and

(3) Immediate gap alleviation between supply and demand at shipping routes and at shipyards.

In the light of maritime industry:

(4) Practice of modern shipping business management and operation on a financed vessel;

(5) Practice of ship management on a financed vessel by using contract-out services; and

(6) Shipbuilding technology advancement at domestic shipyards through technology transfer in a new shipbuilding sub-project.

In the light of safety and environment:

(7) Satisfactory seaworthiness through modification of second-hand vessels and well-designed newly built vessels; and

(8) Safe ship operation in compliance with the ISM-Code.

When appraising each sub-project proposal, the PMU will firstly categorize it in accordance with the 3 sub-project targets, i.e. ‘new shipbuilding with technology transfer’, ‘second-hand vessel procurement and modification’ and ‘urgent shipyard capacity expansion’. Next, the above general criteria will be used combined with the sub-project targets related scope and criteria as indicated in Section 5.3 2.

The other criterion in the progress of sub-projects approval as a whole is a balance and synergic relationship among the sub-project targets. It means that accumulated sub-project amounts among the 3 sub-project targets may not be balanced equally but the balance must be strategic and accountable to address the PSFP objective under the changeable situations taking account of policy priority and synergy effect over the sub-project targets as described in Section 5.3.3.

As of the project preparatory survey, the PSFP fund mobilization is planned as follows:

Table 6.2.1 PSFP Fund Mobilization Plan

Sub-project Target	Fund Mobilization	Lease Period
New Shipbuilding with Technology Transfer	More or less 10 billion Japanese Yen	Up to 15 years
Second-hand Vessel Procurement and Modification	More or less 10 billion Japanese Yen	Up to 10 year
Urgent Shipyard Capacity Expansion	More or less 10 billion Japanese Yen	Up to 15 Years
TOTAL	30 billion Japanese Yen	

Note: PT. PANN submitted the project proposal including this table to BAPPENAS on 30 September 2011.
Source: JICA Survey Team

6.3 Eligible End-users and Operation Guideline

1) Eligible End-users

The eligibility of end-users shall be assessed as to their legal status, i.e., shipping companies and shipyards duly registered and operating under the relevant Indonesian laws and regulations. Prospective end-users must be Indonesian corporations.

In the light of the project objective, the PSFP puts a business scale condition expressed by the number and tonnage of vessels owned by shipping companies.

Table 6.3.1 Eligible End-users (Shipping Companies)

Company Size	Liner Operator	Non-liner Operator / Tramper
Small	*Eligible*	*Eligible*
Medium	*Eligible*	*Not Eligible*
Large	*Not Eligible*	*Not Eligible*

Note: Classification of Company Size in the Project
Small : companies owning only 1 vessel or owning vessels with an aggregate of 5,000 GT
Medium: companies owning 2 vessels or owning vessels with an aggregate of more than 5,000 to 50,000 GT
Large : companies owning more than 2 vessels with an aggregate of more than 50,000 GT
Source: JICA Survey Team

In case of finance to the non-eligible end-users, PT. PANN (E/A) through PMC and SC will request for approval from JICA for each sub-project.

2) Operations Guideline

The JICA Survey Team has prepared the Eligible End-Users and Operations Guideline, with PT. PANN as Executing Agency. It is summarized in Table 6.3.2 and attached to this Report as Annex 6.4. This Operations Guideline is still preliminary and needs to be finalized by PT. PANN as the Project Executing Agency and submitted to JICA for approval, so that the Project can get actually started.

Table 6.3.2 Summary of the PSFP Operation Guideline

Component	PSFP
Eligible Sub-projects	Procurement of vessels, both second-hand and newly built, for domestic shipping. Procurement of facilities and related equipment for shipyard expansion and modernization.
Currency	For funding: In principle, MOF will lend sub-loan in Rupiah to PT. PANN. For lease finance: In principle, PT. PANN will give lease finance in Rupiah.
Interest Rate	For funding: PT. PANN will receive the fund as sub-loan in Rupiah: SBI interest rate plus 1.0% per year. Floating rate basis reviewed semi-annually. For lease finance: Interest rate of sub-loan from MOF plus minimum 2.5% - maximum 3.0% per year. Floating rate basis reviewed at the same time as the sub-loan interest rate is reviewed.
Eligible Expenditure	Maximum 100% of value of vessel to be procured by shipping company and equipment / facility of shipyard to be procured by shipyard.
Sub-loan Size	The ceiling of each sub-loan amount will be 2.5 billion Yen equivalent Rupiah. Also, accumulated finance amount extended / to be extended to a single lessee by PT. PANN, inclusive of amount proposed under the PSFP, will be within the limit amount set by PT. PANN, in view of the large credit exposure rules and regulations in Indonesia.
Amortization of Sub-loan	Period of each sub-loan from MOF will be the same as the lease period. The amortization of sub-loan principal to MOF will be on quarterly basis. PT. PANN will collect lease charge on a monthly basis, in principle.
Lease Period	Maximum 15 years for new vessels; and Maximum 10 years for second-hand vessels, in principle.
Deposit	Deposit of 3 months lease charge should be deposited by lessee before effectuation of lease finance.
Account	Payment of each and every lease charge will be deposited in the escrow account to be opened at a Bank (TBD). Conditions for each and every drawing from the escrow account will be discussed and agreed with MOF.
Financing Agreement	The Memorandum of Agreement between PT. PANN and the Seller/Supplier and the Lease Agreement between PT. PANN and the Lessee will be prepared before the execution of lease finance.
Insurance	Hull Machinery Insurance and P&I Insurance will be covered by PT. PANN.
Vessel Management	➢ Centralized monitoring of all leased vessels at PT. PANN office: PT. PANN should be capable of tracing and monitoring the location of all ships financed at the HQ. ➢ Obligatory ship management contract: In principle, the lessee should conclude a ship management contract and submit a copy to PT. PANN. ➢ Obligatory reporting of vessel operation and management: The lessee should submit to PT. PANN Operation Report and Technical Report, separately, every 3 months.

Source: JICA Survey Team

6.4 Asset Procurement Criteria and Procedure

In principle, the procurement of the vessel and shipbuilding/repairing facility and equipment to be financed out of the proceeds of the Loan shall be in accordance with the Guidelines for Procurement under Japanese ODA Loans dated March 2009 (hereinafter referred to as the "Procurement Guidelines").

In Indonesia, the procurement criteria and procedure under PSFP shall be made in compliance with Presidential Instruction No.5, of 2005 for contribution to promote development of maritime industry in Indonesia, primarily modernization of shipping industry and related supporting industries.

In the case of procurement by a State Owned Company, including PT. PANN, as the executing agency under the PSFP, the general guidelines for procurement of goods and services No. PER-05/MBU/2008 issued by the Minister of State Owned Enterprise shall be complied with.

In the case of procurement corresponding to sub-sections 3) to 5) below, PT. PANN shall comply with the following procedures.

In case the value of the new building ship is estimated to be less than THREE BILLION Japanese Yen (¥3,000,000,000), PT. PANN shall adopt the procurement procedures in accordance with the general guidelines for procurement of goods and services No. PER-05/MBU/2008 issued by the Minister of State Owned Enterprise.

In the case of the procurement of a second-hand vessel or a second-hand shipbuilding/repairing facility and equipment, the buying and selling is on a negotiated transaction basis, depending on each needs of type, specification, conditions and price in the second-hand ship market. The trade is done within a short period of time of around 3 weeks, from the initial offer up to the contract finalization, including on board inspection of the actual vessel or equipment. Hence, the bidding system for the procurement of a second-hand ship or a second-hand shipbuilding/repairing facility and equipment is not applicable.

The Japanese ODA loan and sub-loan from MOF will be utilized for the project and will be divided into three (3) categories, namely: (1) procurement of newly built vessels; (2) procurement of second-hand vessels; and (3) procurement of shipyard facilities and other related equipment.

The procurement and its procedures shall be implemented transparently and fairly.

1) Vessel Procurement Criteria

(1) In principle, vessels to be procured have to be built under relevant rules and regulations, and with emphasis on seaworthiness and avoidance of damage to the environment in Indonesian waters.

(2) In order to efficiently implement the vessel procurement under PSFP, both of the two (2) alternative plans/procedures consisting of "Procurement Initiation by PT. PANN" and "Procurement Initiation by Prospective Lessee" will be promoted in parallel for effective use of PSFP for small and medium scale companies.

(3) The type of vessels to be procured shall be commercial vessels, which will be divided into the following categories.

i. Passenger Vessel

ii. Passenger Cargo vessel

iii. Cargo Vessel

- General Cargo
- Container
- Bulk Carrier
- Special Cargo

iv. Working Vessel

(4) Vessels to be procured under PSFP exclude special vessels such as fishing vessels, Patrol boats, Training vessels, Navy vessels, etc.

(5) There shall be an age limitation on second-hand vessel to be procured. Vessels to be procured shall be under 20 years old. In case a vessel's age is over 20 years, such a vessel(s) will be allowed to be procured only with an approval of the relevant agencies.

2) Procurement Policy for New Building Vessel under PSFP

A package deal method needs sufficient preparatory works. New shipbuilding is a challenging task and policy guidance is important due to the country's limited experience and capability in this area. The PMU is considered a suitable unit for its conception.

(1) Appropriate Design and Standardization

After the marketing survey, the PMC will suggest to procure an appropriately designed vessel for its proposed navigation route, taking account the ports of call and sea conditions in Indonesian waters to ensure the efficient and safe operation of the vessel and to avoid damage to environment.

Then, appropriate ship design and its standardization will be discussed. The Indonesia National Shipbuilding Design and Engineering Center (NaSDEC) is a new institute under the Ministry of Industry which is mandated to provide suitable ship drawings to domestic shipbuilders. There is a possibility for NaSDEC to participate in such internal discussions and contribute to ship design and its standardization.

To promote cost reduction, easy maintenance/repair and compatibility of spare parts, the standardization of new building vessel is highly recommended.

(2) Selection of Shipyard

i. Indonesian Shipyard

A new building vessel the value of which is estimated to be less than THREE BILLION Japanese Yen (¥3,000,000,000) shall be built at a shipyard in Indonesia, wherever possible, in consideration of competitiveness in quality, cost and delivery schedule.

ii. Foreign Shipyard

In case Indonesian shipbuilder(s) is not able to build new vessel due to its lack of capability, new building at foreign shipyard(s) will be allowed, subject to the approval

of relevant agencies.

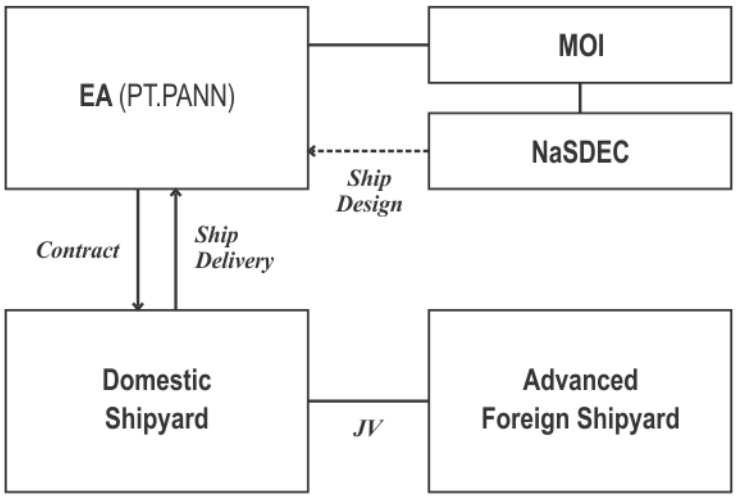
(3) Package Supply

In parallel with vessel standardization, PT. PANN will provide to shipyard(s) a package supply service, which will be procured from foreign countries. The service will consist of design and materials/equipment for new building vessel(s).

The package deal will be implemented by PT. PANN with possible support from NaSDEC and an advanced foreign maritime country. The package supply will be beneficial for keeping with the construction schedule and reducing the financial strain of the shipyard(s).

(4) Capacity building of Engineering Capability

A JV between domestic and advanced foreign shipyard will generate various on-the-job-training opportunities. The PMC will supervise shipbuilding process and find effective technical transfer elements for construction of competitive and valuable vessels. Technical transfer will be done under the supervision of the Ministry of Industry.



Note:
NasDEC is a new institute which was founded in 2005 under a cooperation scheme between the Ministry of Industry and ITS following the issuance of Presidential Instruction No.5/2005 on empowerment of the national shipping industry.

Source: JICA Survey Team

Figure 6.4.1 Development of Design Center and Technology Transfer

3) Procurement Procedure of New Building Vessel

(1) In principle, the procurement procedure shall be in accordance with the guideline for new vessel procurement “PROSEDUR PENGADAAN KAPAL BARU” Document No. P-SM-03 which was prepared by PT. PANN.

(2) A new shipbuilding sub-project shall commence after the approval of SC/PWG.

(3) PT. PANN/PMC shall review the existing partner’s shipyard list to ensure its eligibility to participate in the new building project under the PSFP.

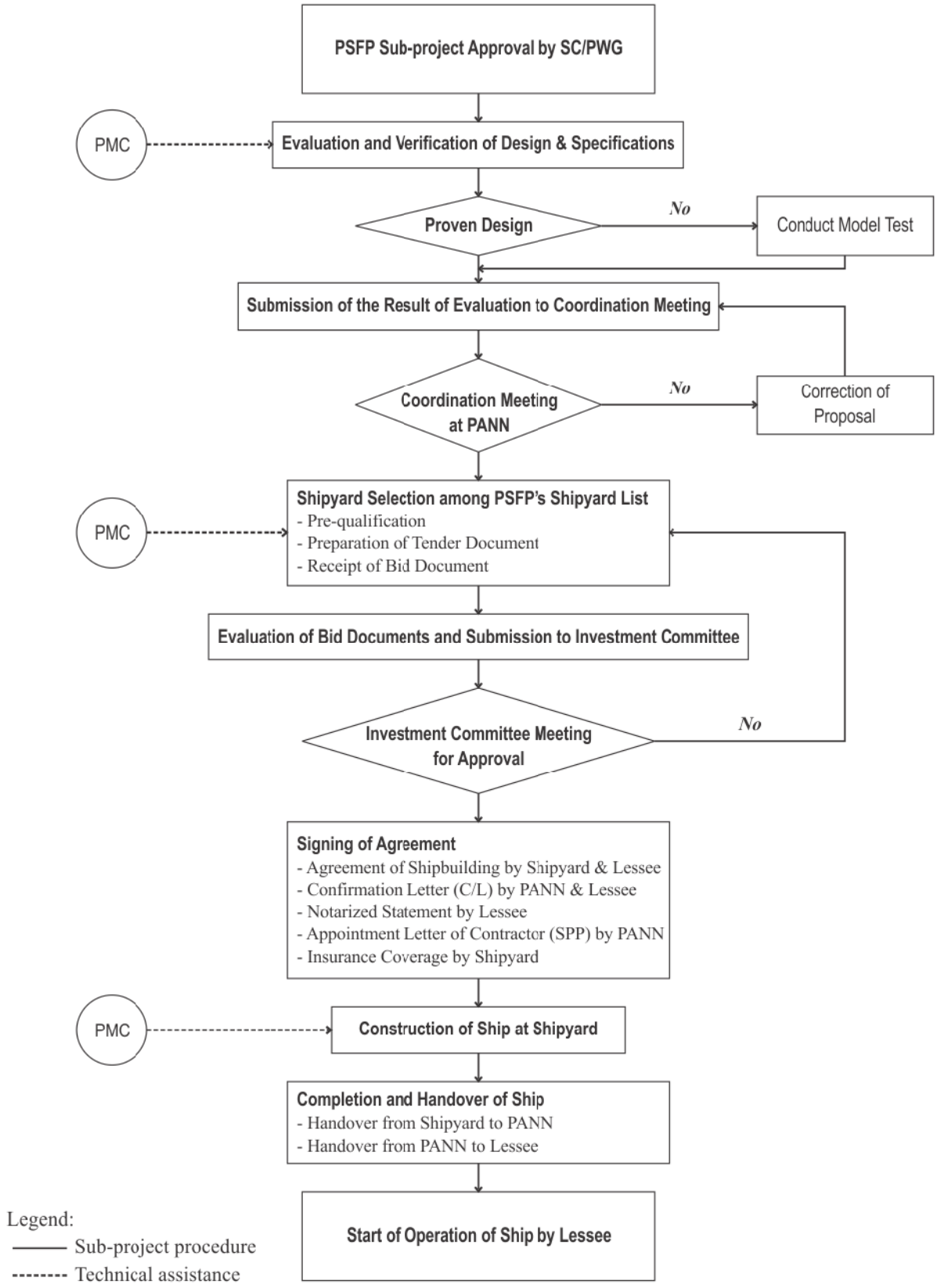
(4) PT. PANN, together with the PMU/PMC, shall conduct a tender to invite eligible shipyards among the partner’s shipyard list, as prepared by procedure 2) above.

(5) A shipyard that is not listed in the partner’s shipyard list will be allowed to participate in the tender under the collaboration with an advanced foreign shipyard who has been approved as an eligible shipyard by PT. PANN and the PMU/PMC.

(6) PT. PANN shall prepare tender documents, including technical drawings and specifications for new building vessel(s) in cooperation with NaSDEC. Under the PSFP, the PMC will coordinate the shipbuilding technology transfer from an advanced foreign shipbuilder/engineering institute to PT. PANN and NaSDEC for their capacity building in shipbuilding and engineering.

(7) Shipbuilding works at the contracted shipyard shall be supervised by PT. PANN/PMC.

(8) The flow of new vessel procurement procedure is shown in Figure 6.4.2.



Source: JICA Survey Team

Figure 6.4.2 Flow of New Vessel Procurement Procedure

4) Procurement Procedure of Second-Hand Vessels

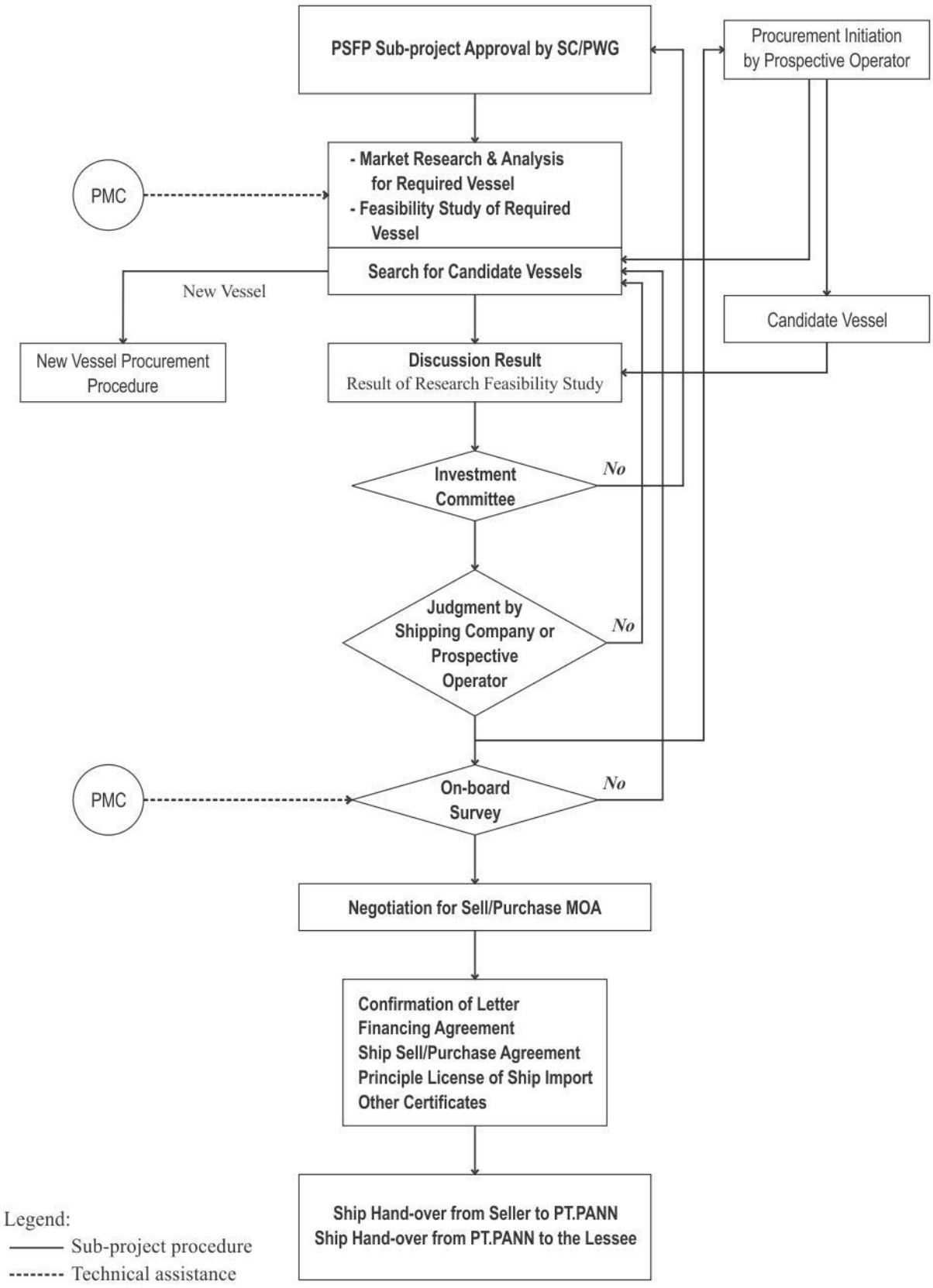
(1) In principle, PT. PANN and eligible End-User (the Lessee) will procure the vessel(s) through negotiation with the Seller of the vessel(s), which shall fully comply with the relevant Rule and Regulations issued by relevant authorities in the Government of Indonesia.

(2) Procedure for procurement of second-hand vessels

i. Procurement Procedure shall be in accordance with the guidelines for second-hand vessel procurement “PROSEDUR PENGADAAN KAPAL BEKAS” Document No. P-SM-06 prepared by PT. PANN.

ii. Flow of second-hand vessel procurement procedure is shown in Figure 6.4.3.

PT. PANN has plenty of experiences in procuring and leasing out second-hand vessels. For this purpose, the company uses the detailed workflow of vessel procurement and leasing operation (refer to Annex 3.2). It is considered fully applicable to the PSFP procedure in detail.



Source: JICA Survey Team

Figure 6.4.3 Flow of Second-hand Vessel Procurement Procedure

5) Shipbuilding/Ship-repairing Facility and Equipment Procurement Criteria and Procedure

(1) In compliance with the development policies of relevant authorities, the procurement of facility and related equipment shall be for the expansion and modernization of a shipyard(s) that is registered in Indonesia and have experience in shipbuilding or ship-repairing of more than 5 years.

(2) Facility and related equipment for improvement of work efficiency and productivity shall be preferred.

(3) Facility and related equipment to be procured under PSFP shall be chosen to contribute to the development of the maritime industry in Indonesia.

(4) New facility and related equipment shall be given priority.

(5) Facility of fixed asset such as office building, workshop and wharf related to civil/architectural work shall be excluded.

(6) The procedure for procurement of facility and related equipment shall be as follows:

i. In case of a new facility such as floating dock which will be constructed at shipyards, the procedure of procurement shall be the same as the guidelines for new vessel procurement “PROSEDUR PENGADAAN KAPAL BARU” Document No. P-SM-03.

ii. In case of second-hand facility/equipment, the procedure of procurement shall be same as the guidelines for second-hand vessel procurement “PROSEDUR PENGADAAN KAPAL BEKAS” Document No. P-SM-06.

iii. Pertinent facility or equipment proposed by the Lessee shall be inspected by PT. PANN and the Lessee to ensure its performance and quality to be satisfied with the requirement for the sub-project as well as relevant rules and regulations.

6.5 Project Performance Monitoring Plan

Performance indicators (also called performance monitoring indicators) are criteria for evaluating the achievement of objectives by public works and public funded projects. Continuous measurement of performance indicators for policies and projects from the planning stage through completion requires consistent gathering of information on their performance. The information gathering and the use of the results to improve administration and operation is called performance measurement.

Japanese ODA loan projects started to use performance indicators in 2000 to enable project monitoring and evaluation on the basis of consistent indicators used from the ex-ante to ex-post stages. The performance indicators consist of:

- Operation indicator: An indicator to measure, quantitatively, the operational status of a project; and
- Effect indicator: An indicator to measure, quantitatively, the effects generated by a project.

In the PSFP, Japanese ODA loan will be used for (i) new shipbuilding with technology transfer, (ii) second-hand vessel procurement and modification, and (iii) urgent shipyard capacity expansion. The JICA Survey has prepared operational indicators in Table 6.5.1 and effect indicators in Table 6.5.2 for the PSFP performance monitoring.

The PSFP performance monitoring will be done every year by the PMU.

Data source of the operation indicators include monthly operation report and monthly financial report to be submitted by the end-user and quarterly engineering report to be submitted from the contracted ship management company. These data will be compiled and analyzed in a quarterly project progress report by the PMU.

The data source of the effect indicators are various government statistics and interview results of the end-users. They will be collected yearly for the PSFP performance monitoring.

Table 6.5.1 Operation Indicators

Category	Name	Method	Target	Purpose	Remarks
Basic	Fleet Tonnage (GT)	• Aggregated fleet tonnage to be procured under the PSFP • Its composition by ship type	Sub-project financing schedule	It shows the progress of ship finance	
Basic	Average Ship Age (Year)	• Aggregated ship age to be procured under the PSFP / unit • Average ship age by ship type	Less than 15 years	It gives basic data of the procured fleet profile	
Basic	Volume of Shipping (Tons, Passengers)	• Transported tons and passengers by the procured vessels	To be determined	It gives basic data of shipping operation by the procured vessels	To check it on Operation Report to be submitted to EA
Basic	Volume of Shipbuilding (Units, GT)	• No. and aggregated GT of new ship orders under the PSFP	To be determined	It shows new shipbuilding activity under the PSFP.	
Basic	Volume of Ship-repairing (Units, GT)	• No. and aggregated GT of ship-repairing volume at financed shipyards	To be determined	It gives basic data of ship repairing works	To check it on Operation Report to be submitted to EA
Basic	No. of Shipping Companies and Shipyards to be Financed	• No. of end-users by business type	Around 15		
Auxiliary	No. of Commissionable Days (Days on the Average)	• Average no. of commissionable days among the procured vessels • Commissionable days = 365 – docked days – non-working days	350 days	It shows shipping operation efficiency.	To check it on Operation Report to be submitted to EA
Auxiliary	No. of Non-performing Sub-projects	• Non-performing sub-project: delayed payment of lease charge over 90 days	To be determined	It shows the rate of sound and well-intentioned end-users.	To check it on Financial Report to be submitted to EA
Auxiliary	No. of Maritime Accidents among the PSFP Financed Vessels	• No. of maritime accidents to be reported to insurance company	No human loss	It shows the level of ship safety and safe operation.	To check it on Ship Management Report to be submitted to EA

Source: JICA Survey Team

Table 6.5.2 Effect Indicators

Category	Name	Method	Target	Purpose	Remarks
Basic	Fleet Tonnage (GT)	• The share of the procured fleet tonnage in all the national tonnage	To be determined	It shows the PSFP' contribution to national fleet development.	To check DSGT fleet data
Basic	Average Ship Age (Year)	• Comparison of average ship age between the national fleet and the PSFP fleet	Younger than the national fleet average by over 5 years	It shows the PSFP's contribution to younger fleet profile.	To check DSGT fleet data
Basic	Volume of Shipping (Tons, Passengers)	• Reduction in navigation days • Increase in transported cargo tons and passengers	To be determined	It shows the effect of ship modernization compared with previous shipping service.	To interview with end-users (shipping companies)
Basic	Volume of Shipbuilding (Units, GT)	• Comparison of new shipbuilding activity between PSFP and Indonesia • Challenge of inexperienced shipbuilding under the PSFP	To be determined	It shows the PSFP's contribution to the shipbuilding industry and its capacity development.	To check DGHTBI/MOI new shipbuilding data
Basic	Volume of Ship-repairing (Units, GT)	• Reduction in waiting time for docking	To be determined	It shows the effect of urgent shipyard capacity expansion.	To interview with end-users (shipyards)
Basic	No. of Shipping Companies and Shipyards to be Financed	• No. of small-size shipping companies • No. of end-users which made access to financial service at their first time	To be determined	It shows the PSFP's contribution to expanding financial services.	To interview with end-users
Auxiliary	No. of Commissionable Days (Days on the Average)	• No. of increased commissionable days due to shorter docking time and more competitive vessels	Over 10 days	It shows the effect of ship modernization and ship management.	To interview with end-users (shipping companies)
Auxiliary	No. of Non-performing Sub-projects	• Comparison of non-performing ship loan rates of large banks with that of PSFP.	Lower than the bank performance	It shows the effect of total delivery service of PSFP	To interview with Bank Mandiri and BNI
Auxiliary	No. of Maritime Accidents among the PSFP Financed Vessels	• Comparison of maritime accidents with the country's statistics	Much lower than the country's average	It shows the effect of ship management and good-quality fleet	To check KPLP maritime accident statistics

Source: JICA Survey Team

6.6 Project Evaluation

1) Assumptions

For project evaluation of the proposed PSFP, the following assumptions are made:

- Government to Government (G to G) loan agreement: 30 billion yen with an annual interest rate of 1.4%, 25 years with a disbursement period of 5 years, as well as a grace period of 7 years;
- Sub-loan agreement between MOF and PT. PANN: 30 billion yen equivalent rupiah with an annual interest of 6.75%, excluding fund handling cost. The MOF will manage the project escrow accounts during the project period; and
- PT. PANN will provide lease finance to end-users, adding lease service cost, overhead and risk premium, 2.5% in total, to the sub-loan fund. Part of the lease charges to be collected can be re-financed to other users as a revolving fund as long as the sub-loan agreement is fulfilled.

Three sub-project targets have been defined in scope and criteria and further likely new asset construction by the PSFP has been preliminarily designed in Chapter 5. For project evaluation purpose, the PSFP Fund Mobilization Plan (Table 6.2.1) is further concretized during the disbursement period for 5 years in Table 6.6.1 and the implementation schedule of sub-projects over the project period of 25 years (Table 6.6.2) with the following assumptions:

- Throughout the project period, the number of sub-projects per year is limited to less than 15 per year, taking into account PT. PANN's operational capacity.
- As preliminarily identified and designed in Section 5.4, new shipbuilding sub-projects are composed of full container vessels, RORO passenger vessels and oil tankers while floating docks and tower cranes are selected as shipyard facilities.
- Such new asset sub-projects require considerable documentation time for designing and contracting, thus they will mobilize fund from the third year at the earliest.
- Various second-hand vessels will be financed in the PSFP.
- Sub-projects using revolving fund will start from the sixth year and end at the 21st year of the project.

Yearly sub-projects during the project period are converted in lease finance amount in Figure 6.6.1.

Table 6.6.1 Assumption of PSFP Sub-projects for the Disbursement Period

Target Area	Sub-Project Type	Unit	Unit Price	Amount	Ave. Lease Period
New Shipbuilding with Technology Transfer	Full Container Vessel (300 TEU)	3	1,300	3,900	15 years
	RORO Passenger Vessel (3,000 GRT)	3	1,900	5,700	
	Oil Tanker (3,500 DWT)	3	900	2,700	
	Sub-total	9		12,300	
Second-Hand Vessel Procurement and Modification	Various Domestic Shipping Vessel Types (depending on domestic needs and market conditions)	39	(varied)	8,100	5 years
Urgent Shipyard Capacity Expansion	Floating Dock	6	1,100	6,600	15 years
	Tower Crane	6	500	3,000	10 years
	Sub-total	12		9,600	
TOTAL		60		30,000	

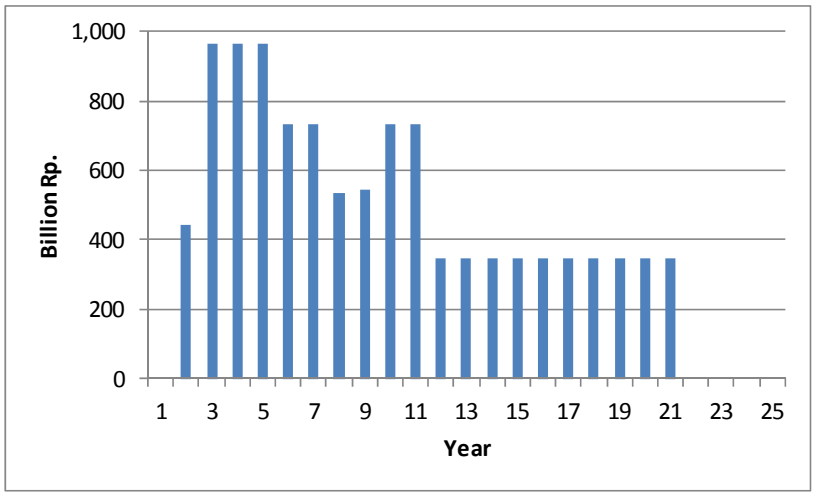
Note: Japanese Yen (Million)
Source: JICA Survey Team

Table 6.6.2 Assumption of PSFP Sub-projects over the Project Period

(Unit: Million Yen)

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total Num	Total Amount
Initial Investment	Disbursement Period																										
Full Container Vessel			1	1	1																					3	3,900
RORO Passenger Vessel			1	1	1																					3	5,700
Oil Tanker			1	1	1																					3	2,700
Second Hand Vessel		12	9	9	9																					39	8,100
Floating Dock			2	2	2																					6	6,600
Tower Crane		3	1	1	1																					6	3,000
Subtotal	**0**	**15**	**15**	**15**	**15**																					**60**	**30,000**
Revolving Investment																											
Full Container Vessel						1	1		1	1	1															5	6,500
RORO Passenger Vessel						1	1	1		1	1															5	9,500
Oil Tanker						1	1		1	1	1															5	4,500
Second Hand Vessel						12	12	14	13	12	12	15	15	15	15	15	15	15	15	15	15					225	46,731
Subtotal						**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**0**	**0**	**0**	**0**	**240**	**67,231**
Grand Total	**0**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**0**	**0**	**0**	**0**	**300**	**97,231**

Source: JICA Survey Team

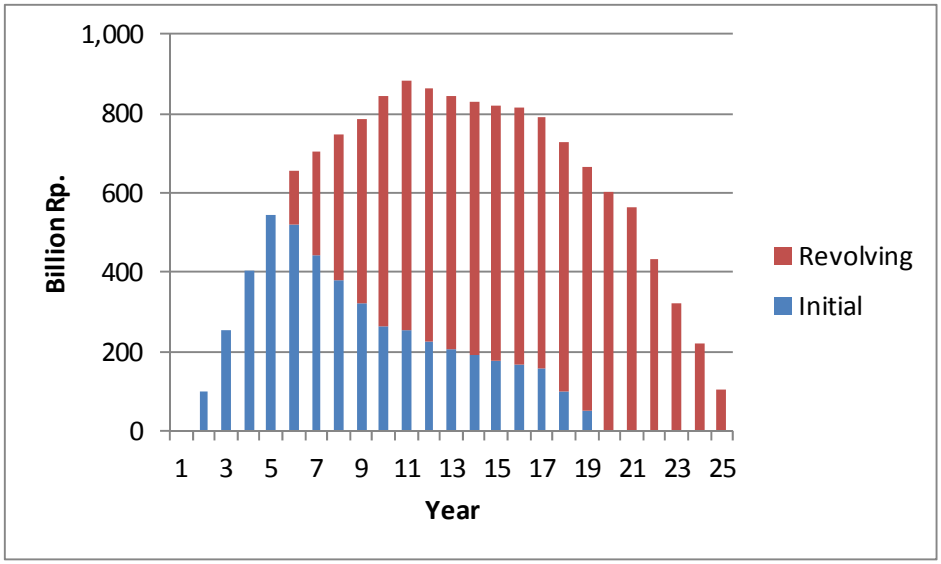


Note: Assumed exchange rate is JPY/IDR = 111.0
Source: JICA Survey Team

Figure 6.6.1 Amount of Lease Finance by Year

The total fund mobilization is calculated to be 97 billion yen inclusive of the disbursement of 30 billion yen and the revolving fund of 67 billion yen, in accordance with the above sub-project implementation plan.

Lease finance will be paid back as lease charge covering the principal, interest and other management charges for a contracted period. Figure 6.6.2 shows the anticipated lease charge by year. Yearly lease charge amounts will constantly increase during the first 10 years. Form the 8th project year, the collection of revolving lease charge will be bigger than that of initial lease charge.



Source: JICA Survey Team

Figure 6.6.2 Anticipated Lease Charge by Year

As shown in Table 6.6.3, The Survey Team confirmed that the repayment from PT. PANN to MOF can cover the repayment from MOF to JICA with this schedule of sub-projects except the last year when the revenue from lease charge will be low due to the small number of sub-projects.

Table 6.6.3 Annual Cash Flow of SBU

Year	Revenues			Expenses				(Reference) G to G Repayment
	Lease Charge	Disbursement by MOF	Total Revenues	Procurement of Lease Assets	Repayment to MOF	PT. PANN's Service Cost	Total Expenses	
1	0	0	**0**	0	0	0	**0**	0
2	113	443	**556**	443	102	11	**556**	6
3	289	962	**1,251**	962	256	33	**1,251**	20
4	456	962	**1,419**	962	403	53	**1,419**	33
5	615	962	**1,577**	962	544	71	**1,577**	47
6	736	732	**1,467**	732	655	80	**1,467**	47
7	793	732	**1,525**	732	706	88	**1,525**	47
8	836	534	**1,370**	534	747	89	**1,370**	232
9	875	544	**1,418**	544	784	90	**1,418**	229
10	936	732	**1,668**	732	841	95	**1,668**	226
11	980	732	**1,712**	732	882	99	**1,712**	224
12	953	346	**1,298**	346	861	92	**1,298**	221
13	927	346	**1,273**	346	842	85	**1,273**	219
14	906	346	**1,252**	346	827	79	**1,252**	216
15	889	346	**1,235**	346	818	72	**1,235**	213
16	877	346	**1,223**	346	813	65	**1,223**	211
17	851	346	**1,196**	346	793	58	**1,196**	208
18	777	346	**1,123**	346	727	50	**1,123**	206
19	708	346	**1,053**	346	663	44	**1,053**	203
20	643	346	**988**	346	603	39	**988**	201
21	598	346	**944**	346	563	35	**944**	198
22	456	0	**456**	0	432	24	**456**	195
23	338	0	**338**	0	324	15	**338**	193
24	227	0	**227**	0	219	7	**227**	190
25	109	0	**109**	0	106	2	**109**	188
Total	**15,887**	**10,793**	**26,680**	**10,793**	**14,510**	**1,377**	**26,680**	**3,972**

Source: JICA Survey Team

2) Project Risk Analysis

There are several project risk types which are considered inherent to the proposed project scheme. They are notably exchange risk, business risk and asset devaluation risk. Well designed project management however can avoid or minimize these project risks affecting project viability. The ways to manage those project risks are spelled out as follows:

Exchange Risk: The PSFP expects the MOF to take the exchange risk between Japanese Yen and Indonesian Rupiah. When the MOF receives a project yen loan with an interest rate of 1.4% and disburses a project sub-loan in rupiah with an SBI rate, i.e., 6.75%, excluding management costs, the difference of 5.35% is considered as exchange risk premium.

Business Risk: This is shouldered by the project implementing body. There are two business risk absorptive measures: (1) deposit the money, which is equivalent to 3

months lease charge, and (2) include credit risk premium as part of the monthly lease charge. When a lessee suspends lease charge payment over 3 months, the project implementing body may immediately collect the lease asset.

Asset Devaluation Risk: There is a risk to manage a lease asset inadequately which may allow faster and larger asset devaluation than expected in its depreciation plan. The PSFP makes an obligatory requirement to the lessee to receive professional ship management service to protect its asset at the lessee's cost.

Staff Quality Risk: There is a risk when PT. PANN deals with an unprecedented number of leasing projects and/or PT. PANN employs a large number of staff to expand its business scale. However, the PSFP implementation plan assumes that the number of sub-projects would be 15 annually on the average. Taking the recent PT. PANN's operation performance into account, it is considered manageable. JRTT (Japan Railway Construction, Transport and Technology Agency, formerly Maritime Credit Corporation) provides similar ship finance services such as ship financing with a joint-ownership and engineering support including ship design. JRTT currently handles 331 vessels by a combined staff force of 70. Therefore, JRTT shipping finance department have almost the same staff number as PT. PANN, but it handles four (4) times more vessels . In this sense, there is still a large room for PT. PANN to enhance its business management capacity.

It should be noted that PT. PANN has had unfortunate experiences in handling SLAs such as the Mina Jaya Fishing Vessel Project and the Boeing 737-200 Aircraft Project. The PSFP takes a quite different approach which empowers PT. PANN to manage the project from the beginning. In short, procurement assets and their prices were determined by the government in the former two SLA projects. On the contrary, the PSFP takes a bottom-up approach where the end-user's requirements and PT. PANN's approval form a sub-project, taking commercial and technical feasibility and PSFP policy into account. Whereas, PT. PANN shouldered exchange risk in the previous two projects, PT. PANN will not shoulder the exchange risk in the SLA of the PSFP.

Table 6.6.4 shows a comparison matrix of the afore-mentioned three SLA projects.

Table 6.6.4 Comparison Matrix of 3 SLAs in relation with PT. PANN

No.	FORMER SLAs		PUBLIC SHIP FINANCE PROGRAM (PSFP)
	MINA JAYA FISHING VESSEL PROJECT	BOEING 737-200 AIRCRAFT PROJECT	
1	Objective: New Building of 31 units of Tuna Long Liner	Objective: Procurement 10 units used aircraft from Lufthansa AG	Objectives: - Building new vessels in the domestic shipyards - Procurement of second hand vessels - Procurement of movable shipyard facilities
2	Project Initiation: Top-down. The types, number, specification, price and monthly lease installment, had been decided by the government.	Project Initiation: Top-down. The types, number, specification, price and monthly lease installment, and the aircraft operators had been decided by the government.	Project Initiation: - Bottom-up. The types, number, price and the specification of the vessel and shipyard facilities shall be decided based on the market need and commercially feasible. - Vessel specification decided based on end-user requirement and approved by PT PANN (Persero), not from creditor. - The ship operator shall be small-scale shipping companies.
3	Business Securitization: Weak - Payment to shipyard by phase. If the shipyard fails to finish the building, so phased payment could not be returned. - There is no operator's presence at procurement/ building the vessel.	Business Securitization: Weak Mismatch currency, where earnings in Rupiah and lease installment in USD	Business Securitization: Strong and comprehensive - To eliminate the construction risk during the ship building period, it shall be implemented as a 'turn-key project' of which the payment to the shipyard will be carried out whe the ship is completely finished and acceptable to PT PANN. The loan shall be treated as payment guarantee. - To finance shipyard facilities limited to the movable and/or floating equipments in order to ease execution in case default occurrs. - To maximize vessel productivity because vessel maintenance has to use professional *Ship Management Company.* - To monitor vessel operation by Vessel Monitoring System (VMS), including position, speed, sailing direction. It can predict vessel operation income. - To keep vessel in good condition, the duty of operator is not only to pay monthly lease installment but also includes docking cost reserve, vessel maintenance and insurance. - To operate an *escrow account* for shipping income so that lease payment can be guaranteed.
4	Source of fund: In US Dollar from the Spanish Government and BBV commercial bank	Source of fund: In US Dollar from KFW - Germany	Source of fund: In Japanese Yen from the Japanese Government, executed by JICA
5	SLA Interest Rate: Decided by the government of the Republic of Indonesia	SLA Interest Rate: Decided by the government of the Republic of Indonesia	SLA Interest Rate: It shall be of sustainable rate based on the market and competitive situation.
6	Form of loan: Ships material in block and kit package provided by the creditor's suppliers	Form of loan: Secondhand aircrafts provided by creditor	Form of Loan: Money
7	Makers / Suppliers: Decided by creditor/supplier with	Makers / Suppliers: Decided by creditor/supplier with	Makers / Suppliers: Decided by ship operator(s) with approval of

No.	FORMER SLAs		PUBLIC SHIP FINANCE PROGRAM (PSFP)
	MINA JAYA FISHING VESSEL PROJECT	BOEING 737-200 AIRCRAFT PROJECT	
	the government approval	the government approval	PT PANN, considering experience, cost and spare parts procurement in Indonesia.
8	SLA: - Signed on 26 December 1994 - Of amount USD 182,3 million - Interest rate at 3.89% for withdrawn loan - Length of loan period 15 years including grace period 4 years - Commitment fee 0.25% of loan has not be withdrawn - Management fee 0.25% flat of the loan value - The payment to be installed for 22 times every semester.	SLA: - Signed on 09 November 1994 - Of amount USD 89.6 million - Interest rate at 9.19% for withdrawn loan - Length of loan period 12 years including grace period 2 years - Commitment fee 0.25% of loan has not be withdrawn - Management fee 0.35% flat of the loan value - The payment to be installed for 20 times every semester.	SLA: - To be engaged with the Ministry of Finance - Of amount JPY 30 billion equivalent - Length of loan period: 25 years including 7 years' grace period - Detailed arrangement will be determined.
9	Realization: - 14 vessels completely built - 17 vessels stopped - The complete vessel cannot be sold because they are very expensive and there are no ship operators able to operate them. - SLA cannot be paid off.	Realization: - Operator was unable to pay the lease because of the high price and worsened with the economic crisis situation. - Operation of the aircraft for the domestic services only, so that unbalance of income in Rupiah and outcome in USD occurred. - SLA cannot be paid off.	Target of realization: - Smooth lease payment because of project approach following its market sustainable and competitive cost of fund. - High probability of repayment of the SLA to the government.

Source: PT. PANN

3) Financial Analysis

This section analyzes financial viability of plausible sub-projects within the framework of PSFP.

Although there are three target areas, second-hand vessel procurement and modification is so far the most common in Indonesia as an economical solution. This target area will have to meet a variety of second-hand vessel needs. The supply side or the international second-hand market may have some constraints while vessel stock constraints are always changing in the market. Therefore it is difficult to identify a specific sub-project.

Financial analysis has been done in other target areas, viz, new shipbuilding with technology transfer and expansion of shipyard capacity. Although limited practices in these areas have been done in Indonesia, the Survey observes growing demand for them. The investment cost of new ship, ship yard facility and equipment cost and operating cost are studied to check the entire project cost, and then financial analysis is undertaken as below.

For this exercise, RORO passenger vessels to be newly built and floating dock for shipyard capacity expansion are selected from each sub-project target.

(1) RORO Passenger Vessel

Among many existing and potential inter-island routes by RORO passenger fleet, the Merak – Bakahuni route between Sumatra and Java has the biggest demand. It is also apparent among the stakeholders that considerable fleet tonnage must be added to solve the existing congestion. Due to scarce stock in the second-hand

market, a couple of private ferry operators seriously look into new shipbuilding opportunity.

The Survey Team has prepared the most desired vessel specifications for the Merak – Bakahuni route with likely operation conditions as shown in Table 6.6.2. The model vessel, 3,000 GRT, can carry 17 trailers, 36 containers and 150 passengers. The cost estimate of the new RORO Passenger vessel is made based on the assumption that the ship is to be made in Indonesia with package deal exported by advanced country while the operational income and operation & maintenance costs were referenced from local ship operator. The vessel cost is estimated at 222 billion rupiah. The yearly income is calculated at 55 billion rupiah based on the regulated tariff, and the yearly operation cost is 32 billion rupiah.

Table 6.6.6 shows an annual income statement of the new model vessel.

Table 6.6.5 Specifications and Business Plan of RORO Passenger Vessel to be Assigned on the Merak-Bakahuni Route

Ship Specifications	
Ship Size	3,000 GT
LOA	93 m
Main Engine	1,250 kw
Aux. Engine	500 kw/unit, 2 units
Speed	13 knots
Passenger	150
Container	36
Truck	17 (12 m)
Price	1.9 Billion Japanese Yen

Business Plan	
Route	Merak - Bakahuni
Distance	16 nm
Round Trip	4 per day
Container	Rp 320,000 per TEU
Truck	Rp 525,000
Passenger	Rp 11,500
Commissionable Days	340 per year

Source: JICA Survey Team

Table 6.6.6 Annual Income Statement of a RORO Passenger Vessel

Revenues	
Container Freight	27,451
Truck Freight	24,276
Passenger Tariff	3,284
Total Revenues	**55,011**
Expenses	
Operational Expenses	
Fuel Cost	3,952
Port Charges	1,371
Container Handling Charges	20,630
Fixed Expenses	
Employment Cost	595
Lubricant Oil	119
Ship's Stores	500
Docking Fee	500
Repair and Maintenance	500
Ship Management Fee	500
Insurance	592
Provisional Cost	2,004
Overhead and Miscellaneous	500
Total Expenses	**31,762**
Net Income	**23,249**

Unit: Million Rupiah
Source: JICA Survey Team

This model vessel investment shows an FIRR of 10.1% during the 25 years' vessel lifecycle. It is considered financially sustainable if an operator could use a long-term low-interest fund but not so attractive. The sensitivity analysis suggests a considerable increase in income, e.g. 20%, to make this sub-project financially viable (refer to Table 6.6.7).

Table 6.6.7 Sensitivity Analysis of RORO Passenger Vessel Investment

Case of cost up/down and revenue up/down		Cost up/down (%)						
		-30	-20	-10	Base	10	20	30
Revenue going up or down (%)	30	23.0%	21.5%	20.0%	18.4%	16.9%	15.4%	13.8%
	20	20.4%	18.8%	17.3%	15.8%	14.2%	12.6%	10.9%
	10	17.7%	16.2%	14.6%	13.0%	11.4%	9.7%	7.9%
	Base	15.0%	13.4%	11.8%	10.1%	8.4%	6.6%	4.6%
	-10	12.2%	10.5%	8.8%	7.0%	5.1%	3.0%	0.7%
	-20	9.2%	7.4%	5.6%	3.5%	1.3%	-1.4%	-
	-30	6.0%	4.0%	1.8%	-0.8%	-	-	-

Source: JICA Survey Team

To increase the shipping service income at the specific route, effective measures may have to be undertaken, including the following:

- The route tariff is regulated by DGLT. It is considered too low to invest new tonnage. The low tariff also hampers the realization of rational modal shift from truck haulage to longer shipping service. The tariff should be revised to allow new tonnage investment or be removed entirely, like the other inter-island shipping routes administered by DGST.
- The number of commissionable days, 340 days in the assumption, can be extended to 355 days if a vessel does not need to wait for docking at nearby ship repair yards. The relation between shipyard capacity expansion and its synergy effect with fleet investment is particularly critical for efficient route management.

(2) Floating Dock

The initial capital investment of Rp 104 billion for a floating dock is comparatively small in view of its operation scale. If the model dock could cope with 47 vessels per year, aggregated docking charges would amount to Rp 82 billion. The specifications and business plan of the model floating dock is indicated in Table 6.5.4.

The estimated FIRR is as high as 30.6% in accordance with the business plan. Due to high project profitability, even if the income decreases by 30% and associated cost goes up by 10%, the financial viability could still be maintained (refer to Table 6.6.9).

Dock operation efficiency, however, could be reduced to a large extent depending on the ship owner's attitude, especially towards docking preparation. Without proper preparation, docking period may extend to half month or one month because the necessary spare parts and equipment to be replaced are not yet ready. It is suggested that the ship owner contract out to a qualified ship management company the docking preparation.

Table 6.6.8 Specifications and Business Plan of Floating Dock

Dock Specifications	
Lifting Capacity	15,000 LT
LOA	150 m
Price	0.9 Billion Japanese Yen

Business Plan	
No. of Ships Received	47 per year
Commissionable Days	365 per year
Docking Charge	Rp 175 million per ship

Source: JICA Survey Team

Table 6.6.9 Sensitivity Analysis of Floating Dock Investment

Case of cost going up profit going down		Cost up (%)				
		Base	10	20	30	40
Profit down (%)	Base	30.6%	24.6%	18.5%	12.1%	4.7%
	10	27.7%	21.6%	15.4%	8.7%	0.0%
	20	24.8%	18.7%	12.3%	5.0%	-
	30	21.8%	15.6%	8.9%	0.4%	-
	40	18.9%	12.5%	5.2%	-	-

Source: JICA Survey Team

4) Economic Analysis

(1) Qualitative Benefits

The implementation of PSFP may bring about various benefits for domestic shipping users as well as to shipping and other maritime-related industries.

The project benefits may be divided into three groups: (i) the national economy, (ii) the maritime industry, and (iii) maritime safety and protection of the environment.

National Economy

The PSFP intends to introduce more competitive fleet in the domestic shipping sector. The competitiveness is proved when the user enjoys lower shipping costs and better services. Sea passengers can benefit from seamless shipping service by RORO passenger vessels, resulting in travel time reduction. The PSFP will give new shipbuilding orders to local shipyards. From the viewpoint of the national economy, it will stem the outflow of foreign currency to some extent instead of the prevailing practices – procurement of second-hand vessels at the international markets. The PSFP, as a whole, will provide younger and more competitive fleets and ensure better fleet utilization by expanded shipyard capacity. It will contribute to improving domestic connectivity in the country.

Maritime Industry

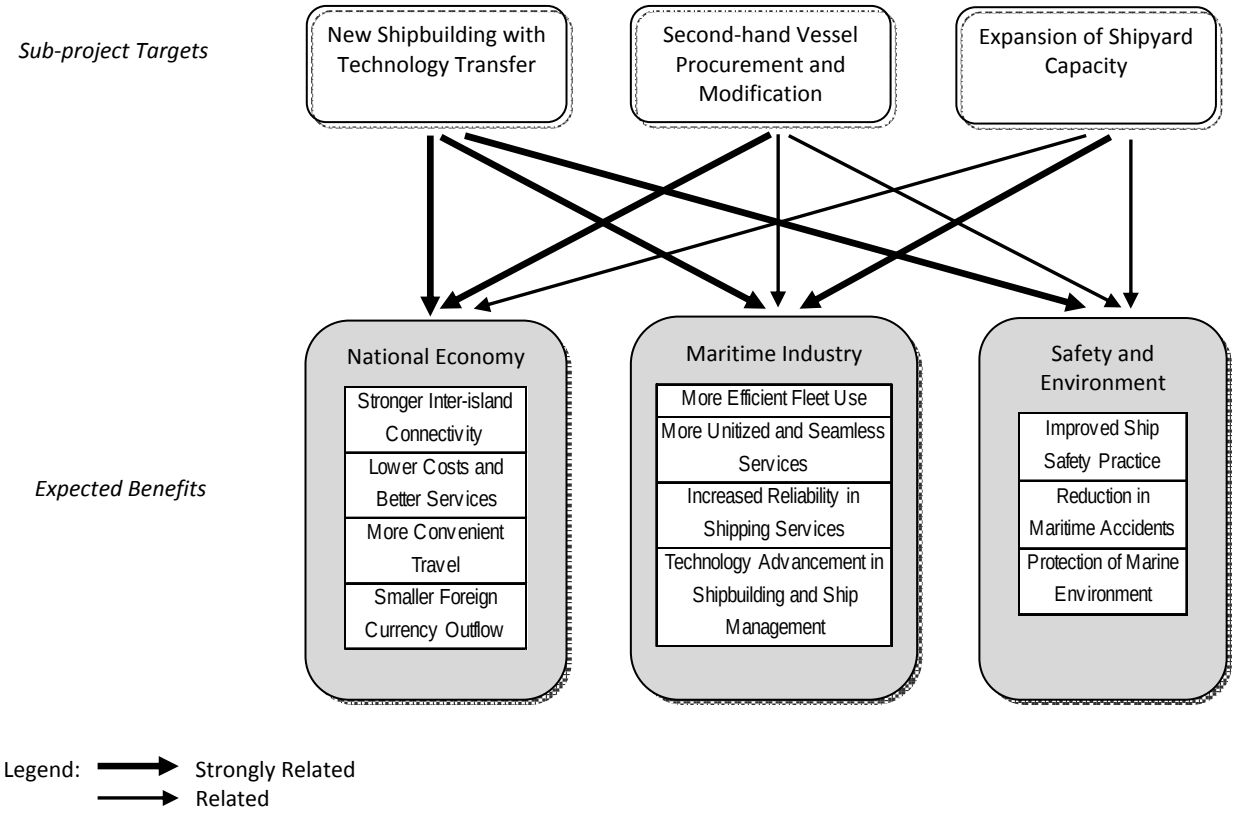
The PSFP will provide new or younger domestic shipping fleet compared with the existing aging fleet profile. The end-users must receive professional ship management service as an obligatory condition. Therefore, more efficient fleet use is guaranteed. The PSFP also intends to provide new full container vessels and new RORO passenger vessels. They will promote and expand unitized and seamless interisland services. Crowded shipyards with long waiting queues undermine the shipping service reliability among shippers and forwarders. Shipyard capacity expansion will improve capability of shipyards. Shipbuilding and its related industries will benefit from

technology transfer of advanced foreign shipyards when they work together under new PSFP shipbuilding contracts.

Safety and Environment

The PSFP will engage in capacity development in ship safety and ship management by means of manuals and trainings for ship operation managers, superintendents and seafarers. It is considered a prerequisite in introducing modern shipping business management. As a result, reduction in maritime accidents and protection of marine environment can be realized.

The relation between sub-project targets and expected benefits is depicted in Figure 6.6.3.



Source: JICA Survey Team

Figure 6.6.3 Relationship between Sub-project Targets and Expected Benefits

(2) Quantifiable Benefits in Fleet Investment

The explicit and quantifiable benefit in fleet investment is shipping cost reduction. It can be realized by way of:

- Larger vessels can reduce shipping cost per cargo unit on very long routes;
- New and young vessels can reduce repair and maintenance costs and increase commissionable days per year; and
- New and young vessels can sail faster than aging vessels due to superior engines

with better engine performance that are usually installed for new vessels.

Fleet modernization will have positive influence on maritime safety. The proposed PSFP, however, will modernize only several percent of the domestic shipping fleet in Indonesia. Although a number of maritime accidents occur on the domestic waters every year, it is difficult to identify possible accident reduction attributable to the project.

The proposed PSFP will finance a variety of domestic vessels. For this exercise, only new and 15-year old container vessels with a capacity of 300 TEU are regarded as the model vessels. There are three reasons for this. First, container vessels are in fact the main force of inter-island liner shipping in Indonesia. Second, ample operational and business related data are available. Third, container vessels of around 15 years old are easily found in the market because they are just totally depreciated in the origin country, such as Japan. To quantify investment benefit between improved and existing situations, the existing vessel is profiled to be semi-container type, 150 TEU in capacity and 25-year old.

As per results of shipping cost comparison in economic terms, it is expected that newly invested container vessels will accrue considerable benefits, to wit, Rp 10,336 million per new container vessel and Rp 7,880 million per second-hand container vessel. On the other hand, their vessel investments in economic terms are 1,170 million Japanese Yen for new vessel, 648 million Japanese Yen for second-hand vessel, while the resultant value of an old and small vessel is only 324 million Japanese Yen.

(3) Quantifiable Benefits in Shipyard Investment

The proposed PSFP intends to invest in shipyard facility (floating dock) and equipment (tower crane) to support efficient fleet asset utilization. One indicator is increased vessel workable / commissionable days per year. For instance, floating dock investment can add vessel survey and repairing capacity and thus reduce vessel waiting time. Tower crane investment can increase work productivity in docking service and thus shorten docking service time.

For economic analysis, the floating dock investment represents all shipyard investments. A container vessel with 10,000 DWT represents all the vessels to be docked.

In economic terms, one floating dock needs capital investment of 990 million Japanese Yen and fixed operation costs, excluding individual survey and repairing costs, Rp 2,931 million annually. One floating dock will serve 47 vessels per year according to the business plan. It can be considered that one floating dock saves an annual fixed cost of the representative container vessel (Rp 19 billion).

(4) Economic Cost and Benefit Analysis

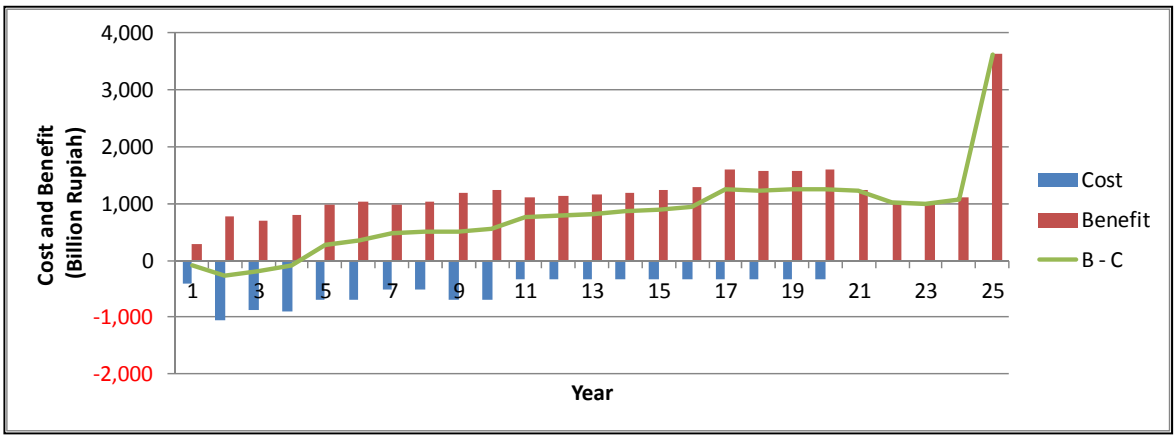
The proposed PSFP was evaluated for 25 years, inclusive of the disbursement and revolving funds (refer to Figure 6.6.4). By using the above economic cost and benefit figures, the following evaluation indicators are obtained:

- EIRR: 39.8%
- B/C: 1.62 (at 12% discount rate)

- NPV: Rp 2,911 billion (at 12% discount rate)

Its yearly B-C stream lines are stored in Annex 6.5.

Simultaneously, sensitivity analysis was also done. It shows that the proposed PSFP exhibits economic viability in implementation until the cost goes up by nearly 40% or both cost goes up by 20% and benefit goes down by 20%, provided that a project justifiable EIRR is set at 15%.



Source: JICA Survey Team

Figure 6.6.4 Economic Cost and Benefit

Table 6.6.10 Sensitivity Analysis of Economic Cost and Benefit of PSFP

		Cost up (%)			
		Base	20	40	60
Benefit down (%)	Base	39.8%	24.3%	16.9%	12.4%
	10	29.5%	18.9%	13.3%	9.6%
	20	22.0%	14.5%	10.0%	6.8%
	30	16.2%	10.5%	6.8%	4.2%

Source: JICA Survey Team