

CHAPTER 14: EVALUATION OF MASTER PLAN

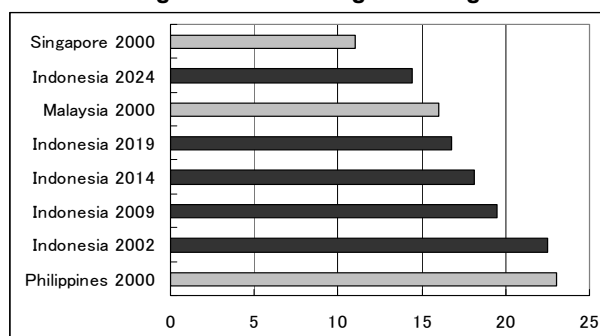
FLEET PROCUREMENT PLAN

- The future fleet requirement in Chapter 8 is translated into a fleet procurement plan with the following conditions:
 - Replacement age: For cargo vessels, the vessel life is assumed to be 35 years for the period until 2014, 30 years for the five years from 2015 to 2019, and further reduced to 25 years for the last five years period of the M/P period. This assumption is made so as to gradually increase younger aged vessels while avoiding substantial investments at once. As for the passenger ships, the life is assumed to be 25 years for throughout the period until 2024, taking safety into consideration.
 - New vessels: Taking into account the current practice and future affordability of the shipping industry, a rate of new vessels among the fleet to be procured is 10% until 2014, 20% during the period 2014-19 and eventually 30% for the last five years.
 - Second-hand vessels: They are assumed as 10 years old when coming into the domestic shipping market.
- As results, the number of vessels to be procured is 4,617 vessels during the Master Plan period. The fleet procurement cost is estimated to be Rp 130 trillion which is equivalent to 8% of Indonesian GDP in 2002. With applying the above-mentioned fleet replacement and procurement policies, the average fleet age will decrease from presently 22.5 years to 14.4 years in 2024. Such a younger fleet composition could be placed between Malaysia (16 years in 2000) and Singapore (11 years in 2000).

Table 14.1 Estimated Fleet Procurement Cost

(Unit: Rp billion)

	2004-2014	2015-2024	Grand Total
Conventional	15,795	29,688	45,483
Container	9,781	17,186	26,967
Bulker	1,059	1,522	2,581
Barge	672	1,295	1,967
Tanker	16,950	19,606	36,556
Passenger	10,265	6,053	16,319
Total	54,523	75,349	129,872

Figure 14.1 Average Fleet Age

Source: Lloyd's Register of Shipping

ECONOMIC EVALUATION

- The proposed M/P will bring about various benefits for the domestic maritime transport as well as the related industries by realizing the higher efficiency of shipping service and reducing the operation cost (refer to Table 14.2)
- Economic analysis has been done by comparing economic costs of the Master Plan projects and economic benefits to be accrued from the implementation. For this purpose, non-Master Plan case is assumed as the case wherein the current poor shipping services would continue. In addition, no requirement to shorten ship-repairing period would mean no investment for dockyard expansion.
- It is estimated that the Master Plan case would need an additional investment of Rp 51 trillion in the coming two decades.
- Some representative benefits have been quantitatively estimated. They are transport cost saving and enhancement of ship safety. For freight shipping, more container vessels, larger vessels, younger vessels and shorter repairing service altogether contribute to shipping cost saving. In this sense, it can be tabbed as the benefit of modern shipping. For passenger shipping, cost saving can be achieved when the existing shipping network and fleet assignment is reorganized. Thus it can be understood to be the benefit of rational shipping. Better ship and shipyard management surely contribute to ship safety. In the estimation, accidents such as "mechanical troubles" and "sunken" are considered partly avoidable with the Master Plan implementation.
- As results, B/C ratio with a discount rate of 12% is as high as 2.0. The IRR is calculated at 37% and the net present value is Rp 11 trillion. Those evaluation indicators clearly show that the

proposed Master Plan is highly feasible for developing the national economy.

Table 14.2 Expected Benefits

	Expected Benefits
Progress of Containerization	Savings in transport cost through: <ul style="list-style-type: none"> • Higher efficiency in cargo handling • Reduction in required days at port
Enlargement of ship type	Savings in transport cost through: <ul style="list-style-type: none"> • Reduction in the Fixed Cost (Less capital cost per DWT) • Reduction in distance related cost
Replacement to younger ships	Savings in transport cost through: <ul style="list-style-type: none"> • Higher operation speed • Increase of Commissionable days • Higher maritime transport safety
Expansion of Total Fleet	Expansion of shipping related industries <ul style="list-style-type: none"> • Shipbuilding/ repairing industry • Other services, insurance, finance, forwarders, etc.
Reorganization of passenger shipping fleet by route	Savings in transport cost through: <ul style="list-style-type: none"> • More efficient passenger ship operation • Reduction in passenger time cost
Improvement of fleet quality by ship management and ship building /repair industry	Savings in transport cost through: <ul style="list-style-type: none"> • Increase of commissionable days • Higher maritime transport safety • Less repair and building costs

OTHER MACROSCOPIC ANALYSES

- If the domestic shipping industry cannot afford the proposed fleet procurement plan, the Master Plan must need substantial public fund for implementation. Therefore, affordability of the Industry is a key to measure actual implementability.
- For freight shipping, the required fleet procurement of Rp 114 trillion seems affordable since their total fleet depreciation costs and a plausible profit of 7.5% against turnover is estimated to be Rp 121 trillion during the same period. Adversely, passenger shipping may not be sustained without public support even in the future. The fare-box ratio of the nationwide network at present and in future is calculated to be less than 1.0. More specifically, the primary and secondary routes expect operational profits in future and its profits will be further expanded when Ro-Ro passenger vessels are assigned. Therefore public support may concentrate on tertiary shipping because of its less and non-commercial nature.
- The impact of the Master Plan to GDP is also examined. Currently, sea transport GDP is Rp 9,794 billion where domestic shipping accounts

for 50.8%. The Master Plan will lift up the domestic shipping GDP by Rp 3,100 billion in 2014 and Rp 5,400 billion in 2024.

- In addition to the contribution to GDP, the Master Plan will give further impact to national economy by investment in fleet and dockyard. In conclusion, the total effects are estimated at Rp 326 trillion during the Master Plan period, which is about 2.3 times bigger than the direct investment costs.

SELECTION OF STRAMINDO ACTION PLAN COMPONENTS

- Although the STRAMINDO Master Plan is highly feasible from a national economy viewpoint, the implementation must face with critical issues such as raising finance for procuring Rp 27.6 trillion worth of fleet until the year 2009. Effective domestic shipping development with addressing such a representative issue is only possible if a number of interrelated individual projects are properly coordinated and implemented in an integral manner.
- In order to implement part of the Master Plan in the short-term, the Study also formulates Action Plan with paying attention on three priority areas: (1) expanding shipping investment channels towards Indonesian flagged vessels, (2) developing competitive domestic fleet through increasing investment and preventing the fleet from unfavorable asset devaluation, and (3) starting capacity building undertakings.
- The Study put two criteria in selecting Action Plan components. They are (1) to sufficiently meet short-term development needs, and (2) to effectively guide subsequent Master Plan projects in the mid to long-term. In conclusion, seven projects are selected as follows:

For expanding shipping investment channels

- **Urgent policy package of improving shipping investment environments:** If capable shipping companies cannot access to favorable financial services, there might be some institutional barriers and shortcomings between shipping companies and financial markets. Such negative elements should be removed immediately.
- **Strategic ODA loan package for Indonesian inter-island shipping development:** Domestic shipping is not exceptional from the areas where ODA can work well for the sake of public welfare. Careful and strategic considerations are necessary to identify ODA suitable areas.

For modernizing and maintaining domestic fleet

- **Building and assignment of most suitable**

vessels on regular inter-island routes: The role of liner shipping will be increased. However the present fleet, which is mostly second-hand vessels when procured, hardly satisfies needs. Since there is no country that requires such vast inter-island liner system other than Indonesia, it is worth designing the most suitable vessels originally.

- **Introduction of ship-management company:** The Study strongly recommends the introduction of a ship-management company concept in domestic shipping. It has a potential to become a significant breakthrough in balanced development between shipping and ship repairing industries. A workable company plan should be examined.

For capacity building of maritime transport

- **Advanced education in shipping industry:** Existing maritime education is mostly towards

seafarers, with limited attention to shipping management. An implementable education program is desirable.

- **Maritime administration database center:** At present, the maritime transport administration shows poor capability in decision-making and planning shipping routes and vessel space assignment so as to guide the industry. All the necessary data should be stored, reported and utilized with an effective network.
- **Daily monitoring system for subsidized operation:** For a long time, government had difficulty in controlling those subsidized operations at mostly remote areas. Today, advanced communication services such as satellite communication and internet enable real time monitoring and performance analysis. Such a state of the art technology should be examined.

CHAPTER 15: EXPANDING SHIP INVESTMENT CHANNELS

INTRODUCTION OF NECESSARY LEGAL REGIMES

- **Mortgage/hypothec law:** The Government is reviewing INSA's proposal for the ratification of the International Convention on Maritime Liens and Mortgages 1993. In this connection, INSA has also drafted the Law on Preferential Maritime Claims and Ship Hypothecs. The above enactment and ratification are both desired to be realized urgently as it is the first step in introducing international commercial shipping regime.
- **Arrest of Ships:** To secure an effective and efficient enforcement procedures when a mortgagor is in default, it would be important for the Government to ratify the International Convention Relating to the Arrest of Sea-Going Ships of 1952 or the International Convention on Arrest of Ships of 1999, and to create a new law for civil procedures which provides a quick and reliable procedure in executing ship mortgages/hypothecs.
- One option for the Government is to opt for the 1952 Convention which has already been ratified by 70 countries, and the other option is to ratify the 1999 Convention which covers broader range of claims including ones related with environmental damages, and is applicable to all vessels. It might be preferable for the Government to ratify the 1999 Convention which embodies the most recent trends and requirements of the international society. And in

parallel with this, the procedures of foreclosure as provided in the Indonesian Law of Civil Procedure which is quite complicated in its implementation and needs to be amended to make it attractive to domestic and foreign financing institutions.

NECESSITY OF TAPPING ODA FUND INTO THE DOMESTIC SHIPPING SECTOR

- Taking account of the commercial nature of shipping business, most of ship finance must be done on a commercial basis. Therefore favorable shipping investment environments are serious concerns among shipowners as already mentioned. Public finance is another alternative as long as its mobilization can be justified economically and socially. ODA is an external resource to serve such a public finance need. With due consideration of its significance under the national development context, the Study has identified the following contemporary needs to tap ODA fund into the domestic shipping sector:
 - a. Incentive to realize a comprehensive shipping policy framework through a new partnership between public and private sectors;
 - b. Development and advancement of inter-island liner shipping network as prime infrastructure of the national transportation system;
 - c. Enhancement of domestic fleet competitiveness with due attention to liberal trade regime such as AFTA;

- d. Provision of socially indispensable shipping services with government support;
- e. Enhancement of ship safety and marine environment protection;
- f. Balanced development of shipping and shipbuilding industries; and
- g. Increase in cabotage rate (national tonnage share) to a reasonable level.

A DESIRABLE ODA LOAN PACKAGE

- The Study suggests the Indonesian government to establish an ODA-based inter-island shipping development program which will meet 10% of domestic fleet investment during the period 2005-09 or Rp 2.8 trillion with focusing on three priority areas: (1) renewing and conversion of existing idle fleet, (2) assignment of most suitable vessels on inter-island liner routes, and (3) maintaining and expanding socially indispensable tertiary shipping.
- **Renewal and conversion of existing idle fleet:** Based on the Study's observation, many domestic vessels are idling due to long waiting time for cargoes and spare parts. It is particularly true among dry bulkers and conventional vessels. It implies that Indonesian domestic shipping is in a complicated situation where over tonnage and fleet shortage concurrently exist. In other words, there are plenty of vessels but the vessels and services which shippers seek for are not sufficient. The most cost and time effective measure is to convert rehabilitate idle vessels as long as they are seaworthy. The second option is to replace existing obsolete vessels with young second-hand vessels with necessary modification. In this connection, vessel priority must be consistent with the government's cabotage policy.
- In the first phase, an existing fleet of 250,000 DWT will be renewed and converted. With a maximum sub-loan period of 5 years, it is designed that the fund will be repeatedly lent and repaid for 5 times on the average during the program period. In total, this project will benefit 1.25 million DWT for shifting them from idle to competitive vessels. Regarding finance method, two-step loan of ODA fund will be provided through Bank Mandiri Indonesia (BMI) for loans to shipping companies with plans to improve or renew vessels.
- **Assignment of most suitable vessels on inter-island liner routes:** The inter-island liner shipping actually forms the primary infrastructure of the national transport system. Thus it is not exaggerated that the pace and service quality of inter-island liner shipping development must

keep up with the pace and scale of economic development, particularly outside Java Island. Indonesian domestic shipping has the largest industry in the world in terms of fleet tonnage and service coverage. Therefore it is not unusual for national shipping lines to face difficulty to purchase suitable second-hand vessel in the market. This project attempts to build newly designed vessels to meet the needs of inter-island liner shipping in the future. It is recommendable to employ a package-deal method where an Indonesian shipbuilder and a foreign shipbuilder work together to deliver excellent vessels technically and economically.

- Firstly, two kinds of vessels will be selected for inter-island liner shipping. The vessels could be first built in a foreign shipyard, and then duplicated at local shipyards under the guidance and supervision of a foreign shipbuilder. With a maximum sub-loan period of 15 years, it is designed that the fund will be re-lent 2 times on the average during the program period. In total, this project will deliver 12 new vessels to Indonesian shipowners. The total built tonnage will range from 100,000 GT to 150,000 GT. Regarding finance method, ODA fund will be provided to a Ship Management and Holding Company (SMHC). New vessels both imported and locally built should be procured through public bidding by SMHC and to be sold to the selected shipping companies. The sales contract could be either lease purchase or installment payment through BMI.
- **Maintaining and expanding socially indispensable tertiary shipping:** The government of Indonesia must support much non-commercial and less commercial shipping needs of the country; due to severe and vast regional disparity such services are socially indispensable. However, PT. PELNI will not be able to maintain the current nationwide shipping network due to adverse competition with civil aviation. Government has another problem in regard to accommodating new comers in pioneer shipping, resulting in inactive bidding and further government support from the government. Therefore the Study recommends to reorganize those none and less commercial feeding services into one common basket, so-called tertiary shipping. In the new scheme, the government, both central and local, is required to take more responsibility such as increasing government owning and co-owning of vessels in line with improved services.
- Small cargo-passenger vessels ranging from several hundred to less than two thousand tons are subjects of the project. The Study has

estimated that the necessary tertiary shipping fleet will be around 110,000 GT in the year 2024. The method of fleet development is conversion of existing small conventional vessels and new construction at local shipyards. Due to its compactness, a maximum sub-loan period of 10 years is required for newly built vessels. Thus it is designed that the fund will be re-lent for 3 times on the average during the program period. In total, this project will build or renew a fleet of 120,000 DWT.

- In the case of government owning vessels, SMHC will manage the vessels. In the case of a two-step loan to shipping companies to finance either vessel conversion or new construction, a combination of BMI and SMHC or Bank Rakyat Indonesia (BRI) and SMHC funding will be arranged. BRI may be preferable when many

small shipping companies apply to this finance facility.

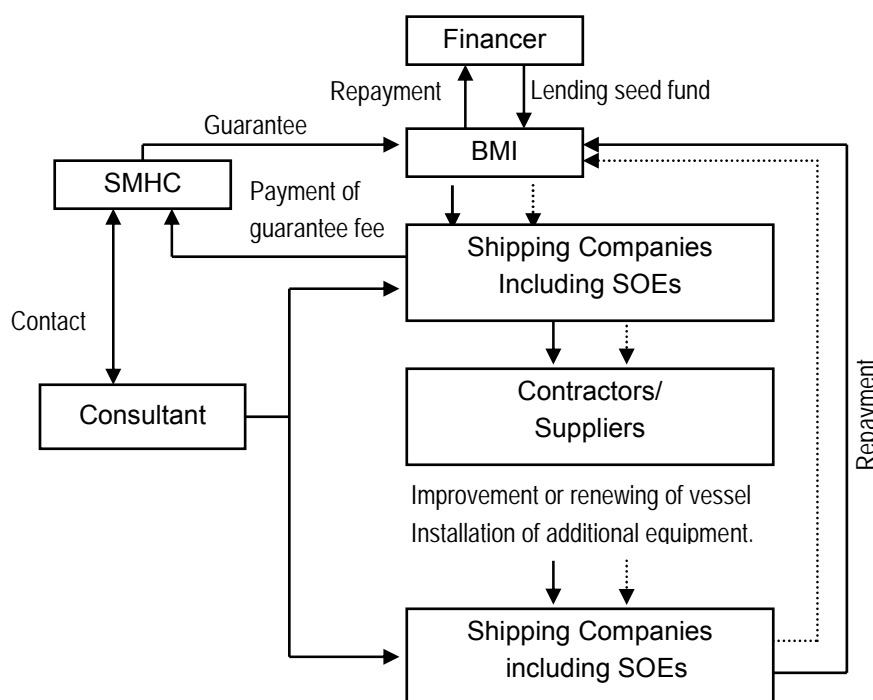
Table 15.1 Loan Package Scale

(Unit: JPY billion equivalent)

Project Budget	FC	LC
(a) Renewing and Conversion of Existing Idle Fleet	10.0	2.5
(b) Assignment of Most Suitable Vessels on Inter-island Liner Routes		
• To be built in Foreign Yard	5.0	0
• To be built in Local Yard	8.0	2.0
(c) Maintaining and Expanding Socially Indispensable Tertiary Shipping	4.2	1.8
Consulting Fee	1.9	0.5
Contingency	0.9	0.2
Program Total	30.0	7.0

Note: Building unit cost: (a) JPY50,000/dwt, (b) JPY 200,000-300,000/gt, (c) JPY150,000/dwt

Figure 15.1 Method of Finance through Two-step Loan



ASSESSMENT OF SHORT-TERM SHIP INVESTMENT

- The short-term fleet procurement plan has been assessed from a financial viewpoint. However the fleets of passenger and liquid bulk were excluded in the assessment since the dominant presence of state-owned companies such as PELNI and Pertamina Shipping dominating those sub-markets. Thus, the residual fleet requirement is Rp 12.5 trillion during the period 2005-09.
- For assessment purpose, two cases are

assumed: Base Case (equity – 20%, commercial bank loan – 80%) and Alternative Case (equity – 20%, commercial bank loan – 60%, and government loan (ODA) – 20%). Interest rate is set at 15% yearly for commercial bank loan and 6.5% for government loan. Other assumptions are also adequately made, including profit margin (7.5%), inflation rate (6.5%), income tax rate (1.2% on turnover), loan repayment (5 years).

- The assessment shows that fleet replacement and expansion can be a considerably profitable

project due to sufficient FIRR (26.4%). In addition, government's soft loan will be significantly important for increasing the attractiveness of the project such as increasing ROE (from 18.1% to 24.1%). However, this assessment can be made by two regulatory conditions: establishment of a reliable ship management and holding company (SMHC) and a stable tariff setting to ensure reasonable profit.

- Small and medium shipping companies generally do not have adequate collaterals for getting bank loans required for new ship procurement. Accordingly it is important to establish a SMHC which will procure new ships and resell or lease to individual shipping companies under reasonable price. In order to make the system functional, special government support in various forms such as enhancing bankability, providing

soft loans, monitoring of the daily activities etc. for the ship holding company will be indispensable.

- Another important issue is freight tariff. Currently shipping companies appear to be competing with each other through tariff rate while sacrificing other items in operation such as safety of ships and cargo. Under such circumstances, they have to rely on low-cost ships irrespective of their efficiency, which may result in low quality of services and less competitiveness of new ships. The above financial analysis revealed that if the profit level drops to 5% of the freight or less, the fleet modernization will be quite difficult except for few companies with sufficient financial resources. The future domestic shipping market should be directed towards better services within affordable tariff setting.

Table 15.2 Financial Evaluation Indicators for Base and Alternative Cases

Financial Evaluation Indicators	Base Case	Alternative Case
Financial Internal Rate of Return (FIRR)	26.4 %	26.4%
B/C Ratio (discount rate: 15%)	1.90	1.90
Net Present Value (Trillion Rp)	8.46	8.46
Return on Equity (ROE)	18.1 %	24.1%
Fair Box Ratio (FBR)	1.71	1.71
First Year of Operation Surplus	5-th	4-th
Maximum Short term loan (Trillion Rp)	3.04	1.89



CHAPTER 16: MODERNIZATION AND MAINTAINING DOMESTIC FLEET

DESIGNING OF MODEL SHIPS

- The Study has projected a sharp increase in scheduled liner services, particularly container traffic. Various types of vessels are required to form a competitive inter-island liner fleet to meet both local needs and conditions. The Study selected the following three model ships beside ordinary container ships:
 - Shallow and wide container ship** considering the calm waters of Java Sea and the presence of several major river ports in Sumatra, Kalimantan and Sulawesi.
 - Ro-Ro ship** taking account of many short to medium-distance container routes between large cities where demand for high-value goods such as vehicles, cargo on trailers and time-sensitive valuables is expected.
 - Multipurpose ship** taking account of long inter-island routes as national trunk routes where container and vehicles must be provided transport even though demand is insufficient to assign a full container vessel or a RoRo vessel.
- Pros and cons of the model ships when assigning on Indonesian inter-island routes have been analyzed as follows:

Large-capacity container fleet: Most of domestic container trade will be concentrated within routes 13 major ports: Tg. Priok, Tg. Perak, Belawan, Makassar, Batam, Teluk Bayur, Panjung, Pontianak, Banjarmasin, Balikpapan, Samarinda, Bitung and Jayapura. From a traffic demand point of view, the 13 major ports are able to accommodate full container vessels over 10,000 DWT. But some of the ports have water depth limitation problems such as Pontianak, Banjarmasin and Samarinda. A shallow and wide hull vessel, e.g., breadth 25m, draft 5.0m, can call at those river ports, carrying over 550 containers. However, its navigation speed is moderate at 15-16 knot.

Fast Ro-Ro operation: Ro-Ro vessel exhibits

faster operation than container vessel due mainly to short port time. Cargo handling productivity alone is almost three (3) times higher than container vessel's due to its roll-on/roll-off operation. Ro-Ro vessel has an advantage to gain profit through setting a higher freight tariff and absorbing passenger traffic if accommodation space is allocated at upper decks. However, in Indonesia, truck haulage is popular rather than trailer transportation. Ro-Ro operators are reluctant to procure vehicles (tractors and trailers). Since Ro-Ro vessel is costly and its hull space utilization is low compared with container vessel, Ro-Ro service must charge a much higher tariff. Thus Ro-Ro operation is only attractive for high valued goods which comprise a small share of the market only.

Long inter-island routes: Indonesia has many of long inter-island routes. In most cases, however, the demand is not sufficient. Multi purpose ship transportation system covers various cargo types, such as general cargo, container cargo and vehicles, and different loading/discharging systems. Multi-purpose ship is suitable for a route with a hybrid of these freight needs and for a long distance route covering multiple ports.

Table 16.1 Matrix of Ship's Types of Routes

Route	Ro-Ro	Lo-Lo (Container)	Multi Purpose
Shallow draft and Short distance<500'	A	P	x
Shallow draft and Long distance>500'	x	A	P
Middle draft and Short distance<500'	A	A	x
Middle draft and Long distance>500' on heavy demand routes	x	A	P
Middle draft and Long distance>500' on moderate demand routes	x	P	A

Note: A – Attractive, P – Practical, x – Impractical

Figure 16.1 Sample Design of Ro-Ro Vessel for Indonesian Inter-island Shipping

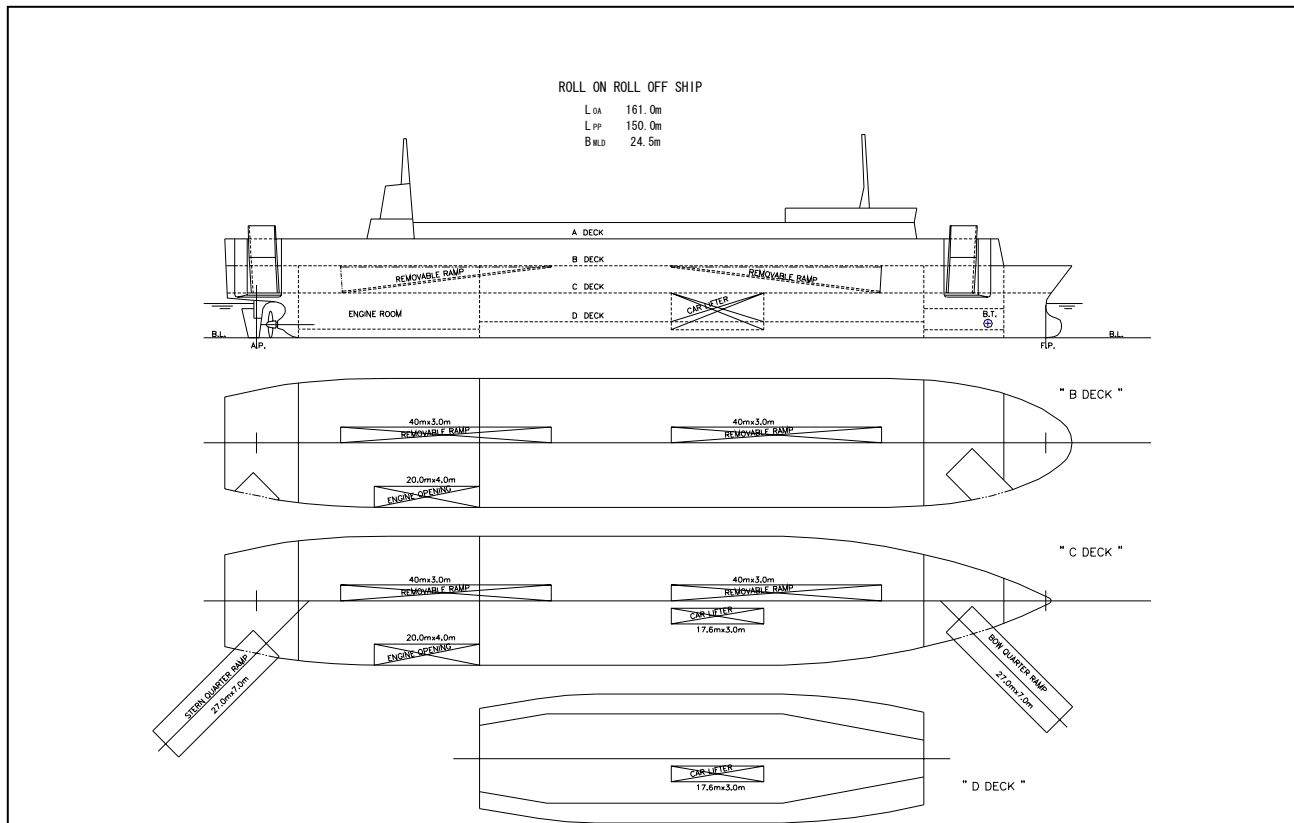
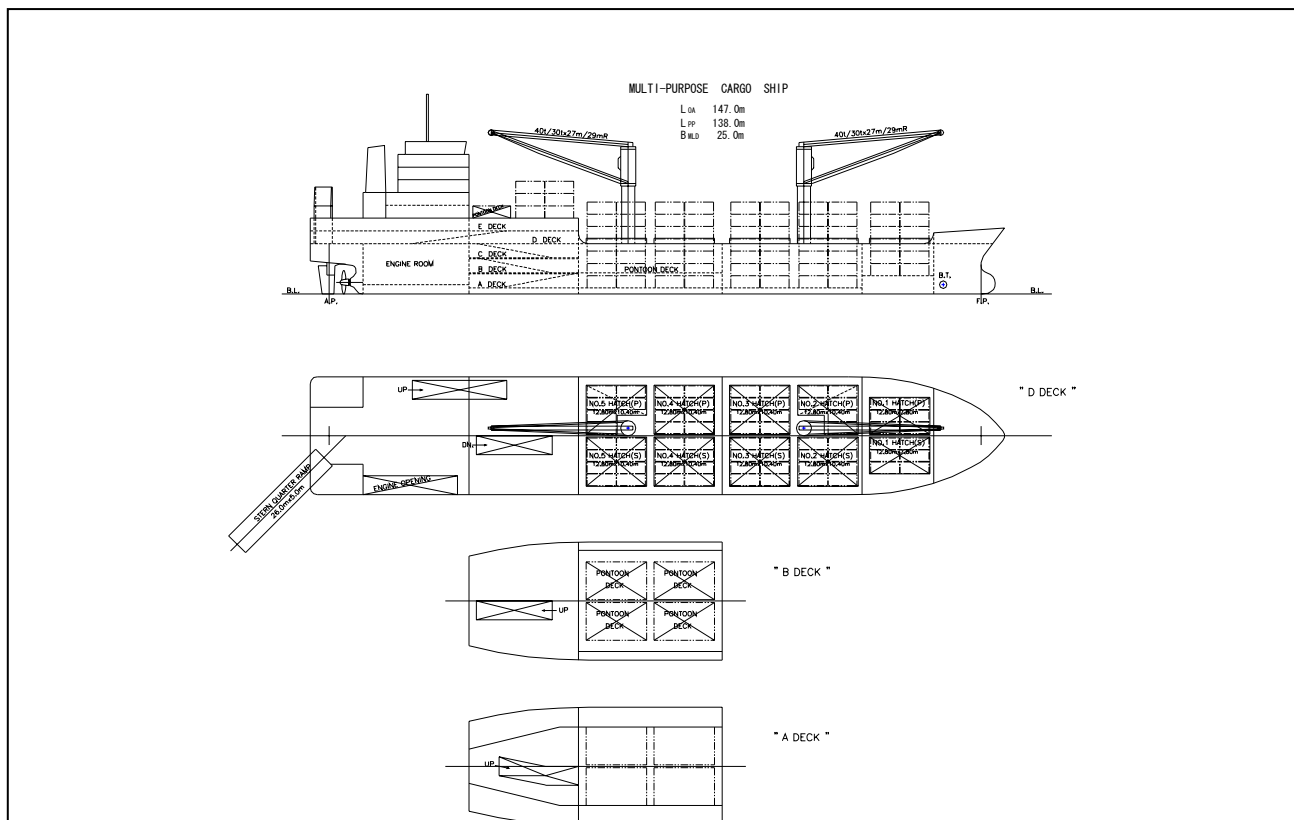


Figure 16.2 Sample Design of Multipurpose Ship for Indonesian Inter-island Shipping



INTRODUCTION OF SHIP-MANAGEMENT COMPANY IN INDONESIAN DOMESTIC SHIPPING

- Professional ship-management services may become a viable business when shipowners contract out their ship-management works due to poor internal capability. In principle, a ship-management company provides services to ships through maintenance and repair, insurance arrangement and crewing (assignment and education). With such professional services, even small-scale shipowners are able to do their business within estimated maintenance budget and at optimal operation rate. Furthermore, appropriate ship maintenance contributes to extending the life of the ship significantly.
- Ship-management service is a new concept in Indonesia. DGSC informs the Study Team that the revised Shipping Law No. 21/1992, currently under preparation, may stipulate ship-management service as one of the recognized auxiliary shipping services (Chapter IX). Provided that ship-management service is a legally allowed service, the responsible authority must define it clearly with adequate guidelines to pave the way to introducing ship-management service in Indonesia successfully. The Study proposes the following regulatory environments:
 - Issuance of “ship-management company” license like freight forwarder license and other shipping auxiliary services;
 - Issuance of DGSC decree on “ship-management company” guidelines in conformity with relevant international and domestic legal frameworks; and,
 - Issuance of “superintendent” certificate to competent personnel after training and/or examination.
- Superintendent is a new professional job in Indonesia. So far, a limited number of large operators employs such experts internally and contract out some ship-management services externally. Therefore, the scope and pace of

superintendent's training will be a decisive factor to organize ship-management companies and provide their professional services over the country.

Table 16.2 Required Number of Senior Superintendents for Domestic Shipping

Year	2002	2014	2024
No. of Vessels over 3,000 dwt/grt ^{1/}	912	1,356	1,807
No. of Senior Superintendents ^{2/}	152	226	301

Note: 1/ Cargo vessels over 3,000 dwt and passenger vessels over 3,000 grt

2/ Workload assumption – 6 vessels per senior superintendent

- The Study conceptually sets up a Model Ship-management Company in order to check the balance between necessary input such as personnel and operation costs and expected incomes. The results include the following:
 - A Model Ship-management Company of 40 staffs including 5 senior superintendents (SI) taking care of 30 vessels shows a good balance between full service coverage (all ship types) and reasonable price setting.
 - Provided that all senior SI are expatriate due to present limited local resource, an adequate management fee is US\$ 5,000 per vessel monthly. When competent Indonesian SIs are to replace expatriates, monthly fee will be reduced to US\$ 4,000.
- The comparison between ship-management fee and expected benefits (increased commissionable days, longer ship life, increased operation efficiency, and reduced accidents) indicates that larger and younger vessels will be able to benefit from the system. However small and old vessels, such as a conventional vessel of less than 3,000 DWT and over 20 years, cannot financially justify contracting-out of ship-management service. Another way should be sought for small vessel quality control.

CHAPTER 17: CAPACITY BUILDING FOR MARITIME TRANSPORT ADVANCED EDUCATION IN SHIPPING INDUSTRY

- This advanced education program aims at developing participants' expertise and management capability to become leaders of both private and public undertakings in relation with shipping development. The program consists of four study areas (ship-management, shipping management, administration and legal studies, shipyard management) which are categorized into two courses: expert course and management course.
- The education program provides two types of accreditation related to the career tracks of participants. One is a course to develop a professional skill of ship-management. Certificate as an "Expert of Ship-management" will be awarded upon graduation. Another course is to develop participants' management and administration capability and upon graduation, "Master of Management in Shipping Industry" will be awarded. (Refer to Figure 17.1)
- The Education and Training Agency (ETA) under the Ministry of Communications is considered suitable for implementing the program. ETA will be designated as an implementation body covering, among others, syllabi preparation, appointment of a platform institution, and accreditation. ETA may appoint a platform institution either from among maritime training institutions under ETA or an outside university. (Refer to Figure 17.2)
- The four study areas are both extensive and profound. Preparation for these includes various teaching materials such as textbook and computer software. It is therefore suggested to introduce phased enrichment during the course operation, starting from "ship-management" to "shipping business management", "administration and legal studies" and "shipyard management".
- Teaching staff defines the quality of the education program. For operating "ship-management course" at the first stage

satisfactorily, there are some possible sources to recruit good teachers. They are (1) professors from other academies, (2) managers of leading shipping companies, (3) superintendents and managers of ship-management companies, and (4) designers and marketing managers of ship chandlers and other related manufacturers. Teachers who are conversant with international experience are highly desirable.

- The program will need a preparation team in a sufficient time. The preparatory works include detailed survey and planning, accreditation arrangement, organizational set-up, teaching materials preparation, recruiting teachers and selection of students. A preparation team may consist of a Chief Representative Officer appointed by ETA, program coordinators, and experts.
- For the preparation of expert course of ship-management, it might be suggested to prepare in one year as a fast track and start as pilot course in cooperation with leading shipping companies with Indonesia so that the course contents should be examined. (Refer to Figure 17.3)
- Assuming that the program would be operated on a self-financing basis, single year cash balance could be done when tuition fees are set around 8 million rupiah per semester and teaching staff are locally recruited. However this simulation still excludes initial investment such as classrooms, facilities and preparation costs.
- With this education programming works, possible areas of Japanese technical cooperation have been identified, including preparation of some teaching materials and software as long as ready-made ones are not available or inadequate, dispatch of experienced teachers, and donation of education equipment. In this connection, it is encouraged for Japanese shipping companies to employ graduates of the program.

Figure 17.1 Two Career Tracks (Left: Expert Course, Right: Management Course)

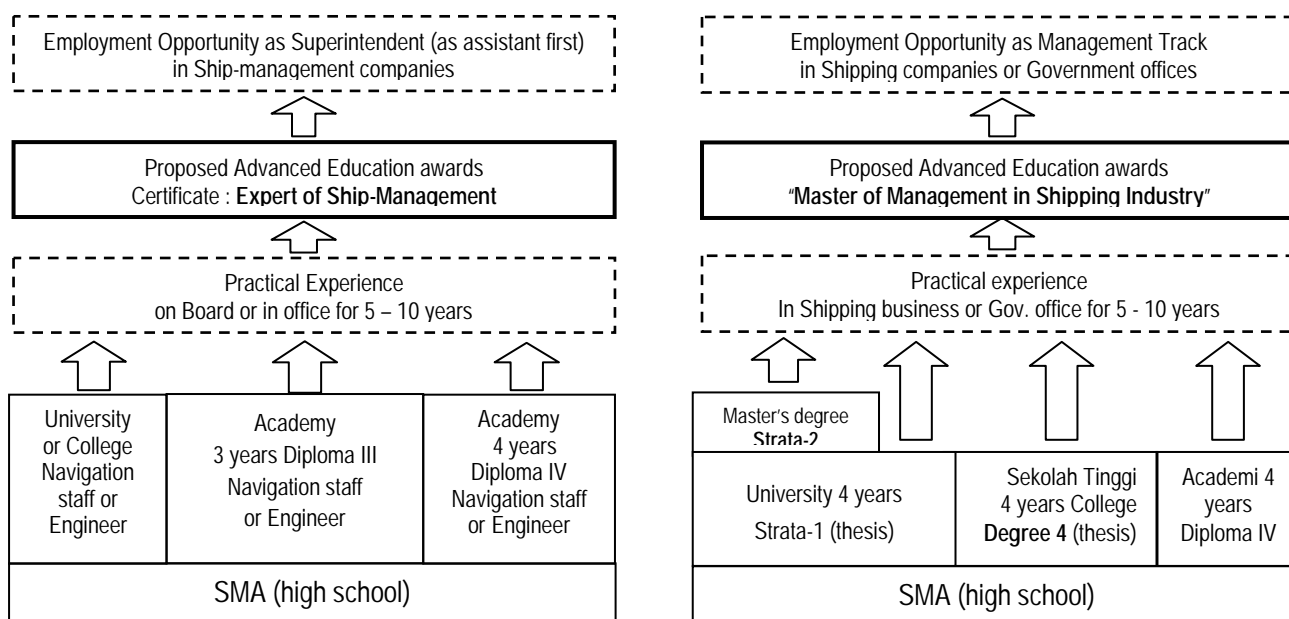


Figure 17.2 Program Management Scheme

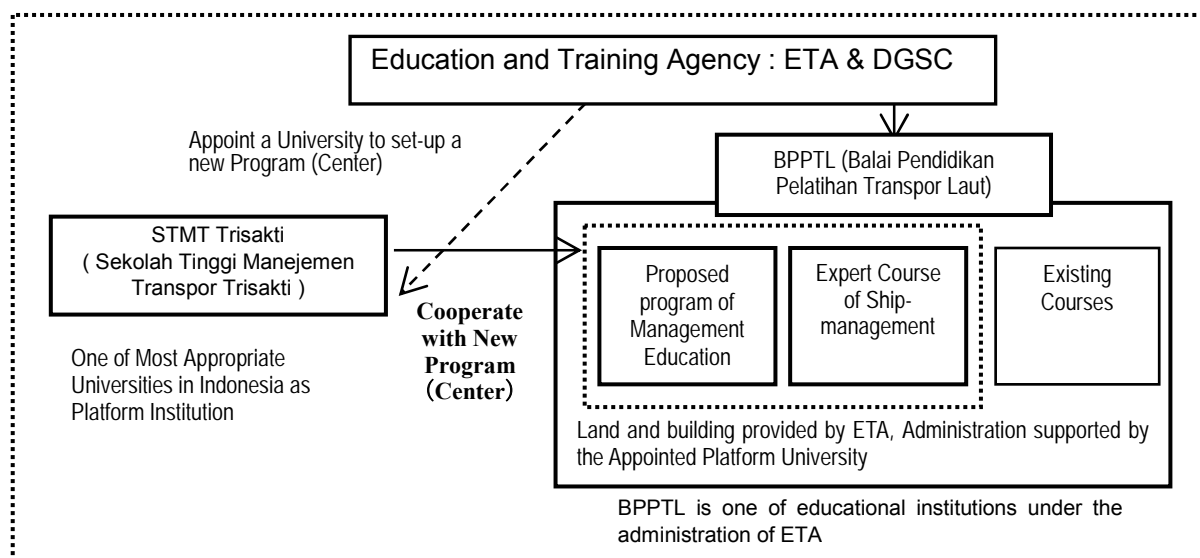


Table 17.1 Fast Track Preparation for Ship-management Course (by quarter of year)

	Year 1	Year 2	Year 3
Survey, Detail Planning	■		
Discussion on Accreditation with MOE	■		
Organizational Arrangement of ETA	■		
Recruiting Teachers & Instructors	■		
Preparation of Teaching Material (Advanced)	■		
Preparation of Teaching Material (Basic)		■	
Preliminary Operation & Adjustment		■	
Student Selection		■	
1st Year		■	■
1st Graduate			★
BPPTL New Campus			■
Other Training Facilities Ready for Use			■

Note: At earliest, Year 1 is 2004.

MARITIME ADMINISTRATION DATABASE CENTER

- Regulation and its enforcement as well policy setting and investment are the primary tools used by the government to guide and help the maritime transport industry. To be able to regulate, enforce and plan for beneficial policies and investment effectively, the knowledge of conditions and operations of the maritime transport industry is vital. However, at the current state the level of information of DGSC, the primary governing body, is very poor. This section reviews the current state of information in DGSC and Indonesia as a whole, and proposes an information system that could remedy this problem.

- Several problems are observed in terms of information management in DGSC. They can be grouped into the following six areas:

Problem 1: Data is scattered in many agencies.

Problem 2: Accuracy of data is suspect.

Problem 3: Compliance of reporting is poor.

Problem 4: Data entries in different data sources are not easily linked and compatibility is suspect.

Problem 5: Data is difficult to access and summarize.

Problem 6: Lack of interest and appreciation of quality maritime database.

- As a next step, the Study has identified several strategies to improve the current state of database and information system as follows:
 - Computerization and Networking (Problems 1 to 5, refer to Figure 7.4)
 - Centralized data storage (Problem 5)
 - Standardization and linking of data entries (Problem 4)
 - Stronger enforcement of regulations in data reporting (Problems 1, 2, and 3)
 - Sampling checking of data accuracy (Problems 2 and 4)
 - Increased data usage (Problem 6)
 - Coordination with other agencies (Problem 1 and 6)
 - Modification of Existing Regulation (as needed)
- The proposed information system will be able to bring about considerable benefits through daily routine operation. For example, it is expected that decisions on policy setting and investment will be done at a more confident and efficient manner – both from the administrator side and the operator side. With a fool-proof information

system, administrators would to have more flexibility in designing regulations as well as more capability in carrying out regulated tasks such as periodical IMRK (Coordination of Freight and Ship Space) calculation. Other plausible benefits are improved public service, through improved reporting and license application procedures and minimizing illegal activities such as forging of documents and corruption.

- It is desirable to involve all stakeholders (DGSC, Shipping Co., PELINDO, BKI, etc.) at the onset. However, it may take some time to build a consensus on the system. Thus a phased implementation program may be adopted, developing database linkages with DGSC and Shipping Company in the Phase 1 and expanding linkages with other agencies in the Phase 2.
- It is proposed that the system set-up (Rp 4,382 million) be financed through grants or thorough public funds. The operation cost (Rp 2,553 million yearly) is however, proposed to be financially self-sustaining. Currently there are about 400 million accumulated GT in 500,000 domestic ship calls. If DGSC is able to additionally collect only 7 Rp per GT per call for modernized information services, the cost of operating the entire system would be easily recovered. This revenue should be accrued to a special fund – to be earmarked for upgrade and operation of the information system.

Figure 17.3 Image of Proposed Information System

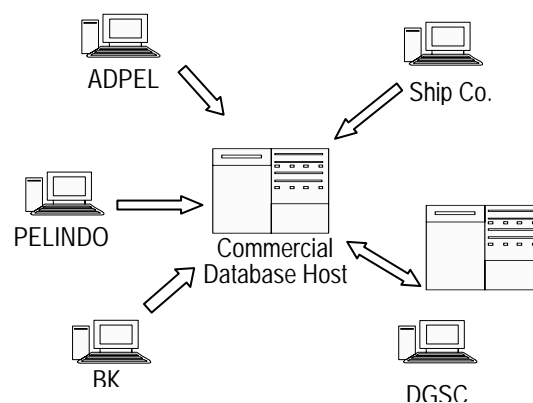


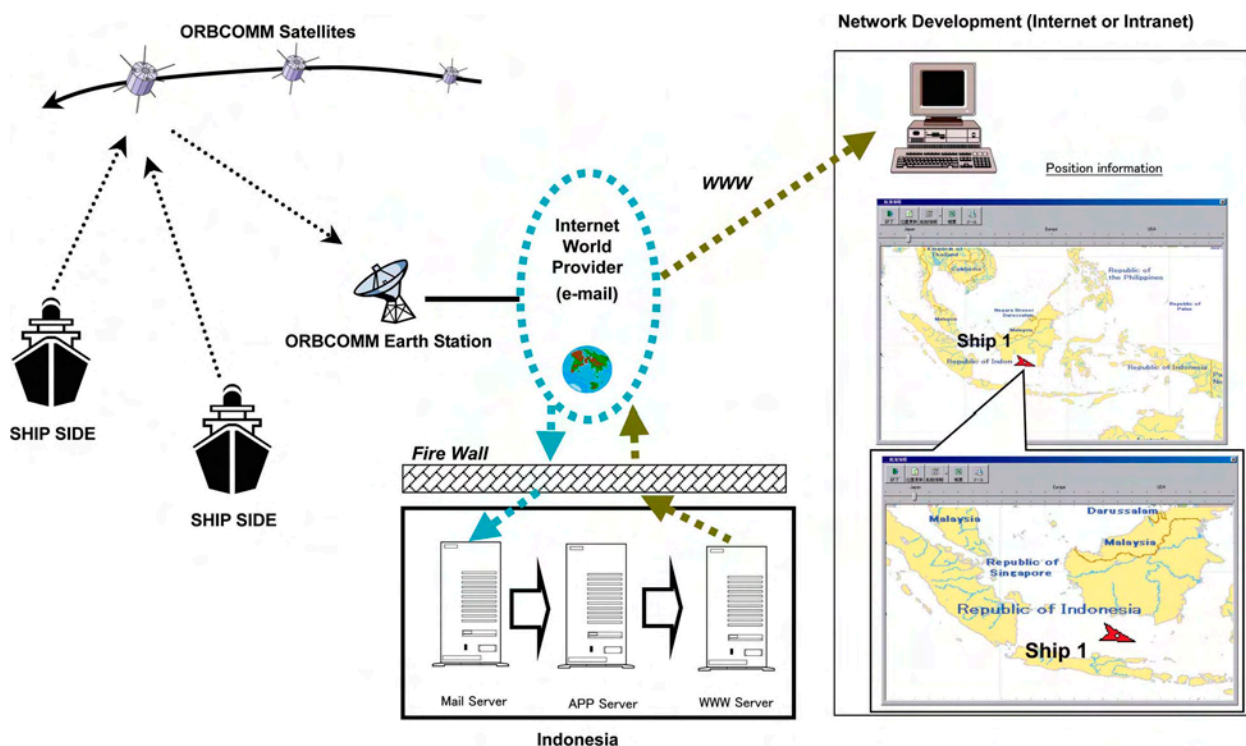
Table 17.2 Cost Estimates for Phase 1

Item	Cost (Rp Mil.)	Contents
Initial System Set-up	4,382	Server (2 units), Computers (315 units), Software, Training and Consultancy
Annual Operation Cost	2,553	Regular Server/Computer Replacement, Software Upgrade, Internet Connection, System Administrator, Database Hosting

DAILY MONITORING SYSTEM FOR SUBSIDIZED OPERATION

- DGSC has been responsible for pioneer shipping to provide services in remote and undeveloped areas in order to support local economies; stimulate dynamic regional development; and, maintain national stability since 1974. In 2002, DGSC maintained 49 routes. Although government has modified its management scheme several times, even today the Study must point out some issues such as high operation subsidy rate (nearly 90%) and poor shipping monitoring at remote areas in real time.
- DGSC is keen on reinforcing pioneer shipping fleet and its management system. It is attested by DGSC's recently procured 11 pioneer ships ranging from 350 DWT to 750 DWT during the period 2002-03. While it requested the Study to look into a tracking system to monitor all the pioneer fleet through a designed telecommunication network. As this Action Plan component, however, a monitoring system is designed to cover only 50 vessels (almost equal to the existing pioneer fleet) taking account of its swift implementation task.
- The daily monitoring system project consists of four components: (1) hardware procurement in each ship, (2) hardware procurement in head office, (3) network installation (installation) of tracking system software, and (4) training for operators. Ship-to-shore communication system will be installed on board to send specific vessel information to an ashore server periodically. An ashore server will collect and analyze vessel information and the processed data will be transferred to a management web site. ORBCOMM will be used as a primary telecommunication means between vessels at sea and gateway earth centers (GEC). (Refer to Figure 17.5)
- The system will deal with data collected by either automatically or manually, and transferred to a server and finally analyzed and displayed in an informative manner. The system monitors two broad aspects: ship navigation (position, cargo and passenger, engine, past tracking and schedule) and ship maintenance (shaft horse-power meter, ISM-Code items and electronic logbook on navigation and engine).
- The initial cost to set-up the system is estimated at Rp 17 billion. The operation cost must be largely affected by airtime and internet charge which shows a remarkable downward trend. If its benefit to DGSC, mainly reduction in operation subsidy, would be surely larger than the amount of the initial system cost, the system should be developed as soon as possible within the current pioneer shipping subsidy fund (Rp 89 billion in 2003 for operation subsidy only).

Figure 17.4 System Configuration



Source: BEMAC

CHAPTER 18: CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

- Domestic shipping in Indonesia is not new. The industry as well as the government has endeavored to fulfill its mission in providing reliable and competitive maritime transport services as the prime artery of life and integration of the archipelago. However until today this mission has not been satisfactorily achieved. In other words, the domestic shipping sector has a great development potential. There would be a growing demand for transport which can be economically and effectively handled by domestic shipping as its service coverage and density are expanded and reliable and stable services are provided. The economic benefits of domestic shipping development are significant as indicated by the estimated EIRR of 39% covering directly measurable benefits alone. Indirect benefits may extend to the associated development of maritime related industries, promotion of socioeconomic development beyond Java and reduction in regional disparity accordingly, and stimulation of related industry development.
- While Indonesia supposedly holds cabotage right in shipping, in practice, the industry depends on foreign chartered vessels substantially.
- The Study's observation reveals that many vessels, particularly conventional vessels, are likely to anchor due to overly extended cargo waiting. Over-capacity sometimes triggers unhealthy dumping freight rates. In reality, there are plenty of vessels but the vessels which can provide satisfactory services are insufficient in the market. The estimated productivity of the dry cargo fleet is low at only 7,649 ton-miles per DWT or only 37% of the Japanese case. Therefore, there must be a complicated situation where high dependency on foreign chartered vessels and over-capacity of the domestic fleet concurrently exist.
- In this connection, the Study has found a vicious cycle as a result of unfavorable shipping investment environments in Indonesia. Many shipping companies have indicated their intention in procuring additional vessels. However, shipping companies find it difficult to arrange for ship loans in the domestic financial markets. On the other hand, ship loans could be more easily arranged through foreign sources. Some large shipping companies tend to procure vessels abroad as flagged-out vessels. Such arrangements are beyond the capacity of small-to-medium companies and they will have no other alternative but to invest in low cost but old and scrappy vessels. The net effect is a continually increasing dependency on foreign chartered vessels and lowering fleet productivity.
- There is a strong need for the domestic shipping industry to depart from the vicious cycle and to shift to a new paradigm of developing a competitive national fleet where national shipping lines can access adequate financial sources to procure competitive vessels as shippers require, enjoy stable business profits and avoid degrading of vessel asset in the medium to long-term, and be able to re-invest in a more competitive fleet. For this purpose, shipping companies have to make efforts to modernize their business and the government needs to foster a favorable shipping investment environment, install a strategic public finance scheme to some important fleet development areas, and provide adequate shipping related infrastructure and facilities such as ports and shipyards.
- The Study has confirmed that the domestic shipping industry will be able to modernize and expand its fleet from the present situation of 7.0 million DWT/GT of 23 years old on the average to a larger and younger fleet of 14.4 million DWT/GT of 14 years old on the average in 2024 provided that vessel depreciation costs and an adequate profit, say 5% of business turnover, can be used. As long as such investment can be changed to national tonnage, it is possible for government to enforce full cabotage regime by the year 2024. A share of national tonnage in an intermediate year of prior to 2024 is estimated at 86% which is achieved when selected seven commodities, i.e., coal, oil, CPO, fertilizer, rice, rubber and wood, is mandated to be transported by the national fleet only while present haulage patterns of non-selected commodities remain.
- While Indonesian domestic shipping is indispensable and there is a large development potential, there are a number of conditions to be met to realize the expected effects of domestic shipping development. They include, among others, the following:
 - National shipping policy and strategic development plan on sea communication:** As a first step to advocate a national shipping policy that is formulated and implemented for the benefit of all, it would be necessary to involve shippers and cargo owners. It is desirable for the

Ministry of Communications to draft a comprehensive domestic shipping development framework based on the Study's output and proposals and incorporate it into the national development policy. In line with this, it is also important to prepare the next "Strategic Development Plan on Sea Communication 2005-09" including the Action Plan components proposed in the Study.

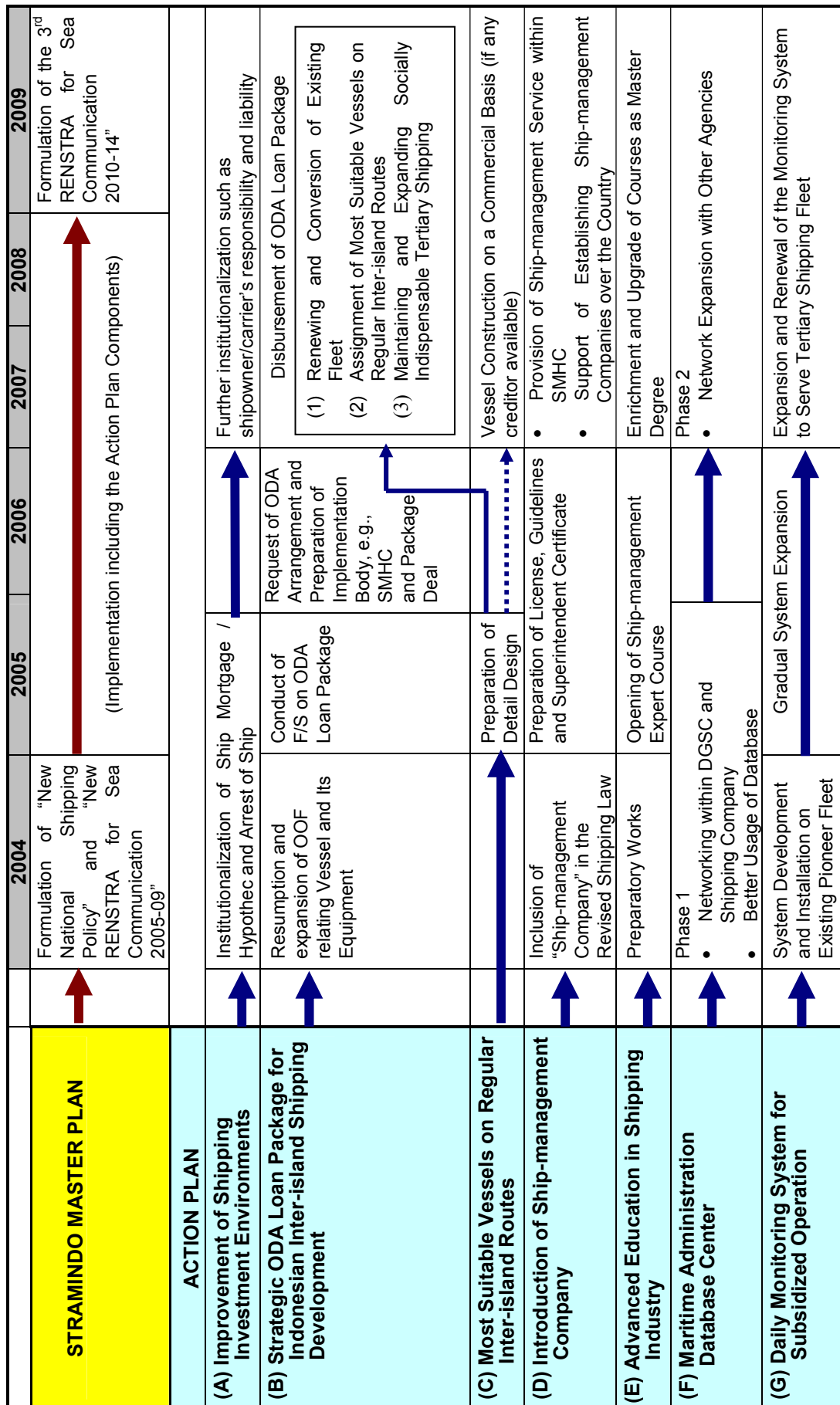
- **Improvement of shipping investment environments:** The advent of free trade regime in the region will create more challenge and potential to domestic shipping as domestic and international shipping systems will become competitive as well as supplementary. Therefore, Indonesia needs to develop an advantageous or at least a comparable investment environment relative to its neighboring countries by way of good coordination of private and public financing schemes.
- **Modernization of shipping business management:** Most of Indonesian shipping companies are small entities operating one or two vessels. To enhance business competitiveness, their activities should be rationalized through mergers and acquisitions, concentration on specialized services, and contract-out of ship management services. To introduce such rational measures, human resource development, specifically training of management staff is top priority.
- **Development of shipping supporting infrastructure and facilities:** Infrastructure development, covering ports, waterways and aids to navigation, etc, need to be adequately developed to meet the specific requirements of domestic shipping as planned in the Study. Shipbuilding, repairing, and breaking should be firmly supported so that the domestic shipping fleet could be expanded, modernized, and maintained at an adequate level. In practice, shipping development is a matter of achieving synergy between shipping and supporting infrastructure and facilities.
- **Enhancement of ship safety and preservation of marine environment:** It is one of the serious concerns why Indonesia needs to improve its domestic shipping system. All aspects of shipping activities should pay due consideration to safety and the environment from a viewpoint of IMO-centered regime particularly contemporary issues such as ISM-code, ISPS, preventive measures of oil spill accidents and piracy and armed robbery incidents.
- **Establishment of a new partnership between public and private sectors:** The drastic

deregulation policy in the late 1980s made the relation between the administration and the industry loose. However, one key item to realize is a favorable domestic shipping system as proposed in the Master Plan is to establish a new partnership between public and private sectors because their coordinated efforts are necessary. The maritime transport administration should take a more leading role in monitoring shipping activities, identifying problems and issues, and guiding desirable development directions with adequate governmental interventions.

RECOMMENDATIONS

- As a first step of realizing the Master Plan, until the year 2009, efforts must be concerted on securing necessary investment amount (Rp 27.6 trillion) for fleet investment from excellent sources, as well as, enhancing fleet competitiveness and avoiding fleet asset devaluation. Although capacity building is a rather longer term issue, the programs urgently required and strategically important should be initiated immediately. Figure 18.1 details the implementation schedule of the proposed Action Plan.
- It is recommended that seven specific components of the Action Plan be implemented at the earliest possible time. They are:
 - a. Urgent policy package of improving shipping investment environments
 - b. Strategic ODA loan package for Indonesia inter-island shipping development
 - c. Building and assignment of the most suitable vessels on regular inter-island routes
 - d. Introduction of ship-management company
 - e. Advanced education in shipping industry
 - f. Maritime administration database center
 - g. Daily monitoring system for subsidized operation
- It is also recommended that post-evaluation of the Master Plan be done every five years using standard performance indicators such as domestic fleet productivity (ton-mile per DWT), share of Indonesian flagged vessels in transporting domestic cargo, and containerization rate.

Figure 18.1 Detailed Implementation Schedule for the Action Plan



SMHC = Ship Management Holding Company

FINAL REPORT

Reference Material

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

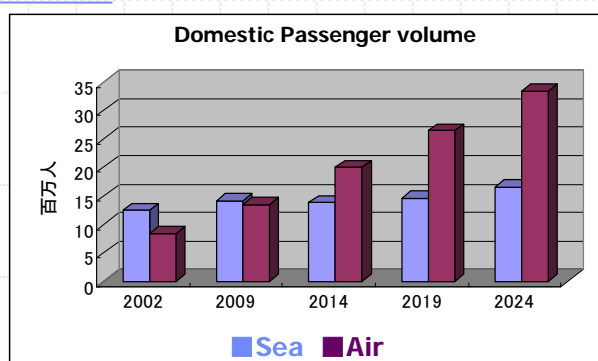
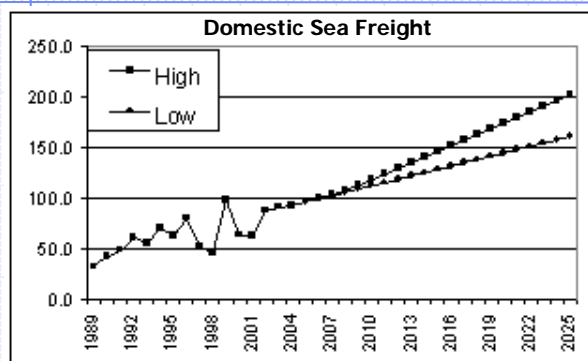
Indonesia is the largest archipelagic country in the world, comprising over 18,000 islands and islets; thus, maritime transport is a key basic infrastructure for the Indonesian people and economy. However, the shipping industry has remained underdeveloped due to insufficient industrial effort and inadequate government support. Deficiencies in Indonesia's maritime sector are manifested in a low share of Indonesian flagged vessels in the domestic shipping market. This master plan study on Indonesian domestic shipping and maritime industries has been implemented against such setting.

The overall study objective is to increase the share of Indonesian flagged vessels in domestic shipping by providing improved shipping services to shippers and passengers on all domestic shipping routes.

STRENGTHEN THE FOUNDATIONS OF SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT

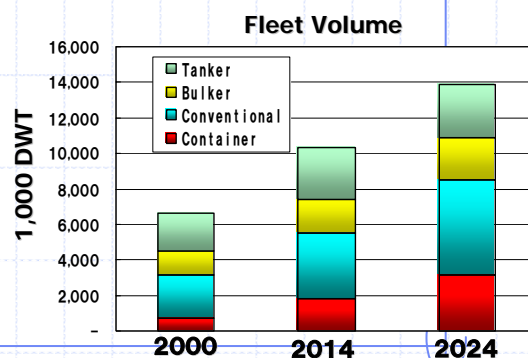
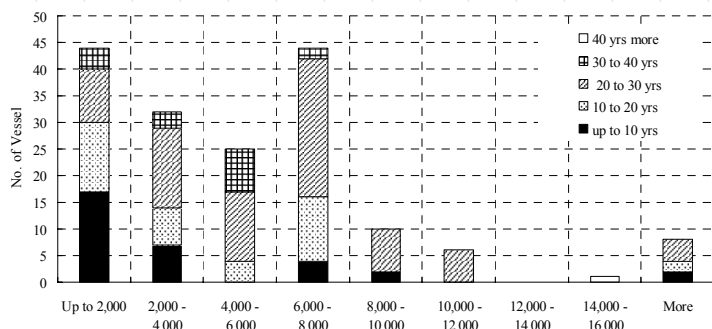
[Domestic Shipping Freight Demand]

- Domestic Sea Freight Demand: Increasing
- Domestic Sea Passenger Demand: Nearly flat (shift to Air Transport in the future)

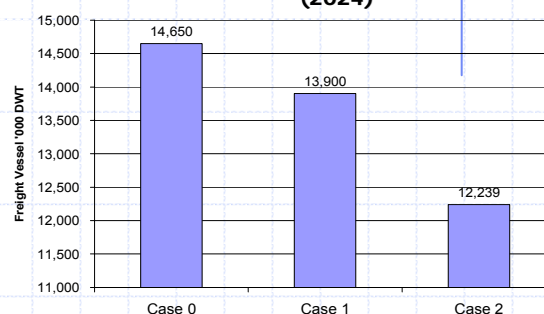


[Fleet]

- Aging Fleet (more than 2000DWT)
- Future fleet demand will increase as sea cargo transport demand increase
- Lack of funds for fleet development



Fleet Volume by Case (2024)



CASE 0 : Status Quo

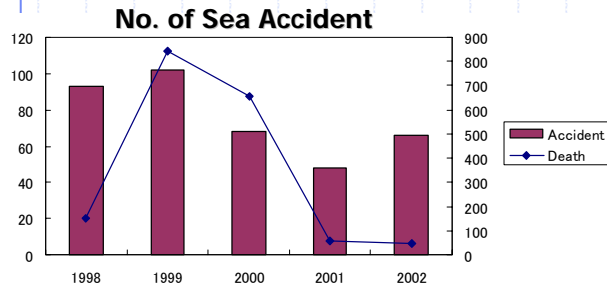
CASE 1 : Increased operating speed and reduced ship repair time

CASE 2 : Case 1 + Port Improvement

EXISTING CONDITION AND ISSUES

[Maritime Safety and Maritime Environment]

- High frequency of maritime accident
- Lack of security features



Inspections and Detentions of PSC by Flag

Flag	No. of Detentions/ Inspections			Average Detention Percentage (%)
	2000	2001	2002	
Indonesia	47/123	47/148	31/144	30.12
Malaysia	46/302	36/419	35/364	10.78
Philippines	22/418	12/423	15/373	4.04
Singapore	34/693	19/763	30/807	3.67

[Maritime Related industry]

- Ship repair cost is low, but repair time is long
 - > Local shipyards typically require more than 20 days to complete repairs.

Average Repair Days by Ship Type and Shipyards

Ship Type	A Yard	B Yard	C Yard	D Yard	E Yard	F Yard	G Yard	H Yard
Cargo	25.5	18.5	26.3	31.6	n.a.	55.6	22.1	5.5
Tanker	40.8	18.9	n.a.	18.5	n.a.	39.4	n.a.	31.7
Container	29.4	19.8	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulk Carrier	n.a.	20	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Passenger	13.4	9.6	n.a.	40.8	n.a.	21	12.3	n.a.
Ferry/RORO	23.7	17.9	26	23.9	16	68	n.a.	27.3
Tug Boat	33.6	19.6	34.1	27.1	13.5	18	20.3	26.3
LCT	17	17.7	282	32.3	17.6	n.a.	n.a.	n.a.
Barge	121	14.5	50.6	31.7	23.6	24.5	27.1	1.8

MASTER PLAN OF STRAMINDO (2024)

[Institutional Development in the Maritime Transport Sector]

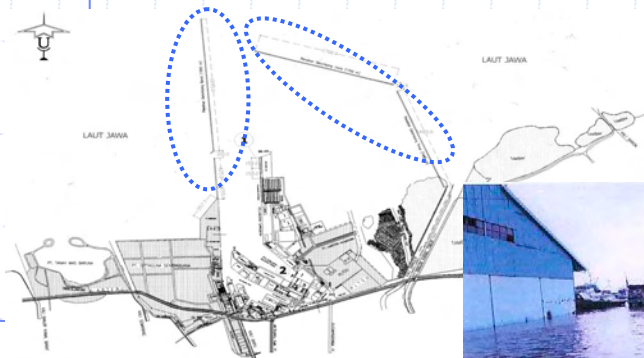
- Promotion of Investment in National Tonnage**
 - Convention on Maritime Liens and Mortgages
 - Arrest of Ships
 - Carrier's Responsibility and Liability
- Policy Program for Inter-island Shipping Development**
 - Cabotage Policy in Indonesia
 - Dialogue between Cargo Owners and Ship Owners
 - Clarifying the application of the Anti-Monopoly Law
 - Structural reforms in domestic shipping
- Environmental Protection and Safety**
 - ISM and ISPS
 - Oil Spill Protection
 - Swift domestic legislation and accession to IMO Convention

MASTER PLAN OF STRAMINDO (2024)

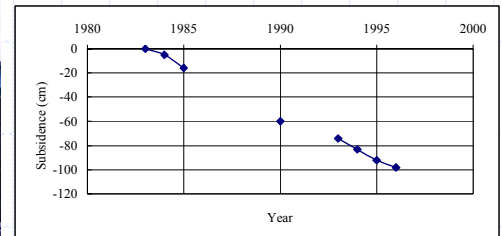
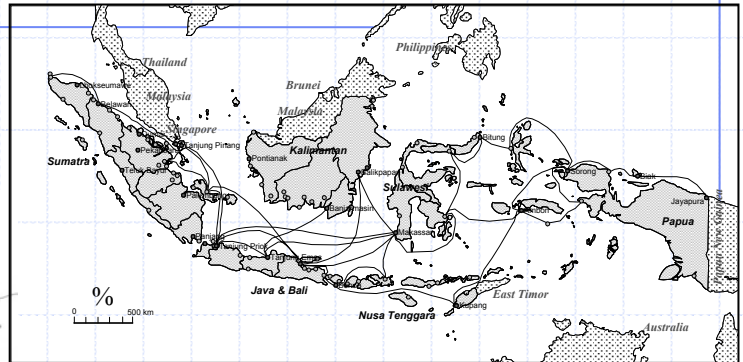
[Domestic Shipping Development Programs]

1. Strengthening of liner routes (progress of containerization)
2. Enlargement of ship type and expansion of total fleet
3. Reorganization of passenger shipping fleet by route
4. Modernization of Traditional Shipping
5. Port improvement of 25 Strategic Ports

urgent improvement of Semarang Port

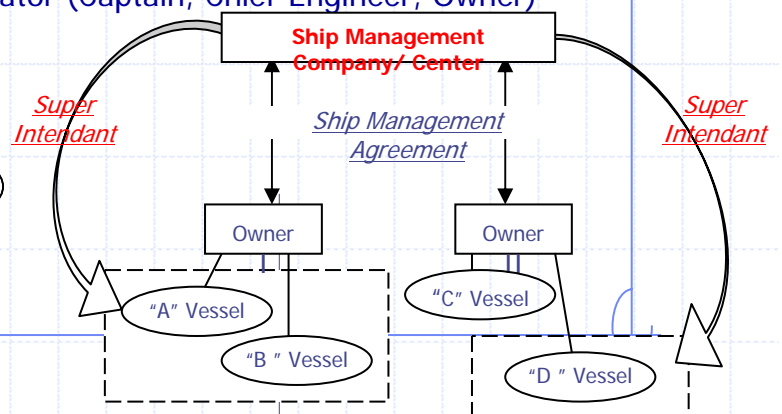
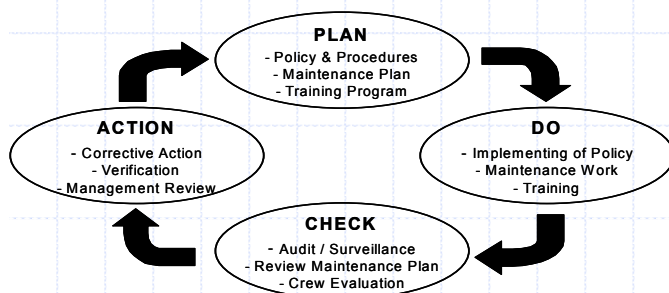


Container Liner Route (2024)



[Shipping Business Management Programs]

1. Ship management
Ship Management Company (maintenance, performance improvement, technical assistance)
Identity of Ship Management Company in Shipping Law
2. Advanced Management Education
Capacity building for Senior Administrator (Captain, Chief-Engineer, Owner)



[Ship finance Programs]

1. Measures to strengthen ship finance
2. Introduction of public shipping finance

[Ship-Repairing System Improvement Program]

1. Strengthen shipbuilding capability
2. Ship repair yard location planning

Region	Existing Available Capacity	2014		2024	
		Required Capacity	Balance	Required Capacity	Balance
Sumatra	1.123	980	143	1.300	-177
Jawa	2.149	893	1.256	1.189	960
Baliand Nusa Tenggara	0	52	-52	74	-74
Kalimantan	95	646	-551	788	-693
Sulawesi	127	221	-94	324	-197
Maluku	42	40	2	51	-9
Papua	9	81	-72	129	-120
Indonesia	3.545	2.913	632	3.835	-310

ACTION PLAN

Selection of Action Plan Components

1. Expanding shipping investment channels towards Indonesian Flagged Vessels
2. Developing competitive domestic fleet though increasing investment and preventing the fleet from unfavorable asset devaluation
3. Starting capacity building undertakings

Urgent, Effective

(Billion Rp.)

	04-14	15-24	Total
Conventional	15,795	29,688	45,483
Container	9,781	17,186	26,967
Bulker	1,059	1,522	2,581
Barge	672	1,295	1,967
Tanker	16,950	19,606	36,556
Passenger	10,265	6,053	16,318
Total	54,523	75,349	129,872

Three-pronged of Action Plan

1. Expanding shipping investment channels
2. Modernizing and maintaining domestic fleet
3. Capacity building of maritime transport

1. Expanding Ship Investment Channels

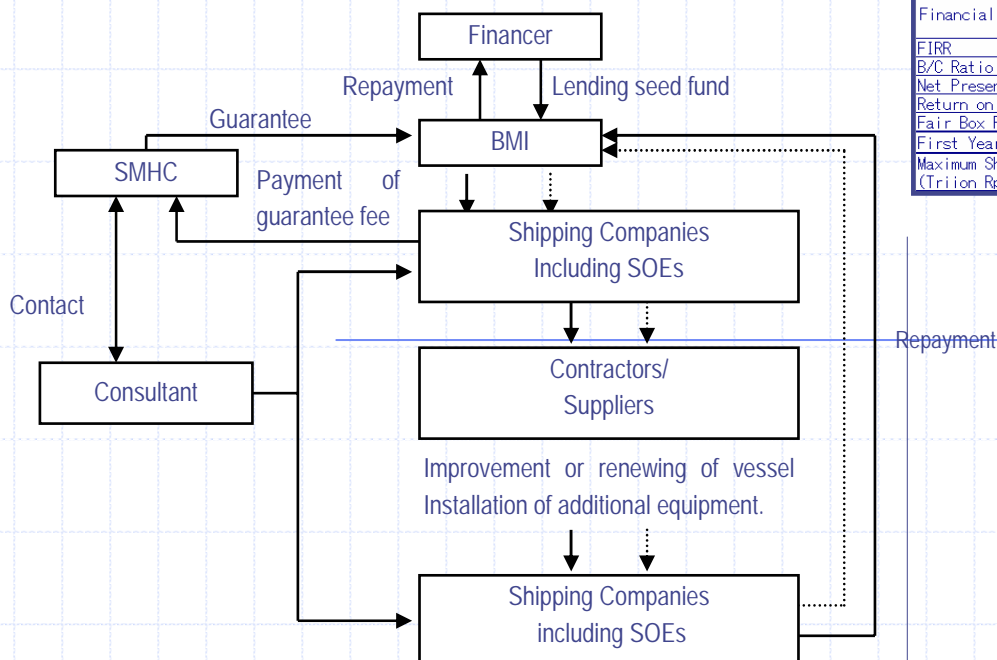
1-1. Introduction of Necessary Legal Regimes

1. Mortgage/Hypothec Law: Ratification of international convention on Maritime Liens and Mortgages 1993.
2. Arrest of Ships: Ratification of Arrest of Sea-going Ships 1952/Arrest of ships 1999.

1-2. Necessity of Tapping ODA Fund into the Domestic Shipping Sector

Establishment of ODA-based inter-island shipping development program which will meet 10% of domestic fleet investment during the period 2005-09 or Rp.2,8 trillion with focusing on three priority areas:

- (1) Renewal and conversion of existing idle fleet: JPY 12.5 billion
- (2) Assignment of most suitable vessels on inter-island liner routes JPY 15.0 billion
- (3) Maintaining and expanding socially indispensable tertiary shipping JPY 6.0 billion



Financial Evaluation Indicators	Base Case	Alternative Case
FIRR	0.264	0.264
B/C Ratio (discount rate: 15%)	1.900	1.900
Net Present Value (Tri Rp)	8.460	8.460
Return on Equity (ROE)	0.181	0.241
Fair Box Ratio (FBR)	1.710	1.710
First Year of Operation Surplus	5-th	4-th
Maximum Short term loan (Triion Rp)	3.04	1.89

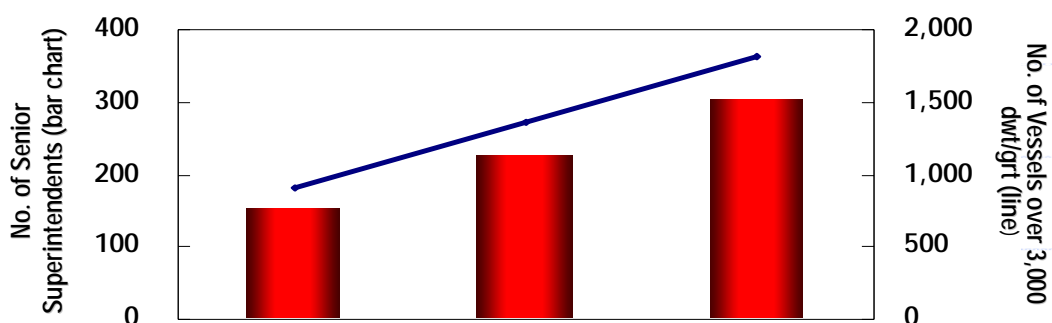
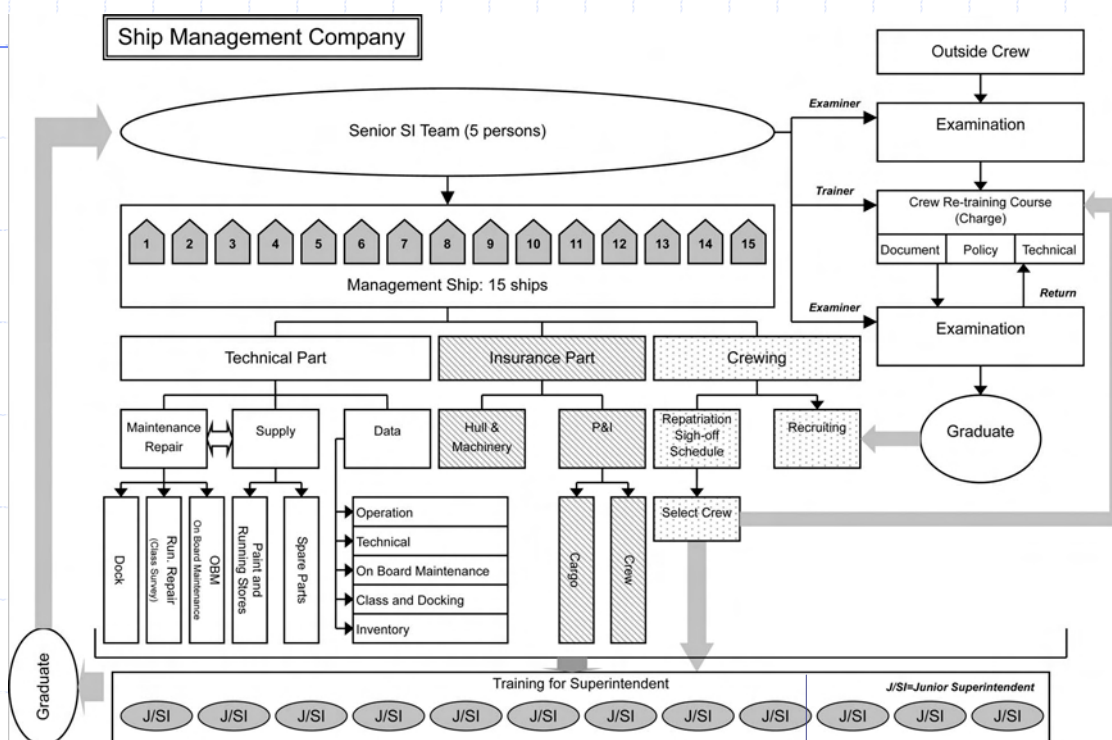
2. Modernization and Maintain Domestic Fleet

2-1. Designing of Model ships

	Ro-Ro	Lo-Lo (container)	Multi Purpose
Shallow Draft and Short Distance (<500)	Attractive	Practical	Impractical
Shallow Draft and Long Distance (>500)	Impractical	Attractive	Practical
Middle Draft and Short Distance (<500)	Attractive	Attractive	Impractical
Middle Draft and Long Distance (on heavy demand routes)	Impractical	Attractive	Practical
Middle Draft and Long Distance (on moderate demand routes)	Impractical	Practical	Attractive

2-2. Introduction of Ship-Management Company in Indonesian Domestic Shipping

1. Issuance of "ship-management company" license like freight forwarder license and other shipping auxiliary services.
2. Issuance of DGSC decree on "ship management company" guidelines in conformity with relevant international and domestic legal framework.
3. Issuance of "Superintendent" certificate to competent personnel after training and/or examination.



3. Capacity Building for Maritime Transport

3-1. Advanced Education Program

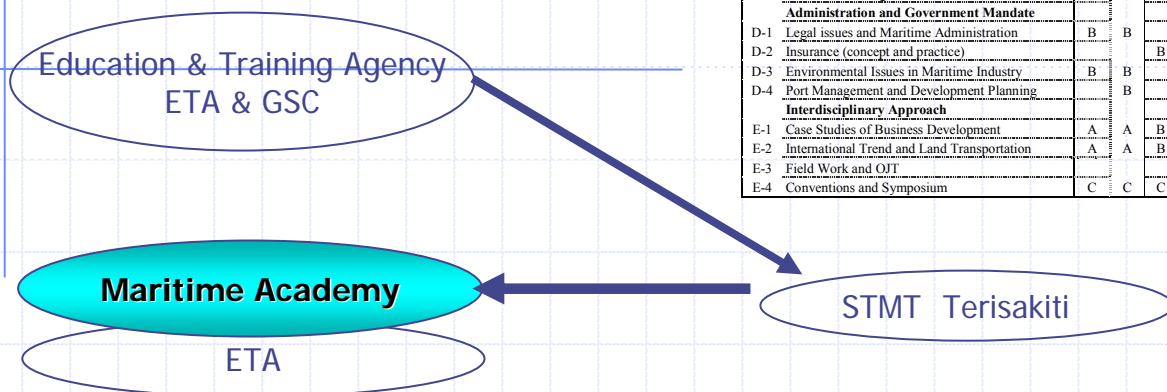
- (1) Education Program for "Master of Management in Shipping Industry"
- (2) Education Program for "Expert of Ship-Management"

3-2. Maritime Administration Database Center

- | | |
|-----|--|
| (1) | Computerization and networking between DGSC and Shipping Companies |
| (2) | Computerization and networking between all maritime related agencies and organizations |

3-3. Daily Monitoring System for Subsidized Operation

- (1) Daily Monitoring System for existing Pioneer Shipping Services
- (2) Development of Total Monitoring System for Tertiary Shipping



		Manager		Expert			
		Business Manager	Operation Manager	Superintendent +	Shipyard Repair Engineer	Administrator	Visiting Specialist
Mandatory Courses for all Participants							
M-1	Total Quality Management & ISO 9002	A	A	A	A	A	B
M-2	Process Management & Project Coordination	A	A	A	A	A	B
Shipping Business Management							
A-1	Business Management and Marketing	A	B				B
A-2	Logistic system and Transportation Economics	A	A				B
A-3	Voyage Estimating, Cost accounting, Chartering	B	A				B
A-4	Finance and Risk Management	A	A				B
Ship-Management							
B-1	Technical Management of On-Board maintenance			A			B
B-2	Inspection, Certification and performance control			A		A	B
B-3	Cost Accounting, Budgeting and Reporting		B	A			B
B-4	Organization, Human resource management		B	A			B
Shipyard Management & Supervision							
C-1	Ship Building Supervision				A		B
C-2	Procurement Management				A		B
C-3	Human factors for safety and productivity				A		B
C-4	Innovation Management				A		B
Administration and Government Mandate							
D-1	Legal issues and Maritime Administration	B	B			A	B
D-2	Insurance (concept and practice)			B	B	A	B
D-3	Environmental Issues in Maritime Industry	B	B			A	B
D-4	Port Management and Development Planning		B			A	B
Interdisciplinary Approach							
E-1	Case Studies of Business Development	A	A	B	B	A	B
E-2	International Trend and Land Transportation	A	A	B		A	A
E-3	Field Work and OJT					B	A
E-4	Conventions and Symposium	C	C	C	C	C	A

Fast Track Preparation for ship-management course (by quarter of year)

[illegible]

Study Organization

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• Mr. KUMAZAWA Ken	Team Leader/Multimodal Transport Planning
• Mr. OHTAKE Huihiro	Shipping Policy (1) (2002.12 – 2003.3)
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• Prof. KOYAMA Takeo	Shipping Policy (2)
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• Mr. NOSE Michiharu	Maritime Transport Planning (Passenger)
• Capt. SAKURAI Takashi	Fleet Development Planning
• Mr. SASANUMA Mitsuhiro	Ship Finance
• Mr. NAGAYA Toshiaki	Shipping Business Modernization (1)
• Mr. FUKUYAMA Hideo	Shipping Business Modernization (2)
• Mr. NOMORI Etsuo	Ship Repair and Quality Control
• Mr. UEDA Hachiro	Ship Safety and Environment Analysis
• Mr. KATSURADA Toshisada	Economic/Financial Analysis
• Dr. Ian Espada	Traffic Survey/Analysis
• Capt. SAKAE Yusei	Shipping Route and Ship Assignment
• Ms. SHIRAI Yuko	Interpreter
• Mr. WATANABE Tamaoki	Coordinator

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