



Maritime policy in Japan

Habara, Keiji

(Citation)

Journal of maritime researches, 1(1):65-84

(Issue Date)

2011-03

(Resource Type)

departmental bulletin paper

(Version)

Version of Record

(JaLCD0I)

<https://doi.org/10.24546/81004911>

(URL)

<https://hdl.handle.net/20.500.14094/81004911>



MARITIME POLICY IN JAPAN^{*}

Keiji HABARA^{**}

ABSTRACT

This paper presents the analysis of the current issues and growth strategy of the maritime industry in Japan. Advantageous and disadvantageous factors of Japanese maritime industries are clarified in topics of controversy, together with a discussion of aspects of taxation system reform, including the tonnage tax system. Moreover, the present situation of recruitment and training of seafarers is explained with a view toward planning for the future development of Japan's maritime industry. Finally, maritime environment protection policy is described; mainly how to address the reduction of GHG gas emission from vessels.

The most significant proposal is, among others, the establishment of AMSA (Asian Maritime Safety Agency) in the implementation of legislation on maritime safety and the prevention of pollution by ships in Asia, learning from EMSA in Europe.

Keywords: maritime industry, competitiveness, taxation system, seafarers, shipping industry, AMSA (Asian Maritime Safety Agency)

^{*} This paper developed from the workshop presentation "Maritime Policy and Port Development in the EU and Japan", Kobe University and EU Institute in Japan, Kansai, delivered Tuesday, November 2, 2010, in the Conference Hall Academic Exchange Centre, Fukae Campus, Kobe University, Kobe, Japan.

^{**} Professor, Faculty of Policy Studies, Kansai University, 3-35, Yamatecho-3chome, Suita-shi, Osaka, 564-8680, Japan. Email : habara@kansai-u.ac.jp

1. THE FEATURES OF JAPANESE MARITIME INDUSTRIES

Japanese maritime business among maritime cluster comprises 3 principal groups of ① shipping companies (operators and charterers) together with ship owners, ②shipbuilding and ship machinery companies, ③shippers(manufacturers). Japanese maritime business structure has a very unique, close relationship with industries within Japan, which forms what is called a self-contained cooperative system. Private owners of ships, globally known as Ehime Senshu or Shikoku Senshu, are located in Ehime prefecture or Shikoku island around the Seto Inland Sea. They continue to supply ships to international operators and charters and play a contributive role in the maritime world. These international shipping operators and charters have maintained long-term contracts of carriage of particular cargoes with stable freight rates at less speculative risk, which leads to secure freight rates with less volatility and stable revenues for a long time. The reason why this characteristic maritime business model has worked so well is that the Japanese traditional trading background system of Keiretsu (group companies) and Zaibatsu (financial combines) enable shipping companies to have reliable relationships with shippers and shipbuilders based on financial support provided by the banking system. Therefore, when shippers establish manufacturing plants in foreign countries, shipping companies provide shippers with necessary transport services.

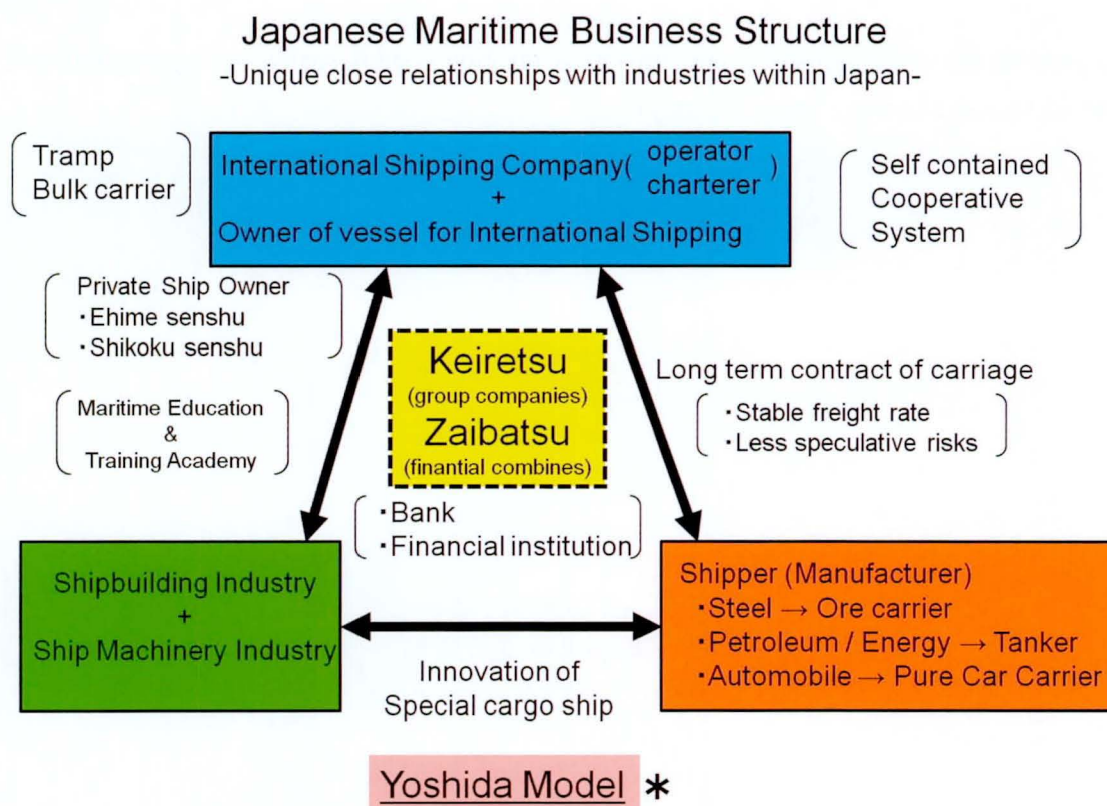


Fig. 1 Japanese Maritime Business Structure

Note: Shigeru Yoshida, Professor of Maritime Logistics Science at Kobe University, Faculty of Maritime Sciences, has analyzed and clarified the characteristics of the Japanese maritime world and the strength of Japanese shipping companies.

Ship operators/ship owners, shipbuilders, and shippers are definitely critical and essential parties of the maritime industry. In Japan, these three primary industries have all been established independently and maintained successfully. This is a characteristic of the Japanese maritime business that cannot be seen in other maritime nations in the world. Japan is an island nation almost devoid of mineral and energy resources. The need for secure sources of raw materials to support its growing industries and to secure markets for its manufactured products has always been vital, but has become more imperative as the economic activities of other Asian countries have increased.

More specifically, the Japanese maritime transport industry comprises operators and owners. Operators include owner-operators that have their own ships and pure operators who do not own ships.

Japanese shipbuilders have been introducing excellent mass-production techniques in fabricating and assembling vessels yielding high productivity. Other advantages of Japanese shipbuilders are the availability of shipyard credit for prospective buyers, their marketing skills, and advanced ship design technology.

Large shippers of manufactured goods in Japan are the steel, automobile, petroleum, and energy industries. They have succeeded in building ships specializing in carrying particular cargoes. Examples of such ships are special bulk vessels for ore, coal, steel, a pure car carrier for automobiles, and an LNG tanker for energy.

These three industries all have a close and systematic relationship with each other and cooperate seamlessly for effective and successful results as maritime clusters in Japan.

2. INTERNATIONAL MARITIME TRANSPORT AS A GROWTH INDUSTRY

As Figure 2 clearly illustrates, the volume of world ocean-borne cargo movement has grown by 49% over the past ten years. In coming years, ocean-borne cargo volume is expected to continue increasing, especially for emerging countries such as China and India. Additional potential growth is projected for Africa and South America.

World trade mostly depends on ocean shipping and sea-borne trade, which is vital to enabling the global economy to function well. Maritime business has grown beyond its traditional areas of shipping and ports into international supply chains and logistics systems. Maritime transport is increasingly recognized as a key integrated component of international logistics and a facilitator of global supply chains through dynamic changes that have occurred in recent years.

Volume of the World Ocean Cargo Movement
(million metric tons)

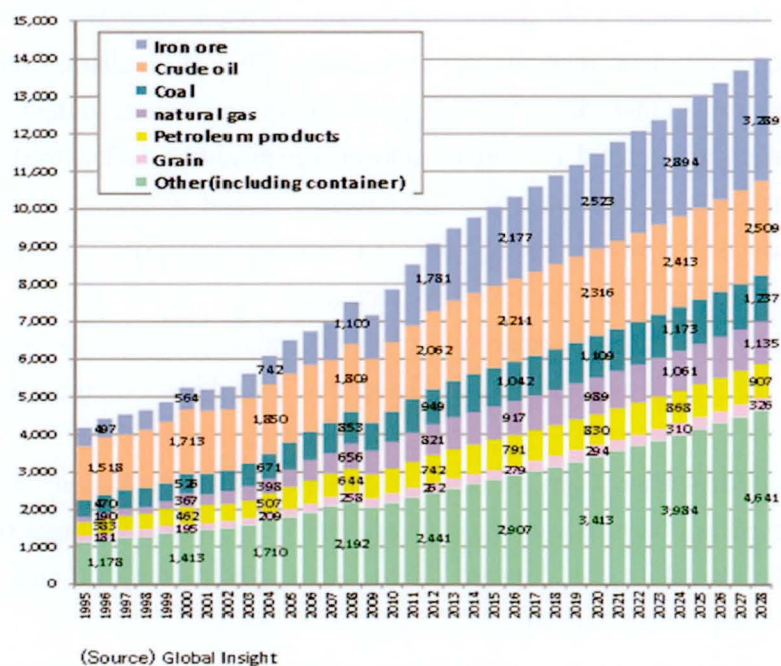


Fig.2 Volume of World Ocean Cargo Movement

Global Seaborne Trade Volume and Japanese Merchant
Fleet Share of Transport

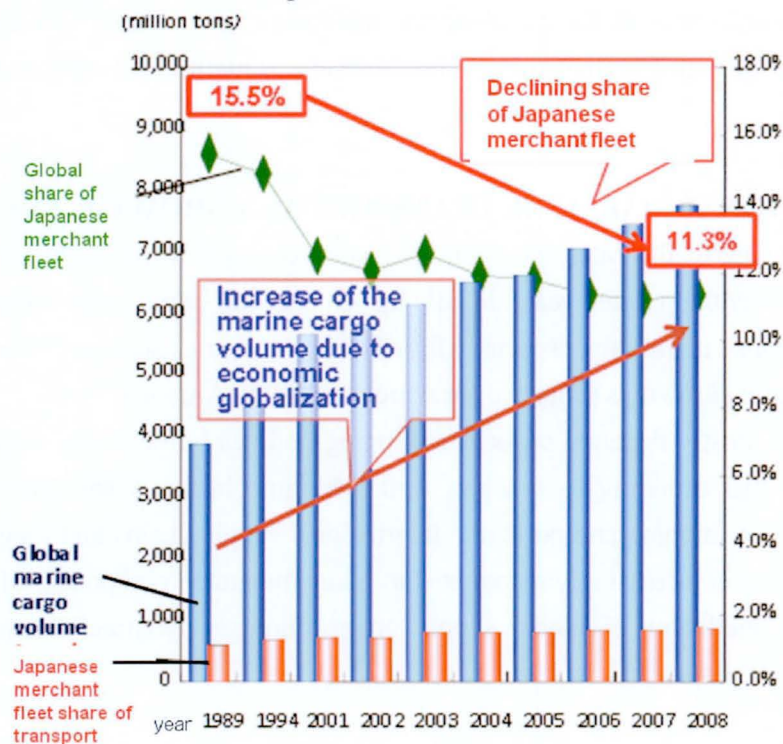


Fig. 3 Global Seaborne Trade Volume and Japanese Merchant Fleet Share of Transport

3. JAPAN AS THE MARITIME NATION

The Japanese merchant fleet has long provided services to meet the needs of Japanese industries. The fleet transports most of imported resources and supports overseas development of Japanese industries. For example, forty percent of the domestic load of goods (about 80% of basic industrial goods) depends on coastal shipping.

The fact that Japan is an island nation makes ocean shipping absolutely essential for international and domestic trade. The archipelago that is Japan has developed its economy by importing necessary resources, including food, while exporting industrial products through its system of maritime transport. To illustrate, 96% of the supplies that enter and leave the country are carried by maritime transport. This incredible volume of cargo has been enabled through the high standards of Japanese seafarers, and the quality of industrial products designed and produced in Japan.

The market scale of the international shipping industry in Japan is currently approximately five trillion yen. The industry forms a maritime cluster closely connected with shipbuilding and ship machinery industries. It is expected that the growth of the Japanese international shipping industry will lead to an expansion in the domestic shipbuilding industry because Japanese shipping companies procure 90% of their fleets from the domestic shipbuilding industry.

Japanese Dependence Situation on Maritime Trade

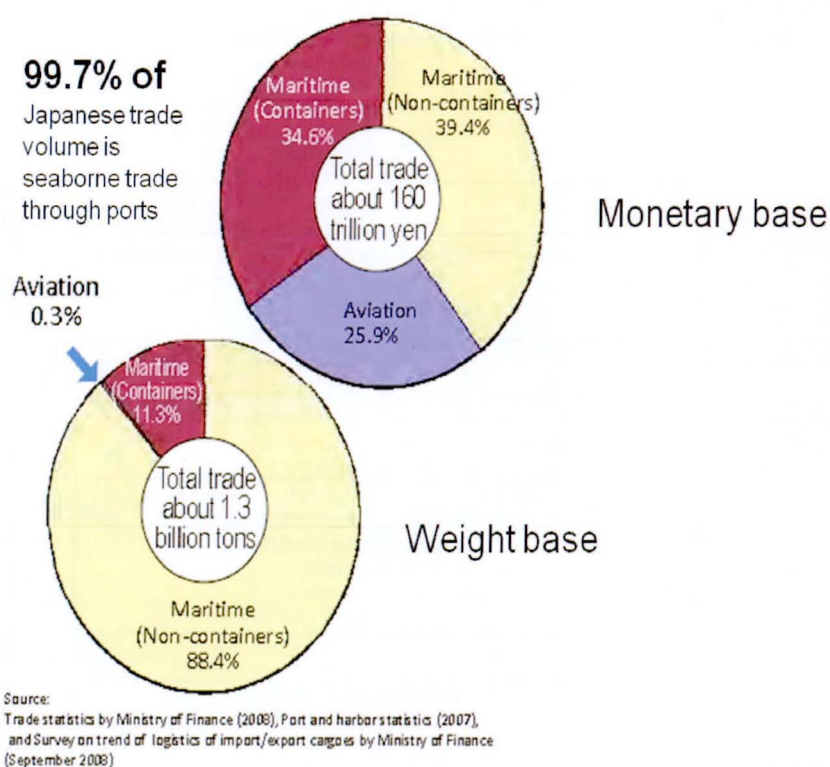


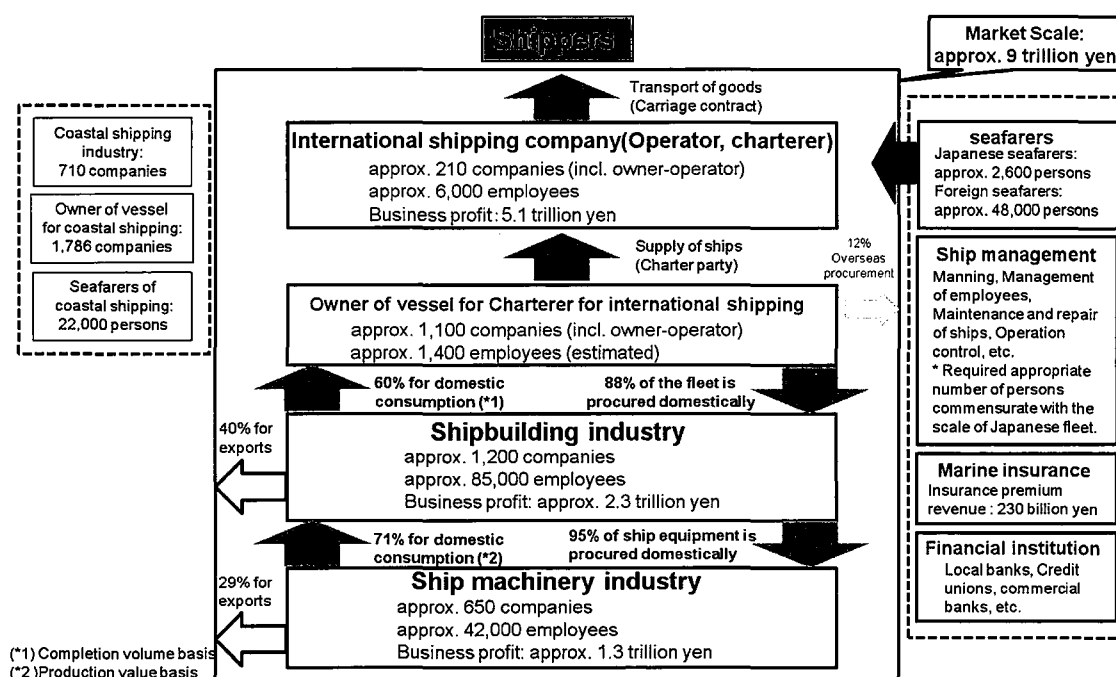
Fig.4 Japanese Dependence on Maritime Trade

Table 1 Type of Contracts
Types of contracts

Cargo	Cargo ratio of Japanese merchant fleet	Major shipper	Ship (special ship)	Major types of contract
Iron ore	almost 100%	Iron and steel companies	Bulker	Long-term contract
Coking Coal	almost 100%	Iron and steel companies	Bulker	
Energy Coal	over 95%	Electricity/ Other industries	Bulker	
Crude	about 75%	Oil	Tanker	mostly long-term contract (partly Voyage based contract)
LNG	about 50%	Electricity/gas	LNG ship	long-term contract
Wood Chip	100%	Paper manufacturer	Wood Chip Carrier	all long-term contract
Car	almost all	Cars	Pure car ship	half a year to one year contract

Source : Reserch on future international maritime transport policy
by Nittsu Reserch Institute & Nomura Reserch Institute(2005)

5


Fig. 5 Influence on Maritime Cluster by Growth of International Shipping Industry (MLIT)

Changes in Japanese Share of Ship Construction

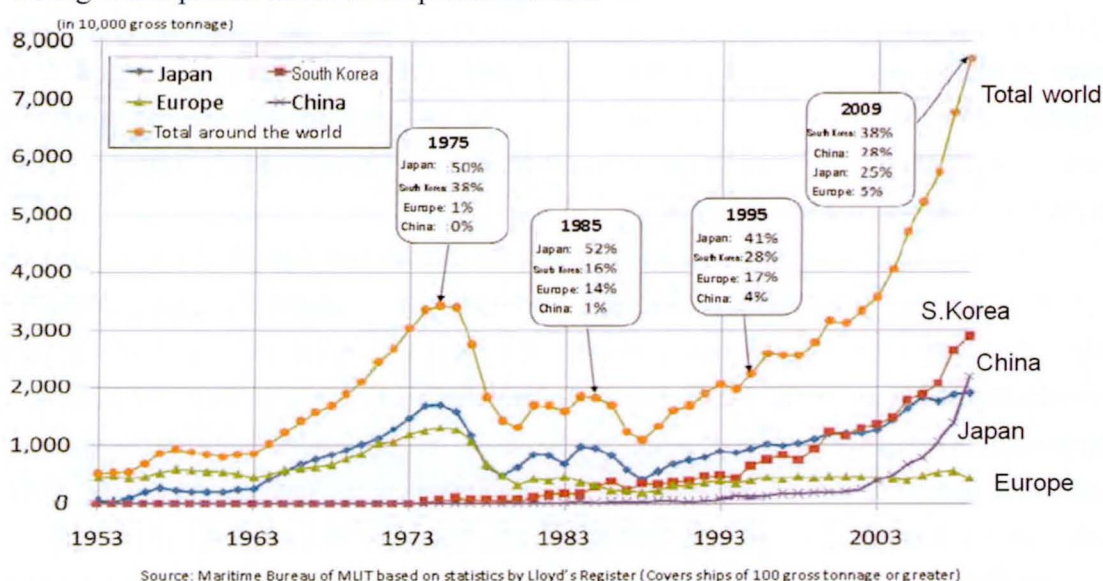


Fig. 6 Changes in Japanese Share of Global Ship Construction

4. JAPANESE SHIPBUILDING INDUSTRY

The Japanese shipbuilding industry has contributed to the advancement of maritime transport, as well as world economic development. For nearly half a century, the Japanese shipbuilding industry has maintained a world-leading share of production. Currently, however, it is losing market share as it faces severe competition from South Korea and China.

Although most manufacturing industries in Japan have been increasing their overseas production ratio, the shipbuilding industry has maintained a domestic production rate of almost 100%. While other shipbuilding nations such as South Korea and China are becoming more competitive, one of the competitive advantages of the Japanese shipbuilding industry is its excellent human resources. In the manufacturing process, where it is difficult to fully automate production lines, highly experienced skilled workers capable of sophisticated judgment are invaluable assets, especially in the roll forming techniques. During the next decade, the industry will see the greatest tide of generational change ever experienced, since the age distribution of skilled workers is highly disproportionate. With effective management, the skill level on the manufacturing floor should be maintained despite this generational shift. To ensure a smooth transition, it is necessary to facilitate transfer of expertise of shipbuilding skills by effectively training the workforce at every phase.

5. APPROVAL OF JAPANESE TONNAGE TAX SYSTEM TO SHIPPING COMPANIES

5.1 Japanese Tonnage Tax System

The Ministry of Land, Infrastructure, Transport, and Tourism (MLIT) has begun to apply the tonnage tax system to 10 domestic oceangoing shipping firms over five years beginning

from the fiscal year of 2009. The Japanese shipping industry has called for an early application of the tonnage tax system to ensure international competitiveness. By reducing taxes on shipping companies, the system is expected to enhance the competitiveness of the Japanese shipping industry. As a result, 11 companies¹ plan to increase the number of Japanese-registered vessels and seafarers that they employ. The tonnage tax system is already in place in 17 other countries².

The parliament of Japan revised the Marine Transportation Law in 2008 to allow the government to apply the tonnage tax system to domestic oceangoing shipping companies when they submit plans containing numerical targets for increasing Japanese-registered vessels and seafarers to the MLIT for approval. The MLIT tries to boost the number of Japanese-registered vessels and seafarers so as to ensure stable transportation of the minimum necessary amount of goods in case of emergencies such as large-scale natural disasters, terrorist acts, and political upheavals in the home countries of foreign sailors.

The number of lower-compensated foreign sailors on ships operated by Japanese companies continues to rise amid increasingly tough international competition in the maritime industry. At present, foreign seamen account for 97% of all seamen on vessels operated by Japanese oceangoing shipping companies. Overall, the number of Japanese seafarers has decreased to below 3,000. In addition, amongst about 2,000 vessels currently operated by Japanese oceangoing shipping companies, fewer than 100 are Japanese-registered.

The 10 shipping operators allowed to pay tonnage taxes plan to more than double their total number of Japanese-registered ships to 160 within the next five years from the current 76 ships. These figures include not only ships the 10 operators wholly own, but also vessels owned jointly with other domestic operators not required to pay tonnage taxes. The number of these jointly owned ships has been calculated in accordance with the 10 operators' ownership ratios. The 10 shipping operators also plan to increase the total number of their Japanese seafarers to 1,138 within the next five years from the current total of 1,050.

Behind these actions is the Basic Act on Ocean Policy (enacted April 20, 2007, effective July 20, 2007). This act includes Article 20 on 'securing maritime transport' which states: The Government shall take necessary measures to secure an efficient and stable maritime transport, including the securing of Japanese registered vessels, fostering and securing seafarers, developing hub ports as bases for international maritime transport network and others.

¹ Nippon Yusen Kaisha (NYK Line), Mitsui O.S.K. Lines Ltd. (MOL), Kawasaki Kisen Kaisha Ltd. ("K" Line), Asahi shipping Co. Ltd., Asahi Tanker Co. Ltd., Iino Kaiun Kaisha Ltd. (Iino Lines), The Sanko Steamship Co. Ltd., Shinwa Kaiun Kaisha, Ltd., Daiichi Chuo Kisen Kaisha, Nissho Shipping Co. Ltd., Nippon Steel Shipping Co., Ltd.,

² Greece(1939) , The Netherlands(1996), Norway(1996), Germany(1999), The United Kingdom(2000), Denmark(2001), Finland(2002), Ireland(2002), France(2003), Spain(2003), Belgium(2003), The United States of America(2004), South Korea(2005), Italy(2005), India(2005), Lithuania(2007), and Poland(2007) have introduced the system in that order in that year.

5.2 Revised Marine Transportation Law for Tonnage Tax System (enacted May 30, 2008, effective July 17, 2008)

Japanese oceangoing shipping companies that are approved by the MLIT (Ministry of Land, Infrastructure, Transport and Tourism) can select taxation on deemed profit instead of the normal corporate tax for earnings connected to Japanese-registered vessels. Japanese tonnage tax system applies to Japanese flag vessels and offers a choice between the new system and the existing tax system. Once one of the two options is chosen, it remains in effect for 5 fiscal years starting on or after the date of MLIT's approval.

When Japanese oceangoing shipping companies choose the tonnage tax system, they must receive approval from MLIT for their plans to secure Japanese-registered vessels and to secure and foster Japanese seafarers as set forth in the basic policy issued by MLIT. The major points affecting approval are listed below.

Major standards for approval by MLIT:

1. Plans to more than double the number of Japanese-registered vessels within 5 years
2. Plans to train more than one Japanese seafarer per Japanese-registered vessel annually
3. Plans to deploy 4 Japanese seafarers per Japanese-registered vessel

In addition to these points, the special rule application requires collateral for company promises, (such as recommendations, and revocation of approval in the case of insufficient action), and the expansion of the navigation order system to the area of international marine transportation.

5.3 First Approval of Plans to Secure Japanese Registered Vessels and Japanese Seafarers Concerning Tonnage Tax (March 24, 2009)

As for applications for approval of plans to secure Japanese-registered vessels and Japanese seafarers required under the tonnage tax system, after review by MLIT, all 10 business operators as listed that applied for the introduction of the tonnage tax system met the criteria and were approved by MLIT. Details of agreements made by the companies are provided in the following outline.

Outline of the plan by 10 operators

- Duration of the plan: 5 years (10 companies: April 1, 2009-March 31, 2014, 1 company: April 1, 2010-March 31, 2015)
- Oceangoing ships planned to be secured by all 11 operators: 77.4 → 161.8 (approximately 2.1 times)
- Japanese oceangoing seafarers planned to be trained by all 11 operators: 698 for 5 years (including 352 OJT1 on owned ships)
- Japanese oceangoing seafarers planned to be secured by all 11 operators: 1,072 → 1,162 (+90, approximately 1.1 times)

A main goal of the new policy is to fortify the international competitiveness of the Japanese fleet concentrated on Japanese flag vessels so as to secure the targeted number of 450 Japanese flag vessels as soon as possible. This number of vessels is deemed to be

essential for ensuring economic security in case of national emergency. Furthermore, the policy aims to grow the scale of the Japanese fleet according to the pace of global economic expansion by encouraging the industry to gain competitiveness and market share.

Pattern Diagrams for Calculation of Tax

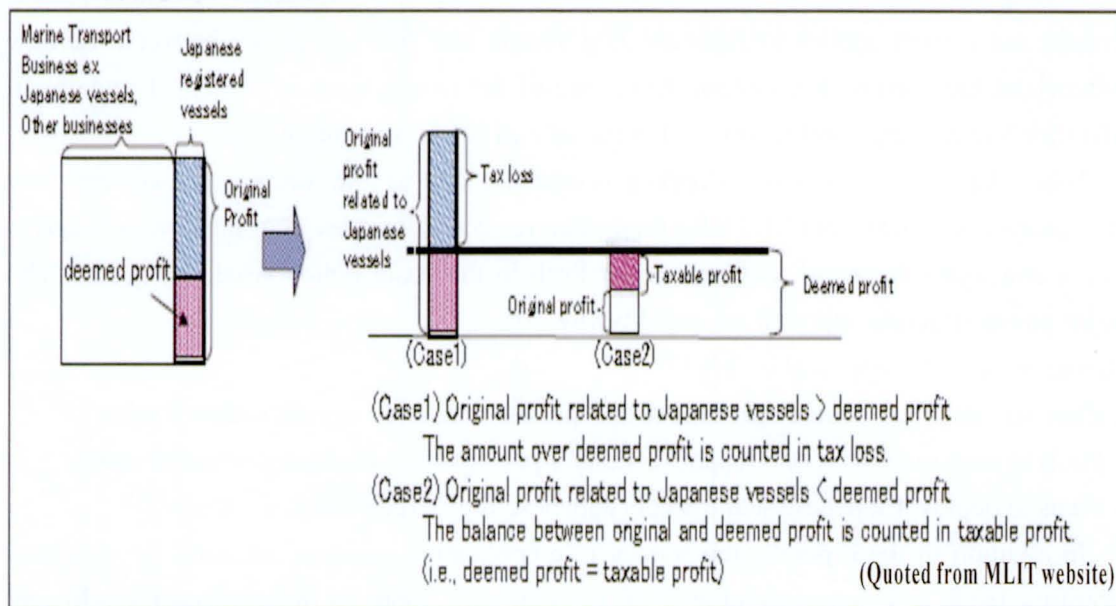


Fig.7 Pattern Diagrams for Calculation of Tax

Strengthening International Competitiveness of Japanese Fleet

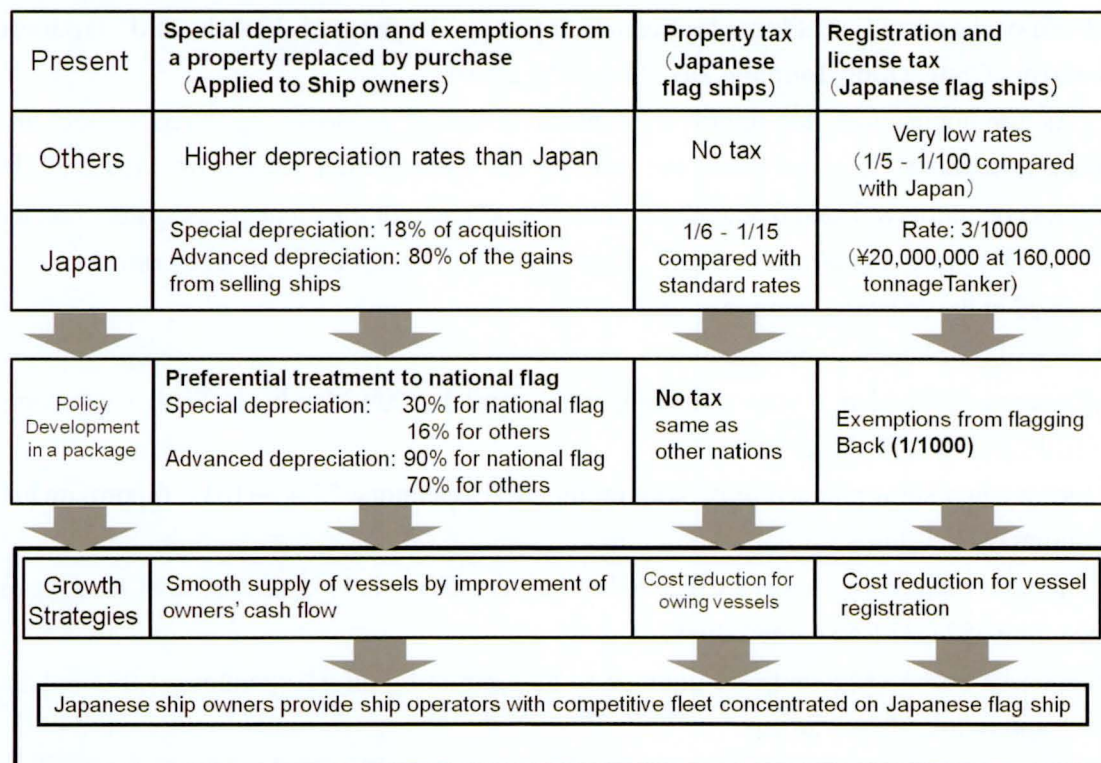
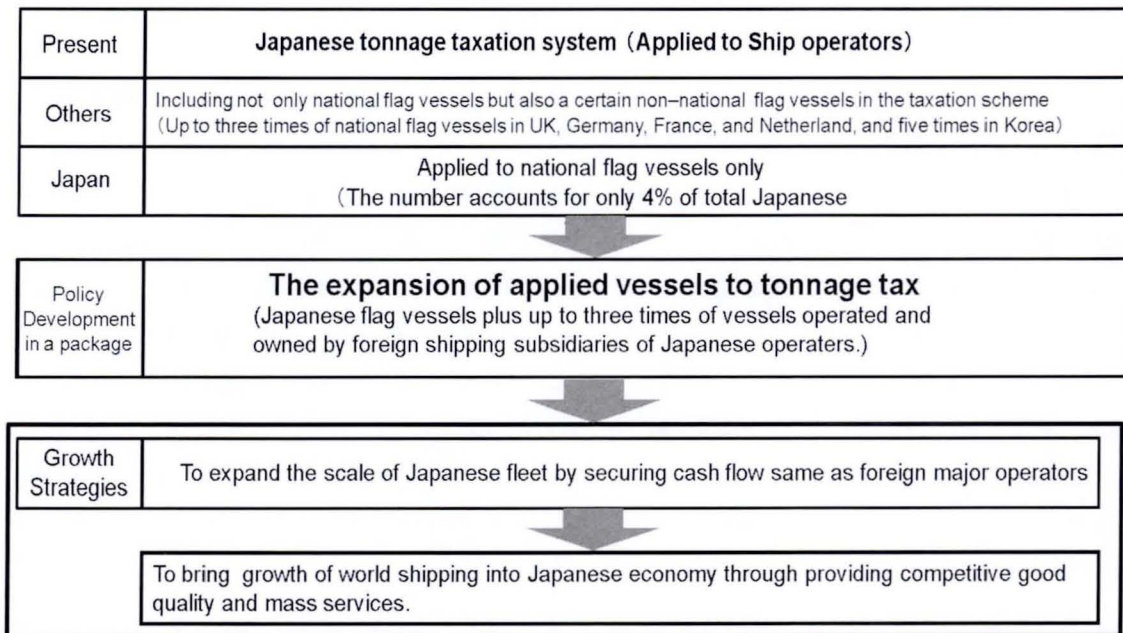


Fig. 8 Strengthening International Competitiveness of Japanese Fleet (MLIT)

Japanese Tonnage Tax



※Marine Transportation Law will be amended to implement improved Japanese tonnage taxation.

Fig. 9 Japanese Tonnage Tax (MLIT)

5.4 Outline of Request for Tax Modifications in 2011 (Maritime Bureau, MLIT)

Modification of the Japanese taxation system has been considered for a number of reasons. This section explains three reasons: to promote economic growth, to protect the environment, and to improve public services.

1. Taxation system to promote growth of Japanese economy:

- The improvement of Japanese standards tonnage taxation system (International shipping)
- Wide revision of exemptions from taxation to improve competitiveness on international transportation (Special depreciation for international shipping and property tax)
- The extension and improvement of exemptions from the tax on property replaced by purchase (International shipping)
- The expansion of reduction in registration and license tax on possession and mortgage of the vessel in the International Ship System in Japan (International shipping)
- The establishment of exemption systems from domestic feeder boats (Coastal shipping, oil and coal tax, property tax)

2. Taxation system to prevent global warming and protect marine environment:

- The extension and improvement of special depreciation for domestic low environmental load ships and extension of exemptions from property tax replaced by purchase (Domestic shipping)
- The establishment of exemption systems from the tax in order to encourage the modal shift and/or promote utilization of public transportation tax on preventing global warming (Domestic)

3. Taxation system for safety and security including safety net:

- Improvement of relevant taxation system on securing and improving local public transportation (property tax on remote island routes)

6. DECLINING INTERNATIONAL COMPETITIVENESS OF JAPANESE PORT SERVICES AND PORT REFORM PLAN

Japanese ports have lost the competitive capacity to neighboring countries in terms of cost and convenience/necessity. MLIT (Ministry of Land, Infrastructure, Transport and Tourism) plans to enhance the allure of Japanese ports, which have been increasingly bypassed by gigantic containerships in recent years in order to recapture cargo currently heading for rival ports such as Shanghai and Busan. To rectify the situation, the MLIT is promoting a plan to build international container strategic ports. The plan has designated Keihin port (Tokyo, Yokohama, Kawasaki) and Hanshin port (Osaka, Kobe) to become major hubs that will receive priority investment to transform into two of Asia's five major shipping centers by 2020.

Boosting Japanese ports' competitiveness by lowering port charges and offering 24-hour availability would encourage domestic manufacturers, whose profitability often hinge on shipping costs. Achieving this goal means that it will be necessary to flexibly divert the limited state budget for ports to priority projects. However, reinforcing port facilities alone cannot increase the freight volume passing through Japanese ports. The entire operation of Japanese ports needs to be restructured, recognizing it has been avoided by the international shipping industry as costly and slow.

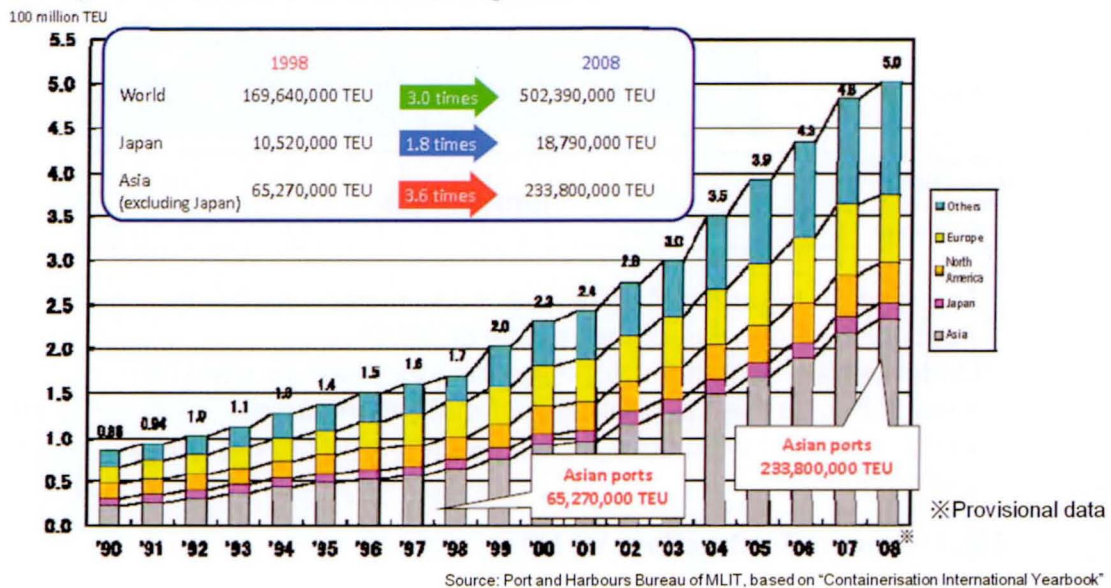
Thirty years ago, Kobe, Tokyo, and Yokohama stood among the world's top 20 ports in terms of volume of freight containers handled. In 2009, Tokyo was the top Japanese port in handling volume of containers, but ranked 26th in the world. The immediate concern of Japanese officials is that the world's top five ports today are all in Asia: Singapore, Shanghai, Hong Kong, Shenzhen, and Busan.

Large containers transporting auto parts and machine products account for a large portion of international shipping. Consequently, ports with piers capable of mooring ultra-large containerships, with low entry and port charges, and convenient access to main land routes have become indispensable to attract international liners. Japan has fallen behind other Asian countries that have heavily invested in ports. Instead, Japan has continued pork-barrel investments in ports across the country to meet local needs through a strategy that has done little to improve the convenience of the nation's ports. Even Japanese shippers are opting for shipping routes from domestic ports to U.S. and European destinations via hub ports in other Asian countries. To illustrate the problem, transshipment costs at Busan port are 40% cheaper than those charged by some Japanese ports.

The strategic port plan of Japan requires integration and privatization of port terminal corporations to streamline port operations. Improving the port efficiency will be implemented by reforming port operations conducted separately by shipping and cargo handling companies through their vertical administrations (Yomiuri Shinbun, August 16,

2010).

Change in the Volume of Container Cargo Handled at Ports



- Asia: China, Hong Kong, Indonesia, The Republic of Korea, Malaysia, Philippines, Singapore, Taiwan, and Thailand
- North America: The United States and Canada
- Europe: Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Spain, Sweden, and the United Kingdom
- Others: Japan and other countries/regions not mentioned above

Fig. 10 Change in the Volume of Container Cargo Handled at Ports

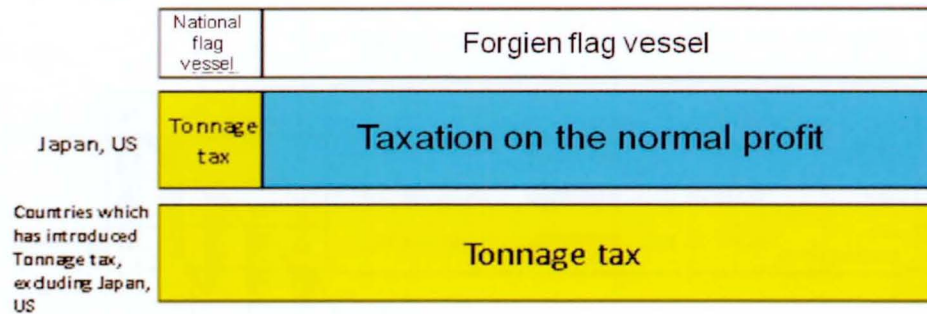
7. LESS ADVANCED COMPETITIVE CONDITHION IN MARITIME TRANSPORT

Shipping companies conform to the taxation system that imposes tax on the main office located in a country. The taxation system of each country directly influences the competitiveness of the national merchant fleet. European countries have introduced a tonnage tax to enhance the international competitive power of national merchant fleets and adopted the taxation system with the aim of securing a certain number of national flag vessels as the core of maritime policy.

The Japanese shipping industry has been struggling with severe competition in the world market. The capital-asset ratio of the Japanese shipping companies has declined compared with that of overseas major companies. The number of ships registered in Japan and the number of Japanese seamen have also decreased, while European majors have advanced their oligopoly.

The background of European oligopoly has been promoted by M & A. In the EU, the tonnage tax system is applied to all merchant fleets as a strategic tool of comparative advantage gradually introduced from the late 1990s. In Japan, the tonnage tax system was introduced into only Japanese-flag vessels in 2008, which accounts for about 4% of the total fleet.

The scope of Tonnage Tax



*The ratio of Japanese flag vessel of Japanese merchant fleet is about 4%. (as of the middle of 2009)

*Under certain conditions, tonnage tax has been adopted for foreign flag vessels as well as national flag vessels in the countries which has introduced tonnage tax excluding Japan and US.

Fig. 11 Scope of Tonnage Tax (MLIT)

Taxation System on Vessel Acquisition /Possession

	fixed asset tax	registration license tax/charge	The depreciation system for vessels
			The scope of depreciation for 5 years (including ratio of special depreciation)
Japan	Imposed	100	67.5%(including special depreciation 18%)
United Kingdom	notax	0.7	76.00%
France	notax	0	80.82%
United States	Imposed (different by State)	0.1~0.3	84.00%
Norway	notax	14.35	53.00%
Netherlands	notax	0	100.00%
Denmark	notax	59.5	47.23%
Germany	Imposed	30.1	76.00%
China	notax	154	100%
Singapore	notax	28.5	100%
Korea	notax	8	81.18%

(Source) Japanese Shipowners' Association

Fig. 12 Taxation System on Vessel Acquisition/Possession

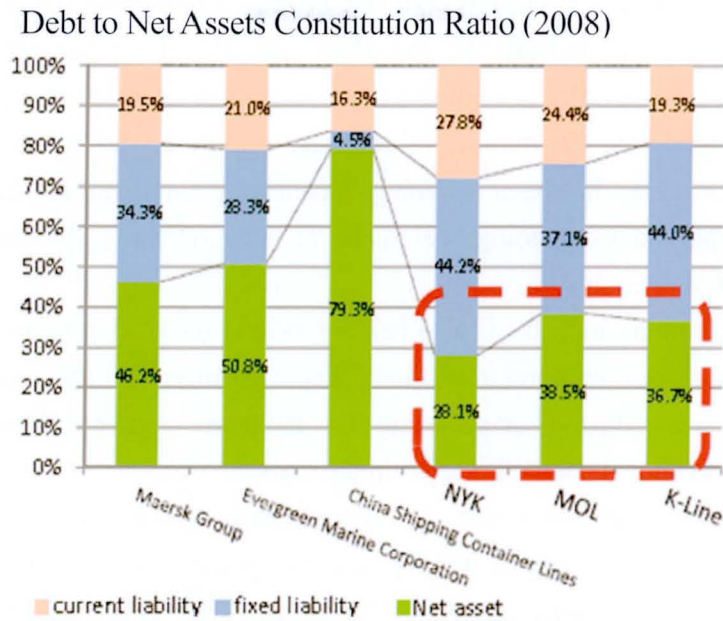


Fig. 13 Debt to Net Assets Constitution Ratio (2008) (MLIT)

Progress of the Oligopoly by European Container Shipping Companies

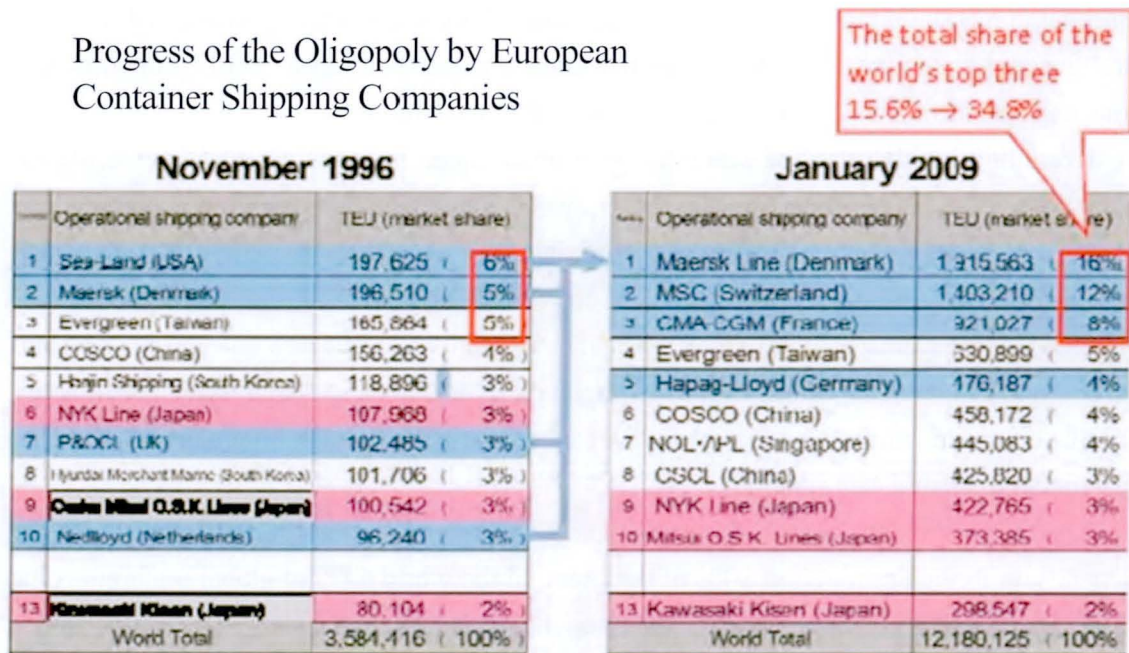


Fig. 14 Share of Container Shipping Companies (MLIT)

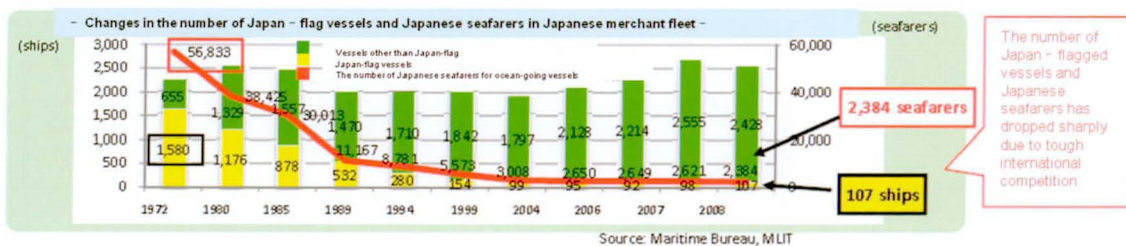


Fig. 15 Changes in the Number of Japanese-Flag Vessels and Japanese Seafarers

8. RECRUITMENT AND TRAINING OF HIGH-QUALIFIED SEAFARERS

The Japanese shipping industry is struggling and, therefore, has taken to flagging non-Japanese flag ships in order to reinforce competitiveness in the international market. In parallel with this tendency, the number of Japanese seafarers who are engaged with the Japanese international fleet has been declining. Japanese seafarers are indispensable human resources in the Japanese ocean-going fleet to ensure safe navigation, ship maintenance, and for a high standard of operation.

The Japanese shipping industry is also helping to deal with the employment, education and training needs of qualified foreign seafarers. There are many foreign seafarers employed on board the Japanese controlled ocean-going fleet including chartered ships from overseas to maintain the international competitiveness in the market.

Japanese ocean-borne trade owes very much to foreign seamen and foreign flag ships. Actually, 97% of ship crews consist of Filipinos, Indonesians, Indians, and Chinese. Also, 98% of ships carrying necessity goods for Japan are FOC (Flag of Convenience) ships registered in countries such as Panama, Liberia, Singapore, and Hong Kong. At the current time, 94% of seafarers aboard the Japanese merchant fleet are from Asian countries. It is essential to recruit and train highly-qualified Asian seafarers, considering safety, stability, and strong competitiveness of international maritime transport in Japan. MLIT supports and contributes to seafarers' training and education in the Asian region.

Recruiting highly-qualified seafarers is an urgent need in Japan. A maritime certificate grant system took effect in law in May, 1999, which enables Japanese shipping companies to assign foreign seafarers as officers on board Japanese flag ships provided that they have certificates issued by parties to the STCW convention and their certificates are effectively endorsed by the Minister of MLIT of Japan. The exceptions to this new rule are masters and chief engineers, both of whom should be Japanese. Non-Japanese seafarers who will apply for this endorsement must be lectured on Japanese maritime laws and regulations and, after that, undergo an oral examination.

The current extent to which the Japanese international maritime transport industry depends on foreign seafarers is 94% of seafarers. In the world 44% of global seafarers come from Asia. Increasing seaborne trade volume will result in a global shortage of seafarers, as companies scramble for highly-qualified seafarers. Estimates are that there will be a shortage of about 27,000 seamen in 2015. Circumstances of seafarer training in Asia show poor training facilities, less opportunities for onboard training, and impediments to the employment of seafarers.

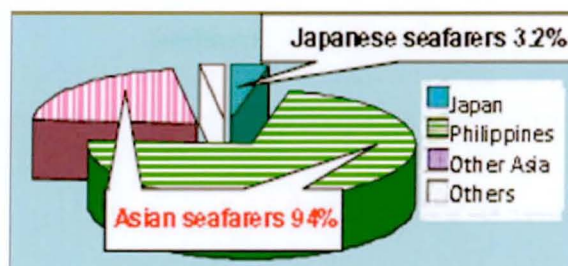


Fig.16 Seafarers of International Maritime Transport in Japan (MLIT)

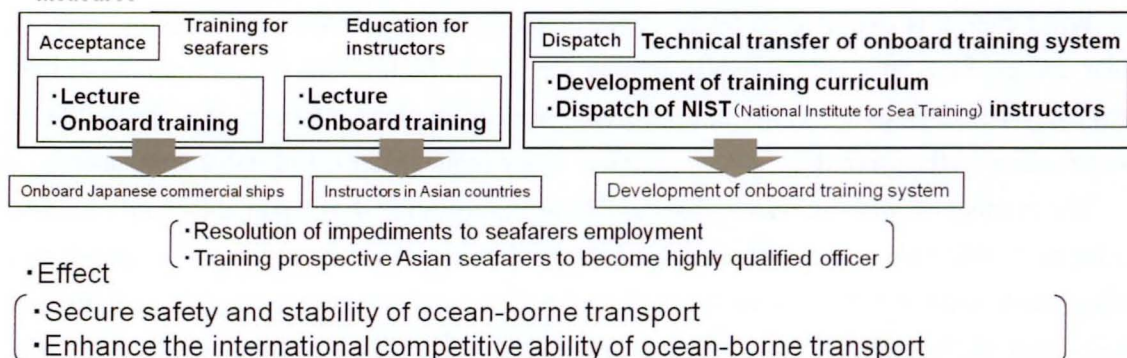


Fig.17 Effective Measures of Recruitment and Training of Seafarers (MLIT)

9. DEVELOPMENT OF HIGH EFFICIENT ENERGY SAVING TECHNOLOGIES

At present, the amount of greenhouse gas (GHG) emission from international shipping is 870 million tons and comparable to 3% of the world total emissions, which is equivalent to the annual amount emitted by Germany. Growth of ocean-going shipping will lead to a rise in GHG emissions by 2.7 times in 2020 from 1990 levels, if no measures are put in place. The IMO discusses the issue of GHG emissions from international shipping since the Kyoto Protocol does not directly apply to the industry.

The goal set by Japan's MLIT is for a 30% reduction in GHG emission from international shipping. To realized this goal the MLIT supports research and development of new technology and is developing an international standards strategy to disseminate energy saving technologies.

Furthermore, Japan has led discussions in the IMO to promote and support advanced R&D by the private sector for improvement of new ships' fuel-efficiency (targeted 30% improvement), and to achieve a good balance between global warming prevention and strengthening the competitiveness of the Japanese maritime industry through technological innovation in shipbuilding related industries. Below, I list several types of technological development taking place in the shipping industry.

Technology Development:

- Engine (Machinery, Electronics)

Advance of heat efficiency by wasted heat recovery system: Advance of energy-efficiency by technology development for converting wasted heat into onboard electrical power.

- Thrust (Material, Machinery)

Advance of thrust efficiency by new type propeller: Development of high-efficiency propeller resolving energy loss factors.

- Operation (Electronics, IT)

Next-generation operation control system: Development of advanced operation control system with IT and control propellers/motors in response to weather / hydrographic conditions.

- Hull (Shipbuilding, Material)

Friction resistance reduction: Development of air lubrication method (covering hull with air bubbles)

Wind energy is expected to be an effective future renewable energy source, as well as solar energy. Less land area is available now for windmills because of concerns about low frequency noise. Such concerns have led engineers to explore offshore sites for windmill construction on the grounds of noise reduction, space requirements, and stable wind access.

The number of offshore windmills was 828 in Europe and 14 in Japan at the end of 2009. In Japan, verification tests to enhance durability and to increase the capacity of windmills are being conducted together with the research on floating wind power systems. This activity is a major part of the selection of sites appropriate for windmills including wind conditions, coordination among stakeholders, and cost reduction. Some of the technical considerations related to windmills floating in the ocean are listed below.

- Technical issues on safety for floating system
 - (a) Risk assessment for larger scale
 - (b) Sympathetic vibration between windmill and floating substructure
 - (c) Securing safety in the overturn
- Improvement for safety environment
 - (a) Development of the safety guidelines on the basis of research and development
 - (b) Promotion of the maritime industry
 - (c) Expansion of marine renewable energy

10. COMPREHENSIVE CONSIDERATION

10.1 Maritime Strategic Policy

Core maritime strategic policy is now underway as follows:

- To be on an equal footing with other countries for competitiveness
- Recruitment and training of high-qualified seafarers on a worldwide basis
- Development and production of ships with highly efficient energy saving systems for the reduction of GHG emission from ships
- Development of cross transport

10.2 The Restoration of Japan's Maritime Status

Being an archipelago, Japan depends on ocean transport for economic growth and development. What follows is a list of several changes necessary for Japan to grow economically.

1. Enhance competitive advantages of Japanese maritime transport

- (1) Raise the competitiveness of the Japanese merchant fleets centered on Japanese flag ships
 - Equalize competitive conditions by the strategic reform of Japanese taxation systems on

maritime transport

- Improve certification procedures related to ship equipment and qualifications for seafarers on Japanese flag ships

(2) Secure the foothold in recruiting or training superior seafarers (officers)

- Provide effective incentives to promote the employment of Japanese seafarers (officers)
- Improve recognition of the significance and interest for the profession of seafarers

2. Enhance the advantage of ports

(1) Intensify international competitiveness through selection and concentration

(2) Implement comprehensive measures and centralize cargoes in selected strategic ports for international containers

(3) Achieve safe and reliable port function to receive entry by passenger ships and respond to tourism promotion measures

3. Reinforcement and development of shipbuilding for ocean sector

- Promote competitiveness for shipbuilding through leading developments of international conventions as well as developing and disseminating innovative energy-saving technology for ships.
- Enhance public-private sector collaboration to further innovate shipbuilding technology and foster marine industries. Activation of maritime world can contribute to EEZ management, development, and utilization.

10.3 Future plan to realize: The Establishment of the Asian Maritime Safety Agency (AMSA) -International Cooperation System in the Area of Safety of Navigation and Seafarers-

Japan is contributing significantly toward establishing policies and training/education systems for seafarers in developing countries, as well as international promoting progress in maritime education, making wide use of its knowledge on seafarer administration, and training/education for international cooperation. In addition, Japan is promoting coordination with respect to policies for seafarers through the exchange of information and opinions with ASEAN countries.

Maritime transport is of fundamental importance to Asia and the rest of the world. Shipping is the most important mode of transport in terms of volume. Furthermore, as a result of geography, history and the effects of globalization, maritime transport will continue to be the most important transport mode in developing Asian trade for the foreseeable future. In this context, Asian citizens have the right to expect their maritime cargoes and passengers to be safe, secure, and clean.

The Asian Maritime Safety Agency's (AMSA) main objective is to provide technical and scientific assistance to the Asian countries in the proper development and implementation of legislation on maritime safety, pollution by ships, and security on board ships under the leadership of the maritime nation of Japan. The Asian Maritime Safety Agency will contribute to the enhancement of the overall maritime safety system in Asian countries, especially ASEAN member states. Its goals are to reduce the risks of maritime accidents,

marine pollution from ships, and the loss of human lives at sea. In general terms, the AMSA will provide technical and scientific advice to Asian maritime authorities in the field of maritime safety and prevention of pollution by ships in the continuous process of updating and developing legislation, monitoring its implementation and evaluating the effectiveness of the measures in place. Agency officials will closely cooperate with member states maritime services.

The main areas where the AMSA will be active are:

- Intensifying the Port State Control regime
- Auditing the recognized classification societies
- Development of a common methodology for the investigation of maritime accidents
- The establishment of an Asian vessel traffic monitoring and information system

The Agency will work very closely with member states. It will respond to their specific requests in relation to the practical implementation of legislation and may organize appropriate training activities. Furthermore, the Agency will facilitate cooperation between the member states and disseminate best practices in Asian countries. The Agency will also play a positive role in the process of ASEAN enlargement by assisting the accession countries in the implementation of legislation on maritime safety and the prevention of pollution by ships.

In addition, the Agency will contribute to the process of evaluating the effectiveness of legislation by providing the member states with objective, reliable, and comparable information and data on maritime safety and on ship pollution. Legislation has been adopted to improve maritime safety and to reduce pollution from ships.

To ensure a proper, harmonized, and effective implementation of legislation, an ongoing process of cooperation is necessary between all the parties concerned. The main task of AMSA is to organize and structure the system of maintaining the maritime safety standards by Asian countries.

ACKNOWLEDGEMENT

I am very much obliged to Maritime Bureau, the ministry of Land, Infrastructure, Transport and Tourism for the data available on this presentation.

REFERENCE

- Ide, N. (2010) What actions to be taken on Japanese international shipping -Towards Restoration of Maritime Nation Japan-, Seminar on World Shipping Policies for the next decade.
- "Report on Maritime Affairs (July 2007)", edited by Maritime Bureau, Ministry of Land, Infrastructure and Transport and Tourism, published by Japan Maritime Center (<http://www.jpmmc.or.jp/english/index.html>).
- "Current Situation of Japanese Shipping", Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism (<http://www.mlit.go.jp/maritime/index.html>).
- "JSA Annual Report on Shipping 2009", "Shipping Now 2010-2011", The Japanese Shipowners' Association (<http://www.jsanet.or.jp>).
- "Shipbuilding Statistics", October 2010, The Shipbuilders' Association of Japan (<http://www.sajin.or.jp/e/>).
- "JSMEA News", Japan Maritime Equipment Association (<http://www.jsma.or.jp>).
- "OPRF Research Study: The World's Changing Maritime Industry and a Vision for Japan", May 2008, Ocean Policy Research Foundation (<http://www.sof.or.jp>).