1. General

1.1 Shipbuilding

1.1.1 The trends of the industry:
Since the historically high level of Yen has been revalued to lower level and the exchange rate of Yen against Dollar has become around 100 from the second half of 80's in 2013, not only the shipbuilding industry but also the export industries in Japan have produced the better achievements. The amount of newbuilding orders acquisitioned by Japanese shipbuilders has recovered the level of 10,000 thousand gross tons for the first time in three years, and many shipbuilding firms have speeded up to materialize the amalgamation, the business cooperation and the development of oversea strategy. To give a few example, “Japan Marine United Corporation” has been established by the management amalgamation of Universal Shipbuilding Corporation and IHIMU, “Maritime Innovation Japan Corporation” has been established as a specialized firm of research and development jointly by 4 middle class shipbuilders, Oshima Shipbuilding Co., Ltd., Sanoyasu Shipbuilding Corporation, Shin Kurushima Dockyard Co., Ltd. and Tsuneishi Shipbuilding Co., Ltd. and 5 firms of Mitsubishi Heavy Industries, Ltd., Imabari Shipbuilding Co., Ltd., Oshima Shipbuilding Co., Ltd., Namura Shipbuilding Co., Ltd. and Mitsubishi Corporation have concluded the agreement to contribute the investment to the shipyard in Brazil.

The actual application of Energy Efficiency Design Index (EEDI) to the newbuilding ships has started for the first time in the world as the new control of CO₂ exhaust for the international shipping. The government has decided the New Marine Basic Plan as a guiding policy of marine development for the coming 5 years. Also, the government has decided the fundamental principles of new defense plan and medium term defense arrangement plan for the years 2014 to 2019.

1.1.2 The trends of the actual orders awarded to the shipbuilders and the new ships placed into commission:
According to “World Shipping Statistics” published by HIS Fairplay in Britain, the amount of new ships ordered from the shipyards in the whole world from January to December, 2013 was 101,434 thousand gross tons which increased by 166.9 % compared with the previous year. If the share of each country is examined, 42.4 % was occupied by China, 35.4 % was occupied by Korea, 13.2 % was occupied by Japan and 2.7 % was shared by Europe (the member countries of CESA). In comparison with the shares of orders of the previous year in terms of gross tons, China’s share increased by 212.3 %, Korea’s share increased by 200.0 % and Japan’s share increased by 51.4 %. Similarly as to the amount of completion, the total amount of completion was 70,268 thousand gross tons which was decrease of 26.5 % compared with the previous year. As for the completion share of each country in terms of gross tons, the share of China was 36.6 %, the share of Korea was 34.9 %, the share of Japan was 20.8 % and the share of Europe (the member countries of CESA) was 2.4 %. If the share of each country is examined in comparison with the previous year, the share of China decreased by 31.4 %, the share of Korea decreased by 22.4 % and the share of Japan decreased by 16.3 %.

1.1.3 The trends of the international rules and regulations:
As the main Conferences relating to International Maritime Organization (IMO), the 65th Marine Environment Protection Committee (MEPC65) and the 92nd Marine Safety Committee (MSC92) were held. In MEPC65, the amendment proposal of Annex VI of MARPOL Convention was approved for expanding the application of marine fuel consumption control to LNG carrier and car carrier etc. in relation to the reduction of exhaust of greenhouse effect gas (GHG) from ships. Also, the resolution of
IMO general meeting concerning the installation time of ballast water treatment system on board the ships was agreed. Further, in the matter of the reduction of exhaust of nitrogen oxide (NOx) from ships, the revision proposal of Annex VI of MARPOL Convention to delay the commencement time of enforcement of the 3rd control of NOx to 2021 from the present 2016 was approved. In MSC92, the items, on which the examination should be considered necessary in future were listed up on the basis of the accident investigation report of “Costa Concordia”. Also, the revision proposal of Convention of SOLAS for reinforcement of operational safety measures of passenger ship was adopted.

1.1.4 The topics in the shipbuilding and shipping industries:
Referring to the press releases made in January to December, 2013 by each news agency, the author would like to introduce the following main topics including the energy saving, highly environmental performance and new and fresh character.

1.1.4.1 Japan Marine United Corporation (JMU)  
- JMU and IHI agreed to jointly develop IHI-SPB LNG fuel tank for large container ship for United Arab Shipping in Middle East.
- The Aframax type tanker “TOKYO MARU” was delivered.
  The tanker was for JX Tanker Co., Ltd. and the ship was equipped with AT fin and LV fin developed by JMU.
- The bulk carrier “SHOYOH” was delivered and the ship was equipped with Contra-rotating propeller (CRP), half circle duct at stern developed by JMU, rudder bulb fin and power turbine type generator for exhaust heat recovery of main engine.
- The naming ceremony of large container ship “HANOI BRIDGE” of high performance was held. The ship was equipped with cut device of turbocharger and energy conservation system of sea water cooling pump with inverter control.
- The energy saving bulk carrier of next generation type “CAPE GREEN” was named and delivered. The ship was the first vessel of G series and equipped with the searching and monitoring system of most optimum navigation route “Sea-Navi” developed by JMU.
- “AHTSV ENASAMURAI” was delivered.
- The ocean towing salvage tug “TERASEA FALCON” was delivered.
- The platform supply vessel “PACIFIC HERON” was delivered.
- JMU contributed the investment to Atlântico Sul Shipyard in Brazil jointly with IHI and JGC Corporation.
- JMU carried out the naming and launching ceremony of domestically largest helicopter-carrying vessel.
- The agreement for jointly carrying out the design of semi-submersible type drilling rig for deep sea water area was concluded with JDC and IHI.
- The sightseeing pirate ship “Royal II” for service in Lake Ashi was delivered.

1.1.4.2 JX Ocean Co., Ltd.  
- The consolidation agreement of JX Tanker Co., Ltd. and JX Shipping Co., Ltd. was concluded and “JX Ocean Co., Ltd.” was established.

1.1.4.3 Kawasaki Heavy Industries, Ltd. (KHI)  
- KHI received the newbuilding order of 182,000m³ type LNG carrier from Kawasaki Kisen Kaisha Ltd. for the first time. The ship is DFDE ship and the largest in the world as the LNG carrier equipped with MOSS type cargo containment.
· The verification test of ME-GI engine and the facility of gas supply was started. The completed testing facility is the first permanent facility for the test of ME-GI engine in the world as engine licensee.
· The bulk carrier “ORIENT IRIS” was launched. The high efficient type propeller, rudder bulb fitted Kawasaki fin, semi-duct fitted Contra-fin and smooth bow type of less resistance were adopted for the ship.
· KHI concluded the construction contract of hull part of drill ship.

1.1.4.4 Kawasaki Kisen Kaisha Ltd. (“K” Line) 6)
· “K” Line started the test operation of SCR system on 8,600 TEU type container ship “HANOI BRIDGE” built by JMU.
· “K” Line (India) Private Limited has participated into the domestic coastal service in India.
· The long term time charter party and the shipbuilding contract were concluded in relation to the construction of LNG carrier for Petronet LNG Limited of India. The ship is one 173,000m³ type LNG carrier the construction of which was ordered from Hyundai Heavy Industries Co., Ltd. by the consortium of 4 shipping firms, “K” Line, NYK Line, Mitsui O.S.K. Line and Shipping Corporation of India on the basis of the above mentioned long term time charter contract.
· “K” Line contracted on the long term charter of 2 newbuilding LNG carriers for INPEX Corporation and the joint company of INPEX and Total in France. The newbuilding contracts were concluded. “K” Line adopted for the ships “Sayaendoh” type ship's shape of Mitsubishi Heavy Industries, Ltd. and the first DFD engine of KHI make for Moss type LNG carrier.
· “K” Line carried out the full preparation of car carrier fleet of next generation, namely, each 2 car carriers were ordered from Shin Kurushima Dockyard Co., Ltd. and JMU respectively, which makes four new car carriers in total. The ships are capable to accommodate about 7,500 cars in terms of passenger automobile, and although the ship's overall length is maintained within 200m, in consideration of ship's multiple usability, the width is extended to 37~38m that is the largest as a car carrier of over Panamax type.
· “K” Line completed the full preparation of newbuilding fleet of large size container ships. The construction of five 14000TEU type container ships equipped with the most modern saving energy function has been ordered and the ships will be completed within 2015. The ships are being under construction by Imabari Shipbuilding Co., Ltd. to replace the existing middle size ships.
· “K” Line has been awarded the honor of the prize of “Green Flag” of Port of Long Beach, which is 8th time honor in succession for past 8 years.
· The long term time charter contract and newbuilding contract of LNG carrier were concluded for Chubu Electric Power Co., Ltd. For this ship, “K” Line adopted the ship's shape developed by KHI to slightly increase about 18,000m³ of capacity with maintaining the dimension of existing LNG ship of which cargo tank capacity is 147,000m³. The shape of ship is the largest as the Moss type ship passable through new Panama Canal.
· The charter contract was executed for the consecutive voyages with Hokuriku Electric Power Company.

1.1.4.5 Mitsui Engineering & Shipbuilding Co., Ltd. (MES) 7)
· MES completed the delivery of 66,000DWT type bulk carrier “CLIPPER EXCALIBUR” for which the wide and shallow draft ship's shape of new genre has been adopted as the first case of “Neo Series” of eco-ship line-up developed by MES.

1.1.4.6 Mitsubishi Heavy Industries, Ltd. (MHI) 8)

Translated from Journal of the JIME Vol.49, No.4 (Original Japanese)
MHI started the construction of large sized cruise ship for Aida Cruises.
- MHI received the newbuilding order of large sized LPG carrier from Astomos Energy Corporation.
- MHI additionally obtained the newbuilding order of 2 vessel capable of three dimensional seismic data acquisition for sea bottom resource exploration from PGS (Petroleum Geo-Services ASA) in Norway.
- The ballast water treatment system accommodated in container was placed in cargo hold. This technology has been developed jointly with Mitsui O.S.K. Line.
- MHI received the order of UST plants for 4 LNG carriers for Petronas (Petroleum Nasional Berhad) in Malaysia.
- MHI received the newbuilding order of Wide-Area Seabed Research Vessel from Japan Agency for Marine-Earth Science and Technology.
- A joint company for design and sale of LNG ships was established jointly with Imabari Shipbuilding Co., Ltd.
- In terms of the construction of next generation LNG carrier “Sayaendo”, MHI concluded the contract with MOL.
- The cumulative number of construction order of LNG carriers of next generation “Sayaendo” has now reached to 7 ships in total.

1.1.4.7 Mitsui O.S.K. Lines, Ltd. (MOL)
- The construction of 297,000DWT type ore carrier “ORE SALVADOR” was completed. The ship was placed into long term transport contract for Vale S.A. in Brazil.
- MOL installed SCR system to remove NOx on the actual ship and started test operation. The system clears the 3rd control of IMO, which has been proven under actual navigational conditions with running of all generators.
- The long term time charter contract and newbuilding contract of a methanol carrier were concluded for Waterfront Shipping Company Limited (WFS). The ship is installed the engine to meet dual fuels of methanol and heavy oil for the first time in the world.
- MOL Safety Conferences 2013 were held at 4 base places in the world with the object of highest level of safe operation in the world.
- MOL participated in Uruguay LNG FSRU project, and constructed one ship of the largest FSRU in the world and put the ship into chartering out.
- Container ship “MOL COMFORT” encountered marine accident.
- MOL obtained basic approval on the installation of ballast water treatment system in cargo hold of container ship. The obtainment of basic approval from ClassNK is for the first time in Japan.
- With Mitsui & Co., Ltd. and Marubeni Corporation, MOL participated in chartering project of FPSO to be employed in ultra deep sea area for the development of oil field under pre-salt layer of Irasema Norde mine located at offshore of Brazil.
- Jointly with 3 firms, MODEC Inc., Mitsui & Co., Ltd. and Marubeni Corporation, MOL promoted the chartering project of FPSO for ultra deep sea are for the development of oil field under pre-salt layer of Carioka mine located offshore of Brazil.‘
- MOL started new crew education program on board the ship under actual operation condition, and successfully realized the practical education for small-group by exclusive instructors.
- MOL concluded the agreement of joint ownership of 2 newbuilding LNG carriers for Kansai Electric Power Co., Ltd.
- The training ship “Spirit of MOL” has retired from service. The training program has been transferring fully to the new program (CADET Training).
- The drill for emergency situation which might be caused by serious marine accident was carried out on the assumption that container ship would have collided in Osaka Bay.
- MOL started the verification test on shore of new sail apparatus “Power Assist Sail” and developed the
marine exhaust CO₂ reduction system by making use of sail jointly with Mitsui Engineering & Shipbuilding Co., Ltd.

- MOL completed the installation works of ballast water treatment system onboard the large oil tanker.
- The long term transport contract was concluded for one LNG carrier with Osaka Electric Power Co., Ltd. and Kyushu Electric Power Co., Ltd. This ship was for Ichthys LNG Project in Australia and the construction order was concluded.
- MOL participated into LNG transportation project for China Petrochemical Corporation (SINOPEC) and ordered 6 newbuilding ships from Hudong Zhonghua Shipbuilding (Group) Co., Ltd.
- MOL was awarded the Vessel Speed Reduction Award and Green Flag Award respectively from Port of Los Angeles and Port of Long Beach, as they has greatly contributed to conservation of environment of both ports.

1.1.4.8 Nippon Yusen Kabushiki Kaisha (NYK Line)

- NYK Line developed the crew education soft “LNG- STARS” in order to pursue safe navigation through making crew member study the peculiar onboard operation.
- “SOYO” won a prize of “Ship of the Year 2012” by reason that the ship was most superior in technological, artistic and social aspects.
- NYK Line attended at the awarding ceremony of “10th Eco-Products Awards”, and has been aiming at further reduction of environmental load through innovative technical development.
- NYK Bulk & Project Carriers Ltd. was newly established.
- NYK Line started the new time chartering in the field of shuttle tanker business, and engaged in transport of crude oil produced at offshore of Brazil.
- NYK received the order of 2 ships of FPSO from Petrobras in Brazil, which made NYK hold 3 ships of FPSO in total for oil development of ultra deep sea pre-salt layer.
- The construction of domestically first LNG- fuel ship has been decided. The exhaust of CO₂ will be reduced by about 30 % and the exhaust of SOx will be eliminated 100 %.
- The domestically first eco-tug boat “Tsubasa” has been engaged in service in Port of Yokohama.
- The newly built shuttle tanker was named as “Ingrid Knutsen”, which has been chartered by subsidiary company of Exxon Mobil and has been being engaged in service for transport of crude oil in North Sea area.
- NYK Line concluded the time charter contract with Astomos Energy Corporation for new large LPG tanker to be built.

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