



ANNUAL REPORT 2008

ClassNK

ClassNK

Profile

Nippon Kaiji Kyokai, better known as ClassNK or simply NK, is a ship classification society.

ClassNK creates the rules that ensure the safety of vessels, their crews, and the protection of the marine environment. The principal work of the Society's expert technical staff is to undertake surveys of newbuildings and existing ships based upon these rules, certifying hull structures, propulsion systems, electrical and electronic systems, safety equipment, and cargo handling gear, among other areas.

Since its founding more than 100 years ago, ClassNK has worked tirelessly to fulfill its mission of protecting human life, maritime property and the marine environment. An unmatched commitment to technical excellence and providing the highest level of service has made the Society a world leader in ship classification.

By the end of 2008, the NK register listed 7,040 ships totaling more than 160 million gross tons. This number represents more than 20% of the world's merchant fleet under class.

Although based in Japan, ClassNK has global representation through a network of 104 exclusive surveyor offices. ClassNK's surveyors work in shipbuilding and repair yards and at ports around the world, wherever they may be called upon to examine the condition of a ship, to ensure that all of the Society's services are available 24/7, worldwide.



The NK Mission

ClassNK is dedicated to ensuring the safety of life and property at sea, and to preventing pollution of the marine environment.

To achieve this mission ClassNK will:

- Focus on delivering the highest quality classification services, by the highest quality personnel while maintaining its totally independent third party, non-profit status.
- Focus on the development of relevant rules, guidances and procedures, and maintain and develop its commitment to scientific and technological research and development.
- Maintain and develop its global operations in line with the needs of those using its services.



AZUL LEGENDA

a 206,331 dwt bulk carrier built by Imabari Shipbuilding Co., Ltd., Saijo Shipyard.

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Chairman's Message

Welcome to the 2008 ClassNK Annual Report

There is little doubt in my mind that 2008 will be remembered as a critical moment in the history of the world. Over this past year, we have witnessed a financial crisis spread from America to all parts of the globe. Ripples from this financial shock affected every part of the world economy, and the maritime industry was one of the first to feel the effects of the rapidly deepening recession. The dry bulk market suffered the brunt of the impact, with charter rates that had soared to all time highs in the first half of the year, suddenly plummeting to historic lows in the second half of the year. The price of oil too, rose to record heights in the first half of the year, only to collapse before the year was out. Nor was shipbuilding spared from the effects of the financial crisis; the end of the year brought with it open discussion of newbuilding cancellations. As if to add insult to injury, pirate attacks drastically increased in Somalia and the Gulf of Aden, revitalizing an old threat to maritime safety.

On the other hand, 2008 was also a record year for newbuildings. The number of newbuildings constructed in 2008 reached some 19 million gt in Japan, roughly 26 million gt in Korea, and another 14 million gt in China. World newbuilding totals for 2008 reached roughly 68 million gt, an increase of 10 million gt over 2007's record total. Newbuildings classed with the Society also reached record numbers in 2008, with 602 vessels totaling a record 15,360,000 gt joining the register. This was the sixth straight year that the Society set a new record for newbuilding tonnage added to its register. Despite the sudden shift in the world economy, the Society continues to be the market leader, and this year ClassNK became the first class society in the world to have more than 160 million gt under class.

It was with these dramatic events as a backdrop, that the ClassNK Board of Directors was reorganized in March 2008, and I became the new Chairman and President of ClassNK. Since assuming the role of Chairman and President, I have made it my goal to improve every aspect of the Society's operations and ensure that ClassNK is truly worthy of the title "World's Leading Class Society." I am pleased to be able to report that we have already made significant steps towards achieving those goals.

In order to further enhance our survey and approval activities, we have established new offices in Kochi, India; Mokpo, Korea; and Tianjin and Zhoushan in China, bringing our world wide service network to a total of 104 exclusive surveyor sites. Moreover, in order to improve customer service and speed up the plan approval process, we have established new Plan Approval Centers in Busan, Korea; Mumbai, India, and Istanbul, Turkey.

In order to increase awareness of ClassNK as a leading international class society, we have taken a more active role in IACS and the IMO, and increased our participation in international maritime exhibitions.

With regards to research and development, we have continued to conduct essential and fundamental research projects, while also increasing our commitment to the Practical Research and Development Program we began in 2007. As part of our efforts to provide practical solutions to the challenges faced by the maritime industry, we have established a new system to better gather input from outside experts and organizations, and we continue to make the results of this practical research available to the public via the Society's website and technical publications. Both now and in the future, ClassNK will remain dedicated to conducting cutting edge research to meet the changing needs of our clients and address the latest innovations and technical developments.

In 2008, the Society was most fortunate in that no ship under NK class was involved in a major class related casualty. This fact reflects the Society's continued vigilance in fulfilling its mission of ensuring the safety of life and property at sea and preventing pollution of the marine environment. However, this mission also requires that we continually strive to find ever better ways of accomplishing our mission through greater partnership with the maritime industry and the world maritime community.

On that note, I would like to express my most sincere appreciation and gratitude to our clients and partners throughout the maritime industry. I look forward to working side by side with all of you to ensure that this next year is even more successful than the year that has just passed.

Chairman and President Noboru Ueda



A handwritten signature in black ink, appearing to read "N. Ueda". The signature is stylized and written in a cursive-like font.

NK at a Glance



New Board of Directors

The Society's Board of Directors was reorganized on 11 March 2009. As a result of the reorganization, Executive Vice President N. Ueda was inaugurated as the new Chairman and President of the Society, and Managing Directors T. Kaji and H. Kitada were both promoted to Executive Vice President. Additionally, Mr. T. Matsui, Mr. S. Kakubari, and Mr. T. Yoneya were each newly promoted to the role of Managing Director. Former Chairman and President K. Ogawa assumed the role of Honorary Chairman, former Executive Vice President Y. Tsudo assumed the role of Advisor, and former Managing Director K. Yamanaka resigned from the Board.

Service Network Expansion

In order to further improve customer service and expand its worldwide service network, ClassNK established three new Plan Approval Centers and four new exclusive surveyor sites in 2008. The new Plan Approval Centers join existing Plan Approval Centers in the Society's Shanghai and Singapore Offices, bringing the total number of Plan Approval Centers outside of Japan to five.

- January 1 – Busan (Korea)
Busan Plan Approval Center established.
- April 1 – Tianjin (China)
Tianjin Office established.
- April 15 – Mumbai (India)
Mumbai Plan Approval Center established.
- April 24 – Kochi (India)
Kochi Local Area Representative established.
- May 1 – Zhoushan (China)
Zhoushan Office established.
- May 1 – Istanbul (Turkey)
Istanbul Plan Approval Center established.
- July 1 – Mokpo (Korea)
Mokpo Local Area Representative established.

Record Newbuildings

The number of newbuildings classed with the Society reached a total of 602 ships amounting to 15,358,075 gt in 2008, setting a new record for the Society both in the number of newly built ships registered and in total newbuilding tonnage.



International Exhibitions

The Society participated in twelve major international maritime exhibitions in 2008:

- GASTECH 2008 (March 10–13 / Bangkok, Thailand)
- VietShip 2008 (March 11–14 / Hanoi, Vietnam)
- CMA Shipping 2008 (March 17–19 / Stamford, Connecticut, USA)
- Asia Pacific Maritime 2008 (March 26–28 / Singapore)
- Sea Japan 2008 (April 9–11 / Tokyo, Japan)
- Shiptek 2008 (April 29–30 / Kochi, India)
- Posidonia 2008 (June 2–6 / Athens, Greece)
- AML 2008 (June 24–26 / Kuala Lumpur, Malaysia)
- 2008 China (Nantong) Shipbuilding and Complementary Products Exhibition (September 23–25 / Nantong, China)
- SMM 2008 (September 23–26 / Hamburg, Germany)
- Shiport China 2008 (November 5–8 / Dalian, China)
- Seatrade Middle East Maritime 2008 (December 14–16 / Dubai, UAE)



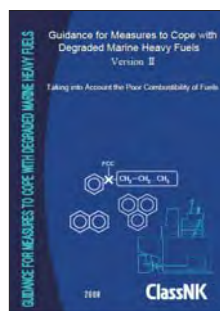
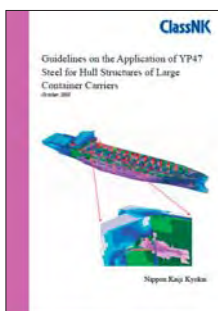
Winner of “The Classification Society Award”, Seatrade Asia Awards 2008

The Seatrade Asia Awards were established in 2008 to recognize and honor excellence in the Asian maritime industry. At the inaugural Seatrade Asia Awards ceremony held in Singapore on May 13th, 2008, the Society was awarded “The Classification Society Award”, recognizing the Society as the best classification in Asia.

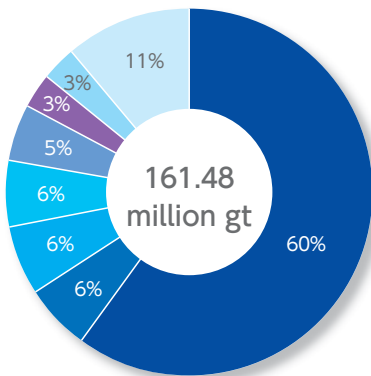
New Technical Guidelines

As part of its ongoing efforts to improve the safety and reliability of ships at sea, the Society published two new technical guidelines in 2008.

- Guidelines on the Application of YP47 Steel for Hull Structures of Large Container Carriers
- Guidance for Measures to Cope with Degraded Marine Heavy Fuels Version II
- Taking into Account the Poor Combustibility of Fuels.

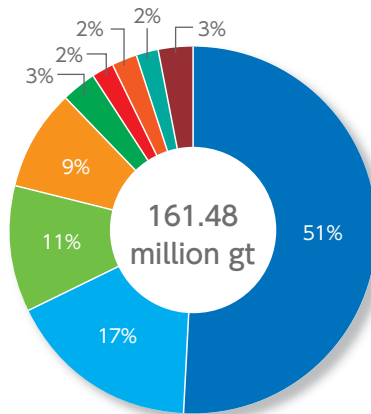


Breakdown of NK Fleet by Flag

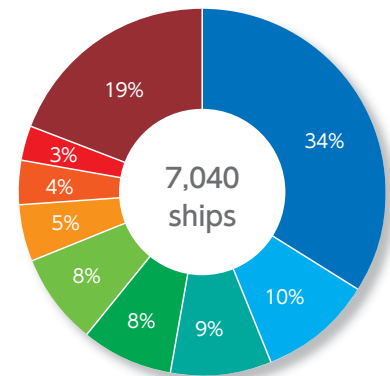


■ Panama	60%
■ Japan	6%
■ Liberia	6%
■ Hong Kong	6%
■ Singapore	5%
■ Marshall Islands	3%
■ Bahamas	3%
■ Others	11%

Breakdown of NK Fleet by Ship Type

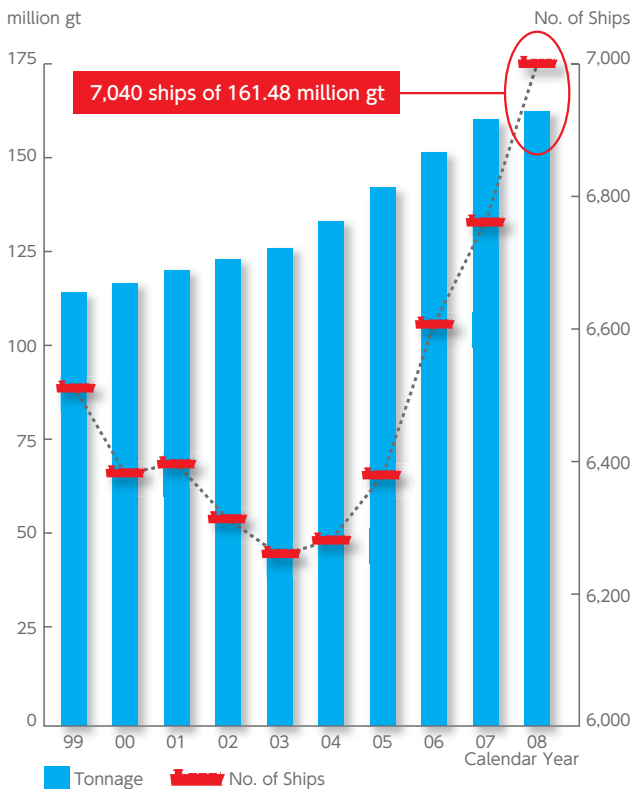


■ Bulk Carrier	51%
■ Oil Tanker	17%
■ Container Carrier	11%
■ Vehicle Carrier	9%
■ Chemical Tanker	3%
■ LNG Carrier	2%
■ LPG Carrier	2%
■ General Cargo	2%
■ Others	3%

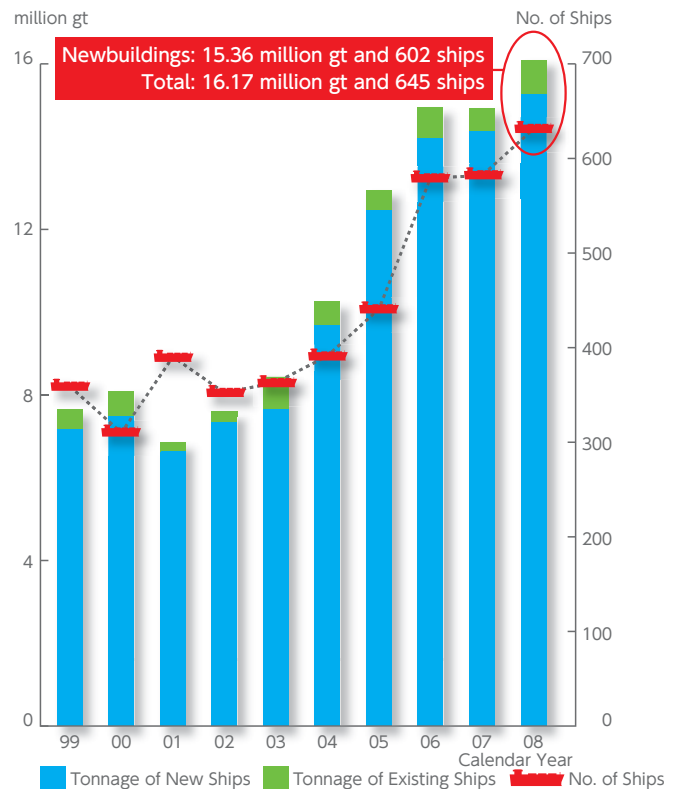


■ Bulk Carrier	34%
■ Oil Tanker	10%
■ General Cargo	9%
■ Chemical Tanker	8%
■ Container Carrier	8%
■ Vehicle Carrier	5%
■ LPG Carrier	4%
■ Reefer Carrier	3%
■ Others	19%

ClassNK Fleet



GT and No. of Ships Newly Classed



NK in Action



The Classed Fleet

As of the end of December 2008, the number of ships registered with ClassNK totaled 7,040, an increase of 247 ships over the 2007 year end total. These 7,040 ships amounted to a total of 161,479,400 gross tons, an increase of 9,255,235 gt from the end of 2007. The average age of the NK fleet remained at 10.7 years.

The number of ships added to the register in 2008 rose to 645 ships, a new record for the Society. In terms of gross tonnage these new vessels added 16,168,234 gt to the register, also a new record for the Society.

By the end of 2008, the number of NK registered ships flagged outside of Japan stood at 6,055 ships, or some 86% of the ships registered with the Society. These ships amount to 151,243,814 gt, or 93.7% of the Society's total fleet. Ships registered with the Society continue to bear the flags of a number of different nations and territories, with NK classed ships registered to 73 different flag administrations.

In 2008, a total of 602 newly built ships were added to the register. These newbuildings amounted to 15,358,075 gt, an increase over the previous year's record total of 14,420,125.

In terms of ship numbers, newbuildings accounted for 93.3% of all ships added to the register in 2008. On a gross ton basis, these newbuildings accounted for 95.0% of the total gross tonnage added to the register.

Of these 602 newbuildings, 206 ships, or roughly 34.2%, were built outside of Japan, a 7% increase over 2007's numbers.



Domestic Newbuilding Highlights

With newbuilding registrations reaching record levels again in 2008, it was no surprise that ClassNK's 21 offices in Japan had a very busy year. Though it would be impossible to list all of the newbuildings constructed under the auspices of our Japanese offices, a brief overview of the year's highlights is presented below.

Tokyo

Though the ClassNK Tokyo Branch Office mainly conducts surveys for ships in service, the Office oversaw the construction of 14 newbuildings totaling 586,184 dwt in 2008. Among the many impressive ships built under the watchful eye of the surveyors of the Tokyo Branch Office was the PRINCESA GUASIMARA, a 1,724 dwt reefer ship

built by Yamanishi Corporation for Ricardo Fuentes e Hijos S.A. The Tokyo Branch Office also conducted the newbuilding surveys for the 327,127 dwt ore carrier TUBARAO MARU. The ship, which is one of the world's largest ore carriers, was built by Mitsui Engineering & Shipbuilding Co., Ltd. Chiba Works, for Doun Kisen Co., Ltd. The Tokyo Branch Office also oversaw the construction of the 6,717 dwt chemical tanker, SUNNY LEO, the first ship built by Niigata Shipbuilding Co. for Asahi Marine Co.

Nagoya

In 2008, the Nagoya Branch Office oversaw the construction of 15 newbuildings totaling 817,283 dwt. Notable newbuildings in the region include the YASA DREAM, which at 207,805 dwt is among the world's largest class of



AURIGA LEADER

a 18,686 dwt vehicle carrier built by Mitsubishi Heavy Industries, Ltd. Kobe Shipyard & Machinery Works for Nippon Yusen Kabushiki Kaisha.



CHARLOTTE

a 9,302 dwt oil/chemical carrier built by Kumamoto Dock Co., Ltd for Searights Maritime Services Pte Ltd.



DAIHATSU MARU

a 2,159 dwt vehicle carrier built by Shin Kochijyuko Co., Ltd. for Kohkoku Kaiun K.K.

bulk carriers, built for Real Shipping Co. by Universal Shipbuilding Co.'s Tsu Shipyard, and the PLEIADES SPIRIT, a 17,424 dwt, 6,303 unit vehicle carrier built by Toyohashi Shipbuilding Co., Ltd. for Fair Wind Navigation S.A. Elsewhere in the region, IHI Corporation's Aichi Works constructed the CROWNED EAGLE, a 55,940 dwt CSR compliant bulk carrier, for Crowned Eagle Shipping LLC.

Kobe

The Kobe Branch Office oversaw the construction of 13 newbuildings totaling 378,464 dwt in 2008. Mitsubishi Heavy Industries, Ltd. Kobe Shipyard & Machinery Works built the AURIGA LEADER, an 18,686 dwt 6,400 unit vehicle carrier for NYK LINE. The ship is notable for its use of a new environmentally friendly and fuel conserving design. Elsewhere in the region, Kanagawa Shipyard built the 321 dwt tugboat DOLPHIN NO.9 for Mundra Port and Special Economic Zone Ltd., and Kawasaki Shipbuilding's Kobe Shipyard built the 55,411 dwt bulk carrier ERIA COLOSSUS

for Tri-Bulkship S.A.

Onomichi

For NK's Onomichi Office, 2008 was another busy year. The Office oversaw the construction of 53 newbuildings totaling 1,806,180 dwt in 2008. Among the many newbuildings that the office surveyed was the YUYO MARU, a 1,202 dwt chemical/oil products tanker built for JR TT (Japan Railway Construction, Transport and Technology Agency) and NisshoKisen Co. by Hongawara Shipyard Co., Ltd. The ship is the first NK classed ship to be built at the shipyard. In the same region, Naikai Zosen Corporation's Setoda Shipyard built the NEPTUNE LEADER, a 12,853 dwt vehicle carrier for Opal Sea Carriers Pte. Ltd.

Hiroshima

In 2008, the Hiroshima Branch Office oversaw the construction of 26 newbuildings totaling 1,221,111 dwt. Among the many NK classed newbuildings in the region



EL MAR VICTORIA

a 12,165 dwt general cargo ship built by Kanasashi Heavy Industries Co., Ltd. for P&F Marine Co., Ltd.



FALCON EXPRESS

a 99,988 dwt product tanker built by Sasebo Heavy Industries Co., Ltd. for Mitsui O.S.K. Lines, Ltd.



FLOURISH

a 9,027 dwt oil carrier built by Guangzhou Hangtong Shipbuilding and Shipping Co., Ltd for Hong Lam Marine Pte Ltd.

was the RBD Capri, a 76,619 dwt bulk carrier built by Shin Kasado Dockyard Co., Ltd for La Darien Navigation S.A. The ship was the first newbuilding completed by the dockyard since returning to newbuilding construction in 2007.

Sakaide

The Sakaide Branch Office oversaw the construction of 51 newbuildings totaling 1,725,099 dwt in 2008. Imabari Shipbuilding's Marugame Headquarters constructed the 28,343 dwt HANJIN MARUGAME for Roja Shipping S.A. In the same region, Shin Kochi Jyuko Co., Ltd. built the DAIHATSU MARU for NYK-Hinode Line, Ltd. The ship is a newly designed 2,159 dwt, 635 unit vehicle carrier designed for coastal service.

Imabari

In 2008, the Imabari Branch Office oversaw the construction of 86 newbuildings totaling 2,075,015 dwt. Kawasaki Heavy Industries, Ltd. Sakaide Works built the 1,781 dwt LNG carrier SHINJU MARU NO.2 for Chuo Kaiun Co. Ltd., while Higaki Shipbuilding Co., Ltd. constructed the 1,801 dwt LNG carrier KAKUREI MARU for Tsurumi Sunmarine Co. Two other notable ships built to NK class in the area were the 36,604 dwt RABIGH SUN built for Red Sea Marine S.A., and 36,580 dwt RABIGH SUNRISE constructed for Krypton Navigation S.A. Both ships are chemical tankers built by Shin Kurushima Dockyard Co., Ltd.'s Onishi Shipyard and designed to carry propylene oxide for the PetroRabigh project, an integrated oil refinery and petrochemical plant jointly owned and operated by Saudi Aramco and Sumitomo Chemical Co.

Kita Kyushu

In 2008, the Kita Kyushu Branch Office oversaw the construction of 17 newbuildings totaling 222,885 dwt. Some of the newbuildings surveyed by the Kita Kyushu Branch

Office include the ro-ro ship TOYOFUJI MARU NO.2 for Toyofuji Shipping Co, Ltd. and the 19,813 dwt chemical tanker GOLTEN built by Fukuoka Shipbuilding Co., Ltd. for United Sky Shipping Pte. Ltd. Elsewhere in the region, the Kumamoto Dock Co. built the 9,302 dwt chemical tanker MARINE GRACE for Mutiara Tanker S.A.

Nagasaki

Nagasaki is an area well known in Japan for its shipbuilding industry, and in 2008, the Nagasaki Branch Office oversaw the construction of 15 newbuildings totaling 916,864 dwt. One of the notable ships constructed in this area in 2008 was the GRAND PROGRESSO, a 297,351 dwt very large ore carrier built for Kawasaki Kisen Kaisha, Ltd. at Universal Shipbuilding Corporation's Ariake Shipyard. The ship is the first of a new ore carrier design called the Unimax Ore to be completed by the yard. The Nagasaki office also oversaw the construction of the 49,999 dwt LPG carrier YUYO, built at Mitsubishi Heavy Industries, Ltd.



GLORIOUS EXPRESS

a 17,212 dwt vehicle carrier built by Tsuneishi Heavy Industries (Cebu) Inc. for United Ocean Ship Management Pte. Ltd.



GRANDE PROGRESSO

a 297,351 dwt ore carrier built by Universal Shipbuilding Corporation, Ariake Shipyard for Kawasaki Kisen Kaisha, Ltd.

Nagasaki Shipyard & Machinery Works for Sunny Gas Transportation S.A.

International Newbuilding Highlights

Given that 2008 was an outstanding year for NK classed newbuildings from within Japan, it should not be surprising that 2008 was also an incredible year for NK classed newbuildings built overseas. As NK classed gross tonnage built outside of Japan rose significantly in 2008, it would be impossible to list every new ship in the space available here. Instead, a brief summary of international newbuilding highlights for some of ClassNK's 83 exclusive surveyor offices overseas is given below.

China

In 2008, the Society established new offices in Tianjin and Zhoushan increasing the total number of ClassNK exclusive surveyor offices in China to ten. As in previous years,

the number of newbuildings classified by NK in China has continued to grow, with a total of 34 newly built ships amounting to some 912,457 gross tons registered with the Society in 2008.

Among of the notable ships constructed under survey from the Society's Shanghai Office was the first vessel in the world to be constructed in accordance with the new IACS CSR, the 29,231 dwt bulk carrier WESTERN WAVE, built by Nantong Nikka Shipbuilding Co., Ltd. for Aug. Bolten Wm. Miller's Nachfolger (GmbH & Co.) KG. The Society's Nantong Office oversaw the construction of the HE HENG, the first VLOC to be built in China, built by Nantong COSCO KHI Ship Engineering Co., Ltd. (NACKS) for Unique Shipping Limited.

The Society's Dalian Office also had a busy year, overseeing the construction of the ORCHID, a 12,399 dwt general cargo vessel built by Liaoning Marine and Offshore Industry Park Co., Ltd. for Tosco Keymax International Ship Management Co., Ltd, as well as conducting the newbuilding sur-



HOKUETSU IBIS

a 60,527 dwt chip carrier built by Oshima Shipbuilding Co., Ltd. for Kawasaki Kisen Kaisha, Ltd.



JANESIA ASPHALT VI

a 6,033 dwt asphalt carrier built by Kurinoura Dockyard Co., Ltd. for Nissho Odyssey Ship Management Pte Ltd.



KAIHOU MARU

a 1,279 dwt LPG carrier built by Kegoya Dock Co., Ltd. for Iino Gas Transport Co., Ltd.

veys for the 6,309 dwt barge STEEL HUB-12, built by Dalian Shipyard Industrial Development General Corporation, Chang Xing Shipyard for Steel Hub Co., Ltd.

Elsewhere in China, the Society's Guangzhou Office conducted the newbuilding surveys for the 9,027 dwt oil tanker FLOURISH, built by Guangzhou Hangtong Shipbuilding and Shipping Co., Ltd. for Hong Lam Marine Pte Ltd, and in Taiwan, the Society's Kaohsiung Office oversaw the construction of the WAN HAI 510, a 52,146 dwt container ship, built by CSBC Corporation, Taiwan for Wan Hai Lines Ltd.

Korea

The Society's offices in Korea oversaw the construction of 20 newbuildings totaling 638,471 dwt in 2008. Korean newbuildings classed with the Society were primarily container carriers, and include ships built by Hyundai Heavy Industries Co., Ltd., Dae Sun Shipbuilding & Engineering Co., Ltd., STX Shipbuilding Co., Ltd., among others.

The Philippines

In 2008, the Society's Cebu Office oversaw the construction and delivery of 14 newbuildings totaling 512,051 dw, at Tsuneishi Heavy Industries (Cebu) Ltd. Among these were 11 bulk carriers, including the 58,750 dwt NORD LIBERTY built for Million Comets S.A., and 3 vehicle carriers, including the 5,195 unit, 17,212 dwt GLORIOUS EXPRESS built for United Ocean Ship Management Pte Ltd.

Singapore

The Society's Singapore Office registered three newbuildings totaling 28,417dwt in 2008. Among them was the 32,937 dwt, 2,646 TEU container ship WAN HAI 317, the last of a series of six container ships built by Jurong Shipyard for Wan Hai Lines (S) Pte. Ltd.

Malaysia

The Society's four exclusive surveyor offices in Malaysia, in Kuala Lumpur, Kota Kinabalu, Johor Bahru, and Miri respectively, oversaw 85 newbuildings, primarily of barges and tugboats, totaling 38,259 dwt in 2008.

Indonesia

This year ClassNK's offices in Indonesia were extremely busy overseeing the construction of 30 ships totaling 36,385 dwt, Although the Society's offices in Indonesia primarily oversee the newbuilding of tugs and barges, in 2008 they also conducted the newbuilding surveys for the GEOMARIN III, a 649 dwt research vessel built for Pusat Penelitian dan Pengembangan Geologi Kelautan by PT. PAL Indonesia.

Argentina

The Society's Buenos Aires Office remained busy this year, performing newbuilding surveys for 13 ships amounting



KAKUREI MARU

a 1,801 dwt LNG carrier built by Higaki Shipbuilding Co., Ltd. for Tsurumi Sunmarine Co., Ltd.



KAKUSHO MARU

a 4,500 dwt coal ash/calcium carbonate carrier built by Miura Shipbuilding Co., Ltd. for Kanden Engineering Corporation, Daiichi Chuo Kisen Kaisha, and Daiichi Senpaku Kaisha.

to 32,698 dwt. Notable among these ships was the 27,000 dwt CASANNA, built by Astilleros Rio Santiago for Casanna Shipping Company Limited, the last of a series of five wood chip carriers.

Survey Activities and Approvals

2008 was once again an extremely busy year for ClassNK in terms of surveys and inspections. Over the course of the year, the Society carried out a total of 13,607 surveys in 2008. Of these, 3,562 surveys were conducted within Japan, while 10,045 surveys took place overseas.

In 2008, the Society approved 17 radio service companies around the world, bringing the total number of companies approved by the Society to 240.

The totals for other types of firms approved by the Society in 2008 are listed below.

1. In-water survey of ships: 19
2. Thickness measurements on ships: 18

3. Maintenance of fire fighting systems and equipment: 14
4. Maintenance of life saving equipment and appliances: 3
5. Voyage data recorders: 30
6. Hatch tightness testing: 1

Totals for Materials, Machinery, and Marine Equipment surveys carried out by the Society in 2008 are shown below.

Port State Control

As with last year, the Society continues to work with the managers and owners of detained vessels to improve ship conditions and increase safety awareness. To this end, the Society's Survey Department published the Annual Report on Port State Control 2007, a compilation and analysis of PSC related statistics for the previous year, and distributed it to owners, managers, and other related parties. In addition to visiting the Australian Maritime Safety Authority

Survey Activities and Approvals		
Category	Item	Volume
Materials	Rolled Steel	5,220,729 tons
	Cast/Forged Products	162,904 tons
Machinery	Main Engines	2,734
	Boilers	1,222
	Deck Machinery	3,044
	Engine Room Machinery	33,274
Marine Equipment	Anchors	1,602
	Chains	16,173

(AMSA) and Maritime N.Z., ClassNK also sent representatives to bilateral China-Japan and Korea-Japan meetings on inspection related matters and gave presentations on the Society's efforts to reduce the detention ratio of NK classed ships.

Technical Services

During 2008, ClassNK issued Statements of Compliance to 35 vessels under the Society's Condition Assessment Program (CAP). Statements of Compliance were also issued for the ballast water management plans of 588 ships. As of the end of 2008, the total number of Statements of Compliance issued by the Society stood at 214 for CAP and 3,002 for ballast water management plans.

In 2008, the Society's Emergency Technical Assistance Service (ETAS) team was called into action for nine incidents related to maritime casualties. By the end of 2008, 980 vessels had registered for the Society's ETAS service,



M. STAR

a 314,016 dwt oil carrier built by Kawasaki Shipbuilding Corporation, Sakaide Shipyard for Probe Shipping S.A.



MAERSK JURONG

a 39,426 dwt container carrier built by Hyundai Mipo Dockyard Co., Ltd. for Keymax Maritime Co., Ltd.

an increase of 141 ships over the 2007 total.

In June 2008, the Society also began a new Environmental Awareness Certification service. The new service provides certification for ships that utilize environmentally friendly technology that exceeds existing international regulations or is not yet regulated by international treaties. The new service is just one of the ways that the Society is working to help the maritime industry address environmental issues and challenges. Certificates of Environmental Awareness were awarded to 3 ships in 2008.

PrimeShip

PrimeShip-HULL (CSR)

In order to address amendments to the IACS CSR and improve overall functionality, the Society developed and released a new version of the PrimeShip-HULL (CSR) Rule Calculations for Bulk Carriers in March, and released new



ORCHID

a 12,399 dwt general cargo ship built by Liaoning Marine and Offshore Industry Park Co., Ltd. for Tosco Keymax International Ship Management Co., Ltd.



PRINCESA GUASIMARA

a 1,724 dwt refrigerated cargo carrier built by Yamanishi Corporation for Ricardo Fuentes e Hijos S.A.

versions of the entire PrimeShip-HULL (CSR) software suite (PrimeShip-HULL (CSR) Rule Calculations for Bulk Carriers, PrimeShip-HULL (CSR) Rule Calculations for Double Hulled Oil Tankers, and PrimeShip-HULL (CSR) Direct Strength Analysis) in June and December 2008.

PrimeShip- DG/BulkCargo

Based on a dangerous goods loading condition search application, LoadSearch-BDG, initially developed for internal use in 2007, the Society developed a new search system for the loading requirements for dangerous goods, PrimeShip-DG/BulkCargo, for use by clients. The new software was designed to be a simple and easy to use reference for the equipment requirements for loading dangerous cargoes, and is scheduled to be released to clients in 2009.

ClassNK Website

In addition to creating a new search function for the IACS

related Q&A section of the Society's website and improving IACS CSR related reference information, the Society developed a new CSR software support site in English, aimed at providing better software support for clients around the globe. The Society has also increased the number of publications available as PDFs on the Society's website and has redesigned the system for downloading publications in order to make it more user-friendly and easier to use.

NK-PASS (Plan Approval Status Service) Electronic Plan Approval System

In order to allow clients to determine the status of their plans during the approval process and to create a streamlined system for the electronic submission, approval, and return of ship plans, the Society developed NK-PASS and made it available for use by shipyards in Japan in 2007. In 2008, the Society expanded the system, making it available for use by shipyards around the world, as well as machin-



STEEL HUB-12

a 6,309 dwt barge built by Dalian Shipyard Industrial Development General Corporation, Chang Xing Shipyard for Steel Hub Co., Ltd.



SUNNY LEO

a 6,717 dwt oil/molasses/chemical tanker built by Niigata Shipbuilding & Repair, Inc. for Asahi Marine Co., Ltd.

ery and equipment manufacturers both inside and outside of Japan.

Audit and Registration of ISM Code and ISPS Code related Systems

In 2008, ClassNK had another busy year conducting ISM and ISPS code related audits as a Recognized Organization on behalf of various flag administrations. Over the course of the year, the Society registered 35 new companies in accordance with ISM requirements, bringing the total num-

ber of companies registered with the Society to 576. SMC's were issued to 723 ships in 2008, bringing the total number of vessels registered with the Society to 4,541. NK currently conducts ISM authorizations on behalf of 66 Administrations. The Society also registered 655 ships to ISPS Code requirements last year, bringing the total number of ships registered with the Society under the ISPS Code to 3,770. NK currently conducts ISPS authorizations on behalf of 49 Administrations. A breakdown of the number of vessels by flag state is shown in the following table.

Number of ISPS Code Registered Ships			
Flag	No. of Ships	Flag	No. of Ships
Panama	2,324	Saint Vincent and the Grenadines	16
Singapore	291	Dominican Republic	5
Hong Kong	222	Malaysia	5
Japan	146	United Arab Emirates	3
Liberia	128	Cayman Islands	3
Malta	120	Saudi Arabia	3
Marshall Islands	99	Bermuda	3
Bahamas	98	United Kingdom	2
Cyprus	70	Gibraltar	2
Philippines	58	Switzerland	2
Greece	50	Netherlands Antilles	1
Thailand	50	Kiribati	1
Turkey	40	Tuvalu	1
Vanuatu	27	Total	3,770



TUBARAO MARU

a 327,127 dwt ore carrier built by Mitsui Engineering & Shipbuilding Co.,Ltd., Chiba Shipyard for Doun Kisen Co., Ltd.

Assessment and Registration of Quality and Environmental Management Systems

ClassNK also conducts registration of quality management systems under the ISO 9001 series of quality standards, as well as assessment and registration of environmental management systems under the ISO 14001 standard. In 2008, a total of 7 organizations were newly registered under ISO 9001, bringing the total number registered with the Society to 374. The Society also registered 4 organizations to the ISO 14001 standard during the year, bringing the total number to 100.

Collaboration on outside technical research

ClassNK actively works with outside organizations and governments on a wide variety of research projects and technical investigations. In recent years especially, the Society has made a large contribution as part of worldwide efforts to address environmental issues such as global warming and energy conservation.

As one part of these greater efforts, the Society began issuing a Certificate for Environmental Awareness in 2008. Further, in preparation for the adoption of the Ship Recycling Convention, the Society is continuing research on ways to improve the safety and environmental friendliness of ship scrapping and recycling.

NK Quality System Assessment

In 2008, ClassNK once again underwent a range of audits by outside authorities to assess the operations and quality systems of the Society. These assessments included an IACS Annual Audit conducted at the Head Office and 15 overseas locations based on the IACS QSCS (Quality System Certification Scheme). In addition to these audits, SGS (Société Générale de Surveillance), the RvA (Raad voor Ac-

creditatie) and EMSA (European Maritime Safety Agency), also conducted audits at the NK Head Office and numerous NK locations throughout the year. External government audits of the Society included audits of a number of the ClassNK's domestic offices by the Japanese Government, the Greek Government's audit of the Piraeus Office, and the Turkish Government's audit of the Istanbul Office, among a variety of audits conducted by the governments of various flag states. These audits, alongside ClassNK's own internal audits, are part of the Society's continuing efforts to achieve year-on-year quality improvement. These audits play a vital role in improving the capabilities and competency of the Society's staff and they ensure that the Society continues to provide its clients with service of the highest quality and reliability.

Training

ClassNK actively runs and participates in a number of different training activities both for internal staff development and in cooperation with outside organizations. These training programs cover everything from surveyor training to internships, lectures, and other co-operative training programs designed to meet the needs of government agencies and the maritime industries. Some of the more notable training programs ClassNK conducted in 2008 are introduced briefly below.



ISM Auditor Training

In 2008, 48 of the Society's surveyors took part in the



WESTERN WAVE

a 29,231 dwt bulk carrier built by Nantong Nikka Shipbuilding Co., Ltd. for Aug. Bolten Wm. Miller's Nachfolger (GmbH & Co.) KG.

Society's ISM Auditor training within Japan. The course was also held at ClassNK's London Offices, where a total of 7 surveyors took the course. Since the Society began the ISM Auditor training program in 1994, 658 of the Society's exclusive surveyors have taken the course.

Maritime Security Auditor Training

In 2008, the Society conducted Maritime Security Auditor Training within Japan and at the Society's London and Singapore Office. This year, 39 of the Society's surveyors participated in the course, bringing the total number of surveyors who have taken the course since its inception in 2005 to 395.

Newly Appointed Surveyor Training

ClassNK conducted surveyor training for 174 newly hired surveyors (including new graduates) around the world in 2008. Seventeen of these surveyors underwent additional practical training on marine engines at the Yanmar Co. Ltd.'s Amagaseki Factory T.T. School. In addition to the training provided by the Society's Head Office, a further 61 of these surveyors underwent practical training aboard ships or additional survey training at one more of the Society's offices.

Lectures at the Innoshima Technical Center

At the request of the Innoshima Technical Center, the Society presented introductory lectures on to new staff members at the Center.

Lectures at the Eastern Japan Training Center for Shipbuilding Skills

At the request of the Eastern Japan Training Center for Shipbuilding Skills, the Society presented lectures to roughly 40 technical staff members new to the field of shipbuilding.

Lectures for Japanese Ministry of Land, Infrastructure, and Transport

At the request of the Japanese Ministry of Land, Infrastructure, and Transport, the Society Presented lectures on ISPS Code during the Ministry's ISPS Code Seminar.

Internship Training Program

At the request of Osaka University, Kobe University, Kumamoto University, Tokai University, Tokyo University of Marine Science and Technology, and Hiroshima University, 17 undergraduate and graduate students underwent internship training at the Society's Head Office.

Cooperation with the Tokyo MOU

Following a request from the Tokyo MOU Secretariat, ClassNK provided lectures on MARPOL and SOLAS at the "17th Basic Training Course for Port State Control Officers in the Asia Pacific Region" held by the Shipbuilding Research Centre of Japan (SRC).



WAN HAI 317

a 33,055 dwt container carrier built by Jurong Shipyard Ltd. for Wan Hai Lines Ltd.



YASA DREAM

a 207,805 dwt bulk carrier built by Universal Shipbuilding Corporation, Tsu Shipyard for YA-SA Gemi Isletmeciligi Ve Ticaret A.S.

Rule Revisions

Developed based both on years of survey experience and technical research, the ClassNK rules are constantly being revised to incorporate the latest research findings and new statutory requirements. A representative list of the numerous technical Rules and Guidances revised by the Society during 2008 is presented below.

① Rules and Guidance for the Survey and Construction of Steel Ships

- (1) A partial revision related to the IACS CSR for Bulk Carriers (Part CSR-B)
- (2) A partial revision related to the IACS CSR for Double Hull Oil Tankers (Part CSR-T)
- (3) A partial revision related to the IMO Performance Standard for Protective Coatings (Parts B, C, CS)
- (4) A partial revision related to Amendments to the International Convention for the Safety of Life at Sea, Chapter II-1 (Hull Part) (Parts A, B, C, U, CS)
- (5) A partial revision related to Amendments to the International Convention for the Safety of Life at Sea, Chapter II-1 (Hull Outfitting) (Parts C, CS, D)
- (6) A partial revision related to Dangerous Chemical Substances (Part S)
- (7) A partial revision related to Hold Frames in Existing Bulk Carriers (Part C)
- (8) A partial revision related to Brackets at the End of Side Frames on Ice Class Ships (Part I)
- (9) A partial revision related to Fillet Welding of Longitudinals Used in the Upper Deck Structure of Container Carriers (Part C)
- (10) A partial revision related to Surveys of Cargo Containment Systems on Ships Carrying Liquefied Gases in Bulk (Parts B, N)
- (11) A partial revision related to Loading of Timber Deck Cargo (Part C)

- (12) A partial revision related to Exemption from Inclining Tests (Part B)
- (13) A partial revision related to Shipboard Fittings Associated with Towing and Mooring (Part C)
- (14) A partial revision related to Fire Protection, Detection, and Extinction (Part R)
- (15) A partial revision related to Criteria for the Use of High Tensile Steel (Parts C, CS, N, P)
- (16) A partial revision related to Application of Steels (Part C)
- (17) A partial revision related to Surface Inspection of Diesel Engine Crankshafts (Part K)
- (18) A partial revision related to Machinery Installations (Part D)
- (19) A partial revision related to High Voltage Electrical Installations (Part H)
- (20) A partial revision related to the Timing of Class Maintenance Surveys (Part B)
- (21) Others

- ② New Rules and Guidance for Anti-Fouling Systems on Ships
- ③ Regulations and Guidance for the Classification and Registry of Ships
- ④ Conditions of Service for Classification of Ships and Registration of Installations
- ⑤ Regulations for the Issue of Statutory Certificates
- ⑥ Rules for the Audit and Registration of Safety Management Systems
- ⑦ Rules for the Audit and Registration of Ship Security Management Systems
- ⑧ Rules for the Approval of Manufacturers and Service Suppliers
- ⑨ Rules and Guidance for Marine Pollution Prevention Systems
- ⑩ Rules and Guidance for Safety Equipment
- ⑪ Rules and Guidance for High Speed Craft



YUYO MARU

a 1,202 dwt oil/chemical tanker built by Hongawara Ship Yard Co., Ltd. for Nissen Kisen Co., Ltd.

⑫ Rules and Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use

ClassNK Technical Seminars

Providing clients with the latest and most up to date technical information is one of the most important tasks undertaken by the Society. To this end, each year ClassNK conducts a number of technical seminars on a wide variety of timely topics. In 2008, ClassNK Technical Seminars were held in five locations across Japan, starting with Tokyo, followed by Fukuoka and continuing with Onomichi, Imabari, and Kobe. The seminars drew roughly 600 attendees from across the entire spectrum of the maritime industry, including shipowners, shipyard staff, and manufacturers, among others.

Explanations of the above noted rule changes were given in three separate presentations (Hull, Machinery and Electrical Equipment, and Equipment and Material related rule changes, respectively) at the 2008 ClassNK Technical

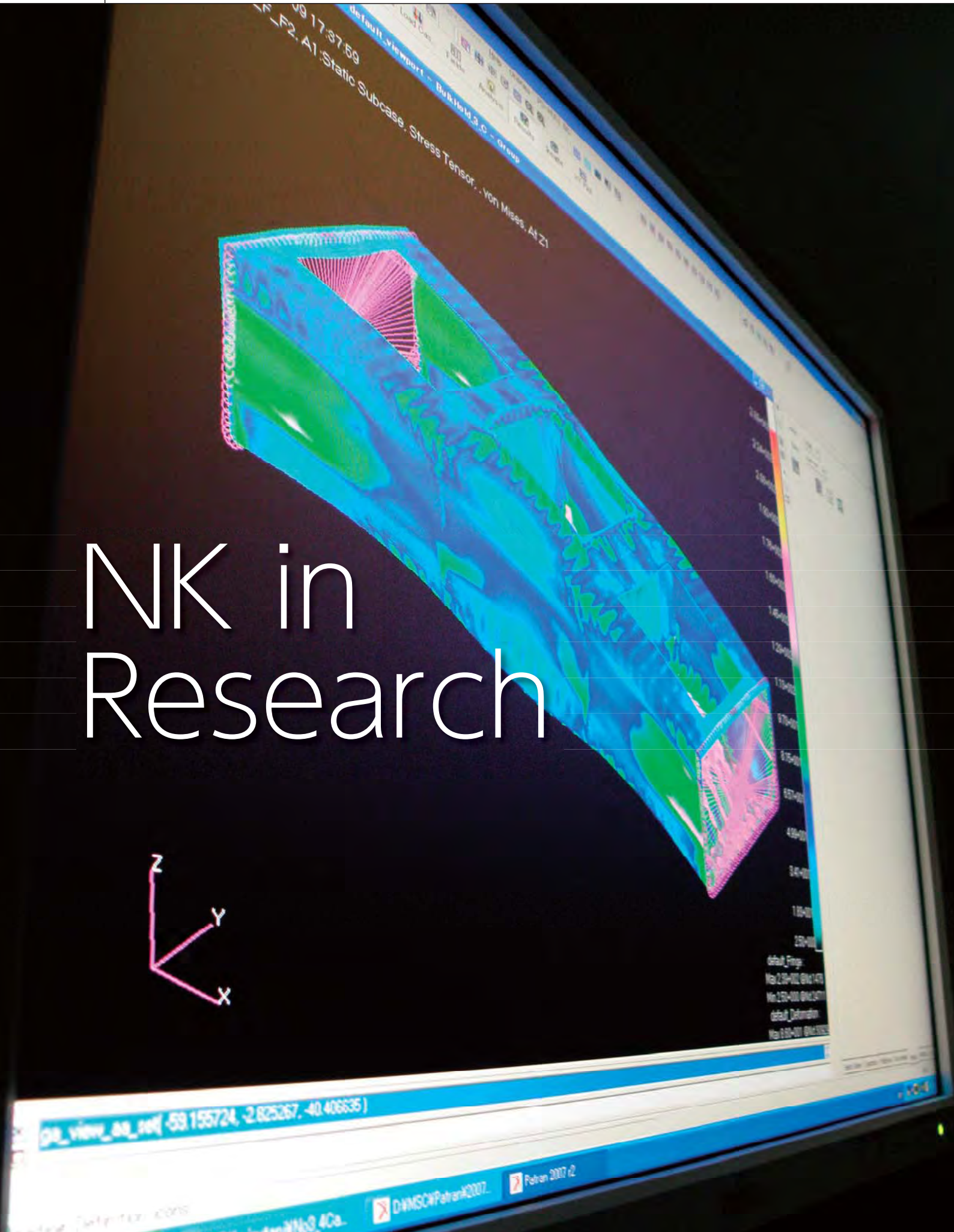
Seminars, alongside presentations on recent trends at IMO and IACS, and the Society's recent research and efforts related to its focus on environmental issues. In addition to these topics, presentations were also given on the Society's Environmental Awareness Certificate, as well as the Society's new Guideline for the use of YP47 steel in ultra large container ships.

ClassNK Award

The "ClassNK 100 Awards" were originally established to commemorate the 100th anniversary of the Society's founding. Since renamed the "ClassNK Award", certificates of merit and monetary awards are issued each year in recognition of outstanding postgraduate research by students at participating universities. In 2008, the award was presented to 16 students from 8 universities around the world.



NK in Research



Title of Research Project

Overview of Research

Study on the structural reliability of ships

(Second year of three-year project; second stage)

Using highly accurate probabilistic models of loads (vertical wave bending moment) and strength (hull girder ultimate strength) for tankers, bulk carriers and container ships, structural reliability analyses for the ultimate limit state of hull structures were carried out. Partial safety factors were quantitatively evaluated using the load-strength coefficient design method, based on the results of the analyses.

Study on strong non-linear loads acting on the hull

(Final year of two-year project)

The feasibility of the code of previously developed strong non-linear analysis software programs based on Computational Fluid Dynamics (CFD) was verified via use on the hull structures of actual ships, and validated by comparison with the results from tank testing.

Study on the ultimate strength of large-scale hull structures

(Final year of three-year project)

Using a non-linear FEM (MSC/Marc) analysis program, the effects of local loads on global ultimate hull girder strength were clarified by analyzing the systematic collapse of a bulk carrier under combined longitudinal bending, cargo hold loads, and external hydrodynamic pressures. Collapse analyses were carried out approximating the failure of some structural members due to collision, and the degradation in ultimate hull girder strength due to damage to these members was studied.

Study on the structural strength assessment of membrane-type LNG ships

(Final year of two-year project)

Slushing calculations were carried out using different calculation codes for an experimental model and an actual LNG prototype carrier with a 155,000-m³ carrying capacity. The accuracy and utility of the codes used were compared and validated, and the calculation code best suited for estimating loads was selected. To obtain fundamental data for the strength evaluation of tank insulation systems, mechanical tests on various components of the insulation systems were carried out, and the required material characteristics were obtained. Static collapse and drop tests of insulation systems were carried out, and the dynamic effects of collapse mode and collapse strength were validated. Dynamic structural analyses of the insulation systems were also carried out, and the accuracy of simulation by numerical calculations was validated.

Study on condition monitoring methods of marine engines and machinery

(Final year of three-year project)

The objective of this study was to establish technologies for the condition monitoring and diagnosis of marine engines and machinery for which the Rules for Preventive Machinery Maintenance System and relevant amendments to the Planned Machinery Maintenance Survey are currently applicable. This year simulation tests were carried out on the use of high frequency vibrations, ferrous particle concentration and acoustic emissions for the condition monitoring of the main bearings of main engines.

Study on environmental tests of electronic control systems in electronically-controlled engines

(New one-year project)

Based on measurements of vibrations and temperatures of the control panels of electronically-controlled engines on model and actual ships, environmental test standards were reviewed, and a report on fault and damage studies of electronically-controlled diesel engines, which summarizes instances of such events, was developed and published.

Study on investigative techniques and tests for exhaust gas reduction in internal combustion engines

(New one-year project)

Issues in implementing tests and studies of NO_x reducing technology, such as a NO_x removal system by Selective Catalytic Reduction (SCR) to comply with the secondary and tertiary controls for NO_x, were identified by literature surveys.

Study on technology to evaluate marine fuel oil properties and lubricating oil diagnostic technology by constant volume combustion tests

(First year of three-year project)

General characteristics of fuel oil were analyzed and combustion tests were carried out, and technology was developed to evaluate the poor combustibility of fuel oil, which is the cause of various problems, leading to the publication of the "Guidance for Measures to Cope with Degraded Marine Heavy Fuels Version II". Ferrographic analyses of the lubricating oil of the machinery in ships being monitored were also carried out and a variety of data was collected.

Investigation and study on crankshaft deflection in marine diesel engines

(Final year of two-year project)

FEM analyses were carried out on the crankshafts of large high-output main engines, which have become common in recent years, and the relationship between output and crankshaft deflection was investigated.

High safety oriented ergonomic design of marine machinery systems

(Final year of two-year project)

A Guidance to prevent human error on ships based on ergonomic design and installation of marine machinery systems was prepared with the cooperation of the maritime and ship-building industries. The Guidance consists of basic rules extracted from international standards and case studies, and is broadly divided into three parts - awareness, operability and working environment.

Study on detection of surface flaws by non-destructive inspection

(New one-year project)

Literature surveys were conducted on the latest technologies and equipment such as UT-TOFD method, UT surface SH wave method, microwave flaw detection method and measurement tests were carried out on detection equipment to study the possibilities of measuring the the depth direction of flaws, which is important for judging whether surface flaws detected by non-destructive inspection are fatigue cracks or not.

Measurements on actual ships

(New one-year project)

Over the course of 2008, stress response measurements of large container ships and condition monitoring tests of the main bearings of large main engines were conducted.



Practical Research and Development

ClassNK launched the first set of an ongoing series of Practical Research and Development projects in 2007. These research projects focus on the following topics: 1) ensuring the safety of ultra large container ships; 2) risk assessment of LNG carriers; and 3) conservation of the marine environment. Summaries of the research conducted on each project in 2008 are given below.

Risk assessment of LNG ship propulsion systems (final year of two-year project)

In addition to the boil-off gas (BOG) treatment system used in LNG carrier propulsion systems, risk assessments were carried out on the following four types of propulsion systems: 1) Steam turbine (conventional system); 2) Heavy fuel diesel main engine with re-liquefaction unit; 3) Electric propulsion system using a

dual fuel diesel generator engine and BOG incinerator; 4) Dual fuel diesel main engine and a BOG incinerator. Based on these assessments, ClassNK developed and released the new "Guidelines for Dual Fuel Diesel Engines".

Study on the performance assessment of automated systems (final year of two-year project)

A number of automated systems developed as part of the second phase of the Super-Eco Ship project, including systems for navigation, berthing and de-berthing, mooring and anchoring, and

cargo operations, were studied to establish functional and system requirements in order to ensure safe navigation and on-deck operation.

Study on the structural safety assessment of ultra large container ships (final year of two-year project)

As part of an ongoing study begun in 2007, elastic response measurement tests were conducted on an actual 12,000-TEU ship to study the whipping and springing phenomena of ultra large container ships. Weak non-linear hull motion analyses were carried out on container ships of various sizes, and the non-linear effects due to the increasing size of the container ships corresponding to wave loads were examined. Additionally, fatigue damage to the side longitudinals of large container ships was examined in detail,

and guidelines were developed to prevent damage. Studies on the prevention of brittle cracks in the welded joints of thick plates were carried out based on recommendations from the the Committee for Structural Safety Measures for Ultra Large Container Ships and new guidelines for preventative countermeasures were developed. Based on the results of these studies, technical guidelines for the structural safety of ultra large container ships were created.

Development of total lifecycle support system for LNG carriers (final year of two-year project)

Essential technologies required for the following support systems were developed with the objectives of reducing both risk and lifecycle costs of LNG carriers: 1) Technical support for corrosion control; 2) Technical support for the safe management of fatigue strength; and 3) Technical support for the preventive maintenance of machinery and equipment. Technical support for the safe man-

agement of fatigue strength has also been applied on an actual ship in service. Long-term demonstration tests are further being carried out through the installation of monitoring systems on actual ships to develop techniques for monitoring paint film conditions. A new risk based management system for preventive maintenance of machinery and equipment was also completed in 2008.

Establishment of the NK risk assessment implementation system (final year of two-year project)

As a continuation of research begun in 2007, risk assessments for various factors were implemented with the aim of establishing a risk assessment service implementation system. More specifically, risk assessments were carried out to evaluate changes in the nature of the LNG carrier environment, especially with concern to changes to LNG ship hull structures over a 10

year period. The cost benefits necessary for determining priorities for risk reduction measures were also evaluated and risk assessments performed. Based on this experience and findings from both literature surveys and a variety of risk assessments, a new guideline for implementing risk assessments was prepared.

Study on the safety assessment of ultra large container ships (related to brittle crack arrest design) (final year of two-year project)

Standard ESSO tests were systematically performed under a variety of different influence factors, in order to study the effects of each factor on the test results. Standard test methods were then formulated for ESSO tests based on the findings of the studies. In order to understand the material characteristics (brittle crack

arrest toughness values) required for arresting brittle cracks, large-scale model tests (duplex ESSO tests) and medium-scale shelf-plate structural model tests were carried out. The findings were carefully studied and summarized, and a new guideline for brittle crack arrest design was prepared.

Development of a technical appraisal service for the environmental performance of container ships (final year of two-year project)

This service aims to provide a technical appraisal service of the propulsive performance of container ships in actual seas for use during ship design and construction. Practical estimation methods combining theoretical calculation methods and tank tests were studied in order to estimate propulsive performance in the actual

ocean conditions. The results of tank tests obtained from five ship-builders using the same ship type model were compared and these findings were combined with the findings of the theoretical calculation methods from the previous year. Based on these results, draft guidelines for the technical appraisal service were created.



Special Article

Guidelines for the Issuance of Certificates of
Environmental Awareness

1. Introduction

There has been increasingly urgent demand in recent years for the adoption of various measures aimed at preserving the environment. These include measures to prevent marine pollution from cargo oil spills or discharges of fuel oil from ships caused by a disaster or ship casualty, measures to prevent atmospheric pollution due to exhaust gases, measures to prevent marine pollution from hull paints and coatings, measures to prevent the migration of living organisms and invasive species from one part of the world to another due to ballast water exchange, measures to prevent the destruction of ecosystems, including human caused damage at recycling yards, measures to prevent global warming due to greenhouse gases (GHG), and measures to conserve energy, to name just a few. As awareness of the importance of Corporate Social Responsibility (CSR) becomes ever greater, more measures are being taken to protect the environment not only through compliance with international conventions and other requirements by the maritime community, but also through the introduction of more advanced systems and technologies as well as enhanced shipboard operations.

Although certificates or documents of compliance are issued that certify that requirements set forth in international conventions such as MARPOL relating to the environment are being observed, mandatory requirements or criteria do not yet exist for many areas. These include, for example, convention requirements for energy savings and conservation, areas in which international conventions have not yet entered into force such as for ballast water management, and areas in which further activities related to environmental awareness can be introduced because of new technological developments that have taken place since the establishment of international conventions such as in the atmospheric pollution field. In such cases, no formal statutory mechanism exists to assess ships onboard which environmental technologies have been introduced that exceed convention requirements because such mandatory standards for doing so do not exist.

Thus, as a means of assessing the steps undertaken by the marine industry to address environmental problems, ClassNK has developed criteria for evaluating environmental technologies or practices introduced by ships in areas where requirements based on international conventions or standards do not yet exist or have not yet been made mandatory. Ships that satisfy these criteria are issued a certificate of environmental awareness.

2. Incentives to adopt environmental technologies in ports and other locations

With the heightened awareness of environmental problems, there has been a trend towards offering a range of incentives, such as reduced port duties, to ships that satisfy environmental standards established independently by different ports and states without regard for the framework of inter-

national convention or similar statutory requirements. For example, under the Port of Vancouver's Differentiated Harbor Dues Program, vessels that obtain an environmental certificate from a classification society authorized by the port are entitled to a reduction in harbor fees. In addition, while not directly related to an environmental certificate, ships that have been certified by the Green Award Foundation (currently limited to tankers and bulk carriers) are entitled to various incentives by more than twenty ports around the world, including reduced port fees and other benefits. Another example of measures taken by ports such as Long Beach in California and Tacoma in Washington state in the U.S. to help improve the environment is the mandatory use of ship-to-shore electrical power hookups (known as cold ironing) by ships while docked in port. It is anticipated that more and more ports and regions will introduce similar requirements and incentives in the future as measures aimed at reducing emissions and other loads on the environment.

3. Evaluation Criteria

When developing the evaluation criteria to be used as the basis for issuing Certificates of Environmental Awareness to ships that institute measures for reducing loads on the environment, consideration was given to

- whether it is possible to conduct evaluations objectively;
- whether incentives apply at individual yards, etc.;
- whether it is possible to evaluate efforts taken beyond those aimed just at statutory compliance; and
- whether it is possible to evaluate the "soft" aspects of measures taken, including management, in addition to the "hard" aspects of equipment and systems employed.

Target areas were determined based on the above assumptions and used in the formulation of the evaluation criteria for issuing Certificates of Environmental Awareness. A summary of these areas is presented below.

3.1. Target Areas

There are numerous causes originating onboard ship that can lead to destruction of the environment. These causes or factors, shown in Figure 1, can be roughly divided into

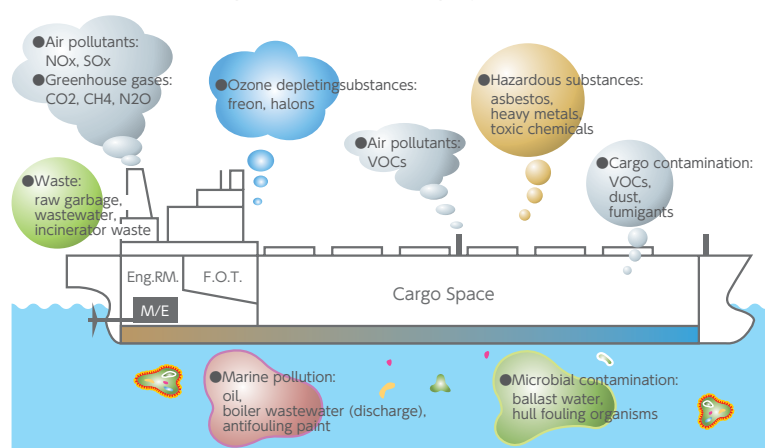


Fig. 1 Major causes of environmental damage onboard ship.

major areas such as atmospheric pollution, marine pollution, destruction of ecosystems, and global warming. This broad categorization is also reflected in the international conventions that either have come into force or are not yet in effect which address these respective areas. An overview of these areas and the major international conventions associated with each respective area are summarized in Figure 2.

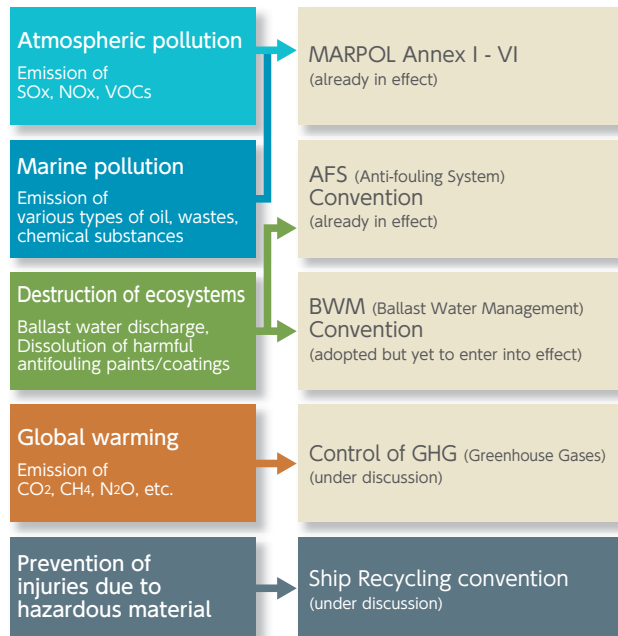


Fig. 2. Ship related environmental issues and related international conventions.

The evaluation criteria used as the basis for issuing certificates of environmental awareness are, in principle, based on international convention requirements and standards that are already mandatory, requirements that have yet to enter force but have been adopted, as well as requirements that are currently being deliberated but as yet do not exist. These are briefly summarized below.

(a) Convention requirements that have entered into effect

MARPOL Annexes I, II, IV, and V set forth requirements for preventing marine pollution caused by oil, hazardous substances, sewage, and garbage. MARPOL Annex VI sets forth requirements for preventing air pollution from ships caused by NO_x, SO_x, VOCs, and ozone depleting substances. International standards are being established that set specific limits on the emission of atmospheric pollutants, and these values are expected to become increasingly stringent in the future. In addition, the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention) entered into force in September of 2008. This convention prohibits the use of harmful organotin compounds in anti-fouling paints as a way of preventing harm to marine ecosystems.

The requirements set forth in these conventions that are already in effect are treated as the basis for minimum evaluation criteria, while the measures taken onboard that exceed these basic convention requirements represent

added values for the ship that would be considered as additional features. Thus, the use of fuel oil which contains less than 3.5% sulfur, which is somewhat better than the 4.5% requirement set forth in the convention, would be considered as a minimum requirement, as explained below.

(b) Convention requirements yet to enter into effect but already adopted

Although the Ballast Water Management (BWM) Convention has yet to enter into actual effect, more and more ships are already complying with some of the requirements set out in the convention since the BWM Convention was first adopted (notably having a Ballast Water Management Plan and Ballast Water Record Book onboard). As a result, some of the requirements of the convention are handled as minimum requirements of the evaluation criteria. The installation of a ballast water treatment system required by the BWM Convention would then be treated as an additional feature.

(c) Convention requirements still under consideration (greenhouse gas regulations, ship recycling convention, etc.)

The fifty-third session of the IMO Marine Environment Protection Committee (MEPC) adopted "Interim Guidelines for Voluntary Ship CO₂ Emission Indexing for Use in Trials (MEPC/Circ.471)" as part of efforts aimed at limiting or reducing Greenhouse Gas (GHG) emissions from international shipping and thereby help prevent global warming. At present, operational data is being collected on all types of ships by Member States, and consideration is being given to measures for applying a CO₂ index of the energy efficiency of ship operation and GHG emissions calculated based on the Guidelines. Although the aim is to establish an objective index, such an index has yet to be established. As a result, it is not possible to incorporate this concept as part of the evaluation criteria at this stage. Thus, consideration will be given to incorporating the concept in the future once an objective index has been established.

Another convention currently under consideration is the Ship Recycling Convention. More than preserving the global environment, this convention is aimed at identifying hazardous materials present onboard ship as well as reducing injuries to workers and improving safety during ship dismantling operations. Consequently, the provisions of this convention are not included in the evaluation criteria for issuance of a certificate of environmental awareness.

(d) Other areas

Many ships have introduced various environmentally friendly technologies onboard. These include such things as using oil residue for boiler fuel, using fuel additives, operating at reduced speeds, installing electronically controlled engines as energy savings technology, installing energy saving type propellers including contra-rotating propellers, adding special features to the hull such as rud-

der bulb fins, and installing photovoltaic panels, amongst others. However, since there are no globally accepted standards for these things and significant variations exist from ship to ship, effective objective methods of evaluation are difficult at the current time. Hence, these items have not been incorporated in the evaluation criteria for the Certificate of Environmental Awareness. Still, it is hoped that such measures can also be included in the criteria once objective evaluation criteria can be established for each technology.

3.2. Minimum Requirements and Additional Features

There is a wide range of measures that can be taken by ships to help protect the environment. In order for a ship to be eligible to receive a Certificate of Environmental Awareness, the environmentally oriented measures introduced onboard must at the very least surpass the requirements set forth in relevant conventions to a certain extent. It is thus necessary to be able to effectively evaluate this wide range of technologies, equipment, and practices when issuing a Certificate of Environmental Awareness. Two major types of criteria are used in the evaluation of these measures: minimum requirements and additional features. Measures that slightly exceed the requirements set forth in international conventions or standards are referred to as minimum requirements. Additional features refer to additional measures or more advanced technologies adopted onboard ship to protect that environment that go notably beyond any minimum required standards. A description of minimum requirements will be omitted here as they basically refer to a somewhat more stringent conformance with requirements set forth in international conventions, as noted above. A summary of additional features is presented below. Each additional feature introduced onboard is indicated on the Certificate of Environmental Awareness issued to ships that satisfy the minimum requirements in order to clearly specify what advanced measures have been adopted to protect the environment.

Summary of Additional Features

(a) Protective Bilge Control

Adoption of either an integrated bilge system in which the oil content of discharged bilge is less than 5 ppm or all bilge water is transferred to shore reception facilities.

(b) FO Tank Protection

Fuel oil tanks are of double hull construction (exceed MARPOL Annex I Regulation 12A).

(c) Oil Preventive Stern Tube Sealing

Air seal construction or equivalent arrangements are adopted to ensure that stern tube lubricating oil does not come in contact with seawater.

(d) Preventive Gray Water Discharge

Gray water is subjected to wastewater treatment.

(A sewage treatment plant is used to treat gray water.)

(e) N₂ Generator (No Scrubber Water)

An inert gas system is provided onboard ship, such as a tanker, which uses N₂ generating equipment.

(f) Prevention of Garbage Disposal

All garbage generated onboard a ship is transferred to shore reception facilities.

(g) NO_x Reduction

NO_x exhaust is significantly reduced (less than current requirement of 80% of total emissions)

3.3. Special Note concerning Target Ships

There are no limitations on what ships may be issued a Certificate of Environmental Awareness, regardless of ship age, ship type, or gross tonnage. However, particular care should be taken with regards to satisfying the requirements of MARPOL Annex VI with respect to the emission of nitrogen oxides as one of the minimum requirements for being eligible for a Certificate of Environmental Awareness. Ships constructed prior to the year 2000 that are not required to possess an Engine International Air Pollution Prevention (EIAPP) certificate or ships constructed afterwards that are exempted from possessing an EIAPP will need to take steps to fulfill this requirement.

4. Guidelines for the Issuance of Environmental Certificates

The Society issues Certificates of Environmental Awareness to distinguish ships that adopt measures which contribute to reducing loads on the environment (i.e., environmentally friendly ships). Details regarding this service are described in ClassNK Technical Information notice No. TEC-0735, dated 6 June 2008, which may be accessed on the ClassNK website.

While ClassNK has initially issued such certificates to reflect the results of evaluations done on the environmental measures implemented onboard ship, the Society is moving ahead with the introduction of a new class notation, as well, at the request of industry and taking into consideration the approaches taken by other classification societies.





NK in International Affairs

Ship Classification is by its very nature an international industry, and at the end of 2008, ClassNK maintained a worldwide service network of 104 exclusive surveyor sites and was authorized to conduct surveys on behalf of 101 different flag administrations (see chart on page 33 - 34). In addition to these survey activities, ClassNK also actively takes part in a variety of rule making bodies and international organizations. A brief summary of these activities is shown at right.

Participation in the International Maritime Organization (IMO)

Another aspect of ClassNK's international activities, is the Society's contribution to the International Maritime Organization (IMO) as both a member of the Japanese Government's delegation to the body and as a representative of IACS. The list below shows the IMO meetings that the Society attended in 2008, ClassNK conveys the outcomes of major meetings such as MEPC and MSC to clients of the Society through a variety of methods, including the timely release of "NK Technical Information" bulletins and updates to the "IMO International Convention Calendar" section of the ClassNK website.

- Sub-Committee on Fire Protection (FP) – 52nd session
- Sub-Committee on Bulk Liquids and Gases (BLG) – 12th session
- Sub-Committee on Ship Design and Equipment (DE) – 51st session
- Marine Environment Protection Committee (MEPC) – 57th session
- Maritime Safety Committee (MSC) – 84th session
- Sub-Committee on Flag State Implementation (FSI) – 16th session
- Sub-Committee on Safety of Navigation (NAV) – 54th session
- Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF) – 51st session
- Sub-Committee on the Carriage of Dangerous Goods, Solid Cargoes and Containers (DSC) – 13th session
- Marine Environment Protection Committee (MEPC) – 58th session
- Maritime Safety Committee (MSC) – 85th session

Participation in the International Association of Classification Societies (IACS)

As a member of the International Association of Classification Societies since its founding, the Society plays a continuing and essential role in the development of IACS and the IACS CSR. The Society not only participates in meetings of the IACS Hull, Machinery, Survey, and Treaty panels, but also actively contributes to IACS Small Groups and Expert Groups, as well as a wide variety of the project teams organized beneath each panel. Beyond merely participating in these groups, in 2008 ClassNK provided strong leadership and guidance as the chair of the Goal Based Standards (GBS) Expert Group. ClassNK's active participation in IACS ensures that the Society's high level of technical expertise is reflected in the maintenance of the IACS CSR and the establishment of IACS Unified Interpretations. The IACS meetings that ClassNK attended in 2008 are shown in the list below (numbers after each item indicate the number of times each meeting took place).

- IACS Council: 6 (including extraordinary meetings)
- Quality Committee: 2
- General Policy Group: 2
- Panel Meetings: 8 (total for all four Panels)
- Project Team Meetings: 16
- Expert Group Meetings: 6
- Small Group Meetings: 5
- Joint Working Group with Industry: 2

International Committees

As part of its goals of improving customer service and better meeting the needs of the global maritime industry, the Society has established 20 international committees around the world. Each committee's membership represents the diverse spectrum of the maritime industry, including not only representatives from local shipping and shipbuilding industries, but public officials and other key maritime figures. Each committee meets once each year, and these meetings provide an open forum where the Society can present information on the latest technical and statutory developments and members can exchange opinions and ideas on important issues and topics. A full list of the ClassNK Committee meetings held during 2008 is shown in the following table.

Committee Meeting			
	Name of Committee Meeting	Date	Venue
17 th	Greek Committee	7 February	Piraeus
8 th	Taiwan Technical Committee	17 April	Taipei
6 th	Hong Kong Technical Committee	24 April	Hong Kong
5 th	Turkish Committee	12 May	Istanbul
13 th	China Technical Committee	22 May	Dalian
6 th	British Committee	29 May	London
19 th	Korea Committee	12 June	Seoul
4 th	Malaysian Committee	11 July	Kota Kinabalu
5 th	Singapore Committee	14 July	Singapore
6 th	Philippine Committee	24 July	Manila
18 th	Danish Technical Committee	5 September	Copenhagen
6 th	Thai Committee	3 October	Bangkok
9 th	Taiwan Committee	9 October	Taipei
12 th	Singapore Technical Committee	30 October	Singapore
15 th	China Committee	31 October	Beijing
34 th	Hong Kong Committee	21 November	Hong Kong
15 th	Korea Technical Committee	27 November	Pusan
6 th	Indonesia Committee	12 December	Pulau Bintan

Authorizations Granted to ClassNK[※]

※ For ships other than passenger ships.

Areas/Countries	LL	SOLAS					MARPOL 73/78		TM
		SC	SE	SR	SMC	ISPS	IOPP	NLS	
Algeria	★	★	★	★		★	★	★	★
Antigua and Barbuda	●	●	●	●	●		●	●	●
Argentina	★	★	★	★					
Aruba	★	★	★	★	●		★	★	
Australia	●	●	●	●			●	●	●
Bahamas	●	●	●	●	●	●	●	●	●
Bahrain	●	●	●	●		●	●	●	●
Bangladesh	●	●					●	●	●
Barbados	●	●	●	●	●	●	●	●	●
Belgium	●	●	★	★	★	★	★	●	★
Belize	●	●	●	●	●	●	●	●	●
Bermuda	★	★							★
Bolivia	●	●	●	●	●		●	●	●
Brazil	●	●	●	●	●		●	●	●
British Virgin Islands	★	★	★	★	★		★		★
Brunei	●	●	●	●	●		●	●	●
Canada	●								
Cape Verde	●	●	●	●	●		●	●	●
Cayman Islands	●	★	★	★			★	●	●
Chile	★	★	★	★			★		★
Cook Islands	●	●	●	●	●	●	●	●	●
Cuba	★	★	★	★					
Cyprus	●	●	●	●	★	●	●	●	●
Denmark	●	●	●	●	●	●	●	●	●
Djibouti	●	●	●	●			●	●	●
Dominica	●	●	●	●	●	★	●	●	●
Dominican Republic	●	●	●	●			●	●	●
Ecuador	★	★	★	★			★	★	
Egypt	●	★	★	★	★	●	★		★
Equatorial Guinea	●	●	●	●	★	●	●	●	●
Fiji	★	★	★	★			★		★
Gambia	★	★	★	★			★		★
Georgia	●	●	●	●	●	●	●	●	●
Ghana	●	●	●	★			●		●
Gibraltar	●	●	●	●			●	●	●
Greece	●	●	●	●	●	●	●	●	●
Honduras	●	●	●	●	●		●	●	●
Hong Kong	●	●	●	●	●	●	●	●	●
Iceland	●	●	●	●	●		●	●	★
India	★	★	★	★			★	★	
Indonesia	●	★	★	★			★	★	★
Iran	●	●	●	●			●	●	●
Iraq	★	★	★	★					
Ireland	●	★		★	●	●	●	●	●
Isle of Man	●	●	★	★			●	●	●
Israel	●	●	★	★	★		★		●
Jamaica	●	●	●	●	●	●	●	●	●
Japan	●	●	●		●	★	★	★	
Jordan	●	●	●	●		●	★	★	
Kenya	●								

Abbreviations:

● Authority has been delegated.

★ Authority has been delegated subject to some conditions.

LL International Load Line Certificate

SC Cargo Ship Safety Construction Certificate

SE Cargo Ship Safety Equipment Certificate

SR Cargo Ship Safety Radio Certificate

SMC Safety Management Certificate

ISPS International Ship and Port Facility Security Certificate

IOPP International Oil Pollution Prevention Certificate

NLS International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk

TM International Tonnage Certificate (1969)

Areas/Countries	LL	SOLAS					MARPOL 73/78		TM
		SC	SE	SR	SMC	ISPS	IOPP	NLS	
Kiribati	●	●	●	●	●	●	●	●	●
Kuwait	●	●	★	★	★	●	●	●	●
Lebanon	●	★	★	★		★			
Liberia	●	●	●	●	●	●	●	●	●
Libya	●	●	●	●	●	●	●	★	★
Luxembourg	●	●	●	●	●	●	●	●	●
Madeira	●	●	●	●			●	●	●
Malaysia	●	●	●	●	●	●	●	●	●
Maldives	●	●	●	●	●		●		●
Malta	★	★	★	★	●	★	★	★	★
Marshall Islands	●	●	●	●	●	●	●	●	●
Mauritius	●	●	●	●	●	●	●	●	●
Mexico	★	★	★	★			★		★
Morocco	●	★	★	★	★		★	★	★
Mozambique	●								
Myanmar	●	●	●	●	●	●	●	●	●
Namibia	●	●	●	●			●	●	●
Netherlands	●	★	★	★	●	●	★	●	●
Netherlands Antilles	★	★	★	★	★	★	★	★	
Oman	●	●	●	●					●
Pakistan	●	●			★		●	●	●
Panama	●	●	●	●	●	★	●	●	●
Papua New Guinea	●	●	●	●			●		●
Paraguay	★	★	★	★	★				★
Philippines	●	●	●	●	●	●	●	●	●
Portugal	★	★					★		
Qatar	●	●	●	●	●	●	●	●	●
Saudi Arabia	●	●	●	●	●	●	●	●	●
Seychelles	●	●	●	●	●	●	●	●	●
Singapore	●	●	●	●	●	●	●	●	●
Solomon Islands	●	●	●	●					●
Somalia	●								
South Africa	●	●					★	●	
Sri Lanka	●	●	●	●	●	●	●	●	●
St. Christopher and Nevis	●	●	●	●	●	●	●	●	●
St. Vincent and the Grenadines	●	●	●	●	★	★	●	●	●
Switzerland	●	●	●	●	●		●	●	●
Tanzania	●								
Thailand	★	★	★	★	★		★		★
Tonga	●	●	●	●			●	●	●
Tunisia	●	★					●		
Turkey	●	★	★	★	●	●	●	●	★
Tuvalu	●	●	●	●	●	●	●	●	●
UAE	●	●	●	●	●	●	●	●	●
Uganda	●								
UK	●	★	★				★	★	●
Uruguay	★	★	★	★					
Vanuatu	●	●	●	●	●	●	●	●	●
Venezuela	★								
Vietnam	★	★	★	★	★		★	★	★
Yemen	●								

NK in Committee

■ ADVISORY COUNCIL

Members	Chang Yung-fa	Group Chairman	Evergreen Group IMC Group of Companies LCE Consulting Pte Ltd. Regional Container Lines Group
	Frank W. K. Tsao	Group Chairman	
	Lua Cheng Eng	Chairman	
	Sumate Tanthuwani	President	

■ BRITISH COMMITTEE

Chairman	J. G. Davis CBE	Chairman	IMIF (International Maritime Industries Forum)
Members	F. M. Marchant MBE	Chairman Chairman, Joint Hull Committee Technical Manager Chief Operating Officer London Representative Chairman Technical Director Managing Director General Manager General Manager Chairman Divisional Technical Director	Andrew Weir Shipping Ltd. Ark Syndicate Management Limited BP Shipping Limited British Marine Plc Deutsche Schiffsbank AG Embiricos Shipbrokers Ltd. Graig Ship Management Limited International Marine Transportation Ltd. Rio Tinto Shipping Limited Shell Shipping Technology The Baltic Exchange V. Ships UK Ltd.
	Michael G. Parker		
	Peter McIntosh		
	Mr Chris Bailey		
	Sunil Malhotra		
	Jeremy G. Hodgson		
	Epaminondas G. E. Embiricos		
	Philip D Atkinson		
	John M. Bree		
	Alastair Fischbacher		
	Jan van Dijk		
	Michael K. Drayton		
	Ray McNamara		

■ CHINA COMMITTEE

Chairman	Li Jianhong	Executive Vice President President	China Ocean Shipping (Group) Company (COSCO) China Shipbuilding & Offshore International Co., Ltd. (CSIC)
	Xu Ziqiu		
Members	Lu Yibin	Deputy Manager Managing Director	China Shipping (Group) Company China Shipping Development Company Limited China Shipping Development Co., Ltd., Tanker Company China State Shipbuilding Corporation COSCO Container Lines Hebei Ocean Shipping Co., Ltd. Jiangsu Ocean Shipping Co., Ltd. Pacific King International Shipping Management Co., Ltd., Shanghai Sinotrans Shipping Limited
	Mao Shi Jia		
	Li Zhong	Vice Division Chief Deputy Managing Director	
	Han Chengmin		
	Ge En Hua	Director Vice President President	
	Yang Jian Ming		
	Huang Zi Qiang	President Managing Director	
	Tian Zhongshan		

■ GREEK COMMITTEE

Chairman	Charalambos N. Mylonas	Chairman	Transmed Shipping Ltd.
Members	Markos A. Nomikos	Director	A. M. Nomikos Transworld Maritime Agencies S.A.
	Michael D. Chandris	Chairman	Chandris (Hellas) Inc.
	George J. Souravlas	Managing Director	Elmira Shipping and Trading S.A.
	Anna G. Dracopoulos	Director	Empros Lines Shipping Co. SP. S.A.
	Prokopis N. Karnessis	Director	European Navigation Inc.
	Kriton Lendoudis	Managing Director	Evalend Shipping Co. S.A.
	Michael E. Veniamis	Director	Golden Union Shipping Co. S.A.
	Ghikas J. Goumas	Director	J. G. Goumas Shipping Company S.A.
	Dimitris Z. Kritsas	President	Kritsas Shipping S.A.
	Panagiotis C. Laskaridis	Managing Director	Laskaridis Shipping Co. Ltd.
	Diamantis P. Diamantides	Managing Director	Marmaras Navigation Ltd.
	Theodore P. Angelopoulos	Metrostar	Management Corp.
	Thanos G. Crassaris	Technical Director, General Manager	Springfield Shipping Co. Panama S.A.
	George S. Livanos	Chairman	Sun Enterprises Ltd.
	Constantinos J. Martinos	Managing Director	Thenamaris Ships Management Inc.
	Panagiotis N. Tsakos	President	Tsakos Shipping & Trading S.A.
	Michael M. Scufalos	Managing Director	Union Commercial Inc.

■ HONG KONG COMMITTEE

Chairman	David C. C. Koo	Managing Director	Valles Steamship Co., Ltd.
Honorary Chairman	M. H. Liang	Chairman	Island Navigation Corp Int'l Ltd.
Members	Ning Pao Kun	Deputy Managing Director	COSCO (H.K.) SHIPPING CO., LIMITED
	Robert Alexander Ho	President	Fairmont Shipping (HK) Ltd & Affiliates
	Andrew Y. Chen	Chairman & Managing Director	Grand Seatrade Shipping Company Ltd.
	Huang Shao Jie	Director & President	Hong Kong Ming Wah Shipping Co., Ltd.
	Arthur Bowring	Managing Director	Hong Kong Shipowners Association
	Frank W. K. Tsao	Group Chairman	IMC Group of Companies
	Steve G. Hsu	Group Chairman	Oak Maritime (H.K.) Inc., Ltd.
	Kwai Sze Hoi	Chairman & President	Ocean Longevity Shipping and Management Co., Ltd.
	Richard Hext	Chief Executive Officer	Pacific Basin Shipping (HK) Ltd.
	C. C. Liu	Chairman & President	Parakou Shipping Ltd.
	M. T. Yung	Director	Patt Manfield & Co., Ltd.
		General Manager, Shipping Division	
	Peter Cheng, MBE	Managing Director	Peter Cheng Naval Architect & Marine Consultant Ltd.
	Raymond Pao	President	Regent Shipping Ltd.
	Li Hua	Executive Director	Sinotrans Shipping Limited
		Deputy General Manager	
	Kenneth K.W. Lo	Managing Director	Teh-Hu Cargocean Management Co., Ltd.
	Edward S. C. Cheng	Chairman	Unique Shipping (H.K.) Ltd.
	C.A.J. Vanderperre	Chairman	Univan Ship Management Ltd.
	Sabrina S. M. Chao	Deputy Managing Director	Wah Kwong Shipping Holdings Ltd.
	Jim Nelson	Managing Director	Wallem Shipmanagement Ltd.

■ INDIAN COMMITTEE

Chairman	Arun Mehta	Vice Chairman & Managing Director	Varun Shipping Company Limited
Vice Chairman	R. L. Pai	Group Sr. Vice President	Reliance Industries Limited
Members	R. S. Nakra	Managing Director	ABG Shipyard Ltd.
	Ashok V. Chowgule	Executive Director	Chowgule & Company Ltd.
	Commodore M. Jitendran	Chairman & Managing Director	Cochin Shipyard Ltd.

Members	Ajoy Chatterjee	Chief Surveyor	Directorate General of Shipping, Ministry of Shipping, Road Transport & Highways, Government of India
	A. R. Ramakrishnan	Wholetime Director	Essar Shipping Ports & Logistics Limited
	Madhusudan P. Dhanuka	Executive Director	GEE Limited
	Atul J. Agarwal	Joint Managing Director	Mercator Lines Limited
	H. Ansari	Additional Director	National Law University
	Ray Stewart	Chief Executive Officer	Pipavav Shipyard Limited
	S. Govindrajan	Managing Director	Progressive Shipping Consultancy Services (PVT) Ltd.
	Anil Devli	Executive Director	Shreyas Shipping & Logistics Limited
	K. M. Sheth	Executive Chairman	The Great Eastern Shipping Co., Ltd.
	J. V. S. Rao	General Manager	The Shipping Corporation of India Ltd.

■ INDONESIA COMMITTEE

Chairman Honorary Member Members	Widihardja Tanudjaja	President Director	PT. Berlian Laju Tanker Tbk.
	Oentoro Surya	President Director	PT. ARPENI PRATAMA OCEAN LINE
	Choy Ngee Sheng	Director	GBLT Shipmanagement Pte. Ltd.
	Johnson W. Sutjipto	Chairman	INSA (Indonesian National Shipowners' Association)
	Drs. Abdul Gani	Director of Marine Safety	Ministry of Transportation, Republic of Indonesia
	Gusrizal	Senior Vice President of Shipping	PERTAMINA SHIPPING
	Supardi Somantri	Senior Adviser	PT. Adnyana
	Stephen Layarda	Managing Director	PT. Alpha Pacific Lines
	Andy A. Mallian	Fleet Director	PT. Arpeni Pratama Ocean Line Tbk.
	Kasim Arifin	President Director	PT. Bumi Perkasa Bahtera
	Djoko Mulyanto	Fleet Director	PT. Djakarta Lloyd
	Riry Syeried Jetta	President Director	PT. Dok & Perkapalan Kodja Bahari (PERSERO)
	Hendrato	General Manager	PT. Gesuri Lloyd
	H. Soenarto	President Director	PT. Gurita Lintas Samudera
	Agus Darjanto	President Director	PT. Humpuss Intermoda Transportasi Tbk.
	Joeswanto Karijodimedjo	President Director	PT. Jasa Marina Indah
	Henry Djuhari	President	PT. Meranti Bahari
	Ir. Harsusanto, MM	President Director	PT. PAL Indonesia
	Asmari Herry	Executive Director	Samudera Shipping Line Ltd

■ KOREA COMMITTEE

Chairman Members	Doo-Chan Chang	Honorary Chairman	KSS Line Ltd.
	Sang-Tae Nam	President & CEO.	Daewoo Shipbuilding & Marine Engineering Co., Ltd.
	Kyu-Won Park	President	Hanjin Heavy Industries & Construction Co., Ltd.
	Kil-Seon Choi	President & CEO	Hyundai Heavy Industries Co., Ltd.
	Jae-Byoung Song	President	Hyundai Mipo Dockyard Co., Ltd.
	Moo-Soo Hwang	President & CEO	Hyundai Samho Heavy Industries Co., Ltd.
	Jin Bang Lee	Chairman	Korea Line Corporation
	Jing-Wan Kim	President & CEO	Samsung Heavy Industries Co., Ltd.
	Jeong-Hwa Lee	President & CEO	SK Shipping Co., Ltd.
	Jong-Chul Lee	President	STX Pan Ocean Shipping Co., Ltd.

■ MALAYSIAN COMMITTEE

Chairman Vice Chairman Members	Dato' Shamsul Azhar bin Abbas	President & CEO	MISC BERHAD
	Ir. Nordin Mat Yusoff	Vice President	MISC BERHAD
	Lim Leng-Pin	Managing Director	Aurora Tankers Sdn. Bhd.
	Billy Tan Gim Hoe	Chairman	Ecoship Sendirian. Berhad

Dato' David Tan	Managing Director	Everise Maritime Sdn. Bhd.
Datuk Dr. Elias Kadir	Senior Executive Director	Felda Transport Services Sdn Bhd
Tan Sri Dato' Halim Mohammad	Executive Chairman	Halim Mazmin Bhd.
Dennis Liong	General Manager	Hub Shipping Sdn. Bhd.
Muhamad Azmi Alwi	Managing Director	Nepline Berhad
Samsudin Mohd Yassin	Chief Executive Officer	Petronas Maritime Services Sdn. Bhd.
Stein Eriksen	General Manager	Wilhelmsen Ship Management Sdn Bhd

■ PHILIPPINE COMMITTEE

Chairman	Arben E. Santos	President & CEO	Southwest Maritime Group of Companies
Members	Roy R. Alampay	Vice President for Operations & General Manager	Baliwag Navigation, Inc.
	Vicente T. Suazo, Jr.	Administrator	Department of Transportation & Communications, Republic of the Philippines
	Rogelio A. Torres	Vice President	Eastern Shipping Lines, Inc.
	Ko-Lin Toh	President	Keppel Philippines Marine, Inc.
	Michael G. Bernardino	Vice President	Loadstar International Shipping, Inc.
	Doris Magsaysay Ho	President & Chief Executive Officer	Magsaysay Maritime Corporation
	Edgardo G. Lacson	President	MIS Maritime Corporation
	Kenji Kawano	Chairman of the Board	Tsuneishi Heavy Industries (Cebu), Inc.

■ SINGAPORE COMMITTEE

Chairman	S. S. Teo	President	Singapore Shipping Association
Members	Tong Chong Heong	Managing Director	Keppel FELS Limited
	BG Tay Lim Heng	Chief Executive	Maritime and Port Authority of Singapore
	Aloysius Seow	Chief Operating Officer	Ocean Tankers (Pte) Ltd.
	Kuok Khoon Kuan	Managing Director	Pacific Carriers Limited
	Teo Cho Keng	Executive Director	Pacific International Lines (Pte) Ltd.
	K. K. Tan	President	SembCorp Marine Limited

■ TAIWAN COMMITTEE

Chairman	Loh Yao-fon	Assistant to Group Chairman	Evergreen Group
Members	Danny Wang	CFO	Cheng Lie Navigation Co., Ltd.
	Donald K. L. Chao	President	China Steel Express Corporation
	Jei-Yuan Chen	Executive Manager	CPC Corporation, Taiwan
	Chih-Cheng Li	President	CSBC Corporation, Taiwan
	Shang-Wen Liao	President	Eastern Media International Corporation
	Huang Chin-san	Chairman	Evergreen International Corp.
	David Hsu	Chairman	First Steamship Co., Ltd.
	Bill M. H. Huang	Chairman	Glory Navigation Co., Ltd.
	Harvey Chiu	Chairman	Hsin Chien Marine Co., Ltd.
	Michael M. K. Hsiao	Chairman	Mingtai Navigation Co., Ltd.
	J. D. Lan	Chairman, CEO	Shih Wei Navigation Co., Ltd.
	Mathias K. Y. Chen	Chairman	Sincere Industrial Corporation
	Fred C. P. Tsai	Chairman	Sincere Navigation Corporation
	Joseph Wu	President	Ta-Ho Maritime Corporation
	I. Y. Chang	Chairman	Taiwan Navigation Co., Ltd.
	Nobu Su	CEO	TMT Co., Ltd.
	C. K. Ong	President	U-Ming Marine Transport Corp.
	Lin Ching Chih	Chairman	Unison Marine Corporation

Members	Chao-Hon Chen	Honorary Chairaman	Wan Hai Lines Ltd.
	James Lan	Chairman	Wisdom Marine Lines S.A.
	David C. H. Liu	Top Corporate Consultant	Yang Ming Marine Transport Corp.

■ THAI COMMITTEE

Chairman Members	Sutep Tranantasin	Executive Vice President	Regional Container Lines Public Co., Ltd.
	Warawan Nganthavee	Managing Director	Asian Marine Services Public Co., Ltd.
	Bhumindr Harinsuit	Managing Director	Bhureemas Navee Co., Ltd.
	Wirat Chanasit	Managing Director	Italthai Marine Ltd.
	Chanet Phenjati	President	Jutha Maritime Public Co., Ltd.
	Pimook Prayoonprohm	Director of Ship Standard Bureau	Marine Department
	Suraphon Meesathien	Vice President	Nathalin Group
	Jaipal Mansukhani	Director	Precious Shipping Public Co., Ltd.
	Wittawat Svasti-Xuto	Vice President	PTT Public Co., Ltd.
	Voravit Visitkitjakarn	Managing Director	Sang Thai Shipping Co., Ltd.
	Viroj Meenaphant	Managing Director	Thaioil Marine Company Limited
	Yodchai Ratanachiwakorn	General Manager	Thoresen & Co., (Bangkok) Ltd.
	Teruo Kondo	Chief Production Manager	Unithai Shipyard & Engineering Ltd.

■ TURKISH COMMITTEE

Chairman Members	Yalcin Sabanci	President	Yasa Holding S.A.
	Necdet Aksoy	Chairman	Akmar Holding S.A.
	Ali Umur	President	Aktif Shipping
	Kenan S. Sumra	Ship Department Manager	Aygaz Anonim Sirketi
	Esref Cerrahoglu	Chairman	Cerrahgil A. S.
	Akin Falay	Managing Director	Cornships Management and Agency Inc.
	Serdar Akcali	Managing Director	Denak Ship Management & Agency
	Bilge Bayburtlugil	General Manager	DITAS Tanker and Marine Operations Corp.
	Orhan Karademir	Technical Manager	Genel Denizcilik Nakliyatı A.S.
	Sadan Kaptanoglu	Owner	H.I. Kaptanoglu Shipping Group
	Bedri Ince	Chairman	Ince Shipping and Trading Co. Inc.
	Murat Edip Karahasan	Chairman	Karahasan Group of Shipping Companies
	Tamer Kiran	Chairman	K Group of Shipping Companies
	Faruk Miras	Managing Director	Korfez Shipping And Trading Inc.
	Bayram Yusuf Aslan	President	Mardeniz & Kardeniz Mardas
	Huseyin Yardimci	General Manager, Member of the Board	Moliva Shipping Inc.
	Serif Ozdaglar	Managing Director	Nemtas Nemrut Liman Isletmeleri A. S.
	Murat Dortbudak	Executive Vice President	Odin Shipmanagement
	Suha Izmirligil	President	Sinomar S. A.
	Orkun Kalkavan	Executive Board Member	Turkon Holding

■ CHINA TECHNICAL COMMITTEE

Chairman Members	Zhao Zhanjun	President	China Ship Design & Research Center Co., Ltd.
	Zhu Qingshuang	General Manager	COSCO SHIPYARD GROUP CO., LTD.
	Li Guang Min	Chief Engineer, Vice President	Bohai Shipbuilding Heavy Industry Co., Ltd.
	Feng Guo Ying	Vice General Manager	China Business Marine Co., Ltd. (SINOMARINE)
	Zhang Yong jian	Secretary of the Board	China COSCO Holdings Company Limited
	Luan Fukai	Senior Manager	China Ocean Shipping (Group) Company
	Chen Zhengjie	Director	China Ocean Shipping (Group) Company

Li Xue Qiang	Deputy General Manager	China Shipping Container Lines Co., Ltd.
Chen Jian	Deputy Managing Director	China Shipping Development Co., Ltd. Tanker Company
Pu Li Fei	General Manager	China Shipping International Trading Co., Ltd.
Wang Guorong	Deputy Managing Director	COSCO Bulk Carrier Co., Ltd.
Cai Deqing	General Manager	COSCO Container Lines
Hong Ying	Deputy General Manager	COSCO Shipping Co., Ltd.
Zhao Jin Wen	Manager	Dalian Ocean Shipping Company
Zhang Zhen De	Vice President	Dalian Shipbuilding Industry Co., Ltd.
Yang Wei Zan	Deputy Technical Director Senior Engineer	Dalian Shipbuilding Industry Co., Ltd.
Li Yi Wen	Vice General Manager	Guangzhou Maritime Transport (Group) Co., Ltd.
Zhou Zhi Hao	Senior Engineer	Guangzhou Shipyard International Co., Ltd.
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