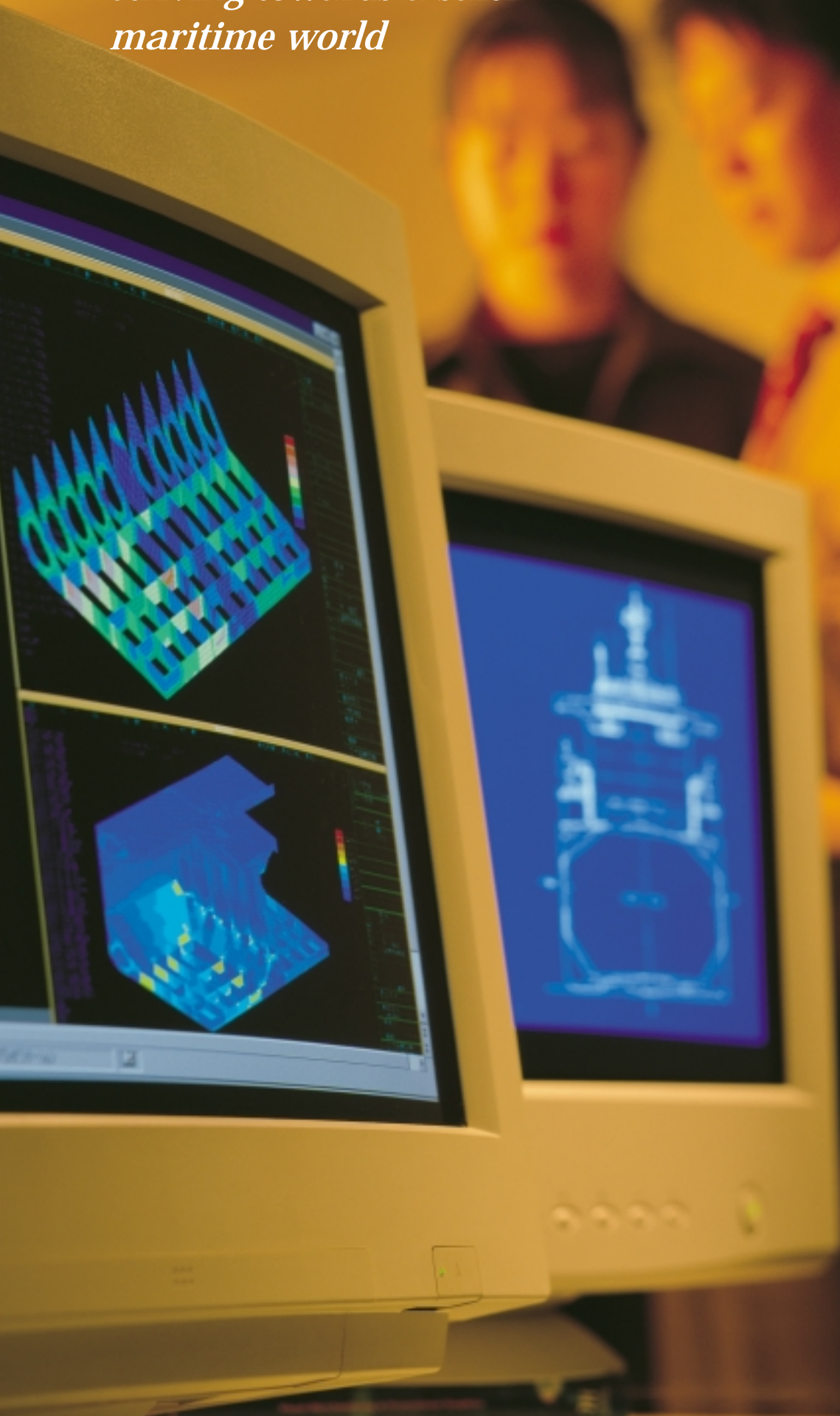


*Striving towards a safer  
maritime world*



**N**ippon Kaiji Kyokai, known as ClassNK or simply NK, is a ship classification society. The principal work of the Society's expert technical staff is to undertake surveys to ensure that the rules it has developed are applied to newbuildings and existing ships to ensure the safety of the vessels. The rules cover not only hull structures, but also safety equipment, cargo-handling gear, engines, machinery, and electrical and electronic systems, among others. By the end of December 1999, the Society had 6,539 ships, totaling 108.8 million gross tons (gt) under class. This figure represents approximately 20% of the world merchant fleet currently under class. Although based in Japan, ClassNK has worldwide representation through a network of exclusive surveyor offices. ClassNK's surveyors work in shipbuilding and repair yards, and at ports across the world, wherever they may be called upon to examine the condition of a ship, so that all of the Society's services are available worldwide. On November 15, 1999, Nippon Kaiji Kyokai celebrated the centenary of its foundation.

## Contents

1	The NK Mission
2	Message from the Chairman and President
4	NK at a Glance
6	NK in Action
14	Research Institute Activities in Detail
16	NK Around the World
30	NK in International Affairs
39	NK in Cyberspace
41	NK in Committee
44	Key Contacts

# *The NK Mission*

*ClassNK is dedicated to ensuring the safety of life and property at sea, and the prevention of 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, procedures and guidance, and maintain and develop its commitment to scientific and technological research, development and education.*

*Maintain and develop its global operations in line with the needs of those using its services.*

**ClassNK**

The Chairman's Message in the Annual Report traditionally focuses on the year's activities and achievements. Being the 100th year of our existence, this year has certainly been a busy one, so I do want to draw specific attention to some of the Society's major accomplishments.

The highlight of this year was undoubtedly the Society reaching its 100th anniversary. Reaching this milestone was never easy. The second half of the century began with the near fatal decrease in classed ships due to the Second World War, and included two recessions resulting from the two oil shocks. But it can also be said that it was the age of the development and internationalization of the Society and its business. Internationalization has improved greatly through an increased survey service network in foreign countries. At the same time, in addition to classification-related activities, statutory surveys based on international conventions expanded, and technical services such as underwriter surveys and supervision on behalf of shipowners also expanded smoothly. A new line of business, based on quality systems, and the audit and registration of safety management systems, separate and different from the previously mentioned fields of business activities, has also evolved recently.

Throughout this period, the Society has remained dedicated to its mission of ensuring the safety of life and property at sea, and the prevention of pollution of the marine environment.

The celebration of our 100th year also coincided happily with our being publicly recognized as the largest classification society in the world by gross tonnage. While all NK staff can deservedly feel a degree of personal and professional pride in this achievement, as it reflects the confidence the industry has in us, it is equally important that we continue to build and maintain our image based on the quality of our personnel and services, not on the gt of our register. Notwithstanding the important contribution that gross tonnage makes to the Society's financial stability, NK knows well that size is not the most important thing.

Few organizations reach the 100-year milestone; even fewer reach 200 years. To meet this challenge, it is even more important for NK as an organization, to enter this next century of

growth with a clear vision of what will be important in our achieving another 100 years. I believe that to continue to prosper, at first, we must all focus on what the Society must do.

Information and how we manage it will, I believe, largely determine the ongoing success of the Society. For this reason I want to elaborate upon some of the Society's current and future initiatives relating to information technology and information management.

The linking of NK offices across Japan by a wide-area network (WAN) this past year was one key step in the NKGlobalware project, which will see the NK head office, and all regional and overseas offices linked via the Internet. This increased efficiency and speed of information flow within NK, whether it is sending a simple e-mail or a full periodic survey report, will greatly contribute to our overall productivity. NK clients can now also start to enjoy the benefits of such technology, with the launch this year of the NK-SHIPS information service over the Internet. In the future, information on a ship's whole lifecycle such as survey history, thickness-measurement results, damage history and navigation records of each ship will be recorded. The aim is to make this information available to specified shipowners, the shipmaster, the management company, the shipyard and so on, through the worldwide network, while ensuring that security is protected.

If, for example, NK as an organization were to suddenly lose its survey records, we could not continue to function. Collecting, processing, storing and managing access to NK's wealth of information will be critical to increasing growth and productivity. For this reason, we have this year completed plans for a new information center, to be built next to the research center, with construction to begin in June 2000. The center will serve as an information and communications hub for all the Society's offices in Japan and around the world. It will be an information warehouse and backup facility, specifically designed to withstand the worst natural disasters. It is also being designed to accommodate and serve, if necessary, as an alternative head office, in the case of such a disaster affecting the existing head office. Construction is expected to be completed mid 2001, and it is a

matter of some considerable comfort that the Society is able to undertake this most important of tasks entirely within our existing financial resources.

Of course technical improvement, which is a core activity of classification societies, will remain our focus. The Society, by making full use of existing technology, aims to enrich its services, and work toward the improvement of quality, rather than just developing new business activities one after another. But the new century will also be a time to embrace emerging technology and nurture talented people, to build upon the trust and reputation we have striven to achieve.

The current rationalization of the Hull Structure Rule, which the Society is undertaking, is a good example of improving the quality of services through the application of existing technology. In other words, although the development of this new rule is based on an extension of existing technology, an essential component of such a review is the inclusion of reliable standards, for more rational strength evaluation. Technical requirements and information collected this year will contribute to the comprehensive reevaluation of hull structural strength to ensure structural reliability of an appropriate level throughout the life of a ship. As part of this major revision of the rules, the "Technical guide regarding the strength evaluation of hull structures" was prepared as an explanatory note on the application of the latest techniques for hull structural strength analysis, and a foundation for the development of new rules was laid.



*(Clockwise, from lower right)*  
Chairman and President T. Mano, Executive Vice President M. Hidaka,  
Executive Vice President K. Ogawa, Managing Director M. Murakami,  
Managing Director Dr. M. Oka, Managing Director T. Takano,  
Managing Director Y. Tsudo

I believe that, more and more, the classification society will be required to act as a technical service organization. Our clients will expect even more of us, in terms of both service and technology, and we must continue to be sensitive and responsive to their needs. This will be an increasing challenge for NK, but a challenge that we, as one of the world's leading classification societies, will meet into the 21st century.

March 2000

Tadashi Mano  
Chairman and President

More than 13 offices celebrated NK's 100th Birthday!!



Centenary Celebrations in Tokyo

Mr. T. Mano, NK Chairman and President, was elected as new chairman of the Society of Naval Architects of Japan (May).



Centenary Celebrations in Mumbai

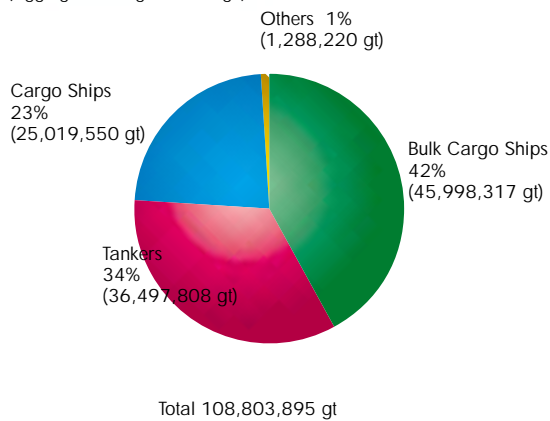
The Society opened an office in Durban, South Africa (September).



Durban Office

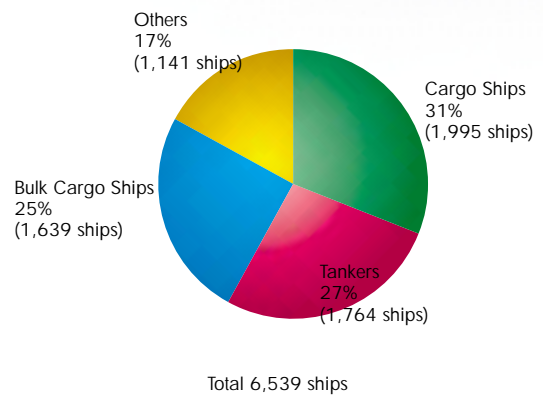
Breakdown of NK-classed ships by type

(Aggregate total gross tonnage)



Breakdown of NK-classed ships by type

(Total number)



The Society participated in several international exhibitions, including Nor-Shipping '99 in Oslo, Norway (June), and Marintec China '99 in Shanghai, China (November).



Nor-Shipping '99

Marintec China '99

NK continued to produce and release a range of IT products and services.



HullExpert CD-ROM



NK-SHIPS on the Net

The 1999 (100th Anniversary) issue of ClassNK Magazine was published. The blue of the deep sea and gold cover conveys a sense of the dedicated efforts of the Society over the past century.

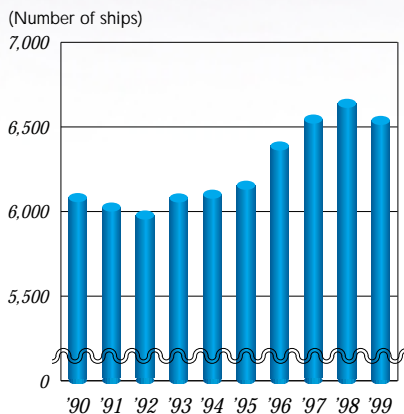


ClassNK Magazine No. 51

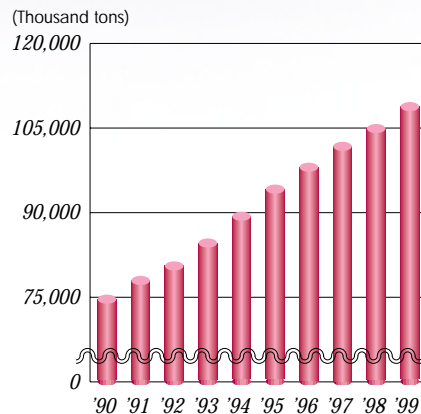


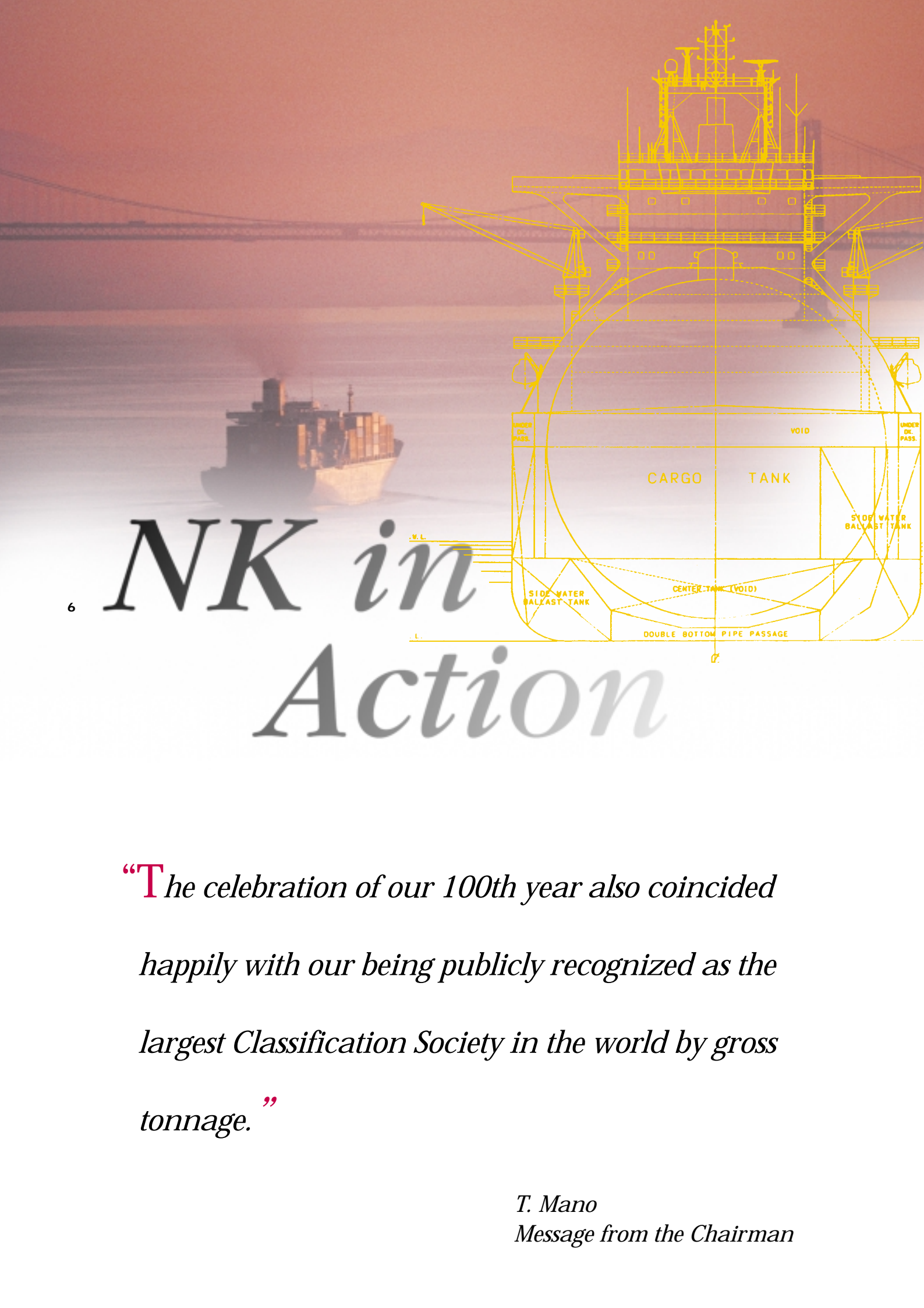
PrimeShip-HULL CD-ROM

Total number of ships classed



Aggregate total gross tonnage of ships classed





6

# *NK in Action*

*“The celebration of our 100th year also coincided happily with our being publicly recognized as the largest Classification Society in the world by gross tonnage.”*

*T. Mano  
Message from the Chairman*



**The Classed Fleet:**

**Less is more**

Looking at the changes in size and composition of the NK Register over this year, one obvious trend is that of fewer, but bigger ships being built. Similarly, smaller ships seem less likely to be retained in service. As of December

1999, the ClassNK Register totaled 6,539 ships (101 less than the total of 6,640 in 1998), with a total gross tonnage of 108,803,895 gt (up 3,889,410 gt from the total for the previous year). Of these, 5,290 ships, or 80.9% of the Register, were flagged outside Japan, with ports of registry in 70 nations and territories. Their gross tonnage was 95,393,943 gt, or 87.7% of the

total Register. Ships flying the flags of Panama, Japan, Liberia, Singapore, and the Philippines accounted for 76% of the total number and 80.3% of the total gross tonnage classed by the Society.

Additions to the Register during the year amounted to 362 ships, or 7,745,677 gt, a decrease of 109 ships but an increase of 514,662 gt from the previous year. In all, 463 ships, totaling 3,966,236 gt, left the Register, 85 more ships

than left last year, but representing 271,365 gt less than tonnage "lost" in 1998. Of special interest is the fact that, of these ships, 176 vessels were removed for reasons of non-compliance with Society rules, and 150 were transferred to other classification societies.



*Nichihiko—a 257,987 dwt oil tanker built by Hitachi Zosen Corporation for Nissho Shipping Co., Ltd.*

**Newbuildings**

At 302, the number of newly constructed ships classed by the Society dropped 25.2% from the previous year. However, the 7,243,003 gt classed, represented an increase of 528,409 gt from the total for the previous year. The number of new tankers and liquefied gas carriers dropped 17.2%, to 77 vessels, but gross tonnage was up 64.6%, to 2,706,087 gt. New bulk carriers added to the Register dropped 6.8%, to 96 ships, totaling 3,023,959 gt, which is almost the same gross tonnage as last year, while the number of new cargo ships dropped 32.3%, to 84, with a 26.3% reduction in gross tonnage, to 1,425,504 gt.

**Regular Surveys**

The trend toward fewer, but larger ships was also reflected in the regular survey work of the Society. Overall 12,220 surveys were performed, slightly down from last year's 12,451, despite the significant increase in total tonnage on the Register. Of particular interest was an increase (from



*Tokachi—a 280,973 dwt oil tanker built by Ishikawajima-Harima Heavy Industries Co., Ltd.*



*United Support—a 74,545 dwt bulk carrier built by Sasebo Heavy Industries Co., Ltd. for International United Shipping Agency Ltd. as manager*



*Pine Venture—an 84,995 dwt oil tanker built by Sumitomo Heavy Industries, Ltd.*

501 to 628) in special surveys performed on non-Japanese-flagged ships at overseas offices, a positive indication of the increasing internationalization of our Register and the Society in general.

### The Rules

A cornerstone of the ship classification process is the rules that guide surveyors. A change in the format and presentation of the publications known as the “Rules and Regulations” and the

“Guidances” has been implemented this year. The “documents,” traditionally only issued separately and in book form, were joined and presented on CD-ROM, to improve ease of use. A manual with figures was also produced to show

how to use the Rules on CD-ROM. The printed edition of the combined publication has also been reformatted to show the rule names on the spine to improve ease of use. The cover designs of both the printed and CD-ROM editions were changed to incorporate the NK logo as their key design element.

The content of some Rules and Regulations/Guidances was also revised to make them easier to understand. NK is keen to receive feedback, or any other suggested changes from users on how to make the Rules and Regulations/Guidances easier to use.

In order to remain at the forefront of maritime safety, ClassNK constantly reviews and improves its rules.



*Madonna—a 30,561 dwt oil/chemical tanker constructed by Shin Kurushima Dockyard Co., Ltd. for Valdemar Resources S.A.*

The Rules revised by the Society in 1999 included (Rules for English edition):

1. **GUIDANCE FOR THE CLASSIFICATION AND REGISTRY OF SHIPS:** A part revision of the application form
2. **CONDITION OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATION:** A part revision of regulations about the responsibility
3. **REGULATIONS FOR THE ISSUE OF STATUTORY CERTIFICATES:** A part revision caused by the entry into force of 88 protocol relating to 74SOLAS and 66ILLC
4. **RULES FOR APPROVAL OF MANUFACTURERS AND SERVICE SUPPLIERS:** A part revision about the approval of radio firms engaged in services on ships
5. **RULES/GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS:**
  - (1) A part revision caused by the entry into force of 88 protocol relating to 74SOLAS and 66ILLC (Part-B and -V of the Rules, Part-B of the Guidances)

- (2) A part revision about the definition of double side shell structures of bulk carriers (Part-C of the Guidances)

*Rubin Hope—a 170,409 dwt bulk carrier built by Ishikawajima-Harima Heavy Industries Co., Ltd. for Rubin Line Limited*



8 *Kohfukusan—a 172,566 dwt bulk carrier constructed by NKK Corporation for Paulownia World Line S.A.*



- (3) A part revision about the inspection term of propeller shaft Kind 1 and stern tube shaft Kind 1 (Part-B of the Guidances)
- (4) A part revision about the welding procedure qualification tests and the production weld tests of the machinery installations (Part-D of the Guidances)
- (5) A part revision about the rubber couplings (Part-D of the Rules, Part-B and -D of the Guidances)
- (6) A part revision about the plastic pipes (Part-D of the Guidances)
- (7) A part revision about the radiographic testing for the longitudinal and the circumferential joints (Part-D of the Guidances)
- (8) A part revision about fire safety arrangement for high pressure fuel oil injection pipes of diesel engines (Part-D of the Rules)
- (9) A part revision about the venting systems for Ships carrying oil/dangerous chemicals in bulk (Part-D of the Guidances)
- (10) A part revision about the application of steel barges carrying dangerous chemicals in bulk (Part-Q of the Rules)
- (11) A part revision about fire-fighting appliances for ships carrying dangerous liquid in bulk (Part-N and -S of the Rules)
- (12) A part revision about the application of the special requirements for ships carrying dangerous goods (Part-R of the Guidances)
- (13) A part revision about drain pump and pump arrangement for ships equipped

*Ikan Beliak—a 72,493 dwt bulk carrier constructed by Imabari Shipbuilding Co., Ltd.*



*Legato—a 72,083 dwt bulk carrier constructed by Kanasashi Co., Ltd. for Sun Fortune Shipping S.A.*

- with the fixed fire-extinguishing systems which will supply copious quantities of water (Part-D and -R of the Rules, Part-R of the Guidances)
- (14) A part revision about the protection requirements of emergency fire pumps (Part-R of the Guidances)
- (15) A part revision about the tarpaulin (Part-L of the Rules)
- (16) A part revision about the air pipes, sounding devices and bilge discharge devices for the unmanned barge (Part-Q of the Rules, Part-Q of the Guidances)
- (17) A part revision about the standard of the side scuttles and rectangular windows (Part-L of the Rules)
- (18) A part revision about the position of the side scuttles and rectangular windows (Part-C, -CS of the Rules, Part-C of the Guidances)
- (19) A part revision about early commencement of Special Surveys (Part-B of the Rules)



*European Highway—a 48,039 gt vehicle carrier built by Kawasaki Heavy Industries, Ltd. for Canopus Maritime Co., Ltd.*



*Southampton Star—a 9,709 dwt refrigerated cargo ship built by Shikoku Dockyard Co., Ltd.*

- (20) A part revision about application of steel grades for ships intended to navigate in low temperature sea areas (Part-B, -C of the Rules, Part-C of the Guidances)
- (21) A part revision about cargo loads of two adjacent holds onboard new bulk carriers (Part-C of the Guidances)
- (22) A part revision about freeing ports (Part-C of the Guidances)
- (23) A part revision about dimensions of minimum clear open spaces in cargo areas (Part-C and -S of the Guidances)
- (24) A part revision about fireman's outfits and fire control plans (Part-R of the Guidances)
- (25) A part revision about tanker bow access (Part-C of the Guidances)
- (26) A part revision about secondary means of ventilation of cargo oil tanks (Part-D of the Guidances)
- (27) A part revision about deletion of non-SI units and changeover to SI units (Part-N of the Guidances)



*NSS Confidence—a 229,545 dwt ore carrier built by Mitsui Engineering & Shipbuilding Co., Ltd. for Nippon Steel Shipping Co., Ltd.*

## 6. RULES/GUIDANCES FOR MARINE POLLUTION

### PREVENTION SYSTEMS:

- (1) A part revision caused by the entry into force of 88 protocol relating to 74SOLAS and 66ILLC (Rules & Guidances)
- (2) A part revision about calculation of the aggregate capacity of segregated ballast tanks (Guidances)
- (3) A part revision about Measures Regarding the extension of the service life of existing oil tankers (Guidances)
- (4) A part revision about operational manuals for Oil Discharge Monitoring and Control systems (Guidances)



*Roro Marimo—a 8,348 gt ro-ro cargo/vehicles carrier built by Imabari Shipbuilding Co., Ltd. for Kinkai Yusen Kaisha, Ltd.*

## 7. RULES/GUIDANCES

### FOR AUTOMATIC AND REMOTE CONTROL SYSTEMS:

- (1) A part revision of the items about the automatic reduction of speed of the main propulsion machinery (Rules)
- (2) A part revision about specific automation equipment (Rules & Guidances)
- (3) A part revision about alternative measures for oil mist detectors in the crankcases of high-speed diesel engines for Periodically Unattended Machinery Spaces (Rules & Guidances)

## 8. RULES/GUIDANCE FOR SAFETY EQUIPMENT:

A part revision caused by the entry into force of 88 protocol relating to 74SOLAS and 66ILLC (Rules)

## 9. RULES/GUIDANCE FOR HIGH SPEED CRAFT:

A part revision about the plastic pipes (Guidances)

## 10. GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE:

A part revision about the plastic pipes

## 11. RULES/GUIDANCE FOR THE CONSTRUCTION AND CERTIFICATION OF FREIGHT CONTAINERS:

A part revision about deletion of non-SI units and changeover to SI units (Rules)

**12. RULES/GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF SHIPS OF FIBERGLASS REINFORCED PLASTICS:**

A part revision about deletion of non-SI units and changeover to SI units (Guidances)

**13. RULES/GUIDANCE FOR CARGO REFRIGERATING INSTALLATIONS:**

A part revision about deletion of non-SI units and changeover to SI units (Guidances)

**14. RULES/GUIDANCE FOR RADIO INSTALLATIONS:**

- (1) A part revision about the approval of radio firms engaged in services on ships (Rules & Guidances)
- (2) A part revision caused by the entry into force of 88 protocol relating to 74SOLAS and 66ILLC (Rules & Guidances)
- (3) A part revision about omission of the requirement to submit drawings and documents (Rules & Guidances)

One important activity of the Survey Department was the development of a new system to record and collate Port State Control (PSC) data

relating to NK-classed ships and to make this data accessible to relevant parties. A database was developed to record and collate defects identified by PSC authorities in ClassNK ships, and then make the information avail-

able in electronic format. Information on such defects can now be accessed through NK-SHIPS, and surveyors can, for example, tailor parts of a survey based on this useful information.

This system is a proprietary system developed for the Society's use only and includes:

- 1. A program to produce a PSC report for each branch office
- 2. A program that manages the database in the Survey Department
- 3. A program that connects the database to NK-SHIPS



*Desert Hawk—a 50,327 dwt bulk carrier built by Mitsui Engineering & Shipbuilding Co., Ltd. for Green Spanker Shipping S.A.*

In the future, individual ship information will be provided for the parties concerned, and it is planned to use the program to introduce general statistics about PSC to the public.

**Machinery & Equipment Inspections**

The main activities related to classification undertaken by the Society relate to the inspection of materials, equipment, and fittings. The inspections of all items decreased this year, as did the number inspections on testing machines, to 9,333.

**INSPECTIONS OF MATERIALS, EQUIPMENT AND FITTINGS**

Category	Items	Amounts
Materials	Rolled steel	2,042,609 tons
	Cast and forged steel	61,374 tons
Equipment	Prime movers	1,251 units
	Boilers	402 units
	Deck machinery and equipment	1,414 units
	Auxiliary machinery	22,218 units
Fittings	Anchors	661 units
	Chains	8,113 lengths
Freight containers		1,226 units

*Rubin Echo—a 23,986 dwt Bulk/Lumber Carrier constructed by Kanda Shipbuilding Co., Ltd.*



*Sanko Summit—a 50,655 dwt bulk carrier constructed by Namura Shipbuilding Co., Ltd. for Summit Bulkship Limited*

### Certification of Manufacturers

The number of marine-related manufacturer certifications made by the Society was six, bringing the total to 86, a 7.5% increase from the previous year. Furthermore, approval for firms engaged in thickness measurement work on ships was 15 (an increase to 122), and approval for firms carrying out in-water surveys of ships was eight, bringing the total to 117. Separately, certifications for a wide range of materials and equipment totaled 285 for the year.

### Assessment and Registration Based on ISO Standards

ClassNK is authorized by the Japan Accreditation Board for Conformity Assessment (JAB) to provide assessment and registration services under the ISO 9000 series of international quality-system standards. This authorization covers the following fields:

1. Basic and fabricated metal
2. Machinery and equipment
3. Electrical and optical equipment
4. Shipbuilding and water transport
5. Cargo handling, storage and other transport support activities
6. Technical testing and analysis
7. Labor recruitment and provision of personnel, and adult and other education

In 1999, the Society assessed and registered 41 suppliers of the above-listed products and services (24 under ISO 9001, 17 under ISO 9002). As of December 31, ISO 9000 series registration



*Chance—a 47,053 dwt oil tanker built by Onomichi Dockyard Co., Ltd. for Elaron Shipping Limited*

by the Society totaled 179 suppliers (80 under ISO 9001, 99 under ISO 9002). Five suppliers were assessed and registered under ISO 14001. Also as of December 31, ISO 14001 registration by the Society totaled six suppliers.

### SGS Certification for Quality System

The Society is involved in classification services for ships and offshore installations with regard to newbuilding and in-service structures and statutory services carried out on behalf of appropriate national administrations. In this field, ClassNK obtained renewal of its ISO 9001: 1994 certification, which was first obtained in 1995 with respect to its quality systems. This certification covers ClassNK's Head Office, Research Institute, and all of its domestic branches and overseas offices. The audit was carried out by Société Generale de Surveillance (SGS), after which ClassNK was registered with Raad voor de Accreditatie (RvA) of the Netherlands. Furthermore, in the field of certification services for "Safety Management System" as part of statutory services, ClassNK obtained separate renewal of its own ISO 9001: 1994 certification from SGS with regard to the quality system implemented in the ClassNK Head Office and all of its domestic branches and overseas offices. In the area of technical services, ClassNK also obtained renewal of its ISO 9001: 1994 certification from



*Asian Rex—a 4,181 dwt refrigerated cargo ship constructed by Kanasashi Co., Ltd. for A Reefer Line S.A.*



*Orion Leader—a 57,513 gt vehicle carrier constructed by Imabari Shipbuilding Co., Ltd. for Wallem Shipmanagement Ltd. as manager*

SGS with regard to the quality system implemented in the ClassNK Head Office.

### IACS QSCS

An International Association of Classification Societies (IACS) Quality System Certification Scheme (QSCS) Renewal Audit was carried out, and the quality system of ClassNK was found to be in compliance with IACS Quality System Requirements. ClassNK obtained IACS QSCS Certification covering its Head Office and all of its domestic branches and overseas offices.

### Audit and Registration of Safety Management Systems

To meet the strong demand for ISM (International Safety Management) Code certification around the world, ClassNK has stationed trained auditors at its exclusive surveyor offices and has created a system to provide ISM certification services at these locations. During 1999, the Society assessed, then granted Documents of Compliance (DOCs) and Safety Management Certificates (SMCs) to 39 companies and 505 ships. As of December 31, the total number of certifications had reached 391 companies and 2,541 ships.

### Technical Services

In the area of technical services, and appraisal/certification and technical consultation related to ships, industrial facilities and equipment, the Society continued to offer assessment and inspection services in 1999. ClassNK offers diverse technical services in addition to those concerned

with ship classification and surveying. In 1999, such services included the supervision of shipbuilding, computer analysis, and a variety of inspections of industrial plants and equipment requested by applicants such as government organizations and third parties. One noteworthy activity, as in the previous year, was the Society's carrying out of NOx appraisal services for organizations intending to obtain assessments prior to the January 1, 2000, enforcement of International Maritime Organization (IMO) Regulations for the Prevention of Air Pollution from Ships. In 1999, appraisals were performed at plants manufacturing 152 different models of diesel engine in 26 product groups. Another example of interest was ClassNK's performing of a strength survey of deep sea water collecting pipes as an independent third party.

### Training and Public Benefit Information Provision

Staff of NK contributed to a number of training programs, seminars, meetings, conferences, and the like, delivering materials on a wide range of topics, in Japan and around the world. Examples are detailed in the regional reports.

Activities such as these form the backdrop of the ship registration activities ClassNK has pursued in its 100 years of operations. In the future, the Society intends to continue improving the quality of these services to meet the needs of customers around the world.



*Taihei Maru—a 749 gt LPG tanker built by Miura Shipbuilding Co., Ltd.*

The NK Research Institute is a vital cog in the machinery of ClassNK. It contributes original research as well as contributing to NK service provision and rule development.

In projects on ship hull strength evaluation, comprehensive research works were carried out where container ships, VLCCs and bulk carriers were analyzed, and it became clear that specific sea-state conditions determined the ship's hull structural response. Through these studies, simple methods for evaluation of fatigue strength and buckling strength were developed for actual use in future ship design. Some of the results of these research projects were collected and published as a "Technical Guide Regarding the Strength Evaluation of Hull Structures Dec. 1999," which will form the basis of the revision of the structural strength rule.

Major projects during 1999 are outlined below.

14

The impact of wave loads on the hull was researched as part of a research project for the development of a new hull structure rule. The relationship between the wave conditions and load that resulted in maximum structural stress response was investigated. A water tank experiment was carried out by using a model of a container ship to examine the non-linear type of the hull movement in conditions of high wave and load.

Investigations of damage cases that resulted from operations, and the damage that resulted from navigation and maneuvering, were carried out to examine the necessity for hull monitoring. Also, an investigation was made into

the relationship between waves breaking over the deck, the appearance slip ratio of the propeller (as a judgment index of navigation limitations in stormy weather as shown in the navigation manual), and the acceleration and stress of the hull, based on actual data measurements in large bulk carriers. A thesis on these matters was published in the bulletin of the Society of Naval Architects of Japan.

In research on the dynamic characteristic of the propelling shafting system, a basic model to examine shaft action at the time of starting, and at the time of the reverse rotation of the engine, was developed. Elucidation of the mechanism of the cavitation which occurs in water-lubricated type propelling shafts was investigated.

In the research and development on the vessel noise prediction system, a series of measurements were carried out targeting diesel engines for the purpose of precisely defining parameters such as the sound source data, and the results were made into a database to improve the precision of the prediction. Actual ship measurements on a container ship were done, and a data analysis was carried out to do noise prediction in the engine room.

Significant progress was made in the realization of the Comprehensive Hull Structural Information Database "PrimeShip-HullExpert" project. A demonstration version on CD-ROM including an indicative database of technical information on hull construction etc., was distributed inside and outside the Society. Further, software development and data preparation were carried out toward the release of the final version.

*Water tank experiment*





Research to examine the relationship between impact pressure and elasticity for a sloshing load on a wall was undertaken using a tank model with an elastic wall. This work is a joint research project with the Ship Research Institute and the Ministry of Transport (Japan).

On-site investigation of MEGA-FLOAT Phase II, a "Very Large Floating Structure," was carried out. A thesis related to hydrodynamic forces acting on it was published in the Technical Bulletin of the Society.

Other Projects in the earlier stages of development or ongoing investigations include:

- Research on a utility for use in Formal Safety Assessment (FSA)
- Research measurement of air pollution discharged from ships
- Research to integrate various data processing systems
- Research on fuel oil for ships and analysis diagnosis technology of internal combustion engine cylinder lubrication
- Research on the quality evaluation of materials for ships



*MEGA-FLOAT test model structure  
(1000m × 120m [max.] × 3m)*

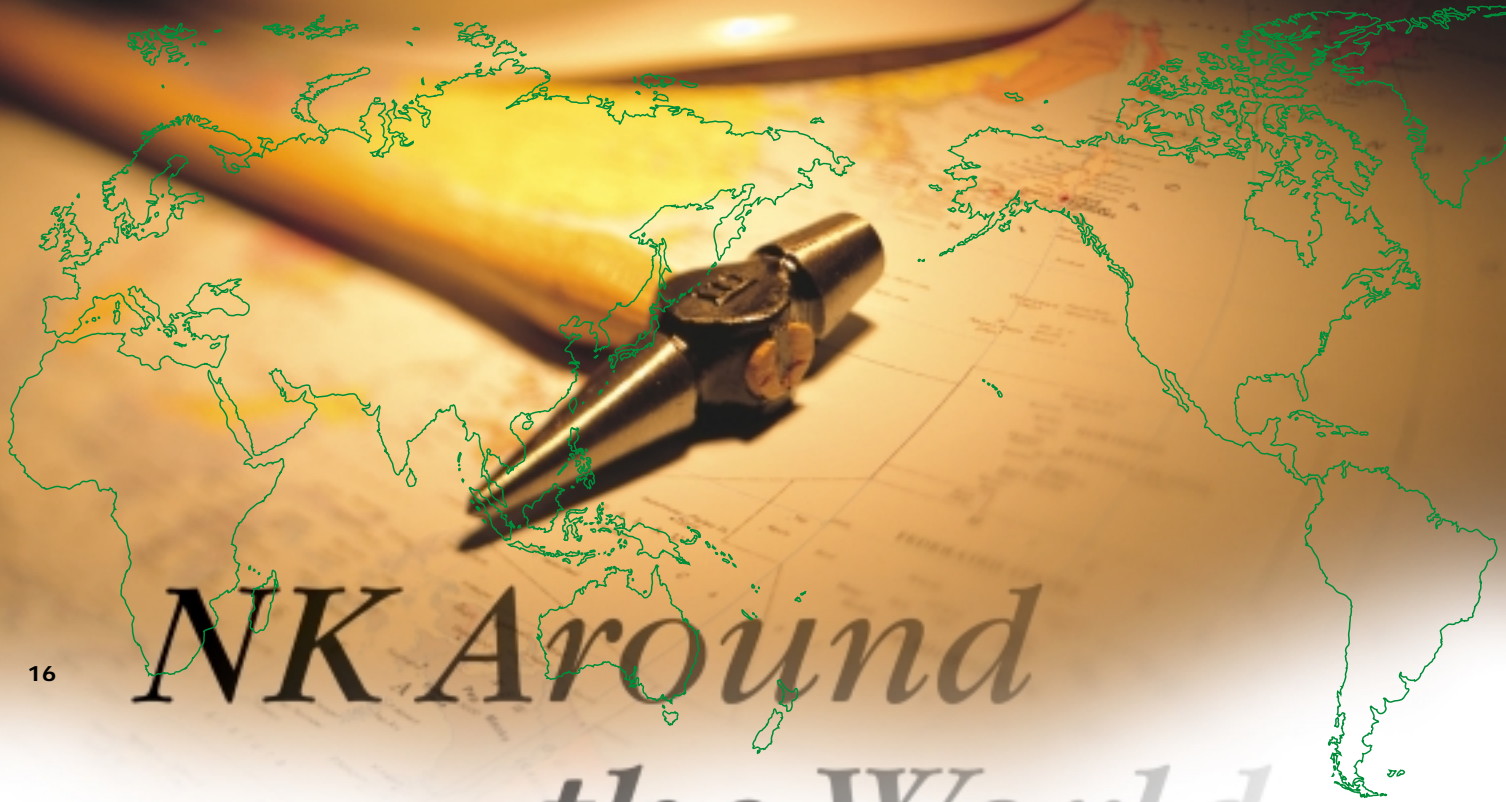
- Research on the functional characteristic of equipment under actual ship operation conditions

Onboard measuring activities carried out this year included:

- Engine monitoring
- Measuring of NOx exhaust
- Measuring of noise
- Experiments relating to fire detectors



ClassNK



16

# *NK Around the World*

*“Internationalization has improved greatly  
through an increased survey service network  
in foreign countries.”*

*T. Mano  
Message from the Chairman*

Japan

In 1999, 258 new vessels, including two large-scale LNG tankers and seven VLCCs, were constructed in Japan to NK Class. Although 58 ships less than last year, at 7.12 million, the gross tonnage was about one million gt more than the previous year, consistent with a general trend toward fewer, bigger ships.

Apart from the two large-scale LNG tankers and seven VLCCs, other newbuildings of note in 1999 included the MEGA-FLOAT Phase II, a massive floating structure of 1 km in length, built to test the potential of such floating structures as airports, among other possibilities.

The bulk carrier *Coral Ace* was constructed using “high-arrest” steel to give greater protection against cracking, and the high-speed ferry *Sunflower Tomakomai* was built to achieve operational speeds of around 30 knots.



*Doha—a 137,262 m<sup>3</sup> LNG tanker constructed by Mitsubishi Heavy Industries, Ltd. for the Qatar LNG Project*

In the field of technical services, as in the previous year, maritime diesel engines’ NOx emission regulations remained the focus of activities for companies such as Yanmar Diesel Engine Co., Ltd. and Niigata Engineering Co. Ltd.

In addition, the Society performed third-party inspections of

pressure vessels destined for China and Malaysia, based on the ASME Code, and at the request of NKK Corporation attended the survey of deep sea water collecting pipes as an independent third-party organization.

In its ISO-related activities, the Society granted ISO 14000 certification for environmental management systems to a total of five companies, including Mitsubishi Heavy Industries, Ltd. (Shimonoseki Shipyard & Machinery Works) and NKK Corporation (Engineering Division), bringing the total number of ISO 14000 certifications granted by the Society to six companies.

Furthermore, the Society granted ISO 9001 certification to a total of 23 companies during the year, including Taiyo Electric Co. Ltd.,



*Coral Ace—a 47,286 dwt bulk carrier built by Oshima Shipbuilding Co., Ltd. for Southern Pacific Holding Corporation*



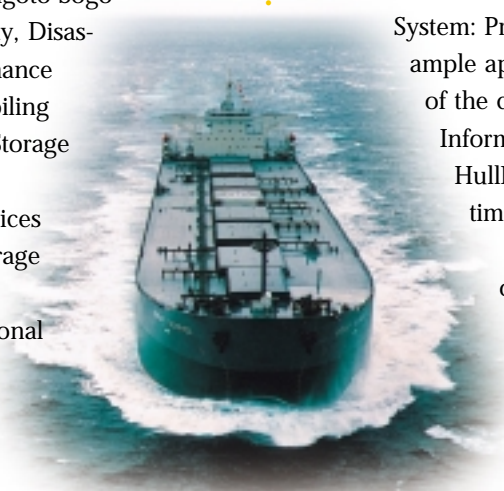
*Sunflower Tomakomai—a 12,520 gt vehicle ferry constructed by Mitsubishi Heavy Industries, Ltd. for Blue Highway Line Co., Ltd.*

*Subaru—a 9,557 gt cable layer constructed by Mitsubishi Heavy Industries, Ltd. for NTT World Engineering Marine Corporation*



Gunma Plants Generating System Factory for the Design, Development, Production and Servicing of Electric Motors; Izumi Steel Works Ltd., for the Design, Production, Installation and Servicing of Pressure Vessels and Piping Equipment; Tateno Manufacturing Co. Ltd. for the Design, Development, Production and Servicing of Equipment for Ships and Installations; Naikai Zosen Corporation for the Design, Production and After-service during guarantee period of Merchant Vessels and Special Vessels except LNG Carriers and Naval Vessels; IMEX Co., Ltd. for the Design, Production and Servicing of Diesel Engines; and Mitsui Zosen Systems Research Inc. (Electronics Division), for the Design, Development, Production and Servicing of Main Engine Maneuvering Systems and Information Management Terminals.

ISO 9002 certification was granted to 10 companies, including Kamigoto Sogo Service Co., Ltd. for Security, Disaster Prevention and Maintenance Works in Petroleum Stockpiling Bases and Shirashima Oil Storage Co. Ltd. (Head Office and Kitakyushu Office) for services relating to the Receipt, Storage and Shipping of Crude Oil Deposited from Japan National Oil Corporation.



*Great Sunrise—a 164,264 dwt ore carrier built by Mitsubishi Heavy Industries, Ltd.*

The Society issued DOCs for the ISM Code to 27 companies, including Tohshin Kisen Co., Ltd., Sanwa Shoun Co., Ltd. Matsuyama Kaiun Co., Ltd., Jupiter Corporation and Global Ocean Development Co., Ltd.

These brought ClassNK's total number of ISM DOCs issued in Japan to 215.

Explanatory meetings on the ISM Code were held targeting ship management companies in the Tokyo area. Eleven similar meetings in total were conducted for ship management companies in Osaka, Kobe and the Ehime Prefecture area.



*1999 Technical Research Conference*

In December, the Society presented the results of its R&D activities at an event in Tokyo. Presentations were made on six key topics, including Measures for Controlling NOx Emissions from Marine Diesel Engines, the Technical Guide Regarding the Strength Evaluation of Hull Structures and the Total Hull Structural Analysis System: PrimeShip-ASSAS as well as example applications. A demonstration of the comprehensive Hull Structural Information Database PrimeShip-HullExpert was held at the same time.

A report on the "research on a standard for safety of super-large-scale floating

structures” was presented to the conference of MEGA-FLOAT Technological Research Association held in Tokyo.

Lectures on “Year 2000 problems of ships” were made at seminars under the auspices of the following groups:

Tokio Marine & Fire Insurance Co., Ltd. at  
Kobe, Osaka

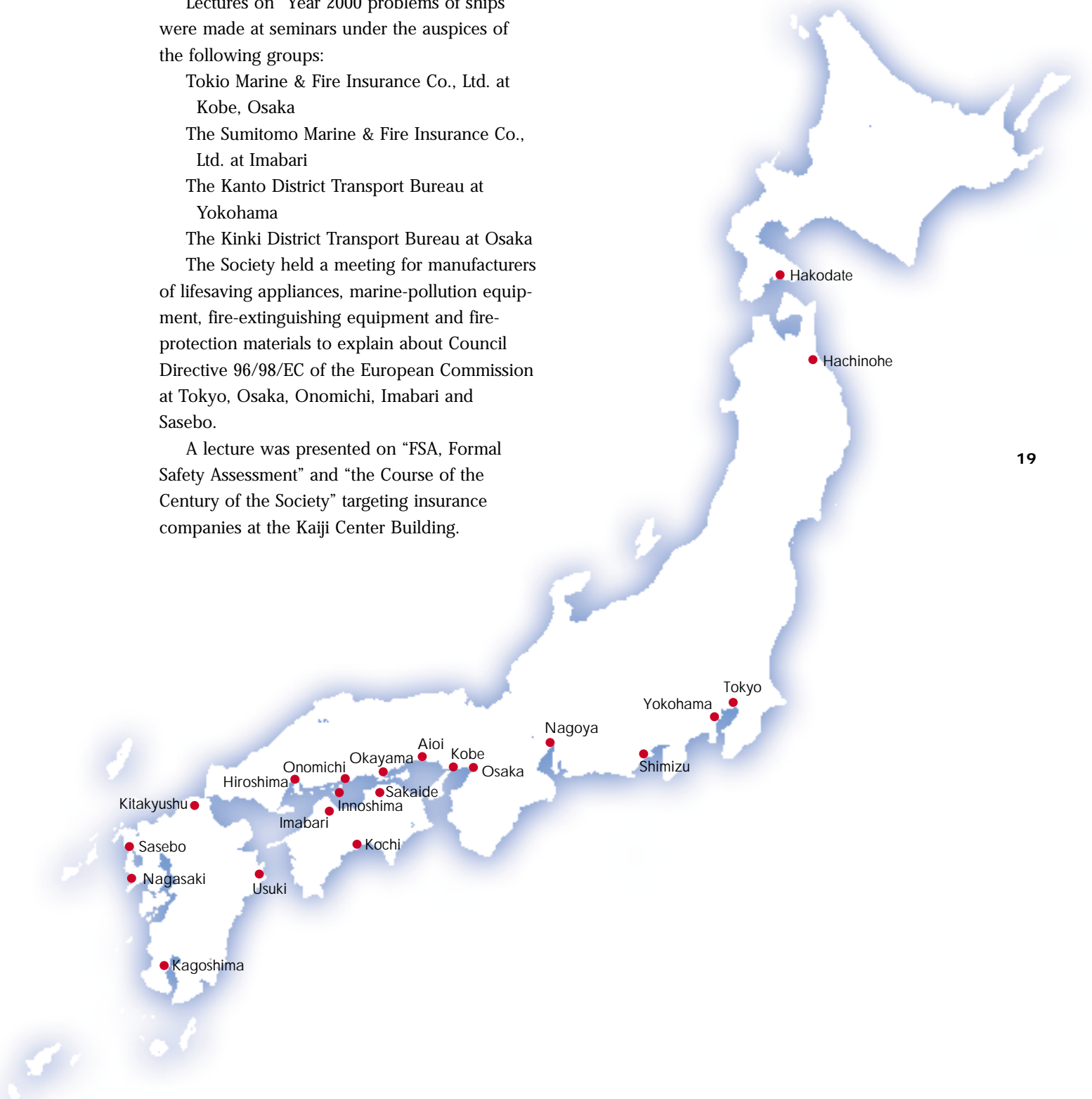
The Sumitomo Marine & Fire Insurance Co.,  
Ltd. at Imabari

The Kanto District Transport Bureau at  
Yokohama

The Kinki District Transport Bureau at Osaka

The Society held a meeting for manufacturers of lifesaving appliances, marine-pollution equipment, fire-extinguishing equipment and fire-protection materials to explain about Council Directive 96/98/EC of the European Commission at Tokyo, Osaka, Onomichi, Imabari and Sasebo.

A lecture was presented on “FSA, Formal Safety Assessment” and “the Course of the Century of the Society” targeting insurance companies at the Kaiji Center Building.



## Asia and Oceania

Despite the recent economic difficulties in parts of the region, most offices were able to maintain, or increase their classification and related activities.

One major highlight was the laying of the keel in **Vietnam** for a 6,500 dwt dry cargo carrier at Bach Dang Shipyard in August. This is the largest newbuilding project in Vietnam with completion expected in September 2000. Three tugs were also constructed to NK Class at Tam Bac Shipyard for the port of Haiphong. At the request of Tam Bac Shipyard and the Sahasant Co., Ltd., Thailand, technical supervision services were provided for the construction of two high-speed boats H290 & H291, which were completed in April 1999. Vietnam's first joint venture shipyard, Hyundai-Vinashin Shipyard was opened officially in March with the capacity of No. 1 Drydock being 400,000 dwt, and No. 2 Drydock 80,000 dwt. So far, seven NK-classed bulk carriers have docked at the new yard for repairs and/or surveys.

In May, at the request of Vietnam Ocean Shipping Company (VOSCO), a major Vietnamese shipowner, a Technical Seminar by staff of the Society was held for the first

time in Vietnam, in the cities of Haiphong and Hanoi. Experts from Head Office made technical presentations on subjects such as oil/product tankers, chemical tankers and liquefied gas carriers, and explained the role of ClassNK. Participants included 80 people from VOSCO and other shipowners, as well as people from the maritime sector in the Haiphong area and 86 people in the Hanoi area.

Type approvals in Vietnam this year included Techné Dine Corporation being authorized as an in-water survey firm.



*A 6,500 dwt dry cargo carrier being constructed in Vietnam by Bach Dang Shipyard*

In **Malaysia**, the four Malaysian offices were busy with surveys of ships afloat, especially in East Malaysia. Staff also attended a Technical Seminar on the Y2K problem, held by the Marine Department in June, and a Forum for PSC problems, with reference to classification,

held by MISC in November.

Activity in the **People's Republic of China** continued to grow, with the construction of an NK-classed bulk carrier being completed at Jingjiang Shipyard where the Society also acted as a supervisor for the shipowner during construction. Construction of a pusher was completed at Hangzhou Dongfeng and seven steel barges destined for Singapore owners were built to Class at Dalian Shipyard.

The Society also acted as a supervisor for a shipowner during construction of two more steel barges at Dalian Shipyard. At around 90, the number of surveys for existing ships carried out during 1999 increased by 20% compared with the previous year in Guangzhou alone.

On the regulatory front, Parts A/B, D, H & M of the NK Rules were published in Chinese by the Shanghai Office. Four companies, Guangyuan Communication & Navigation Co.



*Saloma—a 12,609 dwt bulk/lumber carrier built by Jingjiang Shipyard for Univan Ship Management Limited as manager*



*TKW 99—a 1,413 gt barge built by Dalian Shipyard for Thia Kok Wah Marine Pte. Ltd.*



*Technical Seminar in Haiphong*



Ltd., Coscomeec Shanghai, Seven Seas Electronic Co., Ltd., and Tianjin Marine Electronic Co. Ltd., were authorized as radio-service companies. Similarly, Shanghai Haixin Shiprepairing Co., Ltd., Guangzhou Economic & Technology Developing Zone YuanDa Technical Cooperation Service Co., Ltd., and Qingdao Beihai Shipyard Comprehensive Techniques Inspection Measurement Co. were authorized as plate-thickness measurement firms.

The Society participated in Marintec China '99, an international exhibition held in Shanghai. ClassNK made a presentation on PrimeShip-HullExpert at the Maritime Technical Symposium, which was held at the same time.

In the **SAR of Hong Kong**, the 15th Boiler and Pressure Vessels Annual Seminar cum ILO

Tripartite Safety and Technical Seminar was held in November, sponsored by the Labor Department of the Government of the SAR of HK. ClassNK presented a lecture on safety measures for boilers and pressure vessels, based on experience gained from past reports of damage. Also in Hong Kong, the Sun Marine Radio Engineering Co. was authorized as a radio-service company.

In the **Republic of Korea**, the Society granted DOCs for ISM Code compliance to two new companies, Sejin Marine Co., Ltd. and Musung Corporation, bringing the total number of Korean shipowners to receive DOCs from

ClassNK to six. Mesco Electronics Co. Ltd. and Navicom Electronics Co. Ltd. were authorized as radio-service companies, and the Society authorized material and equipment, including cable models from Kukdong Electronic Wire Co., Ltd., Intrinsically Safe Type Pressure Monitoring System from Hanla Level Instrument and a Tank/Vapor Pressure Monitoring System from Pan-Asia Precision & Engineering Co., Ltd. In February, ClassNK gave a lecture on “Examples of VLCC Damage” and HullExpert at the “Korea Ship and Offshore Structures Congress,” held under the auspices of the Society of Naval Architects of Korea in Mokpo.

In **Indonesia**, at the request of the shipping industry, the Society held its first Technical Seminar, held jointly with the Indonesian National Shipowners' Association (INSA).

Presentations covered the Activities of ClassNK, a technical outline of chemical tankers and gas tankers as well as presentations on Port State Control, ISM Code requirements and ensuring proper implementation of STCW 95. The Society granted DOC for ISM Code Compliance to PT. Admiral Lines, and in ISO-related operations the Society granted ISO 9002 certification for crew manning to two companies, P.T. Scorpa Pranedya and PT. Berlian Laju Tanker Tbk.

About 30 participants from the local maritime industry attended a technical presentation on “Outline of Chemical Tankers including Combined Chemical/Oil Tankers” in November at the NK **Singapore** Office. Topics included the SOLAS convention, the IBC Code, MARPOL Annexes I & II, the construction of chemical tankers, installations, equipment, fittings, operational requirements, certification and the handling of new products. The Society granted DOCs for ISM Code compliance to three companies, Ammships Pte Ltd, Executive Ship Management Pte Ltd, and Pacific International Lines (Private) Limited, bringing the total number of Singaporean

shipowners to receive DOCs from ClassNK to 35.

In ISO-related operations, the Society granted ISO 9002 certification to two companies, Samta Ship Management Pte. Ltd., for shipping services for bulk carriers, tankers and cargo ships, and to Reta Link Pte. Ltd for ship management for tankers. The Society authorized a Pressure Monitoring System from Modern Automation Engineering Pte. Ltd. Radio Holland Singapore Pte. Ltd. was authorized as a radio-service company, and Sonic Marine Inspection services

was authorized as a plate-thickness measurement firm. Unidive Marine Services Pte Ltd was authorized as an in-water survey firm.

China Steel Express Corporation of **Taiwan**

took delivery of the NK-classed general cargo carrier *Bonanza Express* built by Nishi Ship-Building Co., Ltd., in Japan. Also built to NK class, for Uniglory Marine Corp., was the



*Bonanza Express—a 10,620 dwt general cargo ship built by Nishi Ship-Building Co., Ltd. for CSEI Transport (Panama) Corporation*



*Uni-Assure—a 14,807 gt container ship built by Evergreen Shipyard Corporation for Uniglory Marine Corp. as manager*

container carrier *Uni-Assure*, built by Evergreen Shipyard Corporation in Japan. The Society made a technical presentation on bulk carrier ships in Taiwan in June for shipbuilders including China Shipbuilding Corporation and China Steel Express Corporation. The Society also made a technical presentation on container ships for shipowners in November, in place of the Taiwan committee meeting and Technical Seminar that had been scheduled for October



1999, but were postponed until March 2000 because of the September earthquake. NK offers its condolences to all who suffered loss, and wishes for a speedy return to normal. The Society certified cable models for Hug Eng Wire & Cable Co., Ltd.

In **India**, Elcome Marine Services Pvt. Ltd. and Procomm-Professional Communications were authorized as radio-service companies. Noronha's Marine & Industrial Test Services and Industrial Marine & Oilfield Services and Metallurgical Laboratories Pvt. Ltd. were authorized as plate-thickness measurement firms.

New Century Overseas Management, Inc. took delivery of the bulk/lumber carrier, *Marion Star*, built to NK Class by Tsuneishi Heavy Industries (Cebu) Inc. in the **Philippines**. Eastern Shipping Lines, Inc. also took delivery of



*Marion Star—a 23,492 dwt bulk/lumber carrier constructed by Tsuneishi Heavy Industries (Cebu) Inc. for New Century Overseas Management, Inc.*



*Eastern Endeavor—an 8,189 dwt general cargo ship built by Higaki Shipbuilding Co., Ltd. for Eastern Shipping Lines, Inc.*

a general cargo ship, the *Eastern Endeavor* built to NK Class by Higaki Shipbuilding Co., Ltd. in Japan. In ISO-related operations, the Society granted ISO 9002 certification for crew manning to two companies in the Philippines: Ventis Maritime Corporation and Abacast Shipping and Management Company Inc.

In **Australia**, the Society certified cable models for Triangle Cables (Australia) Pty. Ltd., and in **New Zealand** Maritime Ship Stores Ltd. was authorized by ClassNK as a radio-service company.

Jutha Maritime Public Company Limited of **Thailand** took delivery of a general cargo ship, the *Jutha Buddhachart*,

built to NK Class at Higaki Shipyard, Japan. The general manager and one staff member of NK Bangkok were invited as lecturers at an ISM Code Seminar for shipowners and interested parties, organized by Thailand's Chulalongkorn University in May. Thong Electronic Ltd., Part. was authorized as an approved radio-installation inspection service company.



*Jutha Buddhachart—an 8,976 dwt general cargo ship constructed by Higaki Shipbuilding Co., Ltd. for Jutha Maritime Public Company Limited*

## The Americas

Overall, NK activities in the **United States** were "steady as she goes," with activity at some offices slightly down, while the number of surveys on existing ships carried out by the Los Angeles Office, for example, increased by 24% over the previous year. Surveys, however, decreased in the Seattle Office. NK's reputation for quality was further enhanced by its once again achieving the highest possible PSC rating for NK-classed ships from the U.S. Coast Guard (USCG).

Structural changes included relocation of the Houston Office to accommodate an increasing number of surveyors. The Seattle Office was relocated from Seattle to Tacoma, but the name of the office remains the same.

In the important area of maintaining relations with external bodies, ClassNK representatives visited government agencies such as Vanuatu Maritime Service, Bahama Maritime Authority, Panama Maritime Authority, USCG Head Quarters, Occupational Safety and Health Administra-

tion (OSHA), and Transport Canada. ClassNK representatives also attended a meeting for classification societies held by the New Liberian Register (Liberia International Ship and Corporate Registry) in November. The new register began business operations on January 1, 2000.

Roymar Ship Management Inc., a major client of the NK New York Office, obtained ISO 9002 certification for both ship management and cargo ships, as well as DOCs for ISM Code compliance.

Navtech Marine Electronics and Seacoast Electronics, Inc., were authorized as radio-service companies, and the Society approved fire-protection materials from Flexible Technologies, Inc. Oceaneering International, Inc., was authorized as an in-water survey firm, and the Society certified Electric Engine Control Systems and Bridge Controls for Detroit Diesel Corporation.

An abstract report was presented on the class survey of the large-scale floating structure (1000m × 120m/60m × 3m) constructed by the MEGA-FLOAT Technological Research Association to research its potential as an airport, at the Third International Workshop on Very Large Floating Structures (VLFS '99) held in Hawaii.

24



*Visit to Bahamas Maritime Authority  
by ClassNK representatives*



*Visit to USCG Headquarters by  
ClassNK representatives*



*The Third International Workshop on Very  
Large Floating Structures, in Hawaii*

Activity in the territory of **Panama** Office decreased compared to the previous year.

Two NK-classed handy bulk carriers destined for Fairmont Shipping in **Canada** are under construction in Japan. In 1999, construction was also completed in Japan for an NK-classed

product tanker destined for Unique Shipping of Vancouver. The number of surveys carried out on existing ships increased slightly compared with the previous year. The Society certified an Absolute Pressure Transmitter for Foxboro Canada Inc., NSI Electronics was authorized as a radio-service company, and Elander inspection Ltd. was authorized as a plate-thickness measurement firm.

South of the equator, in **Argentina** ClassNK surveyed a 27,000 dwt bulk carrier under construction at Astilleros Rio Santiago S.A. Shipyard with completion scheduled for February 2000. The Buenos Aires Office was also kept busy, with the number of ship inspections performed in their territory (Argentina, Paraguay and Uruguay) exceeding 200 in 1999. Additionally, ISM-related activities performed by the Buenos Aires Office included two annual surveys on local companies' DOCs, four initial audits for Safety Management System (SMS) on ships and one intermediate audit.

In **Chile**, the availability of services through the Valparaiso Office encouraged two shipping companies to maintain NK Class for newly acquired ships. Traditionally, they would change class to other societies that had local offices. Garcia y Garcia Ltda. (Salvamar) was authorized as an in-water survey firm, while two firms engaged in plate-thickness measurement are also in the process of approval. Two firms are also undergoing approval procedures as radio-service companies.

In **Paraguay**, the Society granted DOCs for ISM Code compliance to Navemar S.R.L.

At 289, the number of applications for survey made to the Rio de Janeiro Office in **Brazil** was slightly down from last year. NK de Brazil Ltd. was audited by the Brazilian Maritime Authority and approved as a representative to issue certificates on behalf of the Brazilian Government for the next five years.

## Europe

**T**urkey heads this description of NK activities in Europe, as we offer our condolences to all who suffered as a result of the recent earthquake. But on a positive note, the first NK-classed ships constructed in Turkey, the *Alfamar*, a 16,134 dwt multipurpose carrier, and her sister ship, the *Atlantik Trader*, were completed at Selah Marine Shipyard. Total gross tonnage of NK-classed ships managed by Turkish companies now exceeds 1,000,000 gt. In ISO-related operations, the Society granted ISO 9002 certification for Education and Training for Seafarers, to Istanbul Technical University Maritime Faculty. Also, Ultra Teknik Hizmetier San Ve Tic. Ltd. Sti. and Albatros Heatsystems Ship and Machine Ind.

Co. Ltd. were authorized as plate-thickness measurement firms.

In **Italy**, NK contributed to a practical course for European PSC inspectors, held by the Italian Ministry of Transport in Genoa, by teaching a practical course on board vessels. At this training

program, NK also gave a lecture on ISM and fires in the engine room. Also in Italy, JUNIO SUB S.R.L. was authorized as an in-water survey firm.



*Alfamar—a 16,134 dwt multipurpose carrier-project managed by HASATMAR-Istanbul for Alfamarin Denizcilik A.Ş.*

Type approvals in **Greece** included Radiotechnics Co. as a radio-service company and Effepi Ltd. as a plate-thickness measurement firm. Technodive Ltd and Nikor Maritime Co. were authorized as in-water survey firms. The Society also acted as supervisor for Kritsas Shipping during the construction in Japan of a 48,500 dwt bulk carrier for the Greek company.

In Northern Europe, the Copenhagen Office in **Denmark** carried out 37 ship surveys in Baltic countries. Type approvals included:



*Olympia—a 107,181 dwt oil tanker constructed by Koyo Dockyard Co., Ltd*

Pressure Transmitters from Danfoss, Remote Control Systems from Man B&W Alpha Diesel AS, Alarm Annunciator /Controller/ Emergency controller for diesel engines from SELCO A/S and Explosion Protected Type from Danfoss System Hydraulik A/S.

The Society authorized the approval of manufacturing of Boilers and Group 1 pressure vessels of Erik Roug A/S. Fire-protection materials from Metal-Tec ApS and Rockwool A/S were approved as was a crude oil washing machine from Toftjorg A/S.



*Quality System Certification awarded to the Maritime Faculty of Istanbul Technical University*

In **Sweden**, the Society authorized SWEP International AB and Alfa Laval Stainless Products AB as manufacturers of plate heat exchangers. The Society approved fire-protection materials from MCT Brattberg AB.



*Nor-Shipping '99*

A highlight of activities in **Norway** was the Society's participation in Nor-Shipping '99, one of the world's largest international marine industry exhibitions, which was held in Oslo. Here, ClassNK

presented the demonstration version of PrimeShip-HullExpert and introduced a wide range of information in computerized databases focusing on the survey records of ship structures. In regular activities the Society authorized equipment including two types of Industrial Color Monitor from Jakob Hatteland Instrument A/S, an Alarm and Monitoring System from Kongsberg Norcontrol AS, five types of automation equipment (including Color Graphic Monitoring and Alarm Presentation Systems, and Intrinsically Safe-Type Radar-based Level Gauging) from Navia Maritime AS (Division Autronica), Alarm and Monitoring Systems from Navia Maritime AS, the Intrinsically Safe Type



Tank Monitoring and Alarm System with Pressure-Monitoring System of Tanksystem Norway AS, and Explosion Protected Type of Hernis Scan System A/S.

Approximately 190 applications for surveys, an increase of 19%, were received by the Marseille Office in **France**. The Society authorized the approval of use of low-temperature valves for the liquefied gas of SNRI S.A. The Society authorized the approval of manufacturing Boilers and Group 1 pressure vessels of ADM Chaudronnerise S.A.

Also authorized were the Intrinsically Safe-Type Level, Temperature and Pressure-Monitoring System of Auxitrol S.A. and the Fuses of Legrand S.A.

Survey of ships in service increased slightly in **Germany**, and the Society acted as supervisor for Orion Schiffahrts-Gesellschaft Reith & Co. Gmbh & Co during the construction of a 12,000 dwt bulk carrier in Japan. Numerous type approval included: the Resistance Temperature Sensor from ABB Automation Products GmbH, Electronic Remote Control System for Marine Propulsion Plants from Rexroth Mecman GmbH, Pressure Transmitter from WIKA Alexander Wiegand GmbH & Co., Circuit Breaker from Siemens AG, Explosion Protected Type from Felten & Guillaume Antriebstechnik GmbH, Special Pipe Joint from Rasmussen GmbH, and Expansion Joints from Elaflex-Gummi Ehlers GmbH.

ClassNK Rotterdam achieved the status of "NOTIFIED BODY" under the EC Directive 96/98 on marine equipment to act on behalf of the Government of the **Netherlands**. A large, self-propelled trailing suction hopper dredger destined for a Japanese owner was constructed to NK Class at IHC Holland. For the first time in the Netherlands, the Society granted DOCs for ISM Code compliance, in this case to Confidence Ship Management Co. B.V. The Society approved Viscosense from VAF instruments B.V. and Takmarine BV was authorized as an in-water survey firm.

In **Portugal** Class/Statutory Surveys for exiting ships decreased slightly compared with last year.

In the **United Kingdom** the Society authorized Newage International Limited as a manufacturer and performed inspections requested by parties ordering tank containers. The Society approved fire-detection and alarm equipment from Thorn Security Limited and Nittan (UK) Limited.



*Queen of Penta-Ocean—a 22,049 gt drag suction hopper dredger constructed by IHC Holland NV*



*Millennium Explorer—a 100,063 dwt oil/chemical tanker constructed by Namura Shipbuilding Co., Ltd.*

## Middle East and Africa



29

The Government of the **United Arab Emirates** (U.A.E.) authorized ClassNK to carry out ISM Code Audits and MARPOL Surveys, and issue the corresponding certificates. Survey activities in the Middle East during 1999 remained at around the same level as the previous year. Vigil Marine Services Sharjah, U.A.E. was authorized as a plate-thickness measurement firm in U.A.E., and the Society approved welding materials from AMA Industrial Co. in **Iran**. The Society granted DOCs for ISM Code compliance to the Arab Tanker Services of the U.A.E. and for ISM Code compliance to Al-Mawashi Al-Mukairish United Co. in **Saudi Arabia**.

The Society granted DOCs for ISM Code compliance for the first time in **Egypt**, to Egyptian International Shipping Co., Ltd.'s Alexandria Office.

In **South Africa**, the Society opened a new office in Durban on September 1. The new office had already completed around 30 surveys by year-end. NK authorized Marine Industrial & Offshore Inspection Services as a plate-thickness measurement firm, and Cape Maritime Electronics Pty Ltd. and JJ Marine C.C. as radio-service companies.



*Al Bidda—a 137,339 m<sup>3</sup> LNG tanker constructed by Kawasaki Heavy Industries, Ltd. for the Qatar LNG Project*



# *NK in International Affairs*

30

*“The new century will also be a time to embrace emerging technology and nurture talented people, to build upon the trust and reputation we have striven to achieve.”*

*T. Mano  
Message from the Chairman*



ClassNK has always actively participated in and contributed to international maritime community affairs, and this year was no exception.

At the United Nations' IMO, ClassNK representatives participated as part of the Japanese Delegations in the following committee meetings during 1999: the 42nd meeting of the Subcommittee on Stability and Load Lines, and on Fishing Vessels Safety; the 43rd meeting of the Marine Environment Protection Committee; the 42nd meeting of the Sub-committee on Ship Design and Equipment; the 71st meeting of the Marine Safety Committee; the 4th meeting of the Sub-committee on Bulk Liquids and Gases; and the 43rd meeting of the Sub-committee on Fire Protection.

As a founding member of IACS, ClassNK actively supports the association's efforts to advance classification procedures. During this year, we participated in the following meetings:

Council:	2 meetings
Quality Committee:	1 meeting
General Policy Group:	2 meetings
Working Party:	7 meetings
Ad-hoc Group:	11 meetings
Correspondence Group:	2 meetings
Project Team on	
BC-Hazard Identification:	1 meeting

Major topics covered by the working groups included:

- Y2K problems
- Realistic response in light of ISM Code enactment
- IACS management politics
- Requests from related industries
- The role of Associate Members and the possibility of their joining IACS
- Future measures in response to the survey report on the Derbyshire sinking
- Reports from the Quality Committee
- Responsibilities of the Auditors
- Budget and Settlement of accounts

Furthermore, ClassNK served as the chair of two working groups in the areas of material welding and hull damage.

NK also undertakes a range of "Activities on Behalf of Governments." In 1999, the Government of Bermuda newly authorized ClassNK to perform statutory surveys on ships flying their flags. These operations are offered in accordance with international conventions and national regulations. With the addition of this nation, the number of countries authorizing NK to perform these duties and issue certificates reached 94.

NK maintained its close relationship with and support for the World Maritime University in Malmo, Sweden, with the donation of 15 personal computers to replace older models that had previously been donated by the Society in 1995.

Another important international relationship-building exercise was a series of parties held around the world to celebrate the Society's 100th anniversary. Such parties were held in Copenhagen, London, New York, Hong Kong, Seoul, Beijing, Shanghai, Bangkok, Singapore, Manila, Rotterdam, Mumbai and Tokyo.

As always, NK's international committees contributed significantly to the growth and development of the organization by acting as critical conduits between the Society and the international maritime community, in particular the owners and operators of NK-classed ships around the world. Six general and six technical committee meetings are held every year.

Through such gatherings, committee members provide the Society with a high level of valuable information, and ClassNK passes on technical and other information related to its activities.

The meetings held in 1999, which mainly focused on subjects such as the Year 2000 Problem, Casualties Resulting From Hull Structural Failure, Emission Control of NOx and Harmonized System of Survey and Certification (HSSC), were highly valued by all participants.

The following committee meetings were held in 1999:

February 4	8th Meeting of the Greek Committee, Piraeus
April 15	5th Meeting of the China Technical Committee, Shanghai
May 3	15th Meeting of the Southeast Asia Committee, Tokyo
May 26	9th Meeting of the Denmark Technical Committee, Copenhagen
May 27	10th Meeting of the Korea Committee, Seoul
September 23	25th Meeting of the Hong Kong Committee, Hong Kong
October 18	6th Meeting of the Korea Technical Committee, Pusan
November 3	6th Meeting of the China Committee, Beijing
November 26	3rd Meeting of the Thai Technical Committee, Bangkok
November 29	3rd Meeting of the Singapore Technical Committee, Singapore
December 1	3rd Meeting of the Philippine Technical Committee, Manila
December 8	6th Meeting of the Indian Committee, Mumbai

**Advisory Council**

- Mr. Chang Yung-fa  
*Group Chairman  
Evergreen Group*
- Mr. Frank W. K. Tsao  
*Chairman  
International Maritime Carriers Limited*
- Mr. Lee Maeng-Kee  
*Chairman  
Korea Line Group*
- Mr. Kou Ming Koo  
*Chairman  
Valles Steamship Company, Limited*
- Dr. Frank S.B. Chao  
*President  
Wah Kwong Shipping Holdings Limited*

**International Committees**

**China Committee**

**Chairman**

Mr. Chen Hong Sheng

**Members**

- Mr. Sun Sheng Jun  
*Executive Director & Assistant President  
China National Foreign Trade Transportation  
Corporation*
- Mr. Chen Hong Sheng  
*Vice President  
China Ocean Shipping Company*
- Mr. Wu Zhong Xiao  
*Executive Vice President  
China Shipping (Group) Company*
- Mr. Yan Ming Yi  
*President  
Shanghai Shipping (Group) Company and  
China Shipping Development Co., Ltd., Tanker  
Company*
- Mr. Zhang Ming Hua  
*Deputy Director  
Production and Business Department  
China State Industry Corporation*
- Mr. Zhang Xi Ping  
*Director  
Business and Marketing Department  
China State Shipbuilding Corporation*

**Secretary to the Committee**

Mr. A. Takezaki, NK Beijing Office

**Greek Committee**

**Chairman**

Mr. Michael D. Chandris

**Members**

- Mr. Paul J. Ioannidis  
*Vice President  
Alexander S. Onassis P.B. Foundation*
- Mr. Michael D. Chandris  
*Chairman  
Chandris (Hellas) Incorporated*
- Mrs. Anna G. Dracopoulos  
*Director  
Empros Lines Shipping Company Sp. S.A.*
- Mr. Prokopis N. Karnesis  
*Director  
European Navigation Incorporated*
- Mr. Michael E. Veniamis  
*Director  
Golden Union Shipping Company S.A.*
- Mr. Ghikas J. Goumas  
*Director  
J. G. Goumas Shipping Company S.A.*
- Capt. Z. D. Kritsas  
*President  
Kritsas Shipping S.A.*
- Mr. Panagiotis C. Laskaridis  
*Managing Director  
Laskaridis Shipping Company Limited*
- Mr. Diamantis P. Diamantides  
*Managing Director  
Marmaras Navigation Limited*
- Mr. George S. Livanos  
*Chairman  
Sun Enterprises Limited*
- Mr. Constantinos J. Martinos  
*Director  
Thenamaris (Ships Management) Incorporated*
- Mr. Charalambos N. Mylonas  
*Chairman  
Transmed Shipping Limited*
- Capt. P. N. Tsakos  
*President  
Tsakos Shipping & Trading S.A.*
- Secretary to the Committee**
- Mr. F. Hoshide, NK Piraeus Office

**Hong Kong Committee****Chairman**

Mr. Du Bao Ming

**Vice Chairman**

Mr. Andrew Y. Chen

**Honorary Chairman**

Dr. Frank S. B. Chao

**Members**

Capt. Mao Shi Jia

*Director & President**China Merchants Transportation Holdings Co., Ltd.*

Mr. Du Bao Ming

*Managing Director**Cosco (H.K.) Shipping Co., Ltd.*

Mr. Robert Alexander Ho

*President**Fairmont Shipping (H.K.) Ltd.*

Mr. Andrew Y. Chen

*Managing Director**Grand Seatrade Shipping Agencies Ltd.*

Mr. Arthur Bowring

*Director**The Hong Kong Shipowners Association Ltd.*

Mr. Zhu Huai Xin

*Executive Director**International United Shipping Agency Ltd.*

Mr. Frank W. K. Tsao

*Chairman**IMC Group*

Mr. M. H. Liang

*Chairman**Island Navigation Corporation International Limited*

Mr. Steve G. Hsu

*Chairman & Managing Director**Oak Maritime (HK) Inc. Limited*

Mr. C. C. Liu

*Managing Director**Parakou Shipping Limited*

Mr. M. T. Yung

*Director**Patt Manfield & Company, Limited*

Dr. Peter J. S. Cheng

*Managing Director**Peter Cheng Naval Architect & Marine Consultant Limited*

Mr. Raymond Pao

*President**Regent Shipping Limited*

Mr. Kenneth K. W. Lo

*Managing Director**Teh-Hu Cargocean Management Company, Limited*

Mr. Edward S. C. Cheng

*Vice Chairman**Unique Shipping (H.K.) Limited*

Capt. C. A. J. Vanderperre

*Managing Director**Univan Ship Management Limited*

Mr. John C. A. Koo

*Director & General Manager**Valles Steamship Company, Limited*

Dr. Frank S. B. Chao

*President**Wah Kwong Shipping Holdings Limited*

Mr. B. L. Liu

*Managing Director**Wah Tung Shipping Agency Company, Limited*

Mr. Gerry Buchanan

*Managing Director**Wallem Shipmanagement Limited*

Mr. Yu He Fu

*Director & General Manager**Worlder Shipping Ltd.***Secretary to the Committee**

Mr. H. Watanabe, NK Hong Kong Office

**Indian Committee****Chairman**

Mr. Arun Mehta

**Vice Chairman**

Mr. R. L. Pai

**Members**

Mr. Madhusudan P. Dhanuka

*General Manager**Advani-Oerlikon Limited*

Mr. S. K. Sood

*Executive President**Century Shipping & Manufacturing Company Limited*

Mr. Deepak L. Chowgule

*Joint Managing Director**Chowgule Steamships Limited*

Capt. Sam B. Aga

*Senior Partner**Ericson & Richards*

Capt. B. S. Kumar

*Executive Vice President**Essar Shipping Limited*

Mr. A. Chatterjee

*Deputy Chief Surveyor**The Government of India*

Mr. K. M. Sheth  
*Chairman and Managing Director*  
*The Great Eastern Shipping Company Limited*

Mr. H. Ansari  
*General Manager*  
*The Oriental Insurance Company Limited*

Mr. R. L. Pai  
*Senior Vice President*  
*Reliance Industries Limited*

Mr. S. K. Bhalla  
*Regional General Manager*  
*The Shipping Corporation of India Limited*

Mr. B. L. Mehta  
*Executive President*  
*Varun Shipping Company Limited*

Mr. Arun Mehta  
*Managing Director*  
*Varun Shipping Company Limited*

Mr. C. Dayal  
*General Manager*  
*V.M. Salgaocar & Brother Private Limited*

**Secretary to the Committee**

Mr. A. Pradhan, NK Mumbai Office

**Korea Committee**

**Chairman**

Mr. Park Jong-Kew

**Members**

Mr. Shin Young-Kyun  
*President*  
*Daewoo Heavy Industries Limited*

Mr. Song Young-Soo  
*President*  
*Hanjin Heavy Industries Company Limited*

Mr. Kim Kwang  
*President*  
*Hoyu Tanker Company Limited*

Mr. Cho Choong Hooy  
*President & C.E.O.*  
*Hyundai Heavy Industries Company Limited*

Mr. Hyun Yung-Won  
*Advisor*  
*Hyundai Merchant Marine Company Limited*

Mr. Jang Hak-Se  
*President*  
*Korea Line Group*

Mr. Park Jong-Kew  
*Chairman*  
*KSS Line Ltd.*

Mr. Yoo Byung-Mu  
*President & C.E.O.*  
*Pan Ocean Shipping Company Limited*

Mr. Lee Hai-Kyoo  
*President*  
*Samsung Heavy Industries Company Limited*

Mr. Lee Seung-Gwon  
*President & C.E.O.*  
*SK Shipping*

**Secretary to the Committee**

Mr. Kim Won-Cho, NK Seoul Office

**Southeast Asia Committee**

**Chairman**

Mr. Lua Cheng Eng

**Members**

Dato' Hj. Mohd Ali Hj. Yasin  
*Managing Director*  
*Malaysia International Shipping Corporation Berhad*

Mr. Lua Cheng Eng  
*Chairman*  
*Neptune Orient Lines Limited*

Mr. Firdaus Wadjdi  
*President Director*  
*P.T. Pakarti Tata*

Mr. Carlos C. Salinas  
*President*  
*Philippine Transmarine Carriers, Inc.*

Mr. Sumate Tanthuwani  
*President*  
*Regional Container Line Group*

**Secretary to the Committee**

Mr. H. Kobayashi, NK Singapore Office

**Technical Committees****China Technical Committee****Chairman**

Mr. Lu Zhi Ping

**Members**

Mr. Xu Zi Qiu

*Vice Director*

*Bo Hai Shipyard*

Mr. Guo Zhi Bing

*Deputy Managing Director*

*China Business Marine Corporation Limited*

*SINOMARINE*

Capt. Dong Ming

*General Manager of Management Division*

*China Ocean Shipping (Group) Company*

*[COSCO]*

Mr. Lin Zhi Shui

*Vice General Chief Engineer*

*China Shipping (Group) Company*

Mr. Wu Shu Xiong

*Deputy Managing Director*

*COSCO Container Lines*

Mr. Liu Jun

*Managing Director*

*COSCO International Trading Company*

Mr. Sun Bo

*Deputy Director*

*Dalian New Shipyard*

Mr. Liu Guo Man

*Deputy General Manager*

*Dalian Ocean Shipping Co.*

Mr. Wang Shi Xian

*Chief Engineer*

*Dalian Shipyard*

*Ship Design & Research Institute*

Mr. Ding Nong

*Vice General Manager*

*Guangzhou Maritime Transport (Group) Co.,*

*Ltd.*

Mr. Zhang Xi Rong

*Deputy Managing Director*

*Guangzhou Ocean Shipping Company*

Mr. Ye Pei Hua

*Director and Deputy Managing Director*

*Guangzhou Shipyard International Co., Ltd.*

Mr. Cao Zhi Teng

*Vice Technical Director*

*Hudong Shipyard*

Mr. Yang Shi Ming

*Deputy Chief Engineer*

*Jiangnan Shipyard (Group) Co., Ltd.*

Mr. Yu Bao Jun

*Deputy Director of State Ship*

*Eng. & Tech. Research Centre*

Mr. Nagao Shunji

*Assistant to General Manager*

*Nantong COSCO KHI Ship Engineering Co.,*

*Ltd.*

Mr. Kang Zhen Shan

*General Manager*

*Nantong Ocean Ship Engineering Co., Ltd.*

Mr. Li Yu Ping

*Vice General Manager*

*Qingdao Ocean Shipping Company*

Mr. Lu Zhi Ping

*Managing Director*

*Shanghai Merchant Ship Design*

*& Research Institute [SDARI]*

Mr. Chen Da Quan

*Professor of Ship Hydro-dynamic Research*

*Dept.*

*Shanghai Ship & Shipping Research Institute*

Mr. Zhang Ming Xian

*Vice Technical Director*

*Shanghai Shipyard*

Mr. Wang Yong Fu

*Deputy Managing Director*

*Tian Jin Ocean Shipping Co. [COSBULK]*

Mr. Zhang Li Feng

*Deputy Technical Director*

*Xingang Shipyard*

**Secretary to the Committee**

Mr. H. Yamamoto, NK Shanghai Office

**Danish Technical Committee****Chairman**

Prof. Preben Terndrup Pedersen

**Members**

Mr. Niels Christiansen

*Executive Vice President*

*A/S Dampskibsselskabet Torm*

Mr. Christian Breinholt

*Head of Safety & Environmental Legislation*

*Division*

*Danish Maritime Authority*

Mr. Erik Moller

*Executive Vice President*

*D/S Progress*

Mr. Fremming Schmidt-Andersen

*Senior Vice President*

*Lauritzen Kosan Tankers A/S*

Mr. Peter Tang-Jensen

*Executive Vice President*

*Odense Steel Shipyard Limited*

Mr. Bengt Sangberg

*Managing Director*

*ShipTech A/S*

Prof. Preben Terndrup Pedersen  
*Department of Naval Architecture and Offshore  
 Engineering, Technical University of Denmark*

**Secretary to the Committee**

Mr. K. Nagase, NK Copenhagen Office

**Korea Technical Committee**

**Chairman**

Dr. Eng. Kim Sa-Soo

**Members**

Mr. Kim Sung-Ki  
*Managing Director  
 Daedong Shipbuilding Company, Limited*

Mr. Lee Sang-Woo  
*Executive Director  
 Dae Sun Shipbuilding & Engineering  
 Company, Limited*

Mr. Lim Moon-Kyu  
*Senior Executive Managing Director  
 Engineering & Technology Division  
 Daewoo Heavy Industries Limited*

Mr. Hwang Seong-Ho  
*Executive Director, Design Office  
 Halla Engineering and Heavy Industries  
 Limited*

Mr. Park Kyu-Won  
*Executive Director  
 Hanjin Heavy Industries Company, Limited*

Mr. Kim Sung-Nyun  
*Director  
 Ship Design Office No. 3, Shipbuilding Division  
 Hyundai Heavy Industries Company, Limited*

Dr. Eng. Choi Jae-Sung  
*Professor, Maritime College  
 Korea Maritime University*

Dr. Eng. Kim Sa-Soo  
*Professor  
 Department of Naval Architecture & Ocean  
 Engineering  
 College of Engineering  
 Pusan National University*

Mr. Park Choong-Heum  
*Director Ship Design  
 Shipbuilding Design Div.  
 Samsung Heavy Industries Company, Limited*

**Secretary to the Committee**

Mr. S. Ogawa, NK Pusan Office

**Philippine Technical Committee**

**Chairman**

Mr. Arben E. Santos

**Members**

Mr. Roy Alampay  
*General Manager/Vice President  
 Baliwag Navigation, Inc.*

Capt. Rogelio A. Torres  
*Vice President  
 Eastern Shipping Lines, Inc.*

Mr. Hoe Eng Hock  
*President  
 Keppel Philippines Shipyard, Inc.*

Mr. Michael G. Bernardino  
*Vice President  
 Loadstar Shipping Co., Inc.*

Ms. Doris Ho  
*CEO  
 Magsaysay Lines Inc. & Subsidiaries*

Mr. Arben E. Santos  
*President  
 Southwest Maritime Corporation*

Mr. Masakazu Hirakawa  
*General Manager of Repairing Division  
 Tsuneishi Heavy Industries (Cebu), Inc.*

**Secretary to the Committee**

Mr. T. Seki, NK Manila Office

**Singapore Technical Committee**

**Chairman**

Mr. Teh Kong Leong

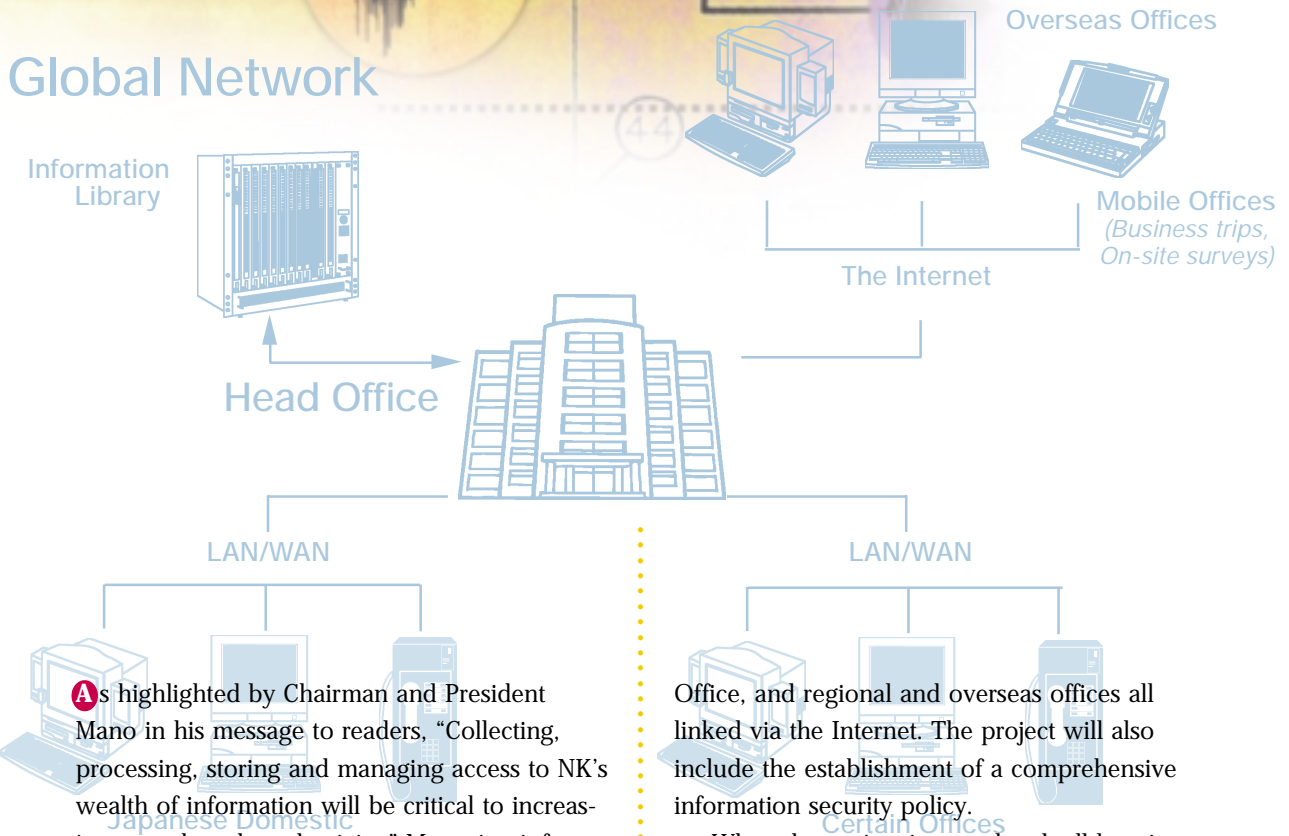
**Members**

Mr. K.H. Li  
*General Manager  
 Fleet Management Division  
 IMC Shipping Co., Pte Ltd.*

- Mr. Seow Tan Hong  
*General Manager (Engineering)*  
*Jurong Shipyard Ltd.*
- Mr. Nelson Yeo  
*Executive Director*  
*Keppel Hitachi Zosen*
- Mr. Wong Len Poh  
*Senior Assistant Director (Ship Survey)*  
*Maritime & Port Authority of Singapore*
- Mr. T. Hama  
*Deputy Managing Director*  
*Navix Marine (S) Pte Ltd.*
- Mr. Teh Kong Leong  
*Executive Vice President*  
*Neptune Orient Lines Ltd.*
- Mr. Foong Wing Chee  
*Senior Vice President*  
*Technical & Safety Department*  
*Ocean Tankers (Pte) Ltd.*
- Mr. Phua Cheng Tar  
*Executive Director*  
*PACC Ship Managers Pte Ltd.*
- Mr. Chia Che Kiang  
*General Manager*  
*Pacific International Lines Pte Ltd.*
- Mr. Mok Kim Whang  
*General Manager*  
*Pan-United Shipyard Pte Ltd.*
- Mr. Kenneth Kee  
*Managing Director*  
*Petroships Pte Ltd.*
- Mr. Hugh Hung  
*Managing Director*  
*Tanker Pacific Management (Singapore) Pte Ltd.*
- Mr. Morten Jaer  
*Senior Manager*  
*Thome Ship Management Pte Ltd.*
- Mr. C. P. Chan  
*Executive Vice President*  
*World-Wide Shipping Agency (S) Pte Ltd.*
- Secretary to the Committee**  
Mr. H. Kobayashi, NK Singapore Office
- Thai Technical Committee**
- Chairman**  
Capt. Sutep Tranantasin
- Members**  
Mr. Thirapong Varangoon  
*Managing Director*  
*Asian Marine Services Public Co., Ltd.*
- Mr. Wirat Chanasit  
*General Manager*  
*ItalThai Marine Ltd.*
- Mr. Chanet Phenjati  
*President*  
*Jutha Maritime Public Co., Ltd.*
- Mr. Jaipal Mansukhani  
*Director*  
*Precious Shipping Public Co., Ltd.*  
*(Great Circle Shipping Co., Ltd.)*
- Mr. Wittawat Svasti-Xuto  
*International Chartering Division Manager*  
*PTT International*  
*Petroleum Authority of Thailand*
- Mr. Amares Phulsawat  
*Managing Director*  
*Phulsawat Group*
- Mr. Voravit Visitkijakarn  
*Managing Director*  
*Sang Thai Shipping Co., Ltd.*
- Capt. Sutep Tranantasin  
*Vice President*  
*Regional Container Lines Group*
- Mr. Anan Junprapap  
*Petroleum Transport Manager*  
*Thai Oil Company Ltd.*
- Mr. Teruo Kondo  
*Chief Production Manager*  
*Unithai Shipyard & Engineering Ltd.*
- Secretary to the Committee**  
Mr. Somsak Sucondhaman, NK Bangkok Office
- (As of December 31, 1999)*



# NK in Cyberspace



As highlighted by Chairman and President Mano in his message to readers, “Collecting, processing, storing and managing access to NK’s wealth of information will be critical to increasing growth and productivity.” Managing information electronically across networks, or in cyberspace, will greatly enhance the efficiency and speed of information flow, both within NK and to the owners and managers of NK-classed ships.

One major project in the development of the NK information management strategy is the NKGlobalware project. This project consists of the development of NKGlobalware specialized custom software for handling information, the development of an Electronic Information Library for arranging and organizing information and a global network for conveying and transferring information. The linking of NK offices across Japan by a wide-area network (WAN) this past year was one key step in the NKGlobalware project, which eventually will see the NK Head

Office, and regional and overseas offices all linked via the Internet. The project will also include the establishment of a comprehensive information security policy.

When the project is completed, all locations will be interconnected and will be able to take part in managing information together. All locations will be able to visit the Information Library and peruse the contents, as well as use the business tools available. Everyone will also be able to participate and exchange information with each other, as opposed to the previous method whereby information was shared almost only vertically.

The Information Library will not only contain documents, but also contains a wide range of application programs, electronic plans, digital books, results of computer calculations, digital photos and videos for self-learning, amongst other items. Texts of speeches of the Board as well as the activity reports of each location will also be accessible from the library, which will

be updated periodically. The Information Library can thus be expected to facilitate better understanding of the aims and directions of the Society, which in turn will enable users to take prompt and more appropriate action in their day-to-day activities. Further, information originating from all locations will also be systematically and actively collected, which will then serve to assist the Board in making firm and clear decisions.

This project is commencing with the hardware, which is already in place at each location, being interconnected into an integrated network using basic custom communications software. Once the NKGlobalware system is up and running, the Information Library will then be built up and regularly enhanced in collaboration with all locations.

Owners and operators of NK-classed ships can now also start to enjoy the benefits of such electronic information technology management with the launch of the NK-SHIPS information service over the Internet. NK-classed ships' survey status, periodical survey items, survey due dates and other items are now available 24 hours a day, 365 days a year, from anywhere in the world. Users can search, download and output information in real time, with no special software needed. The service can be accessed as soon as registration procedures have been completed. Complete security of information is provided, allowing users to access information regarding their ships with complete confidence.

Regular users will have noticed that the NK Homepage continues its ongoing evolution. Recent improvements include the addition of the official NK Directory, the *ClassNK Magazine* and

even this annual report, in a readily readable and printable format. As part of a major review and restructuring of the homepage, investigations are currently underway to evaluate the possibility of adding an e-shop to allow the online ordering of all NK Rules & Guidances, and other publications.

Two excellent examples of the integration of NK research and experience with information technology were introduced on demonstration CD-ROMs this year. PrimeShip is ClassNK's integrated group of software systems and services for total lifetime ship care. At present, over 20 programs and services constitute PrimeShip.

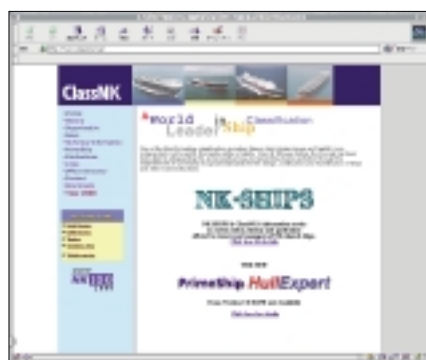
This year, a demonstration CD-ROM was produced to introduce and promote the subset of programs known as Primeship-HULL, a set of tools for hull design and

analysis, which includes:

- Integrated Program for Calculating Ship Performance Capability (IPCA)
- Basic Design Omnibus Program System Using NK Rules (BOSUN)
- NK Advanced Structural Analysis Support System (NASTASS)
- Advanced Ship Structural Analysis and Validation System (ASSAS)

The comprehensive hull structural information database known as PrimeShip-HullExpert, was also introduced by demo version on CD-ROM.

In terms of infrastructure, NK in Cyberspace will be supported by the new information center to be built near our research center, which will serve as the organization's information and communications hub. Construction is expected to commence soon and be completed mid 2001.



**Board of Directors**

T. Mano	<i>Chairman and President Nippon Kaiji Kyokai</i>
M. Hidaka	<i>Executive Vice President Nippon Kaiji Kyokai</i>
K. Ogawa	<i>Executive Vice President Nippon Kaiji Kyokai</i>
M. Murakami	<i>Managing Director Nippon Kaiji Kyokai</i>
Dr. M. Oka	<i>Managing Director Nippon Kaiji Kyokai</i>
T. Takano	<i>Managing Director Nippon Kaiji Kyokai</i>
Y. Tsudo	<i>Managing Director Nippon Kaiji Kyokai</i>
Dr. T. Chida	<i>Professor Emeritus Hitotsubashi University</i>
Dr. Y. Fujita	<i>Professor Emeritus The University of Tokyo</i>
M. Ikuta	<i>Chairman The Japanese Shipowners' Association</i>
T. Kamei	<i>Chairman The Shipbuilders' Association of Japan</i>
S. Kohno	<i>Chairman The Tokio Marine &amp; Fire Insurance Co., Ltd.</i>
Y. Kunii	<i>Chairman Nippon Suisan Kaisha, Ltd.</i>
T. Kusakari	<i>President Nippon Yusen K.K.</i>
I. Minami	<i>President Hitachi Zosen Corp.</i>
T. Nishioka	<i>President Mitsubishi Heavy Industries, Ltd.</i>
T. Ohta	<i>President Iino Kaiun Kaisha, Ltd.</i>
T. Okano	<i>President Mitsui Engineering &amp; Shipbuilding Co., Ltd.</i>
Y. Ono	<i>Vice President Kawasaki Heavy Industries, Ltd.</i>
Y. Shimogaichi	<i>President NKK Corp.</i>
K. Suzuki	<i>Vice President Mitsui O.S.K. Lines, Ltd.</i>
T. Takei	<i>President Ishikawajima-Harima Heavy Industries Co., Ltd.</i>

**Auditors**

T. Inokuchi	<i>President Mitsui Marine &amp; Fire Insurance Co., Ltd.</i>
N. Ishii	<i>Former Managing Executive Director Nippon Yusen K.K.</i>
H. Nagai	<i>Chairman Japan Airport Terminal Co., Ltd.</i>
M. Ozawa	<i>Chairman Sumitomo Heavy Industries, Ltd.</i>
I. Shintani	<i>President Kawasaki Kisen Kaisha, Ltd.</i>

**Administrative Committee**

**Chairman** Mr. T. Mano

**Members**

T. Aihara	<i>President Corporation for Advanced Transport &amp; Technology</i>
T. Aizawa	<i>President Nissho Shipping Co., Ltd.</i>
S. Akiyama	<i>President Taiheiyo Kisen Kaisha, Ltd.</i>
K. Ariyoshi	<i>Chairman The Yasuda Fire &amp; Marine Insurance Co., Ltd.</i>
Dr. T. Chida	<i>Professor Emeritus Hitotsubashi University</i>
A. Chihaya	<i>President Nippon Steel Corp.</i>
K. Emoto	<i>President Kawasaki Steel Corp.</i>
Dr. Y. Fujita	<i>Professor Emeritus The University of Tokyo</i>
Y. Hamano	<i>President Onomichi Dockyard Co., Ltd.</i>
M. Hidaka	<i>Executive Vice President Nippon Kaiji Kyokai</i>
T. Higaki	<i>President Imabari Shipbuilding Co., Ltd.</i>
A. Himeno	<i>President Sasebo Heavy Industries Co., Ltd.</i>
N. Hirabayashi	<i>Chairman Tsuneishi Shipbuilding Co., Ltd.</i>
M. Ikuta	<i>Chairman The Japanese Shipowners' Association</i>
S. Inada	<i>President Daiichi Chuo Kisen Kaisha</i>
T. Inokuchi	<i>President Mitsui Marine &amp; Fire Insurance Co., Ltd.</i>

H. Inui	<i>President Inui Steamship Co., Ltd.</i>	K. Morioka	<i>President Hachiuma Steamship Co., Ltd.</i>
N. Ishii	<i>Former Managing Executive Director Nippon Yusen K.K.</i>	Dr. S. Motora	<i>Professor Emeritus The University of Tokyo</i>
Y. Ishikawa	<i>President Taiheiyo Kaiun Co., Ltd.</i>	M. Murakami	<i>Managing Director Nippon Kaiji Kyokai</i>
Dr. H. Itagaki	<i>President Yokohama National University</i>	H. Nagai	<i>Chairman Japan Airport Terminal Co., Ltd.</i>
M. Kai	<i>President Yuyo Steamship Co., Ltd.</i>	T. Nagumo	<i>President Sanoyas Hishino Meisho Corp.</i>
T. Kamei	<i>Chairman The Shipbuilders' Association of Japan</i>	T. Namura	<i>President Namura Shipbuilding Co., Ltd.</i>
K. Kanamori	<i>President Tokyo Senpaku Kaisha, Ltd.</i>	Y. Nimura	<i>President Kyokuyo Co., Ltd.</i>
K. Kawato	<i>President Nippon Steel Shipping Co., Ltd.</i>	T. Nishimuro	<i>President Toshiba Corp.</i>
Y. Kitamura	<i>President Shin Kurushima Dockyard Co., Ltd.</i>	T. Nishioka	<i>President Mitsubishi Heavy Industries, Ltd.</i>
H. Kobayashi	<i>President Hinode Kisen Co., Ltd.</i>	K. Ogawa	<i>Executive Vice President Nippon Kaiji Kyokai</i>
S. Kohno	<i>Chairman The Tokio Marine &amp; Fire Insurance Co., Ltd.</i>	K. Ohnishi	<i>President The Japan Steel Works, Ltd.</i>
M. Kojima	<i>President Sumitomo Metal Industries, Ltd.</i>	Dr. N. Ohoka	<i>Chairman The Japanese Society for Non- Destructive Inspection</i>
Y. Kunii	<i>Chairman Nippon Suisan Kaisha, Ltd.</i>	T. Ohta	<i>President Iino Kaiun Kaisha, Ltd.</i>
T. Kusakari	<i>President Nippon Yusen K.K.</i>	Dr. M. Oka	<i>Managing Director Nippon Kaiji Kyokai</i>
T. Mano	<i>Chairman and President Nippon Kaiji Kyokai</i>	Y. Okamura	<i>President Idemitsu Tanker Co., Ltd.</i>
H. Matsunaga	<i>President Tokyo Tanker Co., Ltd.</i>	T. Okano	<i>President Mitsui Engineering &amp; Shipbuilding Co., Ltd.</i>
K. Matsuzawa	<i>President The Nippon Fire &amp; Marine Insurance Co., Ltd.</i>	M. Okazaki	<i>Chairman The Dowa Fire &amp; Marine Insurance Co., Ltd.</i>
S. Minami	<i>Chairman Osaka Shipbuilding Co., Ltd.</i>	Y. Ono	<i>Vice President Kawasaki Heavy Industries, Ltd.</i>
I. Minami	<i>President Hitachi Zosen Corp.</i>	M. Ozawa	<i>Chairman Sumitomo Heavy Industries, Ltd.</i>
K. Minamino	<i>President International Marine Transport Co., Ltd.</i>	K. Sawa	<i>President Fuji Electric Co., Ltd.</i>
K. Mizukoshi	<i>President Kobe Steel, Ltd.</i>	Y. Seto	<i>President Kyoei Tanker Co., Ltd.</i>
		Y. Shimogaichi	<i>President NKK Corp.</i>

I. Shintani	<i>President Kawasaki Kisen Kaisha, Ltd.</i>	T. Kamijyo	<i>Director NKK Corp.</i>
E. Shoyama	<i>Chairman Hitachi, Ltd.</i>	M. Miyazaki	<i>Managing Director Ishikawajima-Harima Heavy Industries Co., Ltd.</i>
K. Suzuki	<i>Vice President Mitsui O.S.K. Lines, Ltd.</i>	S. Mochizuki	<i>Managing Director Nippon Steel Corp.</i>
T. Takano	<i>Managing Director Nippon Kaiji Kyokai</i>	Dr. S. Motora	<i>Professor Emeritus The University of Tokyo</i>
T. Takei	<i>President Ishikawajima-Harima Heavy Industries Co., Ltd.</i>	T. Nakanishi	<i>Managing Director Sumitomo Heavy Industries, Ltd.</i>
H. Tanaka	<i>President Taiyo Kaiun K.K.</i>	N. Namba	<i>Managing Director Mitsubishi Heavy Industries, Ltd.</i>
I. Taniguchi	<i>President Mitsubishi Electric Corp.</i>	Dr. H. Ohtsubo	<i>Professor The University of Tokyo</i>
A. Tanikawa	<i>Chairman Shinwa Kaiun Kaisha, Ltd.</i>	Dr. J. Sato	<i>Professor Emeritus Tokyo University of Mercantile Marine</i>
H. Tanikawa	<i>Professor Emeritus Seikei University</i>	T. Shimada	<i>President NYK Logistics Technology Institute</i>
Y. Tsudo	<i>Managing Director Nippon Kaiji Kyokai</i>	M. Shimazaki	<i>Managing Director The Japan Steel Works, Ltd.</i>
K. Uchida	<i>President Meiji Shipping Co., Ltd.</i>	H. Sogawa	<i>Executive Director Kobe Steel, Ltd.</i>
H. Uemura	<i>President The Sumitomo Marine &amp; Fire Insurance Co., Ltd.</i>	S. Tadokoro	<i>Director Kawasaki Heavy Industries, Ltd.</i>
Dr. Y. Yamamoto	<i>Professor Emeritus The University of Tokyo</i>	Y. Tanaka	<i>Chairman of Sub Committee on Ship Maintenance The Japanese Shipowners' Association</i>
T. Yamaoka	<i>Chairman Japanese Marine Equipment Association</i>	M. Taniguchi	<i>Member of Technical Committee The Japanese Shipowners' Association</i>
<b>Technical Committee</b>		Y. Uesu	<i>Vice Chairman of Technical Committee The Japanese Shipowners' Association</i>
<b>Chairman</b>	Dr. S. Motora	S. Yabuki	<i>Director Mitsui Engineering &amp; Shipbuilding Co., Ltd.</i>
<b>Members</b>		K. Yagawa	<i>Director Sasebo Heavy Industries Co., Ltd.</i>
Dr. S. Hayama	<i>Professor Toyama Prefecture University</i>	H. Yamada	<i>Managing Director Hitachi Zosen Corp.</i>
A. Honjo	<i>Technical Counselor Sumitomo Metal Industries, Ltd.</i>	Dr. Y. Yamamoto	<i>Professor Emeritus The University of Tokyo</i>
Dr. Y. Hori	<i>Vice President Kanazawa Institute of Technology</i>	Dr. K. Yoshida	<i>Professor Tokai University</i>
Dr. M. Horigome	<i>Professor Tokyo University of Mercantile Marine</i>		
Dr. Y. Inoue	<i>Professor Yokohama National University</i>		
Dr. H. Itagaki	<i>President Yokohama National University</i>		

(As of December 31, 1999)

## KEY CONTACTS

---

### **Head Office**

Nippon Kaiji Kyokai  
4-7 Kioi-cho, Chiyoda-ku, Tokyo 102-8567, Japan  
Tel: +81-3-3230-1201 Fax: +81-3-5226-2012  
www.classnk.or.jp

### **South Asia and Oceania**

#### ***Singapore Office***

Nippon Kaiji Kyokai  
101, Cecil Street, 21st Floor,  
Rooms 1-7, 9 & 12, Tong Eng Building,  
Singapore, 069533  
Tel: +65-2223133,  
Fax: +65-2255942

### **Middle East, East Mediterranean and Black Sea**

#### ***Piraeus Office***

Nippon Kaiji Kyokai  
25 Akti Miaouli, Piraeus 185 35,  
Greece  
Tel: +30-1-4227107,  
Fax: +30-1-4227051

### **Europe and Africa**

#### ***London Office***

Nippon Kaiji Kyokai  
6th Finsbury Circus House,  
12-15 Finsbury Circus,  
London, EC2M 7EB,  
United Kingdom  
Tel: +44-20-7621-0963,  
Fax: +44-20-7626-0383

### **The Americas**

#### ***New York Office***

Nippon Kaiji Kyokai  
One Parker Plaza, 11th Floor  
400 Kelby Street, Fort Lee,  
N.J. 07024, U.S.A.  
Tel: +1-201-944-8021,  
Fax: +1-201-944-8183

For permission to reproduce portions of this publication, please contact:  
Marketing and Publicizing Department  
Tel: +81-3-5226-2040 Fax: +81-3-5226-2039

# ClassNK

**Nippon Kaiji Kyokai**

4-7 Kioi-cho, Chiyoda-ku, Tokyo 102-8567, Japan

[www.classnk.or.jp](http://www.classnk.or.jp)