

Part II Material Issues

Our medium-term management plan Staying Ahead 2022 with Digitalization and Green launched in fiscal 2018 sets strategies for establishing a stable revenue structure and fully integrating ESG into our management strategies. We have redefined the Group's material issues in terms of safety, the environment, and human resources. The Group actively applies its business activities to address social and environmental issues as we seek to maximize corporate and social value. This section introduces examples of how each of our business segments is addressing three important issues.

Integration of ESG and Management Strategies





Safety > Page 32

Since the Group transports cargo by ships, aircraft, and trucks, safety initiatives aimed at achieving accident-free operations are of utmost priority.

Core Initiatives

NAV9000 Safety Standard, Near Miss 3000 activities, accident-response drills



The Environment > Page 34

As a global corporation, it is essential for us to address the environmental issues. Responding to stakeholders' environmental concerns is an important part of raising our corporate value and also creates opportunities for business growth.

Core Initiatives

Prevent global warming and air pollution, preserve biodiversity, prevent marine pollution, introduce renewable energy



Human Resources > Page 36

Human resources are at the heart of our safety and environmental efforts and are essential to enhancing our corporate competitiveness. The Group is dedicated to securing and cultivating the highest quality employees and providing training opportunities to boost productivity.

Core Initiatives

Workstyle reform, Health Management Promotion Project, NYK Business College, NYK Maritime College



LNG Vessels

Natural gas is emerging as a viable eco-friendly source of energy. Liquefied natural gas (LNG) is natural gas that has been cooled to -162 degrees Celsius, at which the gas becomes a liquid having 1/600th the volume of gas. LNG vessels must be equipped with highly sophisticated advanced control technology to stably maintain LNG's extremely low temperature and pressure to prevent leaks and fire outbreaks during loading, unloading, and transport.

NYK Group green initiatives are generating new value and sustained growth



Hidetoshi Maruyama

Senior Managing Corporate Officer
Chief Information Officer (CIO)
Chief Executive of Technical Headquarters
(Executive Chief of Environmental Management,
Chairman of the Technology Strategy Committee)
(Joined the Company in 1981)

Keiko Wada

Manager
No. 1 Green Business Team
Green Business Group
(Joined the Company in 2000)

Tomoki Matsuo

Environmental Management and
Promotion Team
Environment Group
(Joined the Company in 2011)

Yuichi Shirane

Deputy Manager
Corporate Finance Team
Finance Group
(Joined the Company in 2005)

The NYK Group's maritime, land, and air transport network provides the goods and services that people use in their everyday lives and that stimulate economic activity. However, providing these benefits has the downside of an environmental impact, such as from the use of fossil fuels that emit greenhouse gas. Recognizing the impact that our operations can have on the environment, our medium-term management plan outlines data digitalization and innovation initiatives to increase shipping safety and efficiency and environmental "green" initiatives to reduce the Group's environmental footprint and expand into new business fields. NYK Chief Executive of Technical Headquarters Hidetoshi Maruyama sat down with three leaders of green initiatives to discuss how the initiatives are providing value to society and our stakeholders.

Why "Green" Initiatives?

The environment is a field where everyone can share the same philosophy, which creates opportunities to collaborate with wide diversity of stakeholders.

What are the initiatives in the medium-term management plan and how are each of you involved?

Maruyama Last year, the NYK Group announced its medium-term management plan, "Staying Ahead 2022 with Digitalization and Green." Today we are discussing mainly the

green side of the strategy, but the digital and green are actually inextricable. “Staying Ahead” represents our determination to stay a “half-step ahead” with our green initiatives. In the environmental field, we believe trying to jump 10 steps ahead all at once would only likely end in failure. We think it’s more effective, indeed critical for the environment, to make sure-and-steady progress. We think our customers will appreciate the steady advances we achieve and choose us for their shipping needs.

Wada The Green Business Group I’m working in is mainly focusing on renewable energy. My team is developing the new offshore wind business by bringing together the various departments, group companies, and partner companies.

Until March 2018, I took part in creating the strategies for the medium-term plan as a member of the Corporate Planning Group. We worked out a new growth strategy for digitalization and green (D&G) to match it to the current external environment and social needs. Now that I am working on the front lines of the green initiatives, I see significant opportunities for our Group and at the same time understand how critical it is for the Company to have a clear direction and strategy.

Shirane I worked in the Company’s Sales Department for 12 years before my present position in the Finance Group. In May 2018, NYK became the first shipping company in the world to issue green bonds, funds from which may only be



The green initiatives are the foundation of our corporate activities and for all of us to put into action.

— Maruyama

used for operations related to environmental improvement.

The idea to issue the green bonds came out of the D&G initiatives of our medium-term management plan. I love putting new ideas into action and am always thinking about what the Finance Group can do under the D&G initiatives. I saw green bonds as a new source for funds and when it became clear that they offered numerous benefits for the group company, I strongly advocated for the issue.

Matsuo I was also in the Sales Department until I joined the Environmental Management and Promotion Team in the autumn of 2017. I consider myself as the Group’s public relations ambassador for the environment, and my mission is to make our green achievements more widely known in Japan and overseas.

For example, the Group’s greenhouse gas emission goals were approved by the Science-Based Targets initiative, and the examination of our emission information disclosure for the CDP 2018 Climate Change analysis earned us the honor of inclusion in the CDP Climate A List. We also recently announced our support of the recommendations of the Financial Stability Board’s Task Force on Climate-related Financial Disclosures (TCFD).

Maruyama We’re all involved in different activities, but we shouldn’t forget that the D&G initiatives aren’t just for some departments; they’re the foundation for all our corporate activities.

In a way, they’re like a computer operating system. The environment is the OS that boots and runs the applications, which are our businesses and organizations. The applications need the latest OS to work, and the whole company has to run on it or else it won’t work. It’s the backbone for how we perceive all the products and services our company thrives on. A company can’t function without the latest OS, and the applications wouldn’t work.

From another point of view, I think that the theme of the “environment” is the field with the smallest gap in its philosophy, even if it is extended from the individual to a company, a country or the world. For example, I’m sure everyone wants to leave a flourishing planet for our children and future generations. Environmental themes all point in the same direction no matter where you start from, so it’s easy for everyone to agree to initiatives to progress in that direction. Certainly, everyone cares for the environment and if each of us were to act on that feeling I believe we could accomplish some good for humanity.

Shirane I agree and truly believe we all share the same philosophy about the environment. The same was true for the green bonds. The issuance required cooperation not just internally with our technical, environmental, sales, and IR departments, but also externally with securities

companies, the Ministry of the Environment, and the media. We had a shared an objective, and everyone came together to make it happen.

Wada I feel the same. The social mission to contribute to Japan's new offshore wind industry is shared by many, and the collaboration crossing industrial and organizational boundaries includes electric power companies, manufacturers, contractors, and certification agencies.

What Do We Need to Do?

We need to approach the green initiatives as personal goals and use the strengths we have now to build value.

Has the Company had to face any new issues while advancing the initiatives?

Wada As soon as we announced our green business initiatives, we started receiving requests from customers for services we had not provided before. When I started looking to see if we were able to provide those services, I realized the



“ My goal is to contribute to the development of the offshore wind industry in Asia and enhance NYK's presence in this field. ”

— Wada



“ I want to make our idea of taking half steps forward to be more widely known because I think it will motivate our employees and be commended outside the company too. ”

— Matsuo

Group has many unused capabilities. Our Group members spent many years working hard to improve our services and businesses, but they themselves had not realized the full value of our strengths. The Group has vast untapped value, and I believe discovering it and sharing that information with others would boost both our value as well as our strength.

Matsuo I have the same impression. Even though the Group has numerous initiatives to be a half step ahead, not everyone understands how useful the initiatives are because information is not adequately communicated and not being shared enough inside the Company or throughout the Group. It's really a shame that the information is not being disseminated and that the efforts are not being properly evaluated.

Maruyama Stressing to employees how important that information is and building employee awareness certainly are important, and I think corporate culture plays a key role in that. Without establishing a foundation for assimilating information and creating a culture of doing that, employees will not have the tools to understand the information even if it is available.

First, each person needs to be personally motivated to support the green initiatives. What motivates them doesn't matter. For example, I would like to see employees not just reading what the 17 SDGs are, but selecting a goal that they

can aim for in their work and then thinking of what they can do to address that social problem.

It doesn't matter how or why they choose a goal, it just matters that they choose one to work toward.

What Is the Path for the Half Steps Forward?

Enjoy taking on challenges and inspiring enthusiasm in others.

What value are you seeking to create in the future?

Matsuo The group company is reducing its carbon emissions and has set high targets to reduce greenhouse gas emissions per ton-kilometer versus the fiscal 2015 level by 30% by fiscal 2030 and by 50% by fiscal 2050. We're doing everything we can to reduce fuel consumption, and we also know that these targets are very ambitious. The whole group is mobilizing to meet these goals and every front office department is looking for ways to further reduce emissions.

We also have to increase awareness of our green initiatives among everyone from our newest employees to upper-level executives. We also must implement more effective measures to maintain our evaluations from international environmental ratings agencies, such as the CDP mentioned earlier, and to continue disclosing data in accordance with the recommendations of the TCFD. I really would like the NYK Group to take the lead and begin a wider movement in this area.

Shirane After NYK issued the green bonds, several of our competitors did as well, and bond issuances are becoming more common. To keep investors focused on our company, I think we now need to show them how we are using the funds we raised and that their investments are helping to improve the environment.

We're looking at various ways to show how we are using the funds raised from the green bonds. One way is, during the tours we give of our ship funded by the bond, to talk about our fundraising using green bonds and the environmental improvements that the funds helped realize. We're taking steps to deepen the feeling of a connection between investors and our company and keep them as long-term partners in our efforts.

Wada My main focus now is on developing the NYK Group's offshore wind business in time for the industrial launch in Japan. Once an offshore wind farm is in operation, it can generate power for as many as 30 years, which may allow its operators to establish a strong business platform with long-term revenue stability. We will try our best to contribute



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“
Our green initiatives are the key to maintaining long-term relationships of trust with all investors.
”
”

— Shirane

to society, create new value for the Group, and hopefully cultivate employee interest in the green initiatives.

Maruyama Just like in the digital field, the NYK Group is raising the international standard for environmental activities. I think it's important for the Company to be a leader in setting global standards rather than being a follower, which can entail a great amount of cost and time. To be a corporate group favored by customers, as was said earlier, rather than trying to take a giant leap forward, I think we should continue to steadily make progress and advance a half step at a time in the environment field.

I'd also like to see everyone really enjoying their work so that when others see that they think, "Wow, you really enjoy what you're doing. I want to do that too. Can I help?" In other words, I'd like to see our work grow into a movement. Our digitalization and green initiatives really are a new approach to business that management may find difficult to understand. Nevertheless, I hope they will support and encourage the enthusiasm of our younger employees. I'm open to new ideas from anyone and will be the first to champion a new idea that leads to a better future.

Safe operation management fulfilling the high standards of oil majors

Safety at the NYK Group

Pursuing Safety from Multiple Angles as a Top Priority

Since our early days, the NYK Group has dedicated a great deal of attention and efforts to safe operations, while working alongside shipowners and shipmanagement companies, under the belief that safety is a prerequisite of trust and without trust there is no business. The NYK Group approaches safe operations from multiple angles, including establishing a system aimed at zero accidents, performing activities based on the Group's original and unique NAV9000 safety standard, developing human resources, and using advanced technologies to prevent accidents and risks. In addition, in May 2019, we appointed a corporate officer to the post of chief safety officer (marine) to reinforce monitoring of compliance with international treaties on safe operations. We are now working to further elevate our safety activities, which includes comprehensive audits of our entire fleet.



Approach of the Energy Division

Working Together to Comply with Strict Rules

The IMO has imposed strict rules for tankers and LNG carriers spanning multiple angles to address the risks of transporting hazardous substances and to prevent spills. Oil majors also require a high level of operation management. As a result, the Group is constantly working to enhance safety and quality through a concerted effort involving the Energy Division, Marine Group, and shipmanagement companies.

1. Promoting Safe Operation Using Audits that Follow Proprietary Standards

NAV9000, formulated for safe operation and environmental protection, is an original, unique safety standard based on the ISO 9001/14001 international standards. NAV9000 includes approximately 1,500 items covering knowledge accumulated by the Group, requirements from our customers, and lessons from past accidents, among others. Since being introduced in 1998, the content has been reviewed in response to revisions made to treaties and rules, as well as to reflect requirements from oil majors.

Audits based on NAV9000 are performed on all the approximately 750 vessels in operation, including chartered vessels and the vessels we own. Every year we conduct audits of approximately 250 vessels and more than 30 shipowners and shipmanagement companies, during which we encourage safety awareness and promote an understanding of the standard with emphasis placed on two-way dialogs with partners.

2. Complying with the High Safety Standards of Oil Majors

The Oil Companies International Marine Forum (OCIMF), which comprises more than 100 oil companies from around the world including oil majors, examines marine pollution and maritime safety from shippers' perspectives and makes recommendations to the IMO and governments. The OCIMF administers the Ship Inspection Report Programme (SIRE) that assesses ships according to strict standards to determine whether a ship can operate safely. SIRE checks for 630 items, with each ship inspection requiring eight hours. Although inspections are not legally binding, customers require that ships be inspected once every six months. In turn, the results of these inspections are posted on the OCIMF's website.

We check and share various information, including OCIMF's requirements, while working closely with our shipmanagement companies, in pursuit of intrinsic safety*. As a result, the number of findings from SIRE inspections on ships in the Group's fleet are consistently below the industry average.

* Intrinsic safety: Not only complying with international regulations and industry standards but also detecting risk (dangers) using past experiences and knowledge, based on which additional measures are implemented to ensure complete safety.



CSO (Marine) Koyama (left) attending a ship inspection along with a NAV9000 auditor (center)

3. Global Tanker Quality Assurance

We established Global Tanker Quality (GTQ) as an organization for sharing information between the Energy Division and Marine Group along with four of the NYK Group's shipmanagement companies to promptly comply with OCIMF requirements and maintain the quality level of safe operations. From the standpoint of complying with requirements from the same customer for tankers and LNG carriers, we integrated the activities of both fleets (tanker and LNG) in 2013 and expanded the organization globally in 2018. Currently, GTQ has offices in five countries around the world.

Relationship Building with Industry Groups

Since 2014, GTQ has hosted an annual panel discussion involving all shipmanagement companies for the Group's tanker and LNG fleet. In 2018, nine companies took part, engaging in active discussions on the themes of the latest industry standards for mooring and the mental health of crew.

GTQ also engages in activities outside the Group. For example, GTQ members visit oil majors and other customers twice a year to receive their evaluation of the Group's ships, with findings reflected in safety initiatives. In addition, through our participation in the International Association of Independent Tanker Owners (Intertanko), along with relationship building with energy

associations around the world, we strive to keep abreast of industry group developments and collect the latest information.



Participation in Intertanko Gas Tanker Committee (GTC)

Publication of GTQ Flash

Since 2017, we have published a magazine called GTQ Flash twice monthly to share information with shipmanagement companies and raise awareness about safety. We distribute this magazine to ships or post it on board, since it contains information on recent accidents and overlooked events that could lead to accidents aboard a ship.

In 2018, Vessel Inspection Questionnaires containing OCIMF requirements underwent significant revisions. We prepared a comparison table for crew of our ships to promptly comply with the new requirements and also introduced the main changes in an edition of GTQ Flash.



GTQ Flash

GTQ's Global Network



Working to solve global environmental issues by shifting to fuels with lower environmental impact and conserving fuel

The Environment at the NYK Group

Complying with the New SOx Regulations to Take Effect in 2020 with the Slogan “Keep Ships Operating”

Environmental regulations for ships are becoming stricter with each passing year (see bottom right of page 35). In particular, complying with the new SOx (sulfur oxide) regulation (IMO 2020) slated to take effect in 2020 is an urgent task. Based on the characteristics of each vessel, the Group is moving ahead with preparations to comply with this new regulation using a two-pronged approach of shifting to fuels that are SOx regulation compliant and installing SOx scrubbers (exhaust gas purifiers) on vessels. Furthermore, we are also considering shifting to alternative fuels such as LNG.



Approach of the Car Transportation Division

Working with Customers to Prevent Global Warming and Air Pollution

Automakers, who are the division’s main customers, have established high level targets for environmental conservation and they are working day and night to mitigate environmental impacts. Occupying a presence as part of their supply chain, the Car Transportation Division is carefully addressing such initiatives. The division is taking action with an eye on the environment in various aspects of our business activities, including thoroughly conserving fuel use, switching to next generation fuels such as LNG, and expanding our green terminal concept.

1. Active Introduction of Next Generation Fuel – LNG

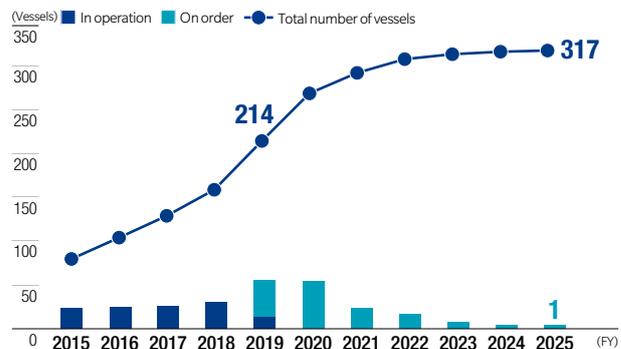
There is growing interest in switching vessels to LNG fuel given stricter environmental regulations. The number of vessels powered by LNG that operate on the world’s oceans will continue to rise in the future. The NYK Group was among the first in the industry to focus on LNG as a fuel because of its excellent environmental performance compared to heavy oil, the conventional fuel used to power vessels. In fact, United European Car Carriers, a member of the Group, has been operating two LNG-fueled pure car and truck carriers, *Auto Eco* and *Auto Energy*, in European waters since 2016, the first such vessels to operate anywhere in the world. Furthermore, the NYK Group is pursuing research into new pure car and truck carrier, with an eye on fuel cell batteries.

Meanwhile, to efficiently load massive amounts of LNG fuel aboard a large vessel, supplying fuel from a vessel, rather than land, represents the best option. In 2017, the NYK Group became the first in the world to operate a new LNG bunkering vessel. This vessel, named *Engie Zeebrugge*, supplies LNG fuel to *Auto Eco* and *Auto Energy* through ship-to-ship transfer. We are now moving ahead with commercializing this business in Japan by using our expertise in LNG fuel supply/sales in Europe (see page 21 for details).

Environmental Impact Reductions of LNG Fuel Compared to Heavy Oil



Operations of LNG-fueled vessels Around the World (Including Vessels on Orders)



Source: Prepared by NYK based on documents compiled by Japan Marine Science Inc. (as of March 31, 2019).

* Includes converted vessels; excludes LNG carriers. Excludes certain vessels operating inside China.



LNG-fueled pure car and truck carrier Auto Eco

2. Systematically Preparing to Switch to Compliant Fuel

Compliant fuel required to comply with the new SOx regulations has different qualities than conventional fuel oil. The NYK Group launched an in-house project to safely and reliably switch fuels without adversely affecting operations. Having formulated a plan to switch completely to compliant fuel by January 1, 2020, we are now moving ahead with preparations to keep ships operating, which includes onboard trial by two pure car and truck carriers to check for issues in compliant fuel in terms of combustibility and compatibility.

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3. Establishing a Model for Mitigating Environmental Impacts

At the port of Zeebrugge in Belgium, International Car Operators N.V. operates the world's largest dedicated car terminal (ICO terminal), which handles new vehicles for export. The NYK Group considers the ICO terminal as a green terminal and operates it in an environmentally conscious manner. Solar panels have been installed, LED lighting has been introduced, and 100% recycled water is used for washing cars. Furthermore, from 2020 we plan to begin a wind power business using 11 wind turbines. After the start of this business, we will sell generated electricity to a utility and accumulate expertise in the wind power business. The expertise gained from this green terminal will be used to mitigate environmental impacts across the entire supply chain. This will include examining the potential to roll this green terminal concept to other dedicated automobile terminals in the future.



ICO's dedicated automobile terminal

We were among the first in the world to install 300 EV charging stations, with the aim of charging 100,000 EVs per year.



4. Stepping up Fuel Conservation Across the Division

In 2018, junior workers at the Car Transportation Division took the lead in launching a cross-functional project for fuel conservation called the Green RORO Innovating Project (GRIP). This project is achieving results using approaches from multiple angles, including improving operations of vessels at port or during inclement weather, actively cleaning propellers, and promoting fuel conservation through vessel visit briefings. We are now utilizing the know-how of fuel conservation activities accumulated at the NYK Group over the years, including holding study sessions not only inside the Car Transportation Division but also jointly with other relevant departments. This is being implemented as an all-hands-on deck project that involves sharing excellent initiatives with all division workers weekly.



An underwater camera developed by an employee, the camera's arm length can be extended to check a vessel's bottom from onshore. These inspections can be carried out more frequently than diver inspections, so we are able to identify the right time for required bottom cleaning, thus improving fuel efficiency.

History of Companywide Fuel Conservation Activities

- 1977: Established Save Bunker Committee
- 2005: Launched Save Bunker Campaign, aiming to reduce the fuel consumption and CO₂ emissions of ships
- 2012: Launched IBIS Project (for container ships), aiming for the most optimal economic operations using big data
- 2013: Launched IBIS-TWO pursuing optimal economic operations of all vessel types other than container ships
- 2019: Renewed name of IBIS-TWO to IBIS TWO Plus, to promote fuel-saving initiatives in a broader manner

Main Environmental Regulations and Programs:

- 2019: Start of reporting fuel consumption to IMO (DCS: Data Collection System)
- 2020: Launching of stricter SOx regulations (use of fuel with 0.5% or less sulfur in open waters)
- 2021: Expansion of geographic regions with NOx regulations (North Sea and Baltic Sea to be added)

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Honing our operation and maritime expertise strengths to become the world’s leading dry bulk fleet

Human Resources at the NYK Group

Developing a Workplace Where Diverse HR Talent Can Fully Contribute Its Skills

The NYK Group employs a workforce of about 35,000 people worldwide; of which, more than 70% work outside of Japan. For the Group to grow in a sustainable manner, it is vital that we maintain and secure talented human resources and engage in human resources development. For this reason, we provide decent workplaces that motivate our people and offer skills development through unique training programs, such as NYK Business College and NYK Maritime College (see page 39 for details). We have also introduced a vessel operations meister program that provides an in-house certification to promote the further development of skills while verifying knowledge already gained through training.



Approach of the Dry Bulk Division

Promoting HR Development and the Use of Digital Technology to Distinguish Ourselves in Operation Quality

The barrier to entry for the dry bulk carrier business is relatively low and many players have emerged, which has raised concerns about declining operation quality. As a result, many customers demand an even higher level of operation quality than before. The Group is setting itself apart from competitors in terms of high operation quality by further reinforcing its operation and maritime expertise through human resources development programs and optimizing operations with digitalization.

1. Improving Skills with Unique Training and Programs

Land operators responsible for onshore operators play the important role of maximizing operation efficiency aimed at improving profitability and reducing costs. Each operator is assigned five to 10 vessels, for which they arrange fuel and examine operation plans based on weather conditions and customer needs. Operators need to look at the big picture encompassing various elements, despite the differing conditions of vessel, route, and time. Their work is becoming more sophisticated and complex with each passing year; thus, it is more important than ever to continually hone the latest operation skills. The Dry Bulk Division is working to develop the “best operators” to sustain its world leading operation quality.

Required Elements to Become the “Best Operator”



■ Training for New Appointees

The Dry Bulk Division is divided by groups based on cargo. Joint training sessions are held to ensure that new appointees have the same skill level. This training is led by either captain or chief engineer class employees or highly experienced operators. Participants eventually serve as instructors. The training takes place for five weeks in April and October, comprising classroom learning and field visits with a focus on knowledge acquisition.



Touring another company during training

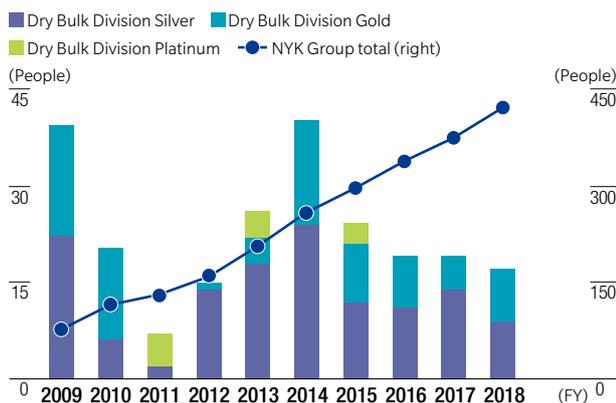


The vessels *Shinichi Maru*, *Noshiro Maru*, and *Sage Sagittarius* berthed at the port of Newcastle

In-house Certification: Vessel Operations Meister Program

The vessel operations meister program established in fiscal 2009 provides in-house certification to develop operators with an even stronger commitment to safe operations and greater operation efficiency. To participate, employees must have experience in vessel operations at NYK. Employees of overseas subsidiaries can also participate as long as they have experience in vessel operations. To obtain certification, participants must complete the training course and pass a written exam. The number of employees at the Group with this certification totals 423, consisting of 15 at the platinum level, 152 at the gold, and 256 at the silver (as of March 31, 2019).

Number of Certified Onshore Vessel Operators



2. Dispatching Crew to Master Cargo Handling Techniques

Ships carry seawater as ballast water for stabilization during voyages. At the loading port, this ballast water is discharged and cargo is loaded. In the case of dry bulk carriers, crew require skills to discharge ballast water, calculate load weight by accurately measuring draft,* and negotiate with cargo loader operators and terminal managers onshore. Furthermore, they also need to establish a cargo handling plan where cargo is loaded within the designated time while discharging ballast water. Cargo loading work must be completed within a short period of time. However, this makes it difficult to master the know-how because there are only a few opportunities to gain this experience during the boarding period.

With this in mind, since 2017 we have held a loading academy in Australia at the port of Newcastle, considered to be one of the most challenging places in the world to load coal. Two crew members were dispatched to the port for three weeks to

build experience in the field. Such training enables us to provide high value-added proposals combining operations and handling to customers. We appoint a Japanese supervisor locally who builds relationships with the local port authority and coal terminal operator in various fields, including not only hosting this training, but also supporting the cargo handling of other vessels.

*Draft: The vertical distance from the bottom of a ship to the surface of the water



Training on cargo handling procedures



Training on cargo handling calculations

Comment from a Participant

(Chief Officer Katsumi Masuyama; First Trainee)

Through this training, I was able to experience cargo handling aboard 14 vessels. Having the chance to observe and actually take part in this work opened my eyes to the differing characteristics of each vessel. I confirmed the benefits and weaknesses of each in the field. I was also able to witness specific ways of further enhancing customer satisfaction, such as personnel allocation and preliminary preparations, from cargo handling supervisors and the ship's crew.

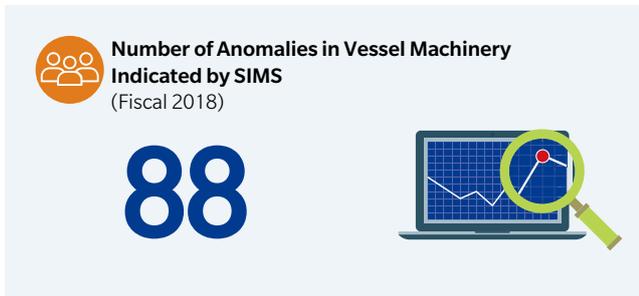
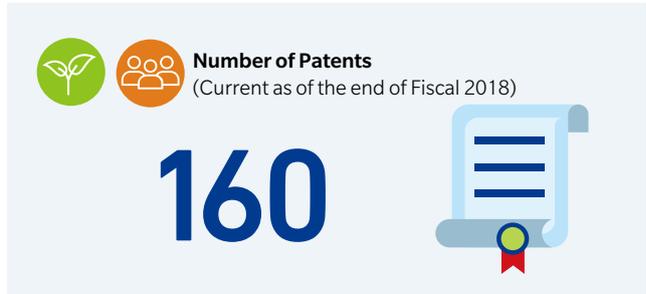
3. Optimizing Operations Together with Shipowners

The Dry Bulk Division utilizes a web application called LiVE for Shipmanager together with shipowners and shipmanagement companies to visualize vessel operation data. Through the Ship Information Management System (SIMS), which regularly collects information on a ship's voyage and mechanical data, we can confirm the condition of a vessel from land and identify any abnormal readings that signal the potential for trouble, helping prevent mechanical failures (see page 38 for details). This initiative requires the teamwork of everyone involved; therefore, we strive for safe operations while holding two-way dialogue with people in charge from shipowners and shipmanagement companies.

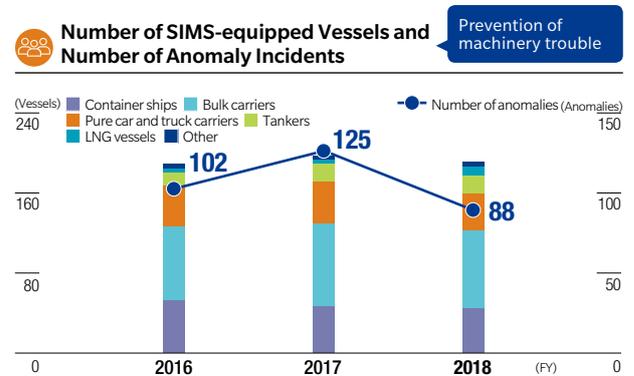
Environmental, Social, and Governance Data

This section covers important areas where we are strengthening our ESG efforts and explains data the NYK Group is particularly focused on in each category.

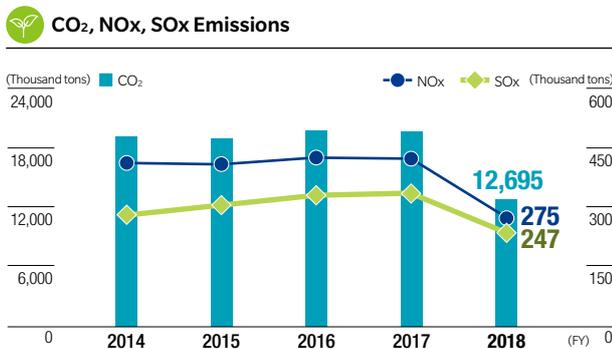
- Environment
Mainly GHG emission volume from our fleet
- Social
Mainly safety management and women in managerial positions
- Governance
Mainly compliance



The amount of time that operation of our vessels stops due to accidents or other trouble (downtime) is used as an indicator to gauge the degree of safe operations. All onshore and offshore employees work together toward the target of eliminating downtime.

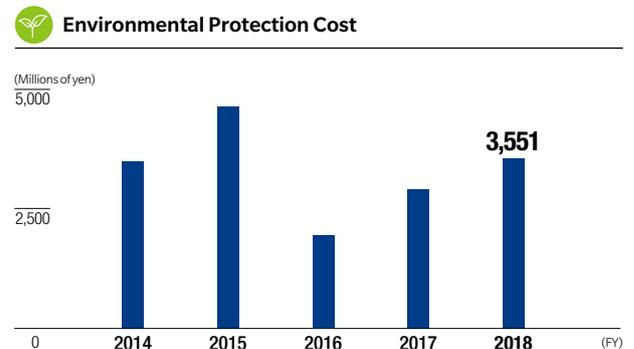


SIMS data for vessel machinery is analyzed to improve our ability to quickly detect signs of a potential ship mechanical accident, electrical leakage, fire, or other trouble.



GHG emission volumes are monitored and measures taken to reduce emissions by vessel type.
* Figures for Fiscal 2018 do not include container vessels due to the liner trade businesses of NYK, MOL and "K" Line being transferred to the new joint venture ONE.

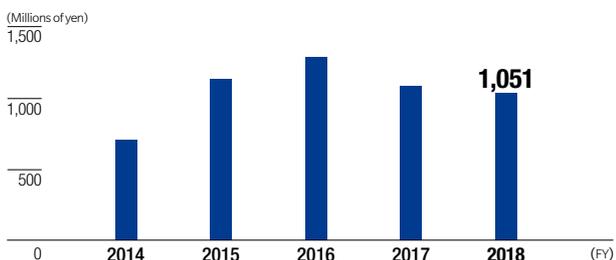
Further details are provided on page 84 of the full report.



The NYK Group seeks to recognize the costs associated with its efforts to protect the environment. Group efforts to prevent global warming and air pollution include equipping its ships with environmental technology, such as electronically controlled engines.

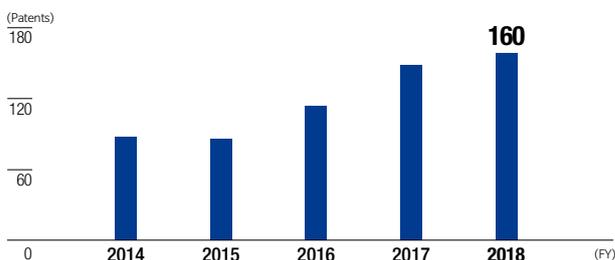
Further details are provided on page 85 of the full report.

R&D Expenses



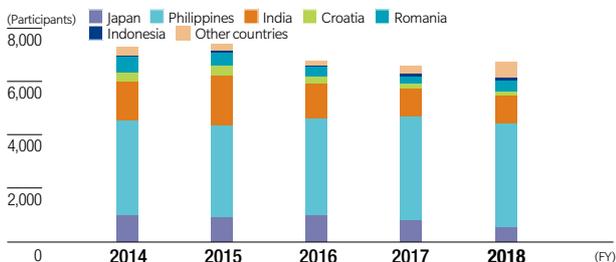
The NYK Group actively develops technology to improve safety and protect the environment and is currently researching cutting-edge technologies in ship-to-shore cyber security and autonomous shiphandling systems.

Number of Patents



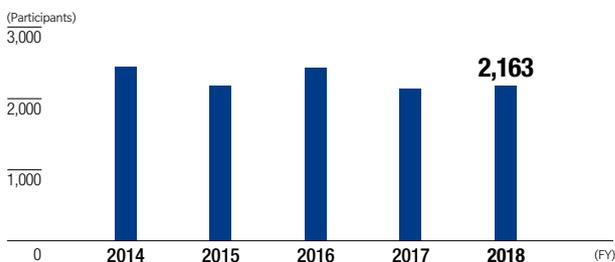
We are developing cutting-edge safety and environmental protection technology, including optimal efficiency operation utilizing big data such as the navigation/machinery information of fleets in operation (IBIS-TWO) and the MT-FAST energy-saving hull device that greatly improves fuel efficiency.
* Numbers of patents indicate the current number at the end of each fiscal year

Number of NYK Maritime College Seafarers Participants (By nationality) Improvement of seafarer skills



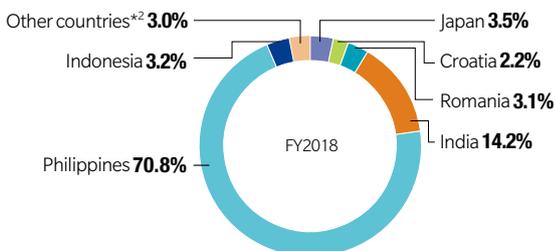
The NYK Maritime College is a system that provides a globally uniform training program regardless of the nationality and training location of seafarers to effectively improve the skills of our seafarers.

Number of NYK Business College Participants (Including group employees) Enhancement of overall employee capabilities



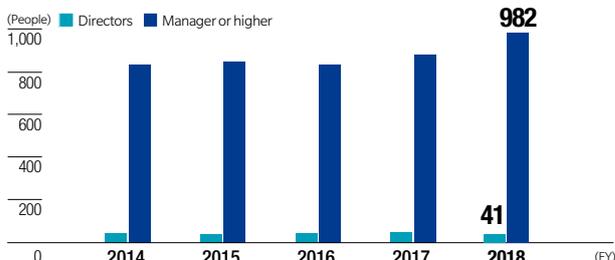
The NYK Business College training system has over 60 training programs to enhance the overall abilities of group employees.

Percentage of Seafarers by Nationality*1



*1 Percentage of seafarers at NYK Shipmanagement Pte. Ltd. (officers and crew members)
*2 China, Vietnam, Russia, Myanmar, Nigeria, Angola, Panama, Singapore

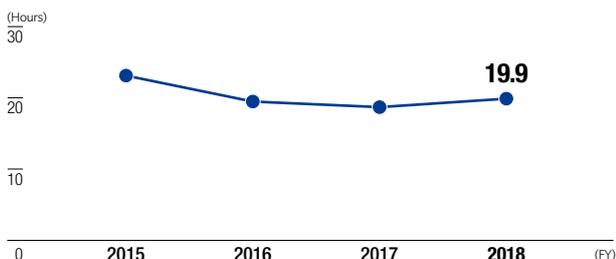
Number of Women in Management (Including group companies)



The number of women in management positions at the NYK Group has been steadily rising since 1983 when the Company began actively encouraging women's advancement in the workplace.

Further details are provided on pages 86-87 of the full report.

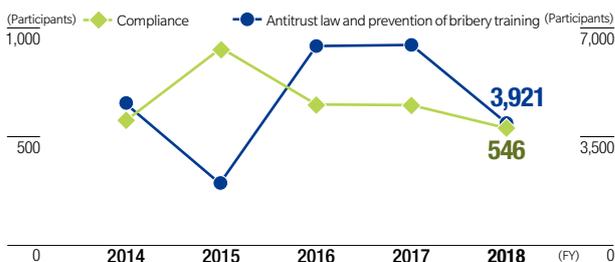
Trends in Monthly Overtime Exceeding Legal Working Hours



To manage the progress of the OLIVE project for workstyle reforms, we monitor and internally share data on the trends in monthly overtime exceeding legal working hours.

* Employees working at the NYK headquarters

Number of Participants in Compliance, Antitrust Law, and Prevention of Bribery Training



* The number of participants for compliance training comprises individuals at the headquarters and domestic group companies

* The number of times that antitrust law training was conducted in fiscal 2015 decreased because the trainers for overseas group companies (in the Asia region) were switched from NYK legal staff to locally employed lawyers in 2016, and 2015 was used to prepare for that transition. The number of participants decreased in fiscal 2018 due to the merging of the liner trade businesses of NYK, MOL and "K" Line.