Editorial Policy

To emphasize MOL Group's worldwide leadership in safe operation, it changed the name of the report's title to Safety, Environmental and Social Report in 2015. The report provides a detailed explanation of the actions taken on those issues and data on the results based on the critical issues that MOL identified, as well as background information on the role of ocean shipping and the challenges it faces.

In addition, the Annual Report and the Safety, Environmental and Social Report have different contents. While the former mainly targets shareholders and other investors, the latter is for customers and other stakeholders. Please refer to QR codes or URLs for related topics in the Annual Report.

Period
FY2016 (April 1, 2016 to March 31, 2017). (Some information is from outside the report period and as such will be denoted with asterisks and footnotes.)

Scope
In principle, all MOL Group companies that do business in Japan and overseas. (Activities and data that are limited in scope are reported with asterisks and footnotes.)

* The MOL Group: Mitsui O.S.K. Lines, Ltd., 368 consolidated subsidiaries, 76 equity method affiliates, and other affiliated companies.

Reference Guidelines
- Environmental Accounting Guidelines 2005, Japanese Ministry of the Environment
- GRI (Global Reporting Initiative) "GRI Guidelines Version 4" (core)
  Please visit the website for charts comparing the GRI Guidelines and UN Global Compact.

Issue Date
July 2017 (Previous issue: July 2016; Next issue: July 2018 (scheduled))
Envision the Future of an MOL Group that Can Grow Sustainably, Evolve to Create Value, and Become a Truly Resilient, Flexible Organization

Anticipate changes, and become "a resilient, flexible corporate group that always accompany with customers"

The MOL Group established its new management plan, “Rolling Plan 2017” in April 2017. The “Rolling Plan” reflects our commitment to further growth even under a significantly changing business climate, and sets out a vision for the MOL Group 10 years from now and the mid- and long-term management direction as shown below, with yearly reviews of the plan. This is based on the MOL Group Corporate Principles: We will actively contribute to global economic growth and development, anticipating the needs of our customers and the challenges of this new era as a multimodal transport group.

Vision for the MOL Group 10 years from now

- The MOL Group will provide stress-free services that are truly convenient for customers worldwide, with the aim of serving customers as a solid and reliable partner at all times.
- The group will develop the environment and emission-free businesses into one of its future core operations.
- The group will strategically allocate resources to carefully selected businesses that have a clear competitive edge. The goal is to make the MOL Group a collection of businesses boasting the highest competitiveness in their respective fields.

We set three strategies for realizing our vision in the new management plan. First is “Carefully select opportunities for new investments and pursue business models focused on cash flow.” Second is “Prioritize resources to develop and defend business fields.” And as the third strategy, we set marine technical skills, ICT, technology development, environment, and workforce reforms as “Group-wide priorities for strengthening the MOL Group.”

Remember that ocean shipping is a key element of the economic infrastructure, connecting the world, and contribute to achievement of SDGs through our businesses

As the world economy grows and becomes borderless, intricately connected global risks continue to grow, among them climate change, depletion of various resources, human rights issues, income disparity and poverty, and political uncertainty.

Naturally, the 17 targets of the Sustainable Development Goals (SDGs) for sustainable development toward 2030, adopted at the United Nations in September 2015, must be addressed on a global scale. It is critical to address these issues in cooperation with international society to realize a sustainable future. If corporations are to proactively contribute to solutions, cooperation with stakeholders and new innovations are indispensable.

In addition, corporate initiatives on the environmental and social aspects now have a strong and growing impact on corporate management and corporate value. The MOL Group, whose core business is international ocean shipping, recognizes the value of managing its operations with a thorough understanding of how its activities affect society. Therefore, we identified core issues in line with the new management plan. “Rolling Plan 2017” and set new mid-term CSR targets and action plans based on the SDGs that are most closely related to our group activities. Our CSR targets are based on an awareness that international ocean shipping is a key part of the economic infrastructure that connects the world, and safe, reliable services contribute to the achievement of SDGs such as eradication of poverty, technological innovation, supply of sustainable energy, and conservation of the marine environment.

Safe Operation

The MOL Group’s ultimate social mission: Offer safe and reliable services

The ocean shipping business faces myriad risks, and a moment of carelessness may lead to a serious incident, so our group aims to realize the “Four Zeros” (zero serious marine incidents, zero oil pollution, zero fatal accidents, and zero serious cargo damage).

In November 2016, we launched the “ISHIN NEXT – MOL SMART SHIP PROJECT.” In this project, we will conduct a comprehensive study of business models and underlying seed technologies by sharing our technology development policy with stakeholders including customers. We will also promote technology development that proactively adopts ICT (IoT/Big Data), which is expected to drive innovation, and we will use our position as the world’s largest liner shipping company to continue to insist on that until it takes root as the MOL Group’s corporate culture. We will also have an ongoing commitment to sustainable growth and maximizing mid- and long-term group’s corporate value, based on the MOL Group Corporate Principles, long-term vision, and new management plan.

Human Resources Development

The MOL Group’s qualities all come down to human qualities

People are the driving force behind our group’s growth and the source of value creation and added value, since people establish long-term trusting relationships with society and customers. We strive to become the first company that comes to mind when customers think of a logistics partner, and create a presence that gives customers peace of mind if they leave everything to MOL. To achieve that, all MOL employees must fully understand the issues facing society and our customers, and have the foresight to predict new issues and things ahead to provide solutions.

Therefore, I think we need to provide “stress-free services that are truly convenient for customers,” “innovation” as well as “challenge,” which is one of the group’s shared values expressed as “MOL CHART.”
A Multimodal Ocean Shipping Group Holding One of the World’s Largest, Most Diversified Business Portfolios

The MOL Group’s business centers on international ocean shipping, and supports people’s livelihood and industries around the world through the transport of resources, energy, raw materials, finished products, and other goods. Playing an indispensable role in the sustainable growth of the world economy, the MOL Group meets the needs of the times while carefully addressing environmental issues and social needs in its business activities.

MOL Group Business Summary

Dry Bulker Business

Tanks

LNG Carriers/Offshore Business

Coal Carriers

Containerships

Product Transport Business

Tankers

LPG Carriers

Car Carriers

Ferries/Coastal Liner/Ro-Ro Ships

Associated Businesses

Coal Carriers

The MOL Group transports coal for thermal power, mainly under medium and long-term contracts with power companies in Japan, and works to efficiently transport all kinds of vehicles, from passenger cars to construction machinery. We meet the needs of automakers whose production centers and markets now span the entire world, with safe, reliable transport services.

Energy Transport Business

LNG Carriers

Liquefied natural gas (LNG) is drawing considerable attention as a clean energy source, and demand has been increasing all over the world. With one of the world’s leading LNG carrier fleets, the MOL Group ensures the safe transport of this vital commodity. Taking advantage of the experience accumulated in energy transport with LNG carriers and tankers, the MOL Group is also proactively engaged in offshore business projects including FPSOs and FSRUs.

Product Transport Business

Dry Bulker Business

Dry bulkers transport large quantities of raw grains, wood pulp, cement, fertilizer, and coal, as bulk cargoes without any kind of packaging. The MOL Group reliably meets customers’ cargo transport needs with one of the world’s largest fleets.

Associated Businesses

LNG Carriers

The MOL Group introduces products such as green electricity, and offers a wide range of integrated shipping services including transportation and cargo handling. We are also proactively developing our terminal business, which is part of the container transport value chain, as a tool to diversify our services.

Relationship between MOL and Stakeholders

Suppliers (shipyards) → MOL (crewmembers/employees) → Industry (customers) → Society (end users/communitys/governments)
MOL Group’s Management and CSR Initiatives

The MOL Group expresses its basic stance toward corporate social responsibility (CSR) in the MOL Group Corporate Principles.

Based on the corporate principles, the group aims to foster a corporate group that grows sustainably in harmony with society with CSR at its foundation. In April 2017, MOL established the new management plan “Rolling Plan 2017” and environmental management policy “MOL Group Environmental Vision 2030” (please refer to page 15 for details).

MOL Group Corporate Principles

As a multi-modal transport group, we will:
- actively contribute to global economic growth and development, anticipating the needs of our customers and the challenges of this new era
- strive to maximize corporate value through creativity, operating efficiency and promotion of our ethical and transparent management
- nurture and protect the natural environment by maintaining the highest standards of operational safety and navigation

Long-Term Vision

To develop the MOL Group into an excellent and resilient organization that leads the world shipping industry

New Management Plan: ‘Rolling Plan 2017’

- Vision for the MOL Group Ten Years from Now (2027)
  - The MOL Group will provide service-free stresses that are truly convenient for customers worldwide, with the aim of serving customers as a solid and reliable partner at all times.
  - The Group will develop the environment and emission-free businesses into one of its future core operations.
  - The Group will strategically allocate resources to carefully selected businesses that have a clear competitive edge. The goal is to make the MOL Group a collection of businesses boasting the highest competitiveness in their respective fields.

- Strategies for Realizing the Vision
  - Carefully select opportunities for new investments and pursue business models focused on cash flow
  - Prioritize resources to develop and defend business fields
  - Group-wide priorities to strengthen the MOL Group

- MOL Group’s Management and CSR Initiatives
  - Technology development: ICT
    - Provide services that fully harness the MOL Group’s marine technical skills
    - Provide visualization of maritime operations (safe and optimal vessel operation) and added value to customers
  - Technology development: Environment
    - Push ahead with the SHIN-NEXT – MOL SMART SHIP PROJECT – (advanced support technologies for safer vessel operation and technologies for reducing environmental impact)
  - Workstyle reforms: Enhance human resources competitiveness and achieve innovation through an organizational culture that encourages employees to work vibrantly and productively

- Group-wide priorities for strengthening the MOL Group
  - Technology development: ICT
    - Provide services that fully harness the MOL Group’s marine technical skills
    - Provide visualization of maritime operations (safe and optimal vessel operation) and added value to customers
  - Technology development: Environment
    - Push ahead with the SHIN-NEXT – MOL SMART SHIP PROJECT – (advanced support technologies for safer vessel operation and technologies for reducing environmental impact)
  - Workstyle reforms: Enhance human resources competitiveness and achieve innovation through an organizational culture that encourages employees to work vibrantly and productively

- Mid-Term Targets and Action Plan
  - Enhance the effectiveness of the Board of Directors
  - Enhance the effectiveness of the Group’s management
  - Effectively manage internal and external stakeholders
  - Provide more transparent and efficient information disclosure
  - Create environment and emission-free businesses
  - Use renewable energies such as wind power and solar power for vessel propulsion and group facilities in Japan and overseas
  - Participate in projects to construct vessels that use LNG and other alternative fuels as well as fuel supply infrastructure
  - Participate in projects to construct vessels that use LNG and other alternative fuels as well as fuel supply infrastructure

- Identifying Key Issues Based on SDGs *1, which are Closely Related to MOL Group Activities
  - MOL set CSR and environmental targets after identifying three items to be addressed — “safe operation,” “the environment,” and “human resources development.” After designating those issues and setting targets, we selected the items based on what we could contribute through our businesses, from SDGs adopted by the United Nations, in addition to international CSR-related guidelines, opinions of internal and external stakeholders, and customers’ responses to a questionnaire survey. The CSR Committee held final deliberations and acquired the approval of top management.

- CSR Targets
  - Basic Concept: The MOL Group realizes that ocean shipping is an important economic infrastructure connecting the world, providing safe and reliable services, and contributing to achievement of the Sustainable Development Goals (SDGs) *1 advocated by the United Nations, such as eradication of poverty, technological innovation, supply of sustainable energy, measures to address climate change, and conservation of the ocean, through the group’s core businesses.

*1 SDGs: Adopted at the United Nations summit in September 2015, requiring corporations to contribute to SDGs through their core businesses. Toward 2030, it identifies global-scale sustainability issues to be addressed for sustainable development, and mobilizes global-scale initiatives around a series of common goals and targets. SDGs urges governments, corporations, and industries to work on a global scale to keep from going beyond the Earth’s limitations, to provide safety, and allow every person to live in dignity with access to opportunity. *2 Based on the ILO’s “Global Guide to Improve the Work-Life Balance of Employees through Measures to Support Employment, Family and Care.” *3 LTIF: Lost Time Injury Frequency. The number of industrial accidents occurring per 1 million man-hours.
4. Participating in the UN Global Compact

With business activities spread across the globe, the MOL Group believes that building good relationships with various stakeholders worldwide and contributing to the realization of sustainable growth of society are vital as it seeks to realize the ideas set forth in the MOL Group Corporate Principles. In order to contribute to an international framework for realizing these goals, MOL became the first Japanese shipping company to participate in the United Nations Global Compact in 2005. Since then, MOL has worked to support and practice the 10 principles in 4 areas of the UN Global Compact, which shares the same values as MOL’s Rules of Conduct, which were established as a set of guidelines for executives and employees.

5. CSR Management

MOL Group’s Management and CSR Initiatives

MOL Group’s Management and CSR Initiatives

In addition to the initiatives mentioned above, MOL has established a set of guidelines for compliance officers.

6. Initiatives on Human Rights

MOL participates in the United Nations Global Compact, supporting universal principles regarding human rights and labor and putting them into practice. In addition, the treaty concerning the Maritime Labor Convention in 2006 (MLC2006), which stipulates the basic rights of seafarers, sets forth the following four acts regarding human rights:

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights;
- Principle 2: endeavor to ensure that they are not complicit in human rights abuses;
- Principle 3: Businesses should abide the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: the elimination of all forms of forced and compulsory labor;
- Principle 5: the effective abolition of child labor; and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

MOL Corporate Governance Organizational Structure

At MOL, we believe that the optimal form of governance is to have the president serve as the chief executive officer to execute business operations, backed by the supervisory function of the Board of Directors and the auditing function of the Audit & Supervisory Board. To increase the effectiveness of the Board of Directors, we prepare information necessary for outside directors in advance, and increase the transparency of management by repeating discussions based on common information among both internal and outside directors.

In addition, we also foster a free exchange of opinions about corporate strategies and long-term vision with outside directors and outside auditors.

We accept any contacts about compliance online for the outside company.

Please refer to the annual report for more information about corporate governance.

4. Initiatives on Compliance

The Japan Fair Trade Commission (JFTC) found that the MOL Group had violated Article 3 of the Japanese Antimonopoly Act in certain car carrier shipping trades in 2014. The MOL Group has taken this finding very seriously. The group views to never forget this and never permit the recurrence of such an office. We have taken thorough measures to reinforce our compliance efforts and etch the importance of compliance deeply into the minds of executives and employees as the major premise of all corporate activities. The Compliance Committee, chaired by the Chief Compliance Officer, meets every three months to monitor our compliance.

5. Information Security

The MOL Group Rules of Conduct clearly state: “Protect confidential information and respect intellectual property rights,” and the MOL Group Electronic Information Security Rules are aimed at putting this into practice. The rules set standards for managing electronic information handled by the group, protecting various types of confidential information, and so on, reinforcing security to prevent leaks of corporate information and unauthorized access from inside and outside the company. Furthermore, we formed a computer security incident response team (MOL-CSIRT) as an external professional organization to reinforce our emergency response capabilities, and joined the Japan CSIRT Association in February 2017. In addition, we regularly offer E-learning sessions to increase awareness of information security among group executives and employees, and conduct a training program for new employees.
Aiming at Sustainable Growth with Society Working to Create a Better Tomorrow

The MOL Group set its vision 10 years from now in the new management plan “Rolling Plan 2017.” Reaching the goals set out in the plan will require enhanced marine technical skills, IoT, technology development, new approaches to the environment, workstyle reforms, and other achievements. In this section, we invite Eiichiro Adachi of The Japan Research Institute, Ltd. to participate in a dialogue with CSR Committee Chairman Shizuo Takahashi and evaluate the group’s initiatives.

Advanced initiatives to solve environmental issues reflect our social commitment as an ocean shipping company

**Adachi:** In international society, the Paris Agreement was adopted at COP21 in 2015, showing the world’s common goals for a post-carbon society. On the other hand, I think there is still a demand for providing transport services as long as some customers need fossil fuel energy sources such as coal and petroleum. It is often said that ocean shipping’s business model demands prior investment and needs to forecast the next change by closely monitoring social trends as well as providing services. What do you think about the difficulties it faces?

**Takahashi:** There is a term “stranded asset” – if efforts to reduce CO₂ emissions, result in reduced demand for fossil fuels such as coal and petroleum, we may also see a scale-down of the need for vessels that carry such cargoes. We recognize that such a significant change is very likely to start by 2050. In the new management plan “Rolling Plan 2017” introduced the other day, we discussed the vision for the company 10 years from now and looked at methods to achieve that vision in three-year business strategies. This is attributed to the possibility of significant changes even in the ocean shipping business. For example, the U.S. was expected to become a huge LNG importing nation in the early 2000s, but actually, the continued development of shale gas has turned the U.S. into an LNG exporter rather than an importer. That means, in most cases, the world economy will be moving in a different direction than anticipated. Therefore, our group selected an approach to shift our business strategies to match changes in the world and fulfill our vision for the future. And we put “the environment” at the core of the plan’s management strategies, which form the basis of the “Environmental Vision 2030.”

**Adachi:** I think the ocean shipping industry’s business environment has undergone extreme changes, making it very difficult to steer from a business management perspective. Actually, the market and business sentiment of the entire world economy have a direct impact on the business, so it is important to formulate business strategies flexibly and from a mid- and long-term standpoint. What discussions did you actually have before deciding on “the environment” as one of your management strategies?

**Takahashi:** Ocean shipping is considered a superior means of transporting mass volumes of cargo from an environmental viewpoint, but the fact is that CO₂ emissions from vessels account for about 2% of the world’s total greenhouse gas (GHG) emissions, generating a significant impact on the environment. Vessels will emit GHGs as long as we are in business, even if we switch to LNG and other fuels that generate lower CO₂ emissions. We saw the possibility to make our business emission-free overall, and reduce the environmental impact of the services we provide for our customers, through our carbon offset capability, primarily through renewable energy, with GHGs generated by ocean transport, if we can grow the renewable energy business as core business. Our approach to viewing environmental issues as strategic business opportunities resulted in the “Environmental Vision 2030.”

**Adachi:** Today, we see an increase in ESG investment, which evaluates the integrity of changes in cost structure, and consistency between its irreversible flow and management strategies from a long-term perspective. It will be very interesting to see how ESG analysts will look at this “Environmental Vision 2030.” You also set specific target of reducing GHGs, don’t you?

**Takahashi:** We don’t have a plan to completely offset carbon from our ocean transport in the environment and emission free businesses. But our goal is to reduce GHG emissions by 50% per transport unit in 2050. We think we can achieve a 30% reduction using our existing technologies and programs, introduction of new technologies, offset of GHGs by the environment and emission free businesses, and so on. However, we need new innovations to achieve the remaining 20% reduction. Then, we initiated the “Environmental Vision 2030” to share the necessity of innovation with all employees.

**Adachi:** You set an ambitious reduction target. Does that mean the key to achieving your target depends on new innovation in the future?

**Takahashi:** Setting a target that we can achieve by steadily executing existing programs is just a matter of homework. As long as we set the vision, we need to foster innovation and it will require a great leap to drastically reduce GHGs.

**Adachi:** I heard your ideas behind the vision, and appreciate that the MOL Group set a vision that goes beyond the existing image of an ocean shipping company. In particular, I feel a visionary, pioneering spirit from the idea that “The vision is not just the goal or the homework.” Japanese corporations tend to have absolute views as what they absolutely must achieve as soon as they set targets. This may generate a kind of rigidity. At the MOL Group, the story of creation is clear and in addition, the management plan matches the environmental vision. I think it is wonderful if the business portfolio will be steadily restructured.

Offering truly optimal solutions to international society, from the stance of an ocean shipping company

**Adachi:** It is important to play a leadership role in making international rules and lead the industry toward sustainable growth with society.
Takahashi: There are various international rules, such as treaties, relating to regulations and systems about the environment and safety. Of course, this affects our group, too. The Ballast Water Management Convention will enter into force on September 8, 2017. As a result, all MOL Group vessels also need to be equipped with ballast water treatment systems. Furthermore, regulations on NOx and SOx emissions, which cause air pollution, and CO2 emissions regulations for prevention of global warming will be tightened. We will comply with those regulations, of course, but we also see compliance with the environmental regulations as strategies for differentiation, and will strive to proactively expand applications for excellent environmental technologies.

The impact of Japanese ocean shipping industry and shipbuilding industry is limited when it comes to rulemaking. This is because the IMO members that are not necessarily ocean shipping nations take their own initiatives during multilateral talks involving IMO member nations. This is the current status of international society when it comes to rulemaking. We think it will become even more critical to offer truly optimal solutions to international society, through proposals and solutions from the stance of an ocean shipping company and vessel operator. Therefore, we think it’s important to cooperate with the government as well as create our own internal system.

Adachi: Not many Japanese corporations take leadership role in international rulemaking. However, in the long-term view, the reality is that it has become difficult to differentiate services due to the mature economy and intensified competition among corporations. So corporate strategies in trying to lead rulemaking and government industrial policies become very important.

Takahashi: We are trying to change methods of public announcements and public relations to demonstrate our stance as a corporation. Traditionally, we have disclosed information on our achievements, and we are planning to lead open innovation to address social concerns and invite partners by proactively disclosing the concept and ideas behind new projects. Furthermore, to realize innovation toward autonomous sailing and global environmental conservation in the “ISHIN NEXT – MOL SMART SHIP PROJECT” – launched in 2016, our newbuilding vessels will adopt both “advanced support technologies for safer vessel operation” and “technologies for reducing environmental impact,” and conduct demonstration tests to verify practical effects of these technologies every year after the vessels go into service, and publicly announce the results as needed. We also connect customers’ potential needs by combining the group’s operational know-how and the underlying seed technologies of IoT, seeking to become leaders in safe operation and global environmental protection.

Offering services with ‘marine technical skills’ at the core

Adachi: By the way, what do you mean by “marine technical skills,” stated as one of the group-wide priorities for strengthening the MOL Group long-term management plan?

Takahashi: “Marine technical skills” means being able to operate the ship safely and provide reliable transport. The most important foundation for our group, which runs an ocean shipping business, is safe operation. However, as you know, natural disasters and threats occur at sea to a much larger degree than on land. Thickness of steel hull plate is 2cm to 3cm in general. A 200m-long vessel is built with 2cm-thick plates and floats. If you were looking at a 20cm-long scale model of a ship, that steel plate would be as thin as aluminum foil. Those plates are affected by waves and winds on the open sea, requiring all kinds of know-how and expertise from both hardware and software aspects to operate vessels safely. On the other hand, unfortunately, around 70% of marine incidents and vessel failures are caused by human errors. Therefore, it is vital for ship systems that prevent human errors and enhancement of technological capabilities will lead to safer operation.

“Marine technical skills” tends to be generally thought as the skill to run the engine and operate the vessel, but actually the term includes various other abilities. We need new distinctive skills to analyze what the risks are and cope with them not individually but through teamwork. No one except crewmembers can do such jobs, so the employee at sea is the driving force of differentiation. We will enhance marine technical skill by visualizing implicit knowledge by using IoT, and passing on both technology and know-how to the next generation.

Adachi: Weather at sea is also affected by climate change. Are there any threats or other challenges to overcome?

Takahashi: Typhoons lashing Japanese coastal waters, cyclones in the Indian Ocean, and hurricanes in the Caribbean bring very powerful winds and pressure like we’ve never seen in the past. In recent years, we have encountered disasters of a greater magnitude than ever before. And it is not an excuse to say that it was unexpected at sea. We have to anticipate the climate changes that we will have to cope with. At sea, we have to spot strong typhoons beforehand and make sure we have enough of a margin of safety to avoid them.

Trying to avoid a low pressure system consumes additional fuel and take extra time. So we are acutely aware of the effects of climate change.

Adachi: That more links us to the establishment of the “Environment Vision 2020,” and is one of the factors behind your initiatives, isn’t it?

Workstyle reforms - To do more innovative work -

Adachi: Most of the ocean shipping industry, including supply chains, still depends on people, and is managed by people. Conversely, I feel this industry cannot be fully automated, manualized, or made routine. May I ask your thoughts about human resources development in relation to the “marine technical skills” we were talking about?

Takahashi: Our company has a 133-year history, and we have developed sophisticated know-how on ocean transport and division of labor, and built a system that can safely and efficiently carry massive volumes of cargoes anywhere, over any distance, by recruiting and allocating highly skilled people. However, there are irreversible changes going on in the world. Sailing ships were replaced with steamers, and coal was replaced by petroleum fuel. In recent years, container transport was containerized. There is no turning back from such events. I think innovation is the progress made by concentrating people’s wisdom but never having been done to the past, such as global warming, which has occurred as a result of human being activities. It’s important that the personnel on the front line are open to giving suggestions and providing customers with safe, reliable transport service, are the ones who will “create the ocean shipping industry of tomorrow.”

Adachi: That means, know-how and experience, wisdom and tact, and various other things are needed to sail the ship. And the key is to share all that with younger members and help them advance in their careers.

Takahashi: What’s more, I think “employees at sea and on land work in hand in hand to create the ocean shipping industry of tomorrow.” These are the ideal personnel that the industry needs. Efforts to foster the corporate culture for those ideal personnel are “workstyle reforms.” This stems from the need to train innovative personnel who have creativity and the ability to take action to realize the vision for the MOL Group 10 years from now. I think this will create synergy and make the company more energetic, through cross-sectional and cross-hierarchical communication. Of the emphasis on reduction of overtime work and work-life balance. However, the nature of workstyle reforms in our group is the creation of an environment where innovative personnel who have creativity and the ability to take action can work in comfort, and do the work that will create the MOL Group of tomorrow. Therefore, discussion among people with various backgrounds, experience, and expertise, who gather and view the same topic from different viewpoints, are the cradle that nurtures new ideas. We need to energize that cradle.

Adachi: This story makes me keenly aware that the ocean shipping is a business run by organizations. Individual personnel need competences, and their competence should not go to pieces or be made routine. Three initiatives require diversified personnel, and a system (the company, management, projects) to manage them. I can see that ocean shipping is a business in which the organization has considerable capabilities at its roots; one that requires teamwork to survive and thrive; and one in which technologies, know-how, and experience must be handed down to foster the expertise of future generations. I also feel that risking one’s life on the job is closely related to the high tension level of teamwork during onboard operation.

Helping solve global-scale issues as a global corporate citizen

Adachi: Currently, geopolitical risks are increasing, and corporations need to address various situations in an appropriate manner. From one aspect, private companies are expected to contribute to global-scale issues such as SDGs. And we might face this situation in the future: Corporations cannot operate businesses soundly without a healthy world and society. What do you think of this point?

Takahashi: The keyword is “poverty.” The large and growing gap between rich and poor causes social instability and increases geopolitical risks. The United Nations also lists eradication of poverty in its SDGs. Contributing to global economic growth and improving the welfare or livelihoods of people around the world is the core of our corporate principles, which also state that our business helps to stabilize society and promote peace.

Adachi: As you advocate contribution to achievement of SDGs in your corporate social responsibility targets, you transport various cargoes in your main business and your business activities themselves are related to many targets. In addition, I expect to see various initiatives in this field since your network connects to the entire world, including emerging countries.

Takahashi: Thank you very much for your insights today. The MOL Group works together as one team to realizing sustainable growth in step with society, aiming to become a multinational transport group that leads the world.
**MOL Group Environmental Vision 2030**

As the Paris Agreement was adopted in December 2015 and nations set targets to reduce greenhouse gas emissions, environmental awareness has continued to increase.

Under the “MOL Group Environmental Policy Statement,” the MOL Group established the “MOL Group Environmental Vision 2030” as a group-wide environmental management policy. It expresses the MOL Group’s viewpoint on addressing environmental issues in the new management plan.

**MOL Group Environmental Vision 2030**

Shipping companies are responsible for undertaking the marine transportation vital to the infrastructure underpinning people’s daily lives worldwide. Meanwhile, the ratification of the Paris Agreement on climate control has unified efforts by the international community to mitigate global warming. With this in mind, the MOL Group believes that it has a social obligation to take innovative steps to help solve environmental issues such as greenhouse gas emissions, air pollution, and biodiversity impediments.

The MOL Group will grasp the environmental needs of customers and other stakeholders and provide solutions, in tandem with developing its environment and emission-free businesses into future core operations, with the aim of contributing to global environmental preservation.

**Greenhouse Gas Emissions Targets**

The MOL Group targets reduction of greenhouse gas emissions per unit load by 25% by 2030 and by 50% by 2050 compared to fiscal year 2014.

**Greenhouse Gas Emissions Targets**

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<thead>
<tr>
<th>Year</th>
<th>Target</th>
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<tbody>
<tr>
<td>FY2030</td>
<td>~25%</td>
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<tr>
<td>FY2050</td>
<td>~50%</td>
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New technologies that are proven to be economically feasible (LNG-fueled vessels, main engine waste heat recovery, Power Assist Sail*, etc.)

**Applicable technologies/projects at the present time**

- PBCF, low-friction hullpaint, larger-size hulls, slow steaming

**Environmental Management Action Plan**

- Grow the group’s environment and emission-free business as core business
- Promotion of the SHIN NEXT – MOL SMART SHIP PROJECT*
- Expand use of LNG fuel by building LNG-fired vessels and participating in the LNG-fuel supply business
- Continue to optimize vessel operations with the objective of reducing fuel costs through use and application of ICT
- Application of fuel cells and hydrogen fuel as alternative energy
- Use of wind power and solar power as propulsion power for vessels
- Promotion of modal shift in logistics in Japan [expansion of the ferry and RoRo ship businesses]
- Enhance energy savings in group facilities in Japan and overseas
- Study on application of emission trading related to the environment and emission-free businesses
- Effective use of low sulfur fuel
- Use of SOx scrubbers
- Use of NOx reduction systems (SCR/EGR)
- Promote the installation of vessel LPP systems that eliminate particulate emissions
- Equip vessels with ballast water treatment systems ahead of regulations and proactively release MOL’s research results and opinions to the industry, positioning the company as a pioneer in adopting the systems
- Clean vessel hulls to remove attached marine organisms
- Careful operation in large-sized marine life habitats
- Proactively promote environmental responses based on the philosophy of Sustainable Development Goals (SDGs)*
- Promote initiatives that contribute to biodiversity in partnership with other companies and organizations

* SDGs: The action plan “Sustainable Development Goals” to end poverty, protect the planet and ensure that all people enjoy peace and prosperity, adopted at the United Nations General Assembly in September 2015. It comprises 17 goals and 169 targets.

**MOL Group Environment and Emission Free Businesses**

The MOL Group will develop and drive the new “Environment and Emission Free Businesses” with the aim of making them core operations in the next generation. These include “Renewable Energy Business,” “Alternative Fuel Business,” “CO₂ Emissions Reduction Business,” and “Environmental Value Creation Business,” which we see as business opportunities. CO₂ emissions from ocean-going vessels account for 2% of the worldwide total, in fact, negatively impacting the environment. Therefore, we will steadily promote those businesses as part of our social responsibility as an ocean shipping company.

**Renewable Energy Business**

- Generate and deliver eco-friendly electricity
  - Offshore wind power generation
  - Biomass power generation
  - Solar power generation
  - Ocean current power generation
  - Hydrogen power generation

**CO₂ Emissions Reduction Business**

- Support emissions reductions
  - PBCF
  - Develop a CCS business (CO₂ capture and storage)
  - Utilize wind power for vessel propulsion
  - Northern sea routes
  - Sail highly efficient equipment (shipline, LED lighting, etc.)

**Alternative Fuel Business**

- Utilize and transport using innovative fuels
  - LNG fuel for vessels
  - Ethanol
  - Biomass fuel
  - Hydrogen transport
  - Hydrogen infrastructure development

**Environmental Value Creation Business**

- Create value from environmental activities themselves and conduct related trading activities
  - Invest in energy conservation and renewable energy ventures
  - Emission rights businesses (sale of carbon credits)
### Promoting Environmental and Emission-Free Businesses/‘ISHIN NEXT’ Project

The MOL Group set out its vision 10 years from now and direction of mid- and long-term management in the new management plan “Rolling Plan 2017.” We set five priorities in the Group-wide priorities for strengthening the MOL Group and help us realize this vision: “Marine technical skills,” “ICT,” “Technology development,” “Environment,” and Workstyle reforms.

This section focuses on “Technology development” and “The environment” and outlines our initiatives in the “ISHIN NEXT” project (advanced safe operation support technologies and technologies to reduce our environmental impact) and “Environment and emission-free businesses.”

#### Vision for the MOL Group 10 Years from Now

The MOL Group will deepen its efforts toward “safer vessel operation” and “technologies for reducing environmental impact” by connecting those needs and seeds as One MOL and advance technology development to meet customers’ needs, at the same time enhancing our business capabilities and increasing corporate value.

The Group will develop the environment and emission-free businesses into one of its future core operations.

The Group will strategically allocate resources to carefully selected businesses that have a clear competitive edge. The goal is to make the MOL Group a collection of businesses boasting the highest competitiveness in their respective fields.

#### ‘ISHIN NEXT’

- **MOL SMART SHIP PROJECT**

MOL launched the ‘ISHIN NEXT’ MOL SMART SHIP PROJECT—a new technological development project that builds on the success of the Senpaku ISHIN Project,*1* announced in 2009.

We will share this project’s technological development policies with customers and other stakeholders, and thereby grasp their needs and acquire various seeds of technologies.

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#### Renewable Energy

**Investing in Self-Elevating Platform Vessel Business**

MOL invested in Seajacks International Limited (Seajacks) Group, which owns and operates five Self-Elevating Platform (SEP) vessels.*2*

This is a new offshore business for MOL, and also the first step into the renewable energy business field through involvement in installation of offshore wind power generation systems, which is expanding in Europe and other areas around the world.

MOL continually contributes to environmental protection in areas and ports worldwide, and takes a proactive stance in promoting thoroughly safe operation and ocean and global environmental protection in compliance with our corporate principles.

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*1 Senpaku ISHIN Project: MOL planned five next-generation concept ships and developed the underlying technologies required for the concept.

*2 SEP vessels: The platform is equipped with legs that rest on the seabed and move up and down. The vessel installs offshore wind power generation systems by moving the platform up to the sea surface with a crane. By raising and maintaining a level higher than the waves, the generators can operate even in rough seas. It can be used not only to install offshore wind power generation systems, but also to help maintain offshore oil and gas rigs.

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**New technologies in various fields**

- Advanced support technologies for safer vessel operation
- ICT
  - e.g. utilization of big data
- Professional adoption of ICT as well as technologies in conventional fields
- New initiatives aim at the long-term goal of autonomous sailing
- Technological fields
  - Reduction of CO2, NOx, SOx, and PMs
  - Prevention of sea pollution/preventing/nature operation
  - Improving the efficiency of logistics
  - Prevention of cargo damage/loss
  - Alternative fuels
  - Biodiversity conservation

**Technological fields**

- Reduction of exhausts, standing, and operating
- Prevention/disposal of engines and other machinery
- Support for optimal route planning
- Reduction of workload during onboard operations

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**Methanol-Fueled Vessels**

**Equipped with Dual-fueled, Low-rev Main Engine Using Methanol and Fuel Oil**

Three MOL-operated 50,000 DWT-type methanol carriers, which were delivered in 2016, are equipped with 2-stroke dual-fueled low-rev main engines capable of running on methanol, which is a biodegradable, clean burning marine fuel.

This engine produces lower emissions of carbon dioxide (CO2) and nitrogen oxide (NOx) in comparison with conventional ones, which use heavy oil. Use of methanol fuel can reduce emissions of sulfur oxide (SOx) by 99%, NOx by 18%, and particulate matter (PM) by 99%, in addition to cutting CO2 by 10%, in comparison with traditional fuels.

In addition, it is a cutting-edge “eco ship” as it is equipped with a ballast water treatment system, ahead of treaty requirements mandating such systems, and adopts energy-saving accessories in front of and astern of the propellers.

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**One of the world’s largest Self-Elevating Platform vessels, the Seajacks Scylla, owned and operated by Seajacks**

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**Methanol carrier the Minato Sun**
MOL Sets its Sights on Construction of LNG-fueled Tugboat

1st LNG-fueled Tugboat in Osaka Bay, Promoting ‘ISHIN NEXT’ Project

LNG fuel results in virtually zero SOx emissions, significantly reduces NOx emissions, and can also reduce CO2 emissions by around 20% in comparison with conventional heavy fuel oil. It is an effective means of significantly reducing the environmental impact of ocean transport.

In May 2017, MOL decided to build an LNG-fueled tugboat. It will be the first LNG-fueled tugboat in Japan conforming to the IGF code*1 issued in January 2017 subject to review by Japan’s Ministry of Land, Infrastructure, Transport and Tourism.

MOL will own the tugboat, slated for construction at Kanagawa Dockyard Co., Ltd. Yanmar Co., Ltd. will supply LNG-fueled engines. Osaka Gas Co., Ltd. will supply LNG fuel to the tugboat. Nihon Tug-Boat Co., Ltd. will operate the tugboat.

The new tugboat will be deployed in Osaka Bay in April 2019. It will be equipped with high-performance dual fuel engines*2 that allow high-speed operation and superior environmental performance, and will be the first LNG-fueled tugboat to escort large-scale freighters in Osaka Bay and the Seto Inland Sea. The development of this tugboat will also spur the initial development of an LNG fuel supply system for vessels in Osaka Bay.

The tugboat will be built as an element of “ISHIN NEXT – MOL SMART SHIP PROJECT –,” and knowledge and expertise gained through its development and operation will be fed back to various types of LNG-fueled ships including the environment-friendly ferry (ISHIN-II). This project also reflects MOL’s proactive stance in promoting LNG fuel through technological development of LNG-fueled vessels and enhancement of safe operation.

Research Project of LNG-fueled Capesize Bulker

Teaming up with DNV GL/Rio Tinto/BHP Billiton/Woodside/SDARI

MOL has reached an agreement to launch a joint study of a liquefied natural gas (LNG)-fueled Capesize bulker with five other companies- DNV GL (headquarters: Norway), BHP Billiton (headquarters: Australia/U.K.), Rio Tinto (headquarters: Australia/U.K.), Woodside Energy (headquarters: Australia/U.K.), and Shanghai Merchant Ship Design and Research Institute (SDARI; headquarters: China). The parties signed a letter of agreement at a ceremony held in Singapore on January 20.

The joint research project, called “Green Corridor,” aims to reduce merchant vessels’ emissions of NOx and SOx in advance of international treaties calling for stricter emissions standards, and will examine the technological and economic feasibility of an LNG-fueled bulker.

World’s largest 20,000 TEU-class Containership

Improving Transport Efficiency and Increasing Fuel Efficiency

The world’s first large over 20,000 TEU-class (capacity: 20,170 TEUs) was launched on the Asia/North Europe routes, and is operated by MOL.

The vessel is equipped with a range of highly advanced energy-saving technologies including low-friction underwater paint, a high efficiency propeller and rudder, a Savior Stator stream fin on the hull body, and an optimized fine hull form which together can further reduce fuel consumption and CO2 emissions per container moved by about 25-30% when compared to 14,000 TEU-class containerships.

Additionally, the vessel has been designed with a retrofit option to convert to LNG fuel in view of the implementation of the new regulation in the future.

The MOL Triumph is equipped with the Hull Stress Monitoring System, which constantly monitors the status of the hull while the vessel is underway, and a ship operation monitoring system using high-speed data transmission technology, in addition to environmental technology. Swift transmission of information between ship and shore also contributes to safer vessel operation.

MOL Ferry Co., Ltd. Launches Sunflower Furano

MOL Ferry’s cutting-edge Sunflower Furano went into service in May 2017. It offers significant improvements in fuel efficiency and environmental performance thanks to the adoption of contra-rotating propellers (CPP) and a hybrid propulsion system.

The ferry was designed to be “both eco- and people-friendly,” featuring water-saving systems that keep the restrooms clean and environment-friendly, expanding barrier-free facilities onboard, and so on.

Following the Sunflower Furano, the MOL Group will launch three newbuilding ferries with the same features by 2018. The group is united in developing a fleet of safe and environment-friendly ferries.
MOL Group Advances

‘Workstyle Reforms’

MOL established the Improvement of Work Efficiency Committee in September 2016, categorized items to be addressed into short-term, mid-term, and long-term, and started the reforms.

President & CEO Ikeda assumed chairmanship of the committee in April 2017, and since then, we have moved ahead with our efforts under the slogan “Smart ON! Smart OFF!”

To think about future “workstyle reforms,” five members — young, mid-career, and management-level employee, the president & CEO, and the executive officer responsible for workstyle reforms — got together and discussed current issues and how to address them, from the point of view of each position.

Discussion Held on May 9, 2017

Participants

Junichiro Ikeda (President & CEO)
Kayo Ichikawa (Executive Officer, responsible for work efficiency improvement)
Hirohiko Okada (Mitsui O.S.K. Lines (Japan), Ltd., General Manager)
Masatake Yamamoto (Corporate Planning Division, Manager)
Yasuo Matsunaga (Corporate Planning Division, Manager)
Shunichiro Fushiya (General Affairs Division, Manager)
Rumi Tomizawa (Dry Bulk Carrier Division (A), 4 years since joined MOL)
Kaiho Takahashi (Scholar Consult Co., Ltd.)

Issues to be Addressed

Objectives and Initiatives

Objectives of MOL's “workstyle reforms” are to “increase our personnel's competitiveness and realize innovation through a corporate culture that allows employees to work with vigor and enthusiasm.” This is based on a concept that requires free thinking unencumbered by traditional views and a culture and organizational capabilities that foster an environment of unfettered creativity, in addition to accomplishing current essential work with higher efficiency, upon realizing “the vision 10 years from now.” MOL will improve hourly output, set aside hours to perform innovative business operations that are not tied to traditional ways, achieve targets, and at the same time, work to create a corporate culture that allows all employees to gain fulfillment from their work.

Global business, strategy-oriented, value innovation, etc.

Short-term: Reforms of traditional methods of work such as management of meetings, reporting of information, filing
Mid-term: Reform of personnel system, proactive use of IT, renovation of office layout
Long-term: Improvement of individual operational abilities and skills/promoting a wider view of things, creation of a corporate culture allowing the exercise of innovation and creativity

Okada: A good point of our company is that employees are entrusted with assignments early in their careers and undertake those assignments responsibly, as I did. However, in recent years, it tends to put more weight on processes, and I sometimes worry whether young employees can proactively express their opinions. We need to create a foundation in which their managers are eager to listen to their opinions. Therefore, I think revitalization of communication is the most effective.

In addition, I realize that “workstyle reforms” are not only for the company, but also for individuals.

Tomizawa: There is a “minister of workstyle reforms” in the Dry Bulk Carrier Division (A), where I am assigned. The minister produces e-mail magazines, organizes information collected in the division, and encourages us to realize higher priority ideas. However, we have issues to be addressed, too. We need to secure time away from our daily assignments to realize some of those priority ideas. Therefore, I want to ask our managers to get involved and create a balance with our existing assignments. We, as employees, will come to like the company and enjoy working here. We also seek to gain a sense of fulfillment.
by working for society. In my case, a spirit of “Let’s do our best!” can emerge if people listen to one of my ideas and someone tells me “Let’s do that!”

Yamamoto: I felt motivating people to improve meant providing continuous instruction and support when I was assigned to onboard operations as a crewmember. Because all crewmembers are working toward the goals of safe operation and operational efficiency, I felt that they did not have a mindset of providing new ideas and opinions for improvement to make operations more efficient. However, when I gave specific instructions on how to improve and by what process, even young crewmembers were engaged when I gave specific instructions on how to improve and by what process. Even young crewmembers were engaged, even when I gave specific instructions on how to improve and by what process. Even young crewmembers were engaged.

In my current onshore assignment as a maritime officer, I see the difficulty of reforms. For example, we had a project to develop robots to support onboard crewmembers. We put our heads together to come up with various ideas. We selected several ideas and started thinking about how we could make the progression. However, we were instructed that the people who proposed the selected ideas had to realize the project. I understand the intention to create a workplace that allows efforts on such initiatives on a daily basis, but they already have daily duties and it would require considerable time to take responsibility for the project in their spare time. At the time, I felt it is a little different that “the person who comes up with ideas” must also be “the person who executes them.”

Matsunaga: I have a lot of empathy with Mr. Yamamoto’s story. I think they would welcome being told “You don’t have to do the current tasks. We will entrust you with the new project,” when they have so many other things to do.

I think the entire view will be increased by clarifying the goal of “workstyle reforms” and sharing it company-wide. “Workstyle reforms” encompass a wide range of themes, so maybe it is better to divide them into Phase I, Phase II, and Phase III. Put the reforms into practice by having empathy for other people and their ideas. Thus, it is important to accumulate success stories.

Ikeda: I have two points I thought of while listening to your comments. First, there are still a few cases in which you come up with ideas and they are implemented. I always mention my desire to create a corporate culture in which everyone can share their opinions freely. However, after all, it is not interesting or fun to come up with ideas alone. It is important to create the process that will put those ideas into tangible form.

Second, what should we do at the top management level to create new value? One extreme suggestion is that we drop 20 of 100 assignments we are doing now, and do 20 new assignments that create higher value. New value cannot be created without a high level of preparedness. We cannot survive without a strong determination to “change.” Top management must carefully evaluate those who want to move into the ranks of management, and hope that they have ideas that will help us change.

Yasuo Matsunaga
Corporate Planning Division

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Junichiro Ikeda
President & CEO

Ichikawa: The “workstyle reforms” started as a company-wide project, but we cannot accomplish it in a short term and must continue for an extremely long term, what seems like an eternity. In this sense, it is important to voluntarily, continually make improvement that are close to home for all members, first toward achievement of their division targets. Company-wide projects are also individual projects. I hope the accumulation of small efforts – “I want change. I can do this” – will expand throughout the entire company and this will become a big wave.

On the other hand, it needs to be deployed in a top-down fashion, for example, making internal rules and reforms of the personnel system. We will also work to create a system that can develop good examples horizontally across divisions.

The ideas are: Everyone always comes up with ideas and creates new values even if there is neither a system nor projects—I will create such a corporate culture and foundation as a part of the company.
Forging Ahead to Become ‘The World Leader in Safe Operation’

CSR Targets in the Midterm Management Plan

Thoroughly Implement Safe Operation

All MOL Group employees learn that safe and stable cargo transport is the group’s ultimate social mission, and the absolute necessity to achieve the targets of “Four Zeros” (zero serious marine incidents, zero oil pollution, zero fatal accidents, and zero serious cargo damage).

KPI targets: Downtime per ship (24.00 hours per year), Incidents per ship resulting in stoppage (1.00 per year), Less than 0.70 (Lost Time Injury Frequency)*

MOL’s Approaches

All land-based and ocean-going personnel are united in working to achieve our goals including the “Four Zeros.”

4. Safety Operation Management Structure

The MOL Operational Safety Committee, chaired by the president, meets bimonthly to deliberate basic policies, countermeasures, and other items related to secure and completely safe operation of MOL- and MOL Group-operated vessels, and makes decisions on safety related measures.

- Committees Related to Safe Operation

<table>
<thead>
<tr>
<th>Committee</th>
<th>Responsibilities</th>
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<tbody>
<tr>
<td>Executive Committee</td>
<td>Overall management of the operation.</td>
</tr>
<tr>
<td>Operational Safety Committee</td>
<td>Management and operations of safety matters, including safety awareness programs.</td>
</tr>
<tr>
<td>Safety Assurance Committee</td>
<td>Management of safety standards and procedures.</td>
</tr>
<tr>
<td>Ship Manning Committee</td>
<td>Management of operation of vessels and crews.</td>
</tr>
</tbody>
</table>

3. Safety Cost-focus Management

A well-known oil spill occurred off Spain in 2002, which resulted in the spill of about 60,000 tons of heavy oil after the oil tanker Prestige suffered hull damage and sank. Victims’ claims totaled about 1 billion euros (about ¥140 billion). This is typical of a serious marine accident that results in significant damage to the environment. MOL established its unique “MOL Safety Standard Specifications” (please refer to page 27 for details). The standards include the “tail safe” concept required to ensure safety even at the ship design and construction stages. This also includes additional installation of backup equipment and other devices that allow for emergency operations. Normally, specifications and estimates quoted from shipyards are based on the standard specifications, but MOL is committed to taking additional safety measures even though it increases vessel construction costs by 2% to 3%. This can add up to hundreds of millions of yen per ship, but all of MOL’s vessels offer the most advanced safety specifications.

5. Key Performance Indicators (KPIs)

- “Four Zeros” (zero serious marine incidents, zero oil pollution, zero fatal accidents, and zero serious cargo damage) as the MOL Group
- Less than 0.70 (from FY2015) LTIF (Lost Time Injury Frequency)
- Less than 24.00 hours of downtime per ship per year*
- Less than 1.00 incidents per ship per year that require stopping the ship*
During Cargo Transport

24/7/365 Support from the Safety Operation Supporting Center (SOSC)

3 Strong Determination to Safe Operation

Four serious marine incidents occurred in 2006. After those incidents, MOL thoroughly investigated the causes, and in 2007, we established the SOSC, with the motto “Never let the captain get isolated.” MOL Group executives and employees, working together, took the lessons learned from those incidents to heart, and developed measures that will help us “forge ahead to become the world leader in safe operation.”

4 Various Risks Surrounding Vessels

MOL Group vessels navigate oceans all over the world. Not only in bad weather situations such as winter storms, hurricanes and typhoons, and frozen river ports, but also in places like the Middle East and Ukraine, where political situations can be volatile, we must always be ready to take appropriate measures. We also go where there is a risk of piracy. In other words, we must appropriately address myriad situations on a daily basis.

Global warming is upon us, and that serves to increase the power of tropical depressions — winds are stronger and accompanying rains are heavier, so the linkage between vessels and shore becomes even more important. In addition, ship-to-ship cooperation becomes even more crucial as deteriorating international conditions require greater preparation against possible pirate or terrorist attacks.

Our SOSC grasps these risks in real time, confirming that communication among vessels, ship management companies, marine technical teams, and personnel responsible for vessel operation is clear and constant. The SOSC’s motto is “Never let the captain get isolated,” and its initiatives are built on that premise. There are always two people on watch at the SOSC, one of whom must have experience as a captain of a vessel. Information on weather reports from overseas media, and other things that might have something to bear on vessels underway is gathered. Thus, the SOSC is always ready to offer timely information and advice, and help prevent serious accidents before they happen.

Topics

“Hazard Map” Function, Operational Support Tool, Aiming at a New Level of Safety

MOL has added a hazard map function to the Captain’s Dynamic Operation System for Counter planning and Analysis (Capt.’s DSCSA). The content of the hazard map includes past incidents involving operated vessels, hazardous sea areas, regions subject to special regulations, and actual measured weather information. The enhanced system makes it easier for crewmembers to recognize potential hazards near the routes they are using. Mariners who have this kind of information in advance can recognize problems before they occur and operate their vessels with greater safety and efficiency.
During Cargo Transport

Multinational, Diversified Seafarers Hone MOL Seamanship to Address Any Situation

1. Thorough Investigation by Highly Skilled Ship Inspectors

Two ship inspectors, who have a thorough knowledge of MOL’s safety standards through onboard experience as a captain or chief engineer, visit ships in person and conduct a detailed investigation based on a checklist of about 500 items, such as qualifications and career experience of crewmembers, records of the hull’s maintenance status, and engine inspection and maintenance records.

If they spot an unsafe condition, they make sure the vessel and concerned ship management company take appropriate corrective measures so the ship meets MOL’s strict safety standards. Their completed report, which covers the entire inspection and is illustrated with photographs, is circulated among relevant divisions including the responsible business division. Thus, the quality of the vessel is confirmed. In the case of charter vessels, the shipowner receives any corrective guidance through the business division. This consistent, professional approach ensures the safety of both owned and chartered ships.

2. Fostering a Culture of Safety

Discussion of Serious Marine Incidents in 2006

Last year was a milestone, 10 years after 2006, when four serious marine incidents occurred, shaking the foundation of our safety operation. MOL held a discussion of serious marine incidents in 2006 to make sure the lessons of those incidents do not fade from memory and to foster a culture of safety. Employees who were in charge of responding to the incidents talked about the terror they experienced and the severity of the response, which cannot be fully communicated through DVDs or written reports.

Safety Campaign

MOL launched a biannual Safety Campaign with a different theme each time during which executives and employees conduct an extensive series of visits to MOL-operated vessels and exchange information and opinions about ways to prevent incidents. Proposals and ideas gained through this campaign are shared throughout the MOL Group and among group-operated vessels to further enhance the group’s safe-operation structure. Since FY2014, the theme of the Safety Campaign is “Behavior Based Safety (BBS).” And in FY2015, MOL began providing background information on recent incidents and near-miss cases, and holding discussions about measures to eradicate incidents caused by overconfidence that stems from complacency and carelessness. Land-based executives and employees also think about what goes into each onboard task and the role and importance of safe operation. In these ways, we strive to build company-wide safety awareness and create a sense of unity among all executives and employees, whether they work on shore or at sea.

Total Safety Campaign Attendance (unit: persons)

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3. Human Resources Development

To achieve safe operation, we must have highly qualified crewmembers, which means recruiting and developing the very best people we can find. MOL employs the best personnel, regardless of nationality, and gives them the high level of education and training required to cultivate high morale, technical skills, and knowledge. The MOL Training Center provides not only the basic skills necessary for vessel operation, but also operational techniques specific to ship types. Thus, the center holds a wide variety of training programs from theoretical studies in the classroom to practical training that uses actual equipment and various types of simulations.

In addition, MOL has introduced its unique systems such as “Cadet Actual Development for Education with Tutorial (CADET),” a practical training program aboard its operated vessels, and the “OJT Instructor System,” in which experienced captains and chief engineers go aboard a vessel and provide direct advice and instruction. These are just a few of our initiatives to hone the seamanship skills of mariners throughout the MOL Group.

4. Development of Telecommunication Infrastructure

MOL reviews existing fleet broadband (the ship-to-shore telecommunication environment) as appropriate, and began introducing high-speed, high-capacity telecommunication service using the state-of-the-art IMMARAT GX satellite. This allows us to grasp real-time information such as locations of vessels in operation, speed, and engine status, and contributes to further reduction of CO2 emissions and making safe operation. In addition, this facilitates smooth communication between ship and shore and a better work environment for crewmembers.

5. Social Contribution

MOL will inaugurate a new maritime academy, MOL Magnusay Maritime Academy Inc. (MMMA), in Dasmariñas City, Cavite State, in June 2018. Filipino seafarers serve as the core of the workforce serving aboard our operated vessels, and we expect them to play an even more critical role as technology advances. The academy will provide continuous training programs to develop top-quality seafarers who can hit the ground running through a four-year curriculum that encompasses basic education and specialized coursework. With our local partner Magsaysay Maritime Corporation (MMC), we plan to recruit about 300 graduates every year.

MOL Body FIT Exercises

MOL has actively encouraged adoption of the “MOL Body FIT Exercise” program as a daily routine, with the goal of reducing the incidence of onboard injuries. The program includes calisthenics based on stretching, which develops strength in the trunk and leg muscles, while improving the mariners’ sense of balance and reducing the risk of falls. It was awarded the “The Best Practice Award of Seafarers Onboard Safety 2016” from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT).
Further enhancing initiatives to reduce environmental impact as an Environmentally Advanced Company

Environmental Initiatives

- Use technology to differentiate the MOL Group and gain a competitive advantage, while meeting the needs of customers who have especially high standards regarding environmental performance.
- Environmental measures help reduce fuel consumption and result in lower operating costs.

Opportunities and Risks

- Use technology to differentiate the MOL Group and gain a competitive advantage, while meeting the needs of customers who have especially high standards regarding environmental performance.
- Environmental measures help reduce fuel consumption and result in lower operating costs.

CSR Targets in the Midterm Management Plan

- Progressive addressing the solution of environmental issues such as emissions of greenhouse gases (GHGs), air pollution, and inhibition of biodiversity. Grasp environmental concerns of customers and other stakeholders to provide innovative solutions, and grow the environment and emission-free businesses into a next-generation core business.

KPI targets: Reduce GHG emissions by 2% per unit load every year in comparison with the previous year.

MOL Group Environmental Policy Statement

Philosophy
As one of the world’s leading multi-modal transport groups, the MOL Group is committed to protecting the health of our marine/global environment and therefore promotes and supports the following policies.

Policies
1. Protect all aspects of the marine/global environment and foster safe operation;
2. Comply with all environmental legislation and regulations required by law, and all relevant standards and other requirements that we subscribe to. And, whenever possible, further reduce the burden on the environment by setting and achieving even tougher voluntary standards;
3. Periodically review and revise our environmental protection measures on the basis of our framework for setting and reviewing environmental objectives and targets;
4. Conserve energy and materials through recycling and waste reduction programs;
5. Purchase and use environmentally safe goods and materials;
6. Promote the development and use of environmentally safe technology;
7. Educate and encourage group employees to increase their focus on protection of the environment through enhanced publicity efforts, and communicate our Environmental Policy to group employees;
8. Publish our Environmental Policy Statement and disclose our environmental information on a regular basis; and
9. Always strive to ensure that our business activities contribute to and adequately support worthy environmental protection activities.

MOL Group Environmental Policy Statement

MOL Group Environmental Policy Statement

Ocean Shipping’s Impact on the Environment
Compared to other modes of transport, ocean shipping can transport larger volumes of cargo at once and is a generally environment-friendly mode, with lower emissions per unit load of CO₂ and other air pollutants.

However, with growth of the world economy spurred by the development of emerging markets, overall world ocean cargo traffic continues to increase. Seaborne trade has exceeded 10 billion tons, and we anticipate further increases in the future. As seaborne trade increases, CO₂ emissions will rise in step with growing energy consumption. This can exacerbate pressing environmental issues, such as the adoption of advanced technologies and slow steering. In FY2016, we reduced CO₂ emissions by 10 million tons, and we anticipate further reductions in the future. As seaborne trade increases, CO₂ emissions will rise in step with growing energy consumption. This can exacerbate pressing environmental issues, such as the adoption of advanced technologies and slow steering.

Executive Committee
- CSR Committee
- Technology, Innovation and Environment Committee
- BWTS Installation Committee
- SOx 2020 Regulation Compliance Committee
Addressing Environmental Issues with Advanced Technologies

Viewing its response to environmental regulations as a business opportunity and a strategy for differentiation, the MOL Group proactively develops and adopts advanced technologies that reduce the environmental impact of our business and set the stage for real solutions to global environmental issues.

### Preventing Global Warming

The Paris Agreement was adopted at the 21st Conference of the Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015. This is an innovative framework with the participation of UNFCCC 196 member countries. The universal agreement’s main aim is to keep the rise of global temperatures below 2 degrees Celsius. It also mentioned that the 1.5 degrees Celsius limit is a significantly safer defense line to reduce risk. The agreement commits to net zero greenhouse gas (GHG) emissions resulting from human activities during the second half of the century.

The International Maritime Organization (IMO) is responsible for developing measures to reduce GHG emissions in the international shipping industry. In 2013, the Energy Efficiency Design Index (EEDI) and the Ship Energy Efficiency Management Plan (SEEMP) became mandatory. The EEDI regulates CO₂ emissions at the stage of new ship design. Starting in 2019, vessels will be required to collect and report data such as CO₂ emissions via the Data Collection System (DCS). The IMO will analyze collected data and set strategies toward reduction of GHG emissions.

#### Example of Initiatives

**Upgraded PBCF**

MOL Techno-Trade, Ltd., an MOL Group company, has launched sales of an upgraded version of its energy-saving Propeller Boss Cap Fins (PBCF). MOL Techno-Trade has sold more than 3,100 PBCFs to ship owners all over the world. The new type of PBCF was jointly developed by MOL, Akishima Laboratories (Mitsui Zosen) Inc., and MOL Techno-Trade. The new design enhances propeller thrust and reduces torque thanks to refinements in fin shape and height. Tests of the new type PBCF on vessels in service confirmed energy saving of around 5% compared to sister vessels not equipped with PBCF.

#### Regulations to Prevent Global Warming

**EEDI**

- **Phase 0**
  - Mandatory
- **Phase 1**
  - Mandatory
- **Phase 2**
  - Mandatory
- **Phase 3**
  - Mandatory

**SEEMP**

- **Phase 1**
  - Mandatory
- **Phase 2**
  - Mandatory
- **Phase 3**
  - Mandatory

**DCS**

Data Collection System. The system is intended to report fuel consumption data from ships to the IMO, which will analyze it and set strategies toward reduction of GHG emissions, including introduction of market-based measures.

### Preventing Air Pollution

Nitrogen oxides (NOx) and sulfur oxides (SOx) cause acid rain and air pollution. As industrialization has grown, air pollution has become even problematical, affecting the daily lives of people and damaging the natural environment. In October 2016, IMO decided to reduce the maximum permitted sulfur content in fuel oil from the current 3.5% or less to 0.5% or less after 2020. A critical issue is whether shipping companies will be able to procure fuel oil that meets those standards on a timely basis. Other MOL countermeasures include conducting a study on the installation of SOx scrubbers on vessels and construction of vessels that use LNG as alternative fuel.

#### SOx Emissions Regulations:

- **Tier I** regulation: Apply until 2015.
- **Tier II** regulation: Apply from 2016 to 2020.
- **Tier III** regulation: Apply from 2021.

**SOx Emissions Regulations:** Sulfur content in fuel oil is controlled to reduce SOx in exhaust emissions. From 2015, the ratio level in the Emission Control Areas (ECAs) was reduced to 0.1% or less. In October 2016, the IMO decided to reduce sulfur content in fuel oil to 0.5% or less in general sea areas.

**NOx Emissions Regulations:** NOx in exhaust gas from engines is controlled in a step-by-step manner. Tier I regulates emissions by rated engine rpm, targeting vessels built between 2001 and 2010. Tier II requires vessels built in 2011 or later to reduce a further 15.5-21.8% from the Tier I level. In the ECAs, Tier III applies to vessels built in 2016 or later, requiring reduction of 80% from the Tier I level.

#### Example of Initiatives

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Addressing Environmental Issues with Advanced Technologies

### Ballast Water Issues
Ballast water, which is discharged while loading cargo, carries marine organisms around the world and can have a negative impact on marine ecosystems and biodiversity. Accordingly, the International Maritime Organization (IMO) adopted the Ballast Water Management Convention in 2004. As the requirements for its ratification were satisfied in September 2016, the convention is slated to go into effect in September 2017.

**Example of Initiatives: Early Installation of Ballast Water Treatment System**
In 2014, MOL established a company-wide policy to install ballast water treatment systems on our vessels before the convention took effect, and press ahead with installation. As of June 2017, we had installed the system on a total of 67 ships. We continue to accumulate expertise on ballast water treatment systems, based on the operation of these vessels.

**Viable Organism Analyzer in Ballast Water**
Satake Corporation and MOL Engineering Co., Ltd. jointly developed the compact “Ballast Water Sample Concentrator” to detect the presence of large-size organisms (minimum diameter 250um) in ballast water samples. The concentrator and the Satake-designed and -developed “Viable Organism Analyzer” are designed and sized to make them easy to carry onto vessels.

### Regulations to Protect the Marine Environment

<table>
<thead>
<tr>
<th>Ballast Water Management Convention</th>
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<tr>
<td>General sea area regulations</td>
<td>Mandatory</td>
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<tr>
<td>Adopted in 2004: yet to take effect</td>
<td>Mandatory</td>
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<tr>
<td>USCG regulations</td>
<td>Mandatory</td>
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<tr>
<td>Enhanced in 2012</td>
<td>Mandatory</td>
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<tr>
<td>Ship Recycling Convention</td>
<td>Adopted in 2009: yet to take effect, effective year undetermined</td>
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<tr>
<td>Convention on Biofouling on Hulls</td>
<td>Guidelines adopted in 2011</td>
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**Ballast Water Management Convention:** It aims to prevent cross-border transfer of foreign marine organisms through ballast water of vessels. It was adopted in 2004 and is slated to go into effect in September 2017. Vessels are mandated to install a ballast water treatment system by the stipulated deadlines, within seven years from the effective date at the latest.

**USCG Ballast Water Management Regulations:** The United States Coast Guard regulations took effect in 2012. They are almost the same in content as the Ballast Water Management Convention; they require a unique type of approval for ballast water treatment systems. From 2016, all vessels calling at U.S. ports are required in principle to install ballast water treatment system at the first docking.

**Ship Recycling Convention:** It aims to prevent workplace accidents and environmental pollution in ship recycling. It was adopted in 2005, and will be issued 24 months after the requirements are satisfied. It sets standards for ship recycling facilities and recycling procedures, and requires ships to create, maintain and update an inventory list on onboard hazardous substances.

As marine organisms attached to the bottom of ships and crossing national borders have emerged as an environmental issue, IMO is discussing ways to address it. The “Guidelines for the Control and Management of Ships’ Biofouling to Minimize the Transfer of Invasive Aquatic Species” was adopted in 2011. After the review period (five years), it may become a convention in 2017 or later.

### Environmental Initiatives in Business Activities

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<tr>
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Maximizing the Potential of Human Resources: the Driving Force behind Growth and Value Creation

Initiatives on Human Resources Development

Develop personnel who can cope flexibly with changes in the business climate, support a vibrant, innovative organization that grows sustainably, and develop an environment in which diverse personnel can play active roles.

Opportunities and Risks

- The driving force behind any company's growth and value creation is the power of its people, so employees' growth and development are essential in expanding our business and differentiating the MOL Group from its competitors.
- Putting the responsibility for decision making in the hands personnel with various backgrounds and characteristics makes it easier for everyone to accept a more diversified sense of values. This gives the MOL Group an edge in adapting to market changes and risk tolerance.
- If we face a shortage of skilled seafarers, we will lose competitiveness and miss business opportunities.
- MOL’s brand image and trust are backed by our people, and failing to adequately develop human resources, accumulate know-how, and create an effective working environment will hamper the MOL Group’s growth.

MOL’s Approaches

Aiming at development of global human resources — personnel who channel the group’s common sense of values, MOL CHART, to our corporate culture, recognize our social responsibility, and can create shared value with society

Group’s Common Sense of Values, MOL CHART

CHALLENGE

Integrate through insight

HONESTY

Do the right thing

ACCOUNTABILITY

Commit to acting with a sense of ownership

RELIABILITY

Gain the trust of customers

TEAMWORK

Build a strong team

MOL CHART is aimed at shaping the MOL Group into an excellent and resilient organization that leads the world shipping industry, while strengthening and concentrating its comprehensive group-wide efforts. We encourage MOL Group employees to keep MOL CHART values foremost in mind as they execute business operations. We use MOL CHART to ensure compliance, build a more thorough awareness of safe operation, and nurture independent-spirited personnel who are committed to acting with a sense of ownership, by instilling employees at Group companies and seafarers aboard vessels with the values outlined in MOL CHART.

Fostering an MOL Group that Allows Diversified Personnel to Play Active Roles with a Sense of Unity

To strengthen and concentrate the MOL Group's comprehensive efforts, from an early stage, we have pushed forward with group-wide initiatives to develop independent-spirited personnel who are committed to acting with a sense of ownership and playing an active role in global markets. We will further enhance our human resources development, aiming to create a vibrant, innovative organization powered by a diverse and dynamic workforce.

Personnel System

MOL is strengthening its personnel system and moving ahead to create an environment that allows diverse personnel to play active roles with a sense of unity.

MOL CHART Episode

About 10 years ago, I received an inquiry about exporting plants with soil to China. I thought it would be difficult due to the possibility of insect infestation. I asked the plant quarantine station, and they said there had never been a case of plants being exported through the Port of Moji. Although we had reached a deadlock, I did not give up, and asked them to check into records from other ports around Japan. A few days later, I received the answer, "There was a case in Okinawa. If you pass the necessary inspections on the Chinese side, the export can be approved."

Every day I continued to repeat the disinfection process under strict conditions set by the Chinese side that never allow even a single insect. Finally, we satisfied the criteria and passed quarantine without any trouble.

Today, the Port of Moji is synonymous with exports of plants and we are proud to hold the top share among agencies there. I will hand down the excitement of this pioneering experience while securing the assistance of the Port and Harbor Authority and our business partners, and share the best part of overcoming the most challenging hurdles with our younger members.

Yoshiki Sakamoto
Green Shipping, Ltd.

Practice of MOL CHART

In April 2015, MOL introduced MOL CHART as the group's common sense of values, as the group businesses become multinational and diversified. MOL CHART is aimed at achieving the company’s long-term vision and enhancing its corporate value, while strengthening and concentrating its comprehensive group-wide efforts, by encouraging MOL Group employees to keep this common sense of values foremost in mind as they execute business operations. It has taken hold as a key element of MOL Group culture. In 2016, the second year since the introduction, we wanted to encourage every employee to more effectively use MOL CHART in each business operation, so we produced a video of best practices selected among episodes contributed from all over the world, and shared it throughout the group.
Establishment of Diversity and Healthcare Management Office

MOL has established the “Diversity Management Unit” and “Healthcare Management Unit.” However, we formulated a new unit organization in April 2017 to implement “diversity management” and “healthcare management,” which are key issues in our management strategy, by enhancing the responsiveness of the organization. We will promote the company’s long-term, continuous growth by supporting the creation of a work environment and healthcare management system that allow group employees from various different backgrounds to play active roles.

Promoting Women’s Initiatives

To encourage women to play more active roles in the company, we have worked not only to fulfill systems centering on childcare support, but also to expand support for female personnel in pursuing their career paths and increasing motivation. We have been promoting active roles for women in the MOL Group, in line with our action plan, which is based on the Act on Promotion of Women’s Participation and Advancement in the Workplace.

First in MOL: ‘Recruitment of an Athlete’

MOL recruited its first athlete in 2016, hiring a wheelchair rugby player, Kaa Kurahashi. She balances both office work and athletic activities—working at the Human Resources Development Division two days a week (including telecommuting for a day), and practicing three days a week. As One MOL, MOL Group executives and employees eagerly support Kurahashi, who participates in tournaments in Japan and overseas and always delivers outstanding performance. In addition, in 2017 MOL signed an official sponsorship agreement with BLITZ, Kurahashi’s wheelchair rugby team.

MOL is promoting the expansion of wheelchair rugby through its official sponsorship of BLITZ, and fosters an environment that encourages its diverse employees to play active roles inside and outside the company.

Diversity, Work-life Balance, Development of Work Environment

Striving to develop an environment where multinational, diversified personnel can maximize their personal development

Promotion of Diversity

The MOL Group, which develops businesses globally, has about 20,000 employees and crewmembers of various nationalities. We have worked to develop an environment that will increase our group-wide comprehensive strength and allow multinational, diversified personnel including women to play more active roles.

Employment by Region

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Promotion of Work-life Management and Development of Workplace Environment

In consideration of changes in life stages and lifestyles of employees and circumstances and times for them to work energetically, MOL enhances career support, realizes flexible working hours, and promotes approaches to work that are effective and emphasize the proper perspective while striking an overall balance. To work in excellent health, both mentally and physically, we strive toward the development of a workplace environment that helps employees manage their health and work in comfort, as well as comply with laws, regulations, and treaties, and seek to accelerate communication.

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</thead>
<tbody>
<tr>
<td>A</td>
<td>60%</td>
</tr>
<tr>
<td>B</td>
<td>15%</td>
</tr>
<tr>
<td>C</td>
<td>10%</td>
</tr>
<tr>
<td>D</td>
<td>7%</td>
</tr>
<tr>
<td>E</td>
<td>5%</td>
</tr>
</tbody>
</table>

Promotion of Work-life Management and Development of Workplace Environment

In consideration of changes in life stages and lifestyles of employees and circumstances and times for them to work energetically, MOL enhances career support, realizes flexible working hours, and promotes approaches to work that are effective and emphasize the proper perspective while striking an overall balance. To work in excellent health, both mentally and physically, we strive toward the development of a workplace environment that helps employees manage their health and work in comfort, as well as comply with laws, regulations, and treaties, and seek to accelerate communication.

First in MOL: ‘Recruitment of an Athlete’

MOL recruited its first athlete in 2016, hiring a wheelchair rugby player, Kaa Kurahashi. She balances both office work and athletic activities—working at the Human Resources Development Division two days a week (including telecommuting for a day), and practicing three days a week. As One MOL, MOL Group executives and employees eagerly support Kurahashi, who participates in tournaments in Japan and overseas and always delivers outstanding performance. In addition, in 2017 MOL signed an official sponsorship agreement with BLITZ, Kurahashi’s wheelchair rugby team.

MOL is promoting the expansion of wheelchair rugby through its official sponsorship of BLITZ, and fosters an environment that encourages its diverse employees to play active roles inside and outside the company.

Diversity, Work-life Balance, Development of Work Environment

Striving to develop an environment where multinational, diversified personnel can maximize their personal development

Promotion of Diversity

The MOL Group, which develops businesses globally, has about 20,000 employees and crewmembers of various nationalities. We have worked to develop an environment that will increase our group-wide comprehensive strength and allow multinational, diversified personnel including women to play more active roles.

Employment by Region

<table>
<thead>
<tr>
<th>Country</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>60%</td>
</tr>
<tr>
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MOL Group’s Social Contribution Activities: Connecting with the World

MOL’s Social Contribution Policies

1. Contribution to Sustainable Development Goals (SDGs) – As a corporation growing in step with economic expansion around the world, including emerging countries.

2. Contribution to biodiversity and protection of nature – As a corporation that produces a large volume of CO₂ emissions, whose which business activities are at the heart of living organisms.

3. Contribution to communities where the MOL Group does business – As a Good Corporate Citizen.

*MOL Group’s Social Contribution Activities: Connecting with the World*

mariner, through his words and photos of maritime work at sea and on shore.

lecture about ocean shipping and the work seafarers do at the Port of Yokohama’s Symbol

fourth-grade students from Sagami Women’s University Elementary School, and delivered a

Japan Project)*2. About 200 elementary and junior high school students and their

On July 18, 2016, MOL offered tours of a car carrier, the Aquamarine Ace, as a

Presenting Tour of Car Carrier on ‘Marine Day’

MOL Group employees realize that the group’s businesses contribute to society, and every employee takes the initiative in working to achieve the SDGs advocated by the United Nations.

Social Contribution Activities

MOL Group employees realize that the group’s businesses contribute to society, and every employee takes the initiative in working to achieve the SDGs advocated by the United Nations.

Educational Activities to Convey the Significance of Japan’s Maritime Industry

MOL continues to promote activities aimed at Japanese people, and especially children and young people, to build familiarity with ships, with their daily lives at sea.

Presenting Tour of Car Carrier on ‘Marine Day’

July 18, 2016, MOL offered tours of a car carrier, the Aquamarine Ace, as a part of the “Marine Day” event called the “Umio to Nippon Project (The Ocean and Japan Project)”.*1 About 200 elementary and junior high school students and their families participated in this event, and boarded the huge vessel, about 200m long and 45m high. The visitors toured the bridge, lounge, crew quarters, and so on.

MOL Teams Up with Sogo & Seibu and International NGO

JOICFP*3 to Build Awareness of Ocean Shipping

MOL provides transport service for used children’s shoes that Sogo & Seibu Co., Ltd. collected and donated through its trade-in service to Zambia, in cooperation with the Japanese Organization for International Cooperation in Family Planning (JOICFP). Furthermore, the three parties cooperated on a project that not only promoted donations of shoes, but also enlightened the public about maritime affairs. Called “Experience the World of Oceans and Ships,” the event was held at a Sogo & Seibu store, and included information panels about shoe donation projects and featured a quiz game led by an MOL marine officer.

Supporting Disaster-stricken Areas

MOL focuses on support to disaster-stricken areas, supporting ongoing reconstruction efforts as well as responding swiftly to emergencies.

Volunteer Activities in Flood-stricken Joso City

MOL employees listened to the stories of those affected when the Kinugawa River flooded Joso City on September 10, 2016, the sequence of experiences up to the present time, and the reminiscence of a couple who owned a rice factory severely damaged in the flood. It really hit home that anyone could be a victim of such a disaster and employees felt the pain of losing more than money could ever replace. It was also an opportunity to think about what we could do. Our employees joined in to dismantle the damaged structure, removed flood debris, and produced a signboard announcing that the former factory is now a community center where people can come to relax and share their experience. They experienced things in a way that is only possible when visiting in person and seeing with one’s own eyes, to appreciate the principle, and fully understood the difficulties of reconstruction.

Pledging Support for People Afflicted by Kumamoto Earthquake

The MOL Group donated ¥10 million to help with rescue and support activities after a recent earthquake in the Kumamoto region. In addition, we launched a charity donation drive within the MOL Group and donated a total of about ¥4.3 million.

Providing Secondhand Containers to Support Reconstruction in Quake-damaged Areas of Ecuador

MOL contributed secondhand cargo containers to serve as emergency shelters for victims left homeless after the severe earthquake in Ecuador in May 2016. We also stepped up to transport drinking water and other aid supplies.

Addressing Social Issues through Added Values Generated by Transport

MOL supports NPOs that engage with people in areas that need aid supplies and those who support them, by providing transport services using its containerships and car carriers.

Providing Voluntary Transport Service of Sporting Goods to Ghana

MOL provided voluntary transport service of sporting goods to Ghana as a consortium member of the “International” contribution program “Sport for Tomorrow (SFT)*4. We transported a total of 11,538 items, such as soccer shoes, which were collected by other organizations, corporate partners, and individuals. The items were donated to the organization and participants of a sports event through Enle*5. MOL is the first ocean shipping company to provide large-scale support for SFT programs.

Pledging Assistance in Ocean Transport of Mobile Library Vehicles to South Africa

MOL assists the non-profit organization South Africa Primary Education Support Initiative (Saposi-Japan) with the ocean transport of mobile library vehicles to the Republic of South Africa. We have transported 45 vehicles, including seven in the past year, donated from all over Japan. The mobile libraries that played an important role in local communities in Japan will soon gain new lives visiting elementary and junior high schools in South Africa and contributing to the education of both students and teachers.

MOL Hosts Internal Lecture by Organization that Supports Emerging Countries

MOL invited the Japanese Organization for International Cooperation in Family Planning (JOICFP) to explain its various initiatives to reduce maternal mortality in emerging countries that individuals can take part in. We also invited an NGO called The Volunteers Group to Send Wheelchairs to Overseas Children*6 to talk about the significance of its work, how it affects the lives of disabled children, and the specifics of its wheelchair donation and repair program.

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1. Thoroughly Implement Safe Operation and Provide Safe, Secure, Stable, High-Quality Businesses.

Supply safety, stable, and reliable services as the basis for ensuring stakeholders’ trust and becoming their choice. By minimizing accidents once again, improving the quality of shipping is a social mission as it supports industries and the daily lives of people around the world, we will strive to supply high-quality services, which will require the realization of the new era and contribute to the development of the world economy.

FY2016 Results

- Established a mechanism to handle customers’ needs and to address their issues, with the world’s first “MOL One Call.”
- Developed a reporting/information sharing system within the task force.
- Developed a "Behavior Based Safety" database system for MOL-managed vessels.
- Focused primarily on construction of school buildings, prepared various contracts, and contributed monetary donations and loans as scheduled. 46 contracts have started work.
- Conducted a review to assess the overall effectiveness of the Board of Directors.

2. Deepen Initiatives to Ensure Thorough Compliance.

Each of the MOL Group executives and employees reinforce compliance as a corporate social responsibility, and foster a company culture that demonstrates compliance in business activities.

FY2016 Results

- Completed review of Employment and Equal Opportunity. Conducted internal review of other items.
- Held a safety campaign to boost the morale of our employees on the theme of achieving accidents caused by bad habits and carelessness. Directed to ensure social compliance of “Return to Basics” and “SSB”.
- Provided the real education on risks and risks via MOL’s (“SSB”) database system for MOL’s management review.
- Developed and implemented 5S methods to improve the quality of environments at the workplace.

3. Strengthen Initiatives on Corporate Governance.

Further enhance a corporate governance to ensure that MOL, gain the trust of stakeholders and achieve sustainable growth.

FY2016 Results

- Conducted a review to assess the effectiveness of the board of directors.
- Carried out an annual management planning.
- Developed new social contribution activities and established the "SSB" database system for MOL-managed vessels.
- Introduced a program to support women returning to work after childbirth. Held an in-house seminar by NOP about how to spend before/after childbirth, which contribute to maintaining/increasing career consciousness.
- Focused primarily on construction of school buildings, prepared various contracts, and contributed monetary donations and loans as scheduled. 46 contracts have started work.


Further strengthen human resources development within the MOL Group, with a globally focused and diversified human resource management, which can demonstrate their abilities.

FY2016 Results

- Invited NPO for which MOL provides transport service to present a lecture for employees.
- Regularly shared information with concerned divisions to promote more proactive disclosure of “safety,” “AI/IoT,” and “the environment.”
- Provided a training program to prevent harassment, targeting newly-recruited managers and employees who plan to transfer to other companies in Japan and overseas.
- Strengthened risk management and internal control activities through development of the world economy.
- Conducted a review to assess the overall effectiveness of the Board of Directors.


Further enhance initiatives to reduce environmental impacts as an “Environmentally Advanced Company” with full awareness of the environmental impact of the business activities of the MOL Group, and protect the global environment, which is an issue common to the whole world.

FY2016 Results

- Further enhanced social contribution activities by executives and employees in Japan and overseas.
- Developed a way to secure telecommunication methods during a power outage in the Head Office. Reviewed telecommunication methods with business partners and the order of priorities for business operations. Still developing a system that allow fully to operate operations to continue in full capabilities.
- Developed an "SSB" database system for MOL-managed vessels.
- Provided the real education on risks and risks via MOL’s (“SSB”) database system for MOL’s management review.

6. Proactively Disclose Sustainability Data.

Foster stakeholders’ trust by proactively disclosing information about the sustainability of MOL Businesses.

FY2016 Results

- Conducted a review to assess the overall effectiveness of the Board of Directors.
- Discussed with Ministry of Defense and Ministry of Land, Infrastructure, Transport and Tourism through the shipowner/Association to more effectively make the needs of shipping companies to ensure safety in the new era.
- Provided a training program to prevent harassment, targeting newly-recruited managers and employees who plan to transfer to other companies in Japan and overseas.
- Conducted a review to assess the overall effectiveness of the Board of Directors.


Promote social contribution activities that are highly relevant to MOL’s businesses, and continue our efforts to solve social issues as a corporate citizen.

FY2016 Results

-兰花: full achievement ○:Partially achieved △:Generally achieved □:Not achieved (target period/contract contents)

- Conducted a review to assess the overall effectiveness of the Board of Directors.
- Discussed with Ministry of Defense and Ministry of Land, Infrastructure, Transport and Tourism through the shipowner/Association to more effectively make the needs of shipping companies to ensure safety in the new era.
- Provided a training program to prevent harassment, targeting newly-recruited managers and employees who plan to transfer to other companies in Japan and overseas.
- Conducted a review to assess the overall effectiveness of the Board of Directors.

Legend:
- □: Not achieved (target period/contract contents)
- ○: Partially achieved
- △: Generally achieved
- ●: Full achievement

1. LTIF: Lost Time Injury Frequency. The number of industrial accidents occurring per 1 million man-hours. Conventionally, occupational injuries and illnesses, which forced seafarers to disembark vessels, were counted. But starting in FY2015, occupational injuries and illnesses, which forced seafarers to disembark vessels, were counted. But starting in FY2015, occupational injuries and illnesses, which forced seafarers to disembark vessels, were counted.


3. FBB: Fleet Broadband. INMARSAT Satellite telecommunication service, using L Band (frequency range: 1-2 GHz)
### Safe Operation

The Environment

#### Data/Activities

<table>
<thead>
<tr>
<th>Objective</th>
<th>FY2016 Environmental Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Study/R&amp;D of advanced environmental technology, creation of new environmental businesses, and linking part with each that contributes to the environmental protection.</td>
<td>MOL established the Technology Innovation and Environment Committee to promote the development and advancement of innovative technologies, and promote the effective and profitable use of the new management method. (1) Established a system that promotes internal sharing, evaluation, and review of environmental activities, and allowed to make and disclose the environmental activities of each company. (2) Contributed to environmental management as a cross-cutting issue, including environmental management, creative new rules, and introduction of new environmentally-friendly technologies in the MOL Group's management. (3) Contributed to the environment. (4) Contributed to the environment.</td>
</tr>
<tr>
<td>2. Comply with Environmental Regulations</td>
<td>Reduce environmental impact through novel sustainable and protective global environmental by engaging in company-wide efforts including waste management, ship recycling, promotion of global warming, prevention of atmospheric pollution, and response to diverse environmental regulations.</td>
</tr>
<tr>
<td>3. Promote Technologies to Reduce Environmental Impacts</td>
<td>Promote energy-saving innovations for ships and logistics through active utilization of innovative environmental technologies that increase corporate value and enhance the effectiveness and profitability of our businesses.</td>
</tr>
<tr>
<td>4. Actively Disclose Environmental Information</td>
<td>Responsible disclosure of environmental issues related to our MOL Group's environmental activities in the report.</td>
</tr>
<tr>
<td>5. Ensure Safe Operations</td>
<td>Ensures safe operations to prevent environmental impacts, and pursue safer and more sustainable behavior caused by marine accidents.</td>
</tr>
<tr>
<td>7. Advocate Transport (Tugboating and Marine Environmental Protection)</td>
<td>Promote informed recommendations for environment protection policies, and promote safe and sustainable behavior that will have a low environmental impact in the industry, government, private sectors, and relevant stakeholders.</td>
</tr>
<tr>
<td>8. Environmental Investment</td>
<td>Make environmental investment of 20 billion yen to be invested in the four ferries, which will offer improved environmental performance (two slated for 2017 and two for 2018).</td>
</tr>
</tbody>
</table>

#### Major Environmental Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>MOL Group CO2 Emissions</th>
<th>MOL Group NOx Emissions</th>
<th>MOL Group SOx Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(tCO2/km)</td>
<td>102.2</td>
<td>91.4</td>
<td>94.9</td>
</tr>
<tr>
<td>(tNOx/km)</td>
<td>7.1</td>
<td>6.1</td>
<td>6.4</td>
</tr>
<tr>
<td>(tSOx/km)</td>
<td>7.9</td>
<td>7.6</td>
<td>8.5</td>
</tr>
</tbody>
</table>

*Reduction target benchmark year*
Data scope: MOL Group consolidated subsidiaries in Japan and overseas. Excludes some small offices.
Noted areas such as "MOL" are limited to that scope

CaviA oil: Used mainly for vessel fuel.

Energy consumption:
The energy equivalent of heat originated from CaviA oil, CaviC oil, electricity, municipal gas and other energy consumed.

Scope 1: CO2 emissions originating mainly from A oil and CaviC oil used as fuel in vessels.

Scope 2: CO2 emissions originating mainly from electricity consumption.

Scope 3: Estimated value of CO2 emissions originating mainly from A oil and CaviC oil used as fuel in vessels. MOL has chartered out to other companies; calculated from FY2012

Wastes:
Mainly vessels sold to be scrapped, recycled at scrapping yards.

Water:
The volume of water used in offices. Most of the water used in vessels is made from seawater.

Third-party verification of CO2 Emission Data
MOL acquired third-party verification by BOS Japan, Co., Ltd. to ensure the fairness, accuracy, and transparency of FY2016 CO2 emission data included in this report. The verification was conducted based on ISO14064-3:2006.

Through the third-party verification, we will identify issues and enhance our efforts to further reduce CO2 emissions.

Verification target: Scope 1, 2 (energy originated carbon dioxide emissions) and Scope 3 (downstream leased assets).

Employees
Number of employees
(1) Excludes separate employees, leased employees, contract employees and part-timers, etc. (2) Includes leased employees.

Employee Support Systems

Care Support Systems

Other Support Systems

Industrial Accidents (on land)

Note 1: The cost to the Human Resources Division (including part of the cost for English language training programs taken by overseas employees) (Note 2) Education and training costs for overseas employees do not include travel and accommodation expenses.

MOL Group’s Environmental Data (As of March 31, 2017)

MOL Human Resources Data (As of March 31, 2017)
Earnings inclusion in Dow Jones Sustainability Indices > A
MOL has been included in the Dow Jones Sustainability Indices (ESG) Asia Pacific thanks to its highly regarded efforts in the areas of environmental protection, CSR, and IR activities. The DJSI identifies companies expected to show long-term sustainable growth. (Since 2003)

Earnings inclusion in FTSE4Good Index > B
FTSE Russell is a global index company owned by the London Stock Exchange. FTSE Russell has included MOL in one of its major socially responsible investment indices, the FTSE4Good Index. (Since 2003)

FTSE Blossom Japan > C
MOL has been included in the FTSE Blossom Japan Index, introduced in 2017 by FTSE Russell targeting Japanese companies with excellent performance related to social, environmental, and governance (ESG) issues.

MSCI ESG Leaders Indexes > D
MOL has been included in the MSCI ESG Leaders Indexes for its superior efforts on measures taken for risks and opportunities related to ESG. (Since 2010; index name changed in 2017.)

MSCI Japan ESG Select Leaders Index > E
MOL has been included in the MSCI Japan ESG Select Leaders Index, introduced in 2017 targeting companies with high ESG performance relative to sector peers.

MSCI Japan Empowering Women Index > F
MOL has been included in the MSCI Japan Empowering Women Index, introduced in 2017 targeting companies that promote and maintain a high level of gender diversity among their workforces.

SMBC Sustainability Assessment Loans > G
MOL has received the highest rating for SMBC Sustainability Assessment Loans from Sumitomo Mitsui Banking Corporation and earned the highest mark for its comprehensive information disclosure and efforts to promote sustainability. (2016)

SMBC Nadexlo Loans > H
MOL has received SMBC Nadexlo Loans from Sumitomo Mitsui Banking Corporation since 2016. It was recognized as a leading company for its initiatives aimed at creating a workplace where women can play more active roles. (2017)

‘MOL Group Safety, Environmental and Social Report 2016’ Earnings Award of Merit in Environmental Communication Awards > I
The ‘MOL Group Safety, Environmental and Social Report 2016’ received the Award of Merit in the Environmental Communication Report category in the 20th Environmental Communication Awards. The report earned high marks for two points. First, it identified five key issues to realize the sustainability of the shipping industry and highly evaluated the group’s achievements based on clear targets, which are continually updated. Second, the report outlined the MOL Group’s efforts to reduce its impact on the environment and demonstrated how the group views these efforts as business opportunities. (February 2017)

Engine Control Console Installed on Bridge of Kinkasan Maru Certified as ‘Ship Heritage’ > J
The engine control console installed on the bridge of the Kinkasan Maru, the world’s first diesel-powered general cargo ship equipped with an automated engine was selected for a “Ship Heritage Certificate” from the Japan Society of Naval Architects and Ocean Engineers (JASNAOE). (2017)

Certification from DNV GL AS for Seafarer Training Related to Liquefied Gas Transport > K
MOL’s training programs for seafarers serving on LNG carriers and LEG/LPG carriers, held in Japan and overseas, have earned certification from DNV GL AS, a program that satisfies the crew competency standards advocated by Society of International Gas Tanker & Terminal Operators Ltd. (SIGTTO). (LNG carriers: since 2007; LEG/LPG carriers: since 2016)

Certification from DNV GL AS for Seafarer Education and Training Management Program > L
MOL’s tankers and LNG carrier divisions have acquired certification from DNV GL AS, in recognition of the effectiveness of its unique seafarer training and education management program and its conformance with the Competence Management System (CMS). (Since 2012)

“The MOL Group Safety, Environmental and Social Report 2017” Earnings Award of Merit in Environmental Communication Awards > M
The ‘MOL Group Safety, Environmental and Social Report 2017’ received the Award of Merit in the Environmental Communication Report category in the 21st Environmental Communication Awards. The report earned high marks for two points. First, it identified five key issues to realize the sustainability of the shipping industry and highly evaluated the group’s achievements based on clear targets, which are continually updated. Second, the report outlined the MOL Group’s efforts to reduce its impact on the environment and demonstrated how the group views these efforts as business opportunities. (February 2018)

MOL Group Social Sustainability Report 2017
MOL Group Social Sustainability Report 2017 provides comprehensive information on MOL Group’s ESG performance relative to sector peers. (Since 2010; index name changed in 2017.)

MOL’s training programs for seafarers serving on LNG carriers and LEG/LPG carriers, held in Japan and overseas, have earned the highest mark for its comprehensive information disclosure and efforts to promote sustainability. (2016)

MOL received the Green Flag Award and Vessel Speed Reduction Award from the ports of Long Beach and Los Angeles, respectively, for its efforts to ensure compliance with standards that call for vessels to slow down within 40 nautical miles (nm) of the shore. (2016)

“PSC®” Selected by Port of Vancouver’s Environmental Program
Propeller Boss Cap Fins (PBCF), co-developed by MOL, was selected as a vessel noise-reduction technology by the Port of Vancouver’s EcoAction Program implemented by Port of Vancouver, Canada. (2017)

NOAA’s Channel Islands National Marine Sanctuary Honors MOL with Award
The United States National Oceanic and Atmospheric Administration’s (NOAA) Channel Islands National Marine Sanctuary has honored MOL with an award for the company’s participation in the 2016 Vessel Speed Reduction (NSP) incentive program.

3 vessels Earn ‘Technology Special Prize’ in Ship of the Year 2016 Awards > N
Three MOL methanol carriers Tananari Sun, Maneche Sun, and Cajun Sun – the world’s first equipped with methanol-burning dual fuel low-speed diesel main engines – received the “Technology Special Prize” in the Ship of the Year 2016 awards sponsored by The Japan Society of Naval Architects and Ocean Engineers (JASNAOE). (2017)

MOL received the highest rating for SMBC Sustainability Assessment Loans from Sumitomo Mitsui Banking Corporation since 2016. It was recognized as a leading company for its initiatives aimed at creating a workplace where women can play more active roles. (2017)

MOL acquired ISO 50001 certification for its energy management system and ISO 14001 certification for its environmental management system.


Certified as “A-” in CDP Climate Change Report 2016
MOL was rated Leadership Level “A-” in research analyzing climate change data through CDP, an international non-governmental organization. (2016)

Marine Engineering of the Year Award
Methanol burned dual-fueled low-speed diesel main engine, which was equipped on MOL methanol carriers, received the Marine Engineering of the Year Award. (2016)

Commendations from the Port Authorities of Los Angeles and Long Beach, U.S.A. > M
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Corporate Profile (As of March 31, 2017)

Name: Mitsui O.S.K. Lines, Ltd.
Head Office: 1-1, Toranomon 2-chome, Minato-ku, Tokyo 105-8688, Japan
President & CEO: Junichiro Ikeda
Capital: ¥65,400,351,028
Number of shares issued: 1,206,286,115
Number of shareholders: 96,892
Share listing: Tokyo Stock Exchange*
Business: Multi-modal transport, mainly by ocean-going vessels
Branches and offices in Japan: Nagoya, Kansai, Hiroshima, Kyushu
Overseas network: 35 nations and regions
Number of group companies: 65 in Japan, 380 overseas; Total: 445
(pARENT company and consolidated subsidiaries)
Number of MOL Group employees: 10,794 (parent company and consolidated subsidiaries)
Group fleet: 847 vessels, 62 million DWT
(including vessels on short-term charter contracts and those owned by joint ventures)

* Mitsui O.S.K. Lines, Ltd. was delisted from the Nagoya Stock Exchange on May 18, 2017.

For Inquiries
Mitsui O.S.K. Lines, Ltd.
CSR and Environment Office, Corporate Planning Division
1-1, Toranomon 2-chome, Minato-ku, Tokyo 105-8688, Japan
Tel: +81-3-3587-7063 Fax: +81-3-3587-7702
Email: plemo@molgroup.com