Safe navigation and respect for the environment are the fundamental precepts upon which all of the MOL Group's transportation and logistics operations are conducted. Preventing accidents, particularly those that could cause pollution, is the key element of safety initiatives. Here, MOL is replacing older vessels with vessels featuring double hulls and taking other safety measures. Rigorous training programs for crewmembers that utilize simulators and other advanced technology also contribute to safe navigation. Guiding environmental activities is the MOL Group's Environmental Policy Statement, which was formulated in 2000. This led to the formation of the Environment and Technology Group within the Technical Division and the issuance of the first environment report in the shipping industry. In April 2001, the MOL EMS 21 environmental management system was adopted. This unique system provides a comprehensive framework for bringing about continuous reductions in the environmental impact of our business activities.

PREVENTION OF AIR POLLUTION

Compared to other modes of transportation, ships have extremely low CO_2 emissions per unit load. We have taken actions to reduce CO_2 emissions per unit load by improving operating efficiency, using propeller boss cap fins (PBCF), exhaust gas economizers and turbo generator systems, and by cleaning ship bottoms to minimize drag. These measures have been effective, as MOL's CO_2 emissions per unit load have been declining steadily for many years. Practical measures to limit NOx (nitrogen oxides) emissions are restricted by space limitations on vessels. To reduce these emissions engines frequently undergo maintenance procedures and inspections to ensure optimum performance. Regarding SOx (sulphur oxides) emissions are proportionate to the sulfur content of fuel oil. MOL's vessels are well below regulations because only fuel with a sulfur content of less than 3% by weight is used.

CO_2 REDUCTIONS

Fiscal 2002: Goal is a 2% reduction in emissions per unit load during fiscal 2002 and 2003.

NOx, SOx REDUCTIONS

Fiscal 2002: Goals are a 2% reduction in NOx emissions per unit load during fiscal 2002 and 2003 and reducing SOx emissions per unit load.

OZONE DEPLETING SUBSTANCES

Containers are major users of refrigeration and freezing systems. Recognizing the risks posed by fluorocarbons, MOL began employing substitute refrigerants in 1992.

Fiscal 2001: R-12 (CFC) refrigerants replaced with R-134a (HFC) refrigerants, which have an Ozone Depletion Potential (ODP) of zero, in 32% of refrigerated containers.

Fiscal 2002: R-12 (CFC) refrigerants to be replaced with R-134a (HCF) refrigerants in 35% of refrigerated containers.
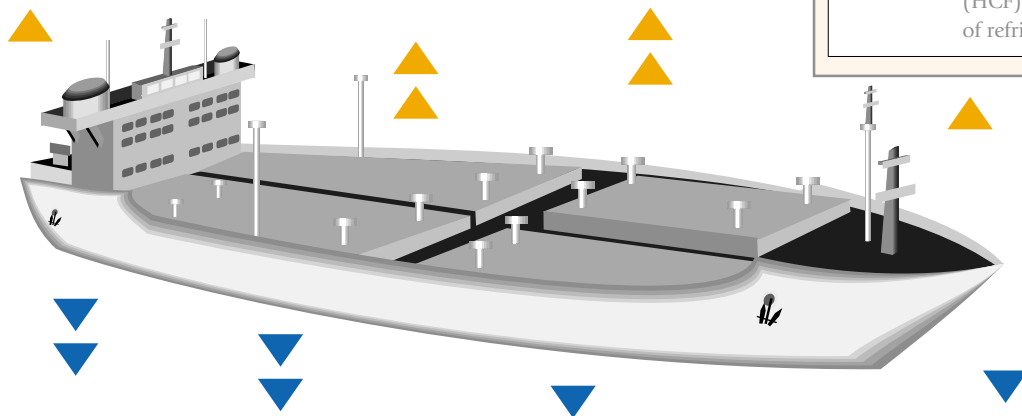
PROTECTING THE MARINE ENVIRONMENT

MOL has stringent rules to prevent oil discharges and ensure the proper disposal of waste oil and bilge water in accordance with international regulations. MOL also takes steps to reduce the environmental impact of anti-fouling paints and ballast water.

ANTI-FOULING PAINTS

MOL is shifting to tin-free (TF) paints to eliminate environmental problems that occur when tributyl tin is leeched into seawater. By March 2002, 50% of MOL's fleet was coated with TF paints. This process is to be completed by 2005.
Fiscal 2001: 20 vessels sandblasted and switched to TF paints
Fiscal 2002: 25 vessels to be sandblasted and switched to TF paints

BALLAST WATER

In accordance with IMO ballast water management guidelines, as well as local and national regulations and recommendations, MOL exchanges ballast water far from any coastline, while taking into consideration hull strength, weather conditions, and remaining within the prudent bounds of safety and feasibility. Research continues at MOL into ways to make ballast water harmless.
Fiscal 2002: More research in ways to eliminate harmful substances from ballast water and measures to raise awareness of regulations and share information related to ballast water.

FY2001 Environmental Accounting (from April 2001 to March 2002)

Environmental Costs

(¥ thousand)

Classifications	Contents	Investment amount	Expense amount
Environmental protection costs (costs for global environmental protection)	**Switch to TF anti-fouling ship bottom paints**	0	549,300
	Investments in ship equipment (PBCF) (exhaust gas economizer and turbo generator (T/G) system*)	654,600	42,100
(resource recycling costs)	**Environmental measures in offices** (installation of hot-air hand dryers)	0	2,200
Management costs	**Preparation of environmental reports** **Personnel expenses, etc.**	0	52,000
Research and development costs		1,400	12,800
Total		656,000	658,400

Economic Benefits Accompanying Environmental Protection Measures

(¥ thousand)

Effect	Monetary value
Reduction of fuel expenses (Benefits of sandblasting hulls prior to repainting, adoption of PBCF, and installation of exhaust gas economizer and T/G system)	590,300
Reduction in waste disposal expenses at offices (benefit of installation of hot-air hand dryers)	2,100
Total	592,400

Notes: 1. The above table does not reflect MOL's investment of about ¥2.3 billion in FY2001 in refrigerated containers using refrigerants that do not adversely affect the ozone layer.

2. Fiscal 2001 depreciation expenses for PBCF and exhaust gas economizer and T/G systems installed during FY2000 or afterward are used as the basis for environmental expenses associated with investments in vessel equipment.

3. Sandblasting and the installation of PBCF and exhaust gas economizer and T/G systems conducted during FY2000 made the first full-year contribution to reducing fuel consumption in FY2001. The above table includes this full-year benefit.

4. (*) The exhaust gas economizer and T/G (turbo generator) system converts thermal energy from the main engine's exhaust gas into steam, which drives a generator that supplies electricity. This system reduces consumption of fuel oil for generation of electricity, helping to reduce emissions of CO_2, NOx and SOx.

MOL AND INFORMATION TECHNOLOGY

MOL invests in IT for a variety of purposes including safe navigation, environmental protection, cost reductions and better services for customers.

IT and Safe Navigation

In fiscal 2000, MOL began equipping tankers and other vessels with its Electronic Chart Display and Information System to reduce the risk of accidents caused by navigation errors. This was followed in 2001 with the upgrading of the company's TOMAS (Total Management System), a ship performance analysis system that tracks the efficacy of navigation and ship maintenance management. An exclusive MOL technology, TOMAS was enhanced to permit the monitoring of ship operations from distant offices and viewing of the status of all ships in the MOL fleet. Quickly ascertaining the performance of MOL's more than 500 vessels dramatically improves both ship management efficiency and safety.

More Cost Competitive

To procure bunker more cheaply, MOL in October 2000 became the first member of the shipping industry to procure bunker using the Internet. This advance made procurement operations more efficient. In April 2002,

MOL became the first major shipping company in Japan to use the Internet to settle port charges for bulkers and specialized carriers, which do not operate on a fixed schedule. This Internet-based system greatly speeds the settlement of port charges while improving cost management and reducing MOL's administrative workload.

Efficient Management and Provision of Liner Information

MOL's global STARNET information management system standardizes liner operations and improves customer service. This system was extended to the U.S. in 2000 and in fiscal 2001 began operating in Europe, to cover all MOL's major east-west trades. MOL is a founding member of the GT Nexus Network, an e-logistics Web portal for containers. Introduced in the summer of 2001, GT Nexus integrates the back-office systems of all participating companies to provide customers with a single platform for global maritime transportation services.