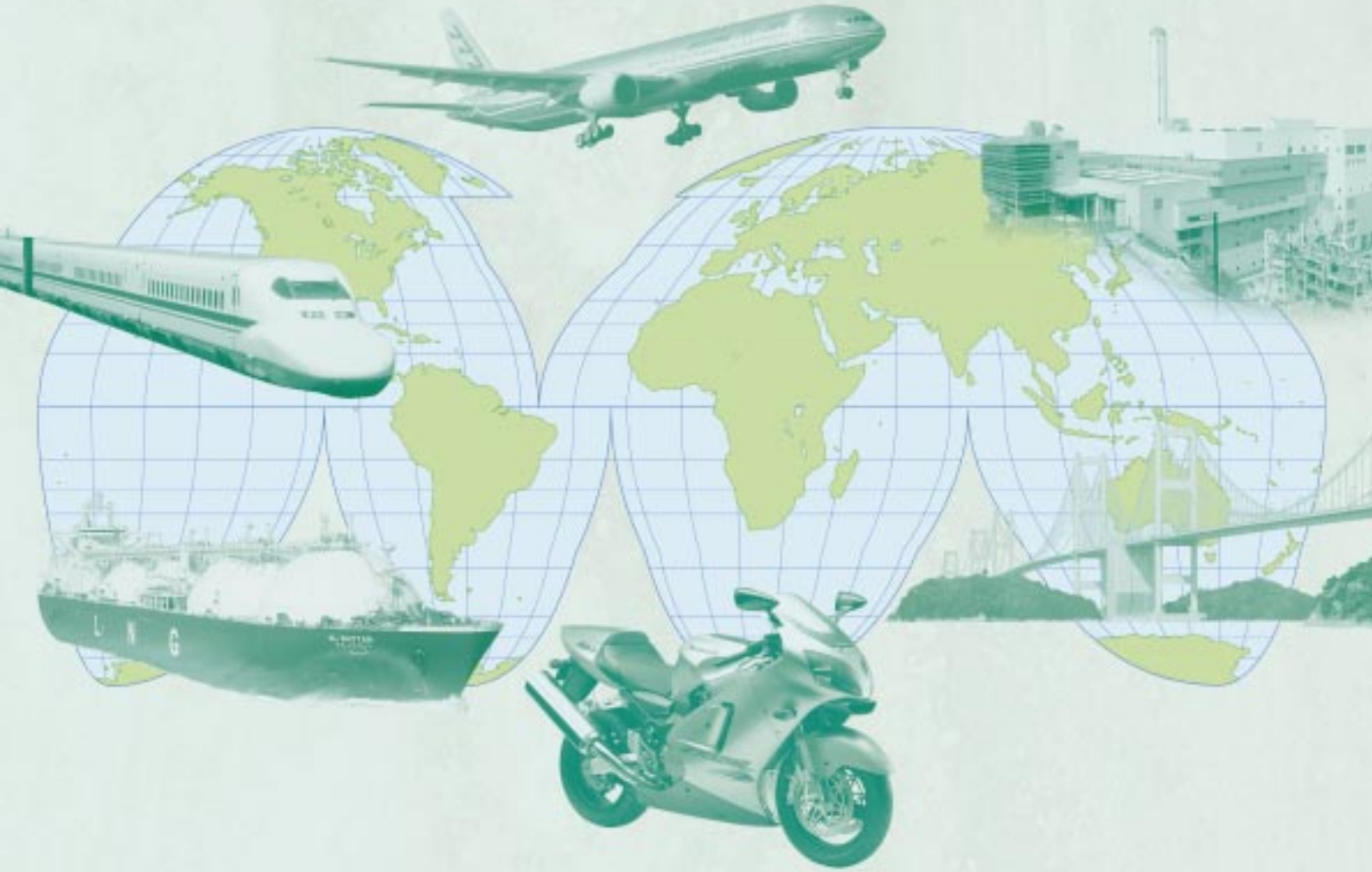
Kawasaki




# Environmental Report 2000

Through the world-class brand name "Kawasaki"
producing eco-friendly technologies and products,
Kawasaki contributes to establish a recycling-oriented society.

KAWASAKI
HEAVY INDUSTRIES, LTD.

A message from the management

# Aiming at harmonizing management with the environment through our pursuit of creation of a recycling-oriented society

As the 21st century approaches, we are realizing historical conversions and dynamic changes of the structure of our economy and society. A corporative contribution is required prior to the initiation of a recycling-oriented society.

We must squarely face the fact that the axiom "survival of the fittest" particularly applies. Only those who recognize the environmental changes and force their own evolution will survive. Therefore, we must revolutionize our thinking to follow this concept and develop our company accordingly so that we may put forward these changes to our society.

Our plan is to not only promote environment-friendly production activities, but we will also develop new products that will contribute to the establishment of a recycling-oriented society as well as raising customer satisfaction (CS) that sets a higher value on the world-class brand name "Kawasaki".

March 31, 2000 ended our 1999 Fiscal Year. It also marked the final year of the second three-year stage of Kawasaki environmental protection activities plan (EPAP). The primary focus during the year was to finalize the establishment of an internal environmental management system (EMS) based on ISO14001 standards that would support Kawasaki environmental protection activities, and to gain ISO14001 certification for them. As a result of this, nine (9) divisions of Kawasaki gained ISO14001 certification and the other main divisions will gain the certification by fiscal 2001 ending March 31, 2002.

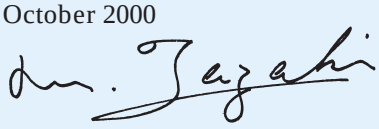
In April of 1999, Kawasaki created a new Environmental Management Department to establish the harmonizing of management with the environment. They also formulated the Kawasaki Environmental Charter in August.

Kawasaki has put forth a third three-year stage of EPAP (fiscal 2000 - 2002), based on the policy of the third EPAP. "Participating in the creation of a recycling-oriented society and making our business more eco-friendly", Kawasaki will promote the environmental protection activities by introducing Green Purchasing, Environmental Accounting and other solutions.

We will continue our efforts to improve our environmental protection activities and plan to disclose our various actions such as an environmental report, via Internet through our corporate home page and by other means. I hope this report will offer you a better understanding of our current environmental activities and our future goals.

We welcome our readers' opinions.

October 2000

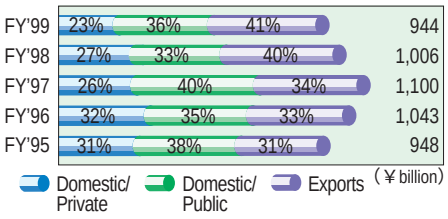


Masamoto Tazaki
President

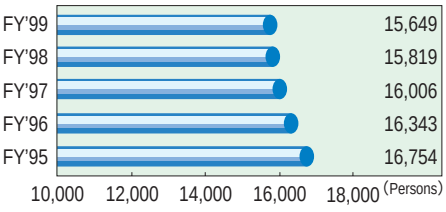
# Corporate Profile

- Name: Kawasaki Heavy Industries, Ltd.
- Established: October 15, 1896
- Paid-in Capital: ¥81,426,590,792
- Kobe Head Office:
  Kobe Crystal Tower 1-3, Higashikawasaki-cho 1-chome Chuo-ku, Kobe 650-8680, Japan
- Tokyo Head Office:
  World Trade Center Bldg. 4-1, Hamamatsu-cho 2-chome Minato-ku, Tokyo 105-6116, Japan
- Representative: Masamoto Tazaki, President
- Kawasaki Network:
  Domestic Offices 30 (including 15 Works)
  Overseas Offices 9
  Overseas Subsidiaries 25

**Sales revenue**




**Employees**




## Business Operations

**Ships**

**Rolling Stock**

**Aerospace**

**Energy Plants & Facilities**

**Plant Engineering**

**Environmental Protection Plants**

**Machinery & Steel Structures**

**Consumer Products**

## Contents



**Editorial Policy to Environmental Report**

This report is based on the performance of Kawasaki during fiscal 1999, ended March 31, 2000.
Kawasaki continues to issue this report annually.

Kawasaki drew up the Environmental Charter in August 1999 to define our basic corporate approach to environmental protection and to guide members in all our business activities aiming for the realization of an eco-friendly business management.

# Environmental Charter

## Environmental Philosophy

As a company in basic industries related to the land, sea and air, Kawasaki is deploying its business activities globally in pursuit of reducing environmental impact and creating a recycling-economy-oriented society, and we are committing ourselves to contribute to the sustainable development of society through our eco-friendly business activities, technologies and products that preserve the global environment.

## Conduct Guidelines

1. Recognizing that global environmental protection is a common and pressing issue for humankind, Kawasaki will voluntarily, positively and globally engage itself in harmonizing with the environment, and we shall regard this as one of the most important strategies when we deploy our business activities.
2. During its production stages, Kawasaki will endeavor to conserve resources, to save energy, to recycle resources and to reduce industrial waste and will promote the reduction of harmful environmental impact.
3. In the new product planning, research and development and designing stages, Kawasaki will render careful attention throughout the procurement, production, distribution, utilization and disposal of material stages to minimize harmful environmental impact wherever possible.
4. In seeking solutions to global environmental issues, Kawasaki will do its best to develop and provide new technologies and new products that contribute to environmental protection, energy saving and resource conservation.
5. Notwithstanding its compliance with environmentally related institutional laws, regulations and agreements and voluntary action plans of each industry concerned, Kawasaki will voluntarily institute its own environmental control standards as appropriate and necessary, and strive to improve the environmental control level.
6. Through environmental training and public relations activities, Kawasaki will strive to enlighten all its employees on global environmental issues and will support individual reviews of their lifestyles and will encourage their participation in the social services.
7. Kawasaki will implement an environment management system concerning its activities to preserve the environment, and hold conferences regularly to review the system and maintain continual improvement.

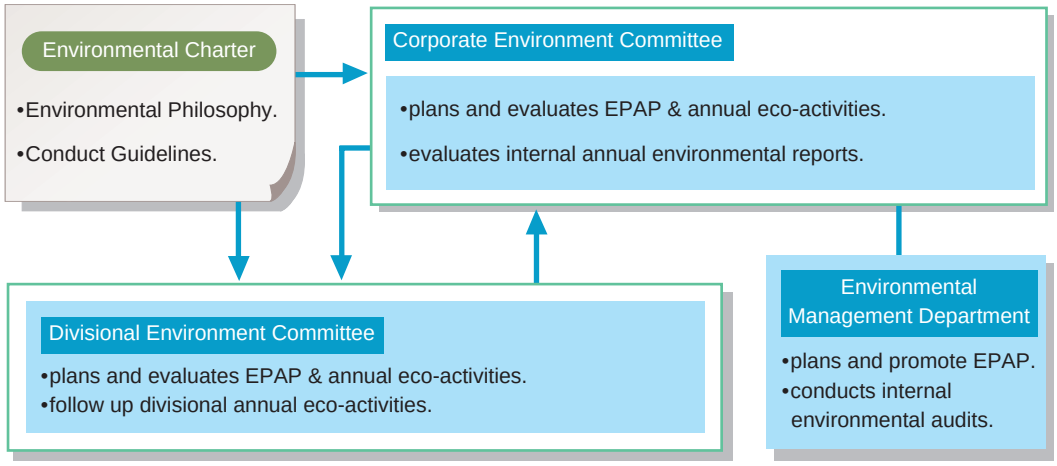
# Organization for Environmental Management

**【Corporate Environment Committee】**
The Corporate Environment Committee, being chaired by the board director in charge of Kawasaki overall environmental protection activities, plans and evaluates the three-year stage of Kawasaki environmental protection activities plan (EPAP) and the annual activities. The Committee is normally held annually, and also evaluates internal annual environmental reports.

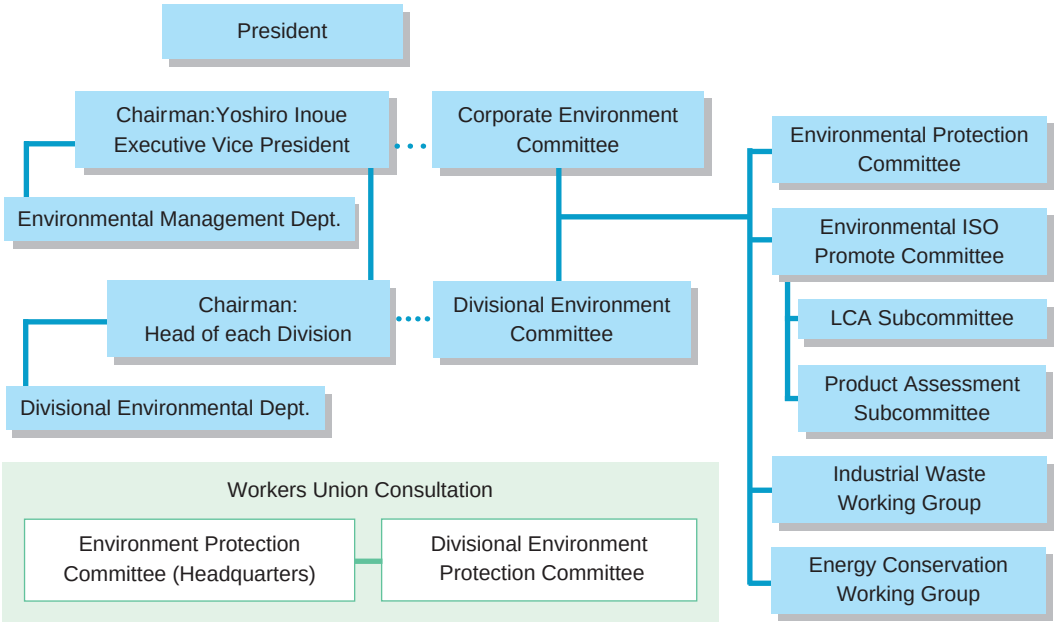
**【Divisional Environment Committee】**
The heads of each division are charged with the responsibility of implementing the division's environmental protection activities. They chair Divisional Environmental Committees, which formulate the three-year stage of divisional activities plans in line with EPAP, and oversee divisional annual activities. The Committees are normally held biannually.

**【Internal Environmental Audits】**
Environmental Management Department (Head Office) conducts internal environmental audits to each division evaluating an annual environmental performance of divisional activities, and reports their progress to the Corporate Environment Committee and board of directors via internal annual environmental report.

**【Environment Protection Committee】**
The Committee is held annually with Kawasaki Workers Union reporting results of the Corporate Environment Committee and evaluates EPAP, annual environmental activities and internal annual environmental reports.




## Organization



# Environmental Activities and Results

## Process of protecting the environment

Kawasaki has been developing and implementing a range of practical environmental protection activities in line with the three-year stage of environmental protection activities plan (EPAP), which was planned and evaluated by the Corporate Environment Committee. Fiscal 1999 was the final year of the second three-year stage of EPAP, and the following chart shows outlines of the second EPAP.

The principal objective of this stage was to construct an environmental management system (EMS) based on ISO14001 standards that would support Kawasaki environmental protection activities, and to gain ISO14001 certification for them.

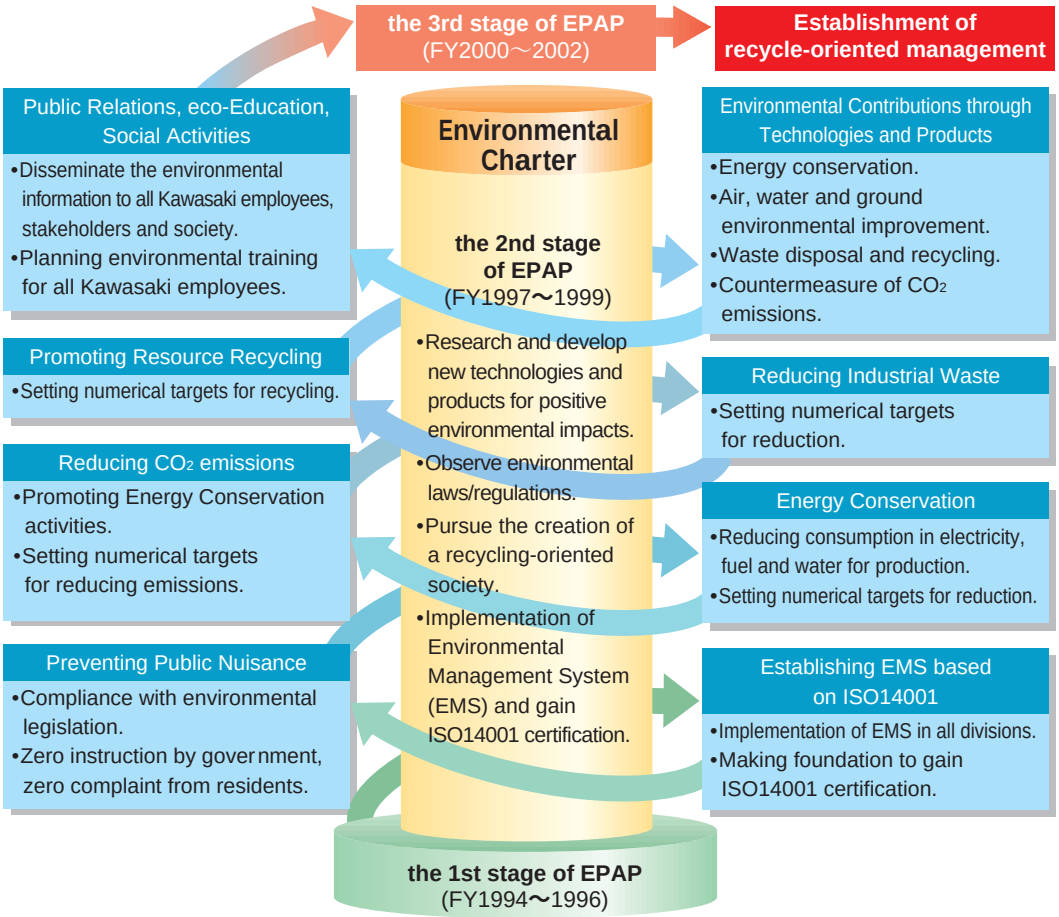
As the result of the 2nd EPAP stage, EMS construction was almost finished, while nine(9) divisions of Kawasaki gained ISO14001 certification. Kawasaki has been developing environmental protection activities supported by the establishment of EMS based on ISO14001 standards.

In order to guide company-wide progress on tackling environmental issues, a new Environmental Management Department was created in April 1999, and the Kawasaki Environmental Charter was formulated in August as the environmental philosophy and conduct guidelines. Furthermore, to improve disclosure of environmental actions in response to the demand of society, Kawasaki issued its first Environmental Report in November 1999.

Kawasaki reports hereafter the process and assessment of protecting the environment issues during fiscal 1999, ended March 31, 2000.

Kawasaki has formulated the third three-year stage of EPAP, which will cover the period ending in March 2003. Based on the third EPAP, Kawasaki aims to establish an eco-friendly means of conducting business throughout the company by introducing Green Purchasing, Life Cycle Assessment (LCA) methodology and Environmental Accounting, etc.

## Promoting the 2nd three-year stage of EPAP



# Establishment of Environmental Management System

## Status of ISO14001 Certification

Two divisions of Kawasaki, the Steel Structure & Industrial Equipment Division and the Gas Turbines Division, gained ISO14001 certification during fiscal 1999. Subsequently one group and four divisions gained the certification - namely, the Consumer Products & Machinery Group, the Construction Machinery Division, the Industrial Plant Engineering Division, the Ship Division (Sakaide Works) and the Crushing Plant Division. This brought the total number of Kawasaki divisions that have gained ISO14001 certification to nine. The other main divisions will finish gaining ISO14001 certification by fiscal 2001, ending March 2002.

## Promotion of EMS (Environmental Management System)

In pursuit of promoting/developing the internal EMS, Kawasaki holds the following seminars and training systematically.

1. Environmental Top Seminar - ISO14000s

   To understand policy and procedures of EMS, top managers of each division participate in this seminar.

2. Practical Seminar to Gain ISO Certification

   Significant information to gain ISO Certification is explained by this seminar.

3. Training for Internal EMS Auditors

   Kawasaki has been performing the EMS training for its employees who are engaged in constructing EMS to become internal EMS auditors. This training brought the total number of internal EMS auditors to 608 at the end of fiscal 1999.

**Record of internal EMS auditor training**

| | FY1996-1998 | FY1999 | Total |
|---|---|---|---|
| Number of internal EMS auditors | 286 | 322 | 608 |


The Steel Structure & Industrial Equipment Division has gained ISO14001 certification from JICQA.

The Consumer Products & Machinery Group has gained ISO14001certification from DNV.


The Construction Machinery Division has gained ISO14001 certification from JICQA.

Training for Internal EMS auditors

# Prevention of Pollution

**For preventing pollution**

- Observe environmental laws and requlations.
- Aim for no Administrative Punishment, Instruction or Attention, no Residents Complaint.

## Countermeasures to complaints, etc.

Regarding the number of residents complaints and administrative instructions during fiscal 1999, Kawasaki received four administrative instructions and two residents complaints.

Four administrative instructions brought by four accidents - namely, excess level of gases density at a plant waste incinerator, oil leakage at a plant underground pipe, excess level of regulation at a water cleaning unit of a company housing estate and excess level of industrial wastewater at a plant. Two residents complaints were regarding noises and a bad smell from each plant.

Kawasaki took immediate countermeasures against each accident and will prevent relational accidents by improvement and proper control of production equipment. Aiming for zero accidents, Kawasaki promotes environmental management systems in compliance with environmental regulations, and harmonizes with local societies concerned.

## Dioxin management

National laws and regulations concerning industrial waste disposal have become strict recently, especially dioxin pollution born incinerators. The status of incinerators set up in Kawasaki plants is shown on the right table.

Kawasaki is aiming to cease the operation of all its incinerators by taking efforts to achieve zero emissions through separation and recycling.

## Management of Chemical Substances

Kawasaki has been carrying out a PRTR* survey to the 178 chemical substances and submitting a report to the Japan Federation of Economic Organizations (Keidanren) since 1997. A report of the fiscal 1999 survey is shown on the right table. The first and second usage volume were Xylene and Toluene respectively that are used for painting.

*PRTR : Pollutant Release and Transfer Register

**Number of pollution (fiscal 1996 -1999)**

| | '96 | '97 | '98 | '99 |
|---|---|---|---|---|
| Administrative Punishment | 0 | 0 | 0 | 0 |
| Administrative Instruction(written) | 2 | 2 | 1 | 4 |
| Administrative Attention (verbal) | 1 | 0 | 0 | 0 |
| Residents Complaint | 7 | 1 | 3 | 2 |

**Status of plant incinerators**

| | FY'97 | FY'98 | FY'99 |
|---|---|---|---|
| Number | 11 | 8 | 8 |
| Comply with law | - | 6 | 8 |
| Dioxin density* | - | all cleared | all cleared |

*Criteria value: 80ng/m³ (ng=1g/billion)

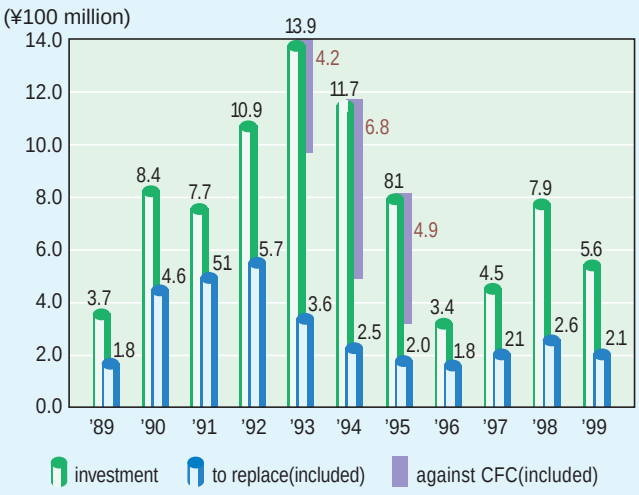
**Total of Chemical Substances (fiscal 1999)**

| high rank materials | volume (tons) | purposes |
|---|---|---|
| Xylene | 560 | painting |
| Toluene | 444 | painting |
| Dichloromethane | 170 | peeling |
| Zinc compounds | 47 | painting |
| Nickel compounds | 30 | plating |

## Environmental Investment

Kawasaki invested a total of ¥1.6 billion to convert all plant facilities into no-use chlorofluorocarbon (CFC) from fiscal 1993 to 1995, and ¥53 million in fiscal 1998 in order to comply all plant incinerators with laws and regulations regarding dioxin.

**Environmental investment (fiscal 1989 - 1999)**



# Energy Conservation

**For conserving energy**

- Measure energy consumption, draw up management indicator, set up numerical targets and promote.

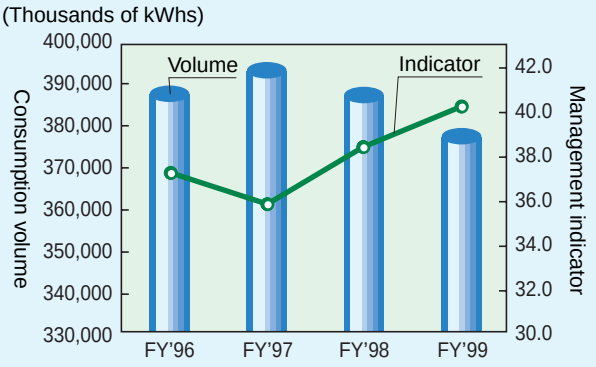
## Energy Consumption

As Kawasaki has seven business groups providing different kinds of products, all divisions set up original management indicators to reduce energy consumption and have drawn up several numerical energy-saving targets. The performance targets set for fiscal 1999 were 1% reductions in the corresponding management indicators.

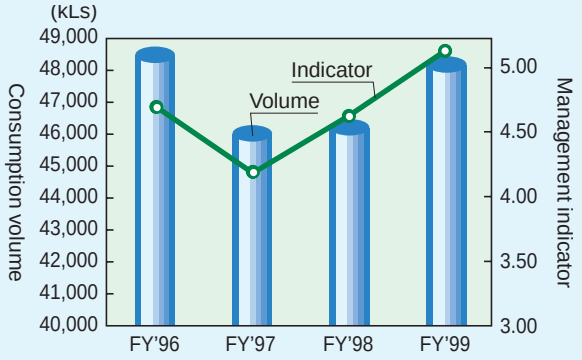
Kawasaki management indicator is set up as follows:
absolute consumption volume / non-consolidated sales (¥billion)

During fiscal 1999, absolute consumption of electricity and heat recorded a decrease of 2.4% and an increase of 4.3%, respectively, compared to the previous fiscal year. However, primarily due to the 6.2% fall in non-consolidated sales during fiscal 1999 compared with the previous year, actual performance indicators of electricity and heat rose 4.0% and 11.2%, respectively.

**Electricity consumption**




**Heat consumption**






# Reducing $CO_2$ Emissions

**For reducing $CO_2$ emissions**

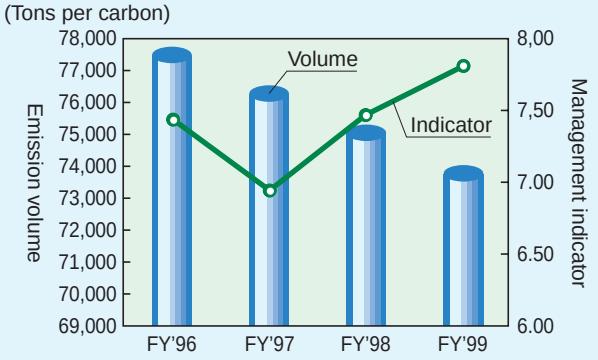
- Measure volume of $CO_2$ emissions, draw up management indicator, set up numerical targets and promote.

Reducing the volume of $CO_2$ emissions by conserving energy is a prime focus of Kawasaki environmental protection program in order to prevent global warming.

Kawasaki $CO_2$ emissions management indicator is :
absolute emission volume (Carbon conversion) / non-consolidated sales (¥billion)

During fiscal 1999, absolute emission volume was about 73,800t-c (Carbon conversion) and recorded a decrease of 2.0% compared to fiscal 1998, however, the actual performance indicator rose 4.5% due to the same reason as the above energy management indicator.

**$CO_2$ emissions**




**Decrease plan of 6% in Japan for the prevention of global warming**

by Third Conference of Parties to the U. N. Framework Convention on Climate Change (COP3) held in Kyoto

① Absorbing $CO_2$ by forests, etc. : -3.7%
② Cooperate working and trading emission rights : -1.8%
③ Decreasing $CO_2$, $CH_4$ and $N_2O$ : -2.5%
④ Controlling conversions to CFC-free gas : within +2.0%

# Reduction of Industrial Waste

**For reducing industrial waste**

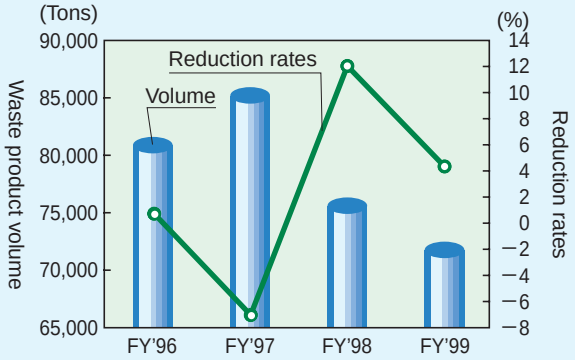
- Measure waste volume, draw up management indicator, set up numerical targets and promote.
- Disposing the waste properly with Kawasaki responsibility.

## Reducing Industrial Waste

Kawasaki is working to reduce waste product volume produced by all its eight business operations, and through a variety of company-wide recycling programs setting up numerical targets.

During fiscal 1999, the total amount of waste product volume was reduced by 3,200 tons, or 4.3%, to 71,920 tons. At 48,090 tons, the total volume of materials recycled was on a par with the previous year.

**Waste product volume and reduction rates**

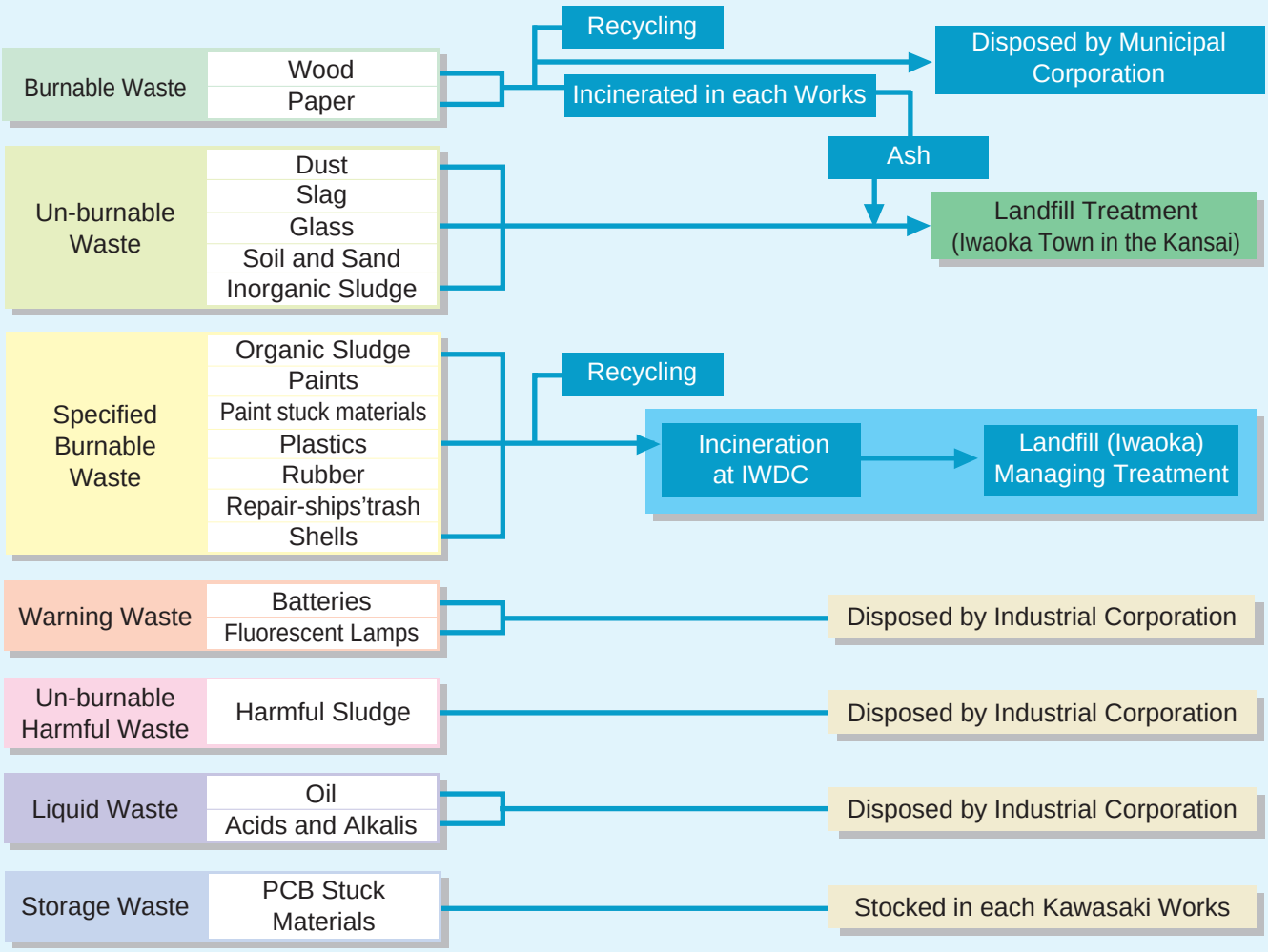



## Disposal system for Industrial Waste

In line with the basic policy of laws and regulations that industrial waste should be disposed properly by the company, Kawasaki has been consolidating its facilities as the following basic system since an environmental management section in head office was created in 1972.

In the Kansai district where many Kawasaki Works are operating, Kawasaki made a landfill for industrial waste in 1973, and started operating an incinerating plant named Industrial Waste Disposal Center (IWDC) in April 1979. Other industrial wastes produced in the Kanto and Shikoku districts are disposed of by municipal and industrial corporations.

**Basic System for Industrial Waste Disposal**



# Recycle Activities

**For promoting recycling**

- Measure waste volume, draw up management indicator, set up numerical targets and promote recycling.

## Improving Recycling from Industrial Waste

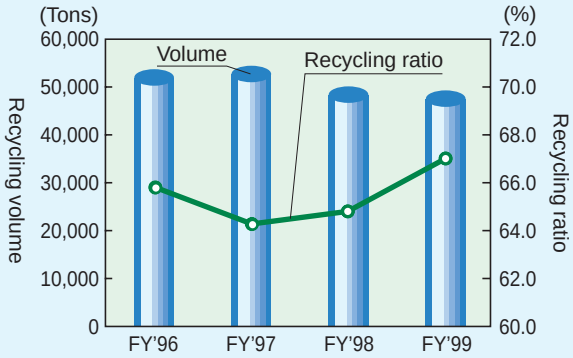
During fiscal 1999, the total volume of materials recycled was 48,090 tons and the proportion of the waste product volume accounted for by recycling thus rose by 2.2 percentage points, to 66.9%.

Recycling ratio is set up as follows :

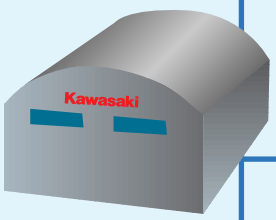
absolute recycling volume / total volume of waste product × 100(%)

Kawasaki started on a trial program called "Zero Emissions of Industrial Waste" in fiscal 2000 that aims to cut the industrial waste volume sent to landfill to nothing.

**Recycling volume and recycling ratio**




## Recycling Programs (Fiscal 1999)




| | Industrial waste volume | | Recycling volume | Recycling ratio |
|---|---|---|---|---|
| Metallic waste | 38,950t | → | 38,870t | 99.8% |

- The largest volume of waste product and recycling: recycled into resources by all Kawasaki Plants

| | | | | |
|---|---|---|---|---|
| Slag | 8,440t | → | 6,400t | 75.8% |

- Recycled into resources as soil materials after crushing by crusher made by Kawasaki
- Recycled into resources as sand for making cast

| | | | | |
|---|---|---|---|---|
| Wood | 2,370t | → | 1,380t | 58.2% |

- Recycled as wrapping wood for product

| | | | | |
|---|---|---|---|---|
| Glass | 130t | → | 30t | 23.1% |

- Recycled into resources at glass makers

| | | | | |
|---|---|---|---|---|
| Paper | 3,530t | → | 790t | 22.4% |

- Separated and collected by recycle boxes : cardboard, copy paper and drawing paper

**Others**

| | | | | |
|---|---|---|---|---|
| Rubber | 23t | → | 4t | 17.4% |
| Plastic | 2,210t | → | 120t | 5.4% |
| Oil | 8,730t | → | 330t | 3.8% |
| Acids | 670t | → | 4t | 0.6% |
| Others | 1,950t | → | 162t | 8.3% |

| | | | |
|---|---|---|---|
| **Total Industrial waste volume** | **71,920t** | **48,090t** | **66.9%** |

# Environmental Contributions through Technologies and Products

## Organization and Policy

### Organization

#### Research and development Group

Technology Group
- Planning & Control Department
- Akashi Technical Institute
- Gifu Technical Institute
- Kanto Technical Institute
- Production Technology Development Center
- Electronic & Control Technology Development Center

Research and development Section of Products Group

#### Products Group

- Ship Division
- Rolling Stock & Construction Machinery Group
- Aerospace Group
- Gas Turbine & Machinery Group
- Plant Engineering Group
- Machinery & Steel Structure Group
- Consumer Products & Machinery Group

### Policy

#### Research and development Group

- Kawasaki realizes the social needs of the environmental protection technologies in local and global scale, and Kawasaki promotes the research and development (R/D) with clarifying the basic policy and the important fields in the present and future .
- Recognizing the global warming protection and the creation of a recycling-oriented society are the most pressing issues, Kawasaki promotes its R/D for the energy conservation, waste treatment and recycling system.
- Kawasaki participates in the environmental R/D projects as a member of teams organized by national projects, universities, countries and other public institutes contributing to solve environmental issues per its advanced technologies.

#### Products Group

- Kawasaki contributes to the environmental protection supplying its technologies and products which reduce and minimize environmental harmful impact.
- Kawasaki promotes the system of manufacturing eco-friendly products in accordance with ISO 14001 standards.

## Results

### Environmental Protection Technologies and Products

- Kawasaki, as an environmental control plant maker, has been developing the various new technologies and products to solve the environmental issues since the 1970s, and contributing to the environmental protection in the wide fields of energy, cleaning of air and water and soil, waste treatment and recycling, hazardous substance treatment and $CO_2$ emission control.
- Kawasaki has been supplying the various technologies and products which minimize environmental harmful impact in the wide fields of machinery of transportation, various machines, plant, steel structure and machinery of consumer products.

### Overseas Contribution for the Environmental Protection

- Kawasaki contributes to the environmental protection by its technologies and products all over the world : the technical cooperation with the Green Aid Plan(GAP) which solves the environmental issues in developing countries, etc.

### Application of Product Assessment and Life Cycle Assessment (LCA)

- Kawasaki proceeds to establish the design system which includes the method of product assessment and LCA in order to supply the eco-friendly products.

### Enforcement of Green Purchasing

- Kawasaki has established the conduct guidelines of the green purchasing in order to reduce the environmental impact of the material procurements.

【Kawasaki promotes the green purchasing in our third EPAP "Environmental Protection Activities Plan"】

# Environmental Protection Technologies and Products

## Technologies and Products List

| Technology Field | Products | Research & Development |
|---|---|---|
| Energy | Conservation and Effective Utilization of Energy | |
| | • Combined cycle power plant<br>• Gas turbine cogeneration system<br>• Waste hea recovery boiler<br>• Top-pressure recovery plant for blast furnace<br>• High efficiency Low-NOx coal fired boiler<br>• Ice storage cooling system<br>• District heating and cooling system<br>• Optimization and diagnosis of industrial energy system | • High performance coal gasified generation technology<br>• High performance gas turbine<br>• Ceramic gas turbine<br>• Low temperature waste heat recovery technology<br>• Polymer electrolyte fuel cell, Methanol reformer |
| | Renewable Energy System | |
| | • Photovoltaic generation system<br>• Wind power generation system<br>• Geothermal generation system | • Wave activated generation technology |
| | New Energy System | |
| | | • Liquid-$H_2$ carrier |
| Air Pollution Control | SOx/NOx Reduction, Dust Collection | |
| | • De-SOx/De-NOx plant and dust collector for flue gas<br>• Low-NOx gas turbine generation system<br>• Cleanup system for road tunnel exhaust gas (Dust filter, Electrostatic precipitator) | • Low-NOx combustion technology (Gas turbine, Boiler, Diesel)<br>• De-NOx catalyst for lower temperature flue gas<br>• De-NOx technology for marine diesel engine |
| | Air Pollution Control | |
| | | • Environmental technology using photocatalytic coating (De-NOx, Deodorization, Stain proof etc.) |
| Sewage/Sludge Treatment, Water/Soil Pollution Control | Sewage/Sludge Treatment | |
| | • Sewage/Sludge treatment system<br>• Reverse-osmosis membrane water treatment system<br>• Mobile sludge treatment system | • Activated carbon production technology using sludge<br>• Membrane water treatment technology(Leachate etc.) |
| | Water Pollution Control | |
| | | • Purifying technology for closed bodies of water |
| | Soil Pollution Control | |
| | | • Cleaning technology for dioxin polluted soil |
| Waste Treatment/ Recycling, Hazardous Substance Treatment | Waste Incineration | |
| | • Heat recovery waste incineration system (Stoker type, Fluidized bed type, Gasifying-melting type)<br>• Waste-burning power generation system (RDF, Soda recovery boiler etc.)<br>• Waste Incineration system for pollution control<br>• Flue gas treatment system(Dioxin, HCl, SOx, NOx) | • Advanced stoker type incinerator |
| | Crushing, Sorting | |
| | • Steel scrap crushing and recycling system (Automobiles, Electrical appliances etc.)<br>• Construction waste crushing and recycling system<br>• Waste tire freeze-crushing system<br>• Bottle/Waste plastic sorting system | |
| | Recycling, Pollution Control | |
| | • Incineration and fly ash treatment system (Volume reduction, Recycling, Pollution control)<br>• Refuse derived fuel(RDF) production system<br>• Refuse plastic fuel(RPF) production system<br>• Garbage treatment system(Compost, Feed etc.)<br>• Waste plastic liquefaction system<br>• Coal fired boiler's ash recycling system (Paving material) | • RDF production technology using sludge<br>• Refuse paper and plastic fuel(RPF) production technology<br>• Organic waste/Animal dung/Raw sewage treatment technology( Methane gas,Compost etc.)<br>• Waste plastic gasification technology<br>• Mud recycling technology (Cement/Pottery/Paving material etc.) |
| | Hazardous Substance Treatment | |
| | | • Advanced dioxin reduction technology (Mechanism, Monitoring, Decomposition catalyst etc.) |
| | Radioactive Waste Treatment | |
| | • Radioactive waste treatment system | • Nuclear reactor decommissioning technology |
| $CO_2$ Emission Control | $CO_2$ Fixation | |
| | | • Chemical/Biological $CO_2$ fixation technology<br>• $CO_2$ ocean sequestration technology |
| Eco-friendly Technologies and Products [Examples] | • Fluidized bed type cement kiln: Large amount of energy conservation, reduction of $CO_2$/NOx etc.<br>• Ultrasonic air filter cleaning system: Recycling of used filter for air conditioner and gas turbine.<br>• Electro-Hydraulic hybrid system: Large amount of energy conservation, reduction of oil deterioration etc.<br>• Motorcycle, JET SKI® (personal watercraft), General-purpose gasoline engine: Continuously progressing for energy conservation, purification of exhaust gas, reduction of noise etc. | |

# Information, Education / Training

**For information and education**

- Promote information to customers and communities.
- Implement education/training to employees.
- Release information of environmental protection activities.

## Bulletin Activities

### Environmental Report

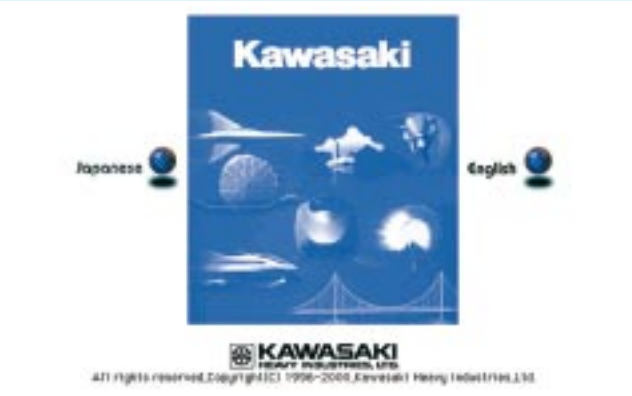
Kawasaki releases information of its environmental protection activities in Environmental Report and Internet Web sites annually.

- Environmental Report (fiscal 1999)
  9,000 copies are distributed
  (7,000 in Japanese and 2,000 in English)


### Disseminating Information via Internet Web Sites

Kawasaki created an intranet in January 1999. The "Corporate Environmental News" is issued biannually, while latest environmental information is released on the web site. In March 2000, the Environment Web site (in Japanese) on Kawasaki home page was opened, and English version will be also opened this year.

Kawasaki Web Site
http://www.khi.co.jp/




## Internal Enlightenment

Kawasaki strives to enlighten all its employees on environmental issues through a variety of internal publications, such as yearly "President Message", the company newsletter "Kawasaki" quarterly and others.


## Employee Training

The Environmental Education Plan is formulated and training is provided for all levels of Kawasaki employees to improve their knowledge of environmental issues. And Kawasaki is making efforts to support its employees for gaining environmental specialist licenses.

**Number of Pollution Control Managers**

| | |
|---|---|
| Air | 115 |
| Water | 105 |
| Noise | 48 |
| Vibration | 32 |
| Others (Dust, etc.) | 22 |
| **Total** | **322** |

**Energy Control Manager**

| | |
|---|---|
| Heat | 27 |
| Electricity | 24 |
| **Total** | **51** |

# Social Responsibility

## Support for Environmental Seminars

Kawasaki has been providing its support for local traders and manufacturers in order for them to gain ISO14001 certification by sending Kawasaki instructors to environmental seminars.

The seminars are also held by each local Public Service Corporation in cooperation with the Chamber of Commerce and Industry.

A seminar for gaining ISO14001 certification

## Cooperation for JICA Training

Environmental Training called "Manager of Enclosed Coastal Sea Control" was held in Kawasaki Akashi Works. It is produced by the International Center for Environmental Management of Enclosed Coastal Seas (EMECS) through Japan International Cooperation Agency (JICA). Kawasaki cooperates in international environmental activities of JICA.

Trainees in Kawasaki Akashi Works

# Environmental Protection Expenditure

Environmental Protection Expenditure in Kawasaki consists of two inseparable elements: Environmental investments, and the cost of environmental protection measures.

Environmental Investment includes the following investments:
pollution prevention facilities (Air, Water, Noise, Vibration), disposal facilities of industrial waste and energy conservation facilities/equipment, etc.

The cost of environmental protection measures: expenses for maintenance of environmental facilities, disposal/reduction of industrial waste and product recycling, etc. During fiscal 1999, environmental investments and the expenses were ¥562 million and ¥7,772 million respectively.

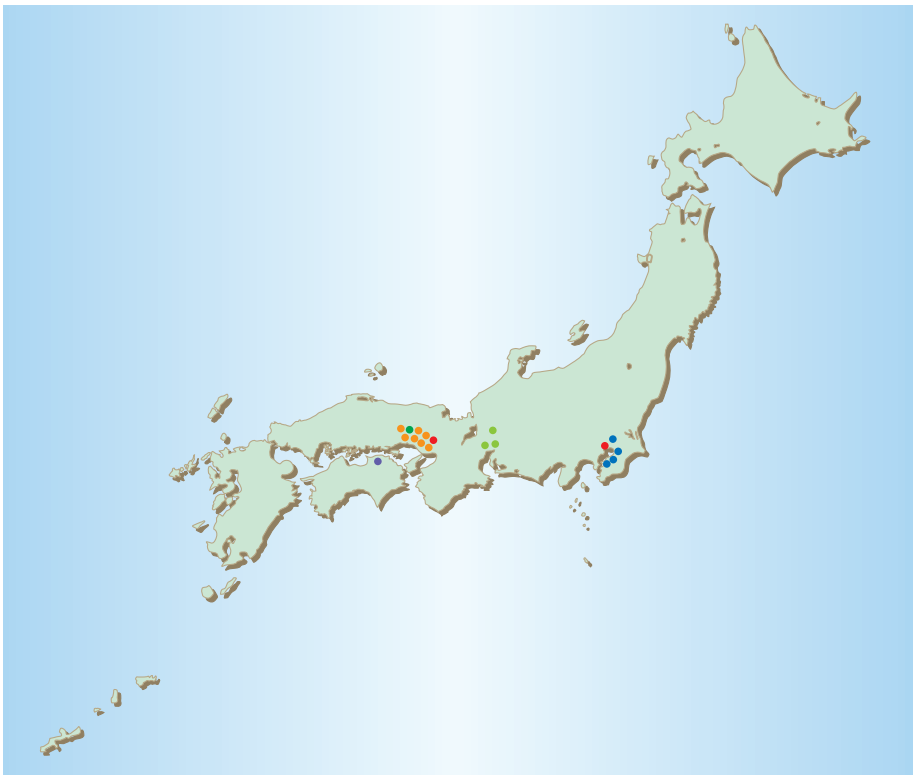
Kawasaki plans to introduce Environmental Accounting in line with a guideline made by Environmental Agency of Japan.

**Environmental Protection Expenditure**

(¥ Million)

| Fiscal year | | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|
| A. Environmental investments | | 810 | 340 | 450 | 790 | 562 |
| B. Cost of environmental protection measures* | Water disposal costs | 665 | 609 | 633 | 625 | 591 |
| | Industrial wastes costs | 931 | 1,060 | 1,112 | 1,043 | 988 |
| | Analysis costs | 78 | 79 | 92 | 74 | 93 |
| | Sub-Total | 1,674 | 1,748 | 1,837 | 1,742 | 1,672 |
| | R/D costs | 2,800 | 3,400 | 4,100 | 6,000 | 6,100 |
| | Total | 4,474 | 5,148 | 5,937 | 7,742 | 7,772 |
| C. Sales of Kawasaki (¥ 100 million) | | 9,489 | 10,430 | 1,1001 | 10,069 | 9,448 |
| B/C (%) | | 0.47 | 0.49 | 0.54 | 0.77 | 0.82 |

* B. includes personnel costs, depreciation expenses and other environmental-related expenses.



- Kobe Head Office
- Tokyo Head Office
- Noda Works
- Yachiyo Works
- Chiba Works
- Sodegaura Works
- Gifu Works
- Nagoya Works 1
- Nagoya Works 2
- Kobe Works
- Hyogo Works
- Nishi-Kobe Works
- Seishin Works
- Akashi Works
- Banshu Works
- Harima Works
- Sakaide Works
- Industrial Waste Disposal Center & Iwaoka Landfill

Kawasaki welcomes questions, comments and suggestions.
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