Changes for the Better

Environmental Sustainability Report 2001

MITSUBISHI ELECTRIC

CONTENTS

Editorial Plan

This report is a compilation of the environmental activities conducted by the Mitsubishi Electric Group in fiscal 2000 in accordance with the "Environmental Reporting Guidelines" prepared by the Ministry of the Environment in Japan. In this year's report, environmental activities are introduced from the viewpoint of MET (for details, please see pages 3-4). In addition, this report provides more in depth detail regarding the environmental considerations that go into our products than last year's report. The Mitsubishi Electric Group is involved in a wide range of business operations, so the company has made every effort to implement environmental management in accordance with the special characteristics of each business division. Accordingly, starting with the report for this fiscal year, we are providing data on the results of our environmental activities for each business division.

Report Coverage

Period: April 1, 2000-March 31, 2001
Companies: Mitsubishi Electric Corporation and 64 domestic and overseas affiliated companies

○Mitsubishi Electric Building Techno-Service Co., Ltd.
Kodensha Co., Ltd.
Mitsubishi Electric Engineering Co., Ltd.
Mitsubishi Electric System & Service Co., Ltd.
Mitsubishi Electric Micro-Computer Application Software Co., Ltd.
Kita-Kodensha Co., Ltd.
○Advanced Display Co., Ltd.
○SPC Electronics Corporation
○Mitsubishi Precision Co., Ltd.
Mitsubishi Electric Osram Co., Ltd.
Nihon Injector Co., Ltd.
○Mitsubishi Electric METECS Co., Ltd.
Nihon Kentetsu Co., Ltd.
Toyo Takasago Dry Battery Co., Ltd.
○Mitsubishi Electric Lighting Co.
○Taku Industrial Corporation

○Mitsubishi Electric Home Appliances Co., Ltd.
Miyoshi Electronics Corporation
○Ryoden-Asahi Technica Co., Ltd.
○Soryo Electric and Chemical Co., Ltd.
○Tada Electric Co., Ltd.
○Mitsubishi Electric Kumamoto Semiconductor Corporation
○Mitsubishi Electric Nagano Semiconductor Corporation
○Mitsubishi Logistics Support Co., Ltd.
○Toyo Electric Co., Ltd.
○Ryosan Industrial Corporation
○Ryoden Kasei Co., Ltd.
Mitsubishi Electric Documentex Co., Ltd.
○Nakayama Machinery Co., Ltd.
Ryohoku Electronics Corporation
○Ryoden Electro Mechanics Corporation

○Koryo Electric Co., Ltd.
○Koshin Electric Co., Ltd.
○Sanwa Electric Co., Ltd.
○DB Seiko Co., Ltd.
Choryo Media Co., Ltd.
○Taku Electric Co., Ltd.
○Shoryo Electronics Co., Ltd.
○Sowa Technica, Inc.
○Toyo Kiko Factory Uemori Electric Co., Ltd.
○Melco Technolex Co., Ltd.
Mitsubishi Electric Life Service Corporation
○Mitsubishi Electric Logistics Corporation
Hyper-Cycle Systems Co., Ltd.
○Ryoden Elevator Equipment Co., Ltd.
Tokyo Precision Measurement Equipment Co., Ltd.
○Ryosai Technica Co., Ltd.

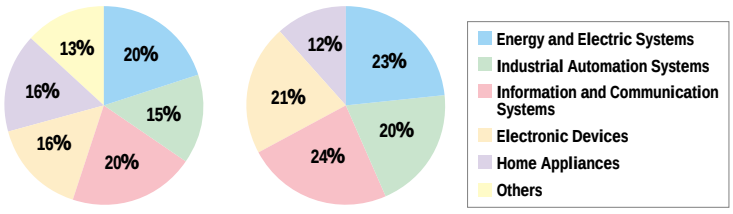
○Mitsubishi Electric Automation, Inc. (US)
○Mitsubishi Electric Automotive America, Inc. (US)
○Mitsubishi Electric Power Products, Inc. (US)
○Melco de Mexico S.A. de C.V. (Mexico)
○Mitsubishi Electric Air Conditioning Systems Europe Ltd. (UK)
○Mitsubishi Electric Telecom Europe S.A. (France)
○Mitsubishi Semiconductor Europe, GmbH. (Germany)
○Mitsubishi Electric Consumer Products (Thailand) Co., Ltd. (Thailand)
○Mitsubishi Elevator Asia Co., Ltd. (Thailand)
Mitsubishi Electric Thai Auto-Parts Co., Ltd. (Thailand)
○Mitsubishi Electric (Malaysia) Sdn. Bhd. (Malaysia)
Shanghai Mitsubishi Elevator Co., Ltd. (China)
○Shanghai Mitsubishi Electric & Shangling Air-Conditioner and Electric Appliance Co., Ltd. (China)
○Mitsubishi Electric (Guangzhou) Compressor Co., Ltd. (China)
○Mitsubishi Electric Dalian Industrial Products Co., Ltd. (China)
○China Ryoden Co., Ltd. (China)

Circle denotes company included in environmental accounting.

Corporate Profile (as of March 31, 2001)

Name:	Mitsubishi Electric Corporation
Head Office:	Mitsubishi Denki Bldg., 2-2-3 Marunouchi, Chiyoda-ku, Tokyo 100-8310, Japan
Date Established:	January 15, 1921
Paid-in Capital:	175.8 billion yen (non-consolidated)
Employees:	116,715(consolidated) 40,906(non-consolidated)
Sales:	4.1294 trillion yen(consolidated) 2.9326 trillion yen (non-consolidated)

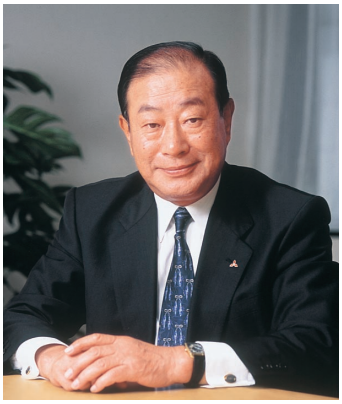
Sales by Division



(Consolidated) (Non-consolidated)

The companies covered in the consolidated financial results presented above and the companies covered in the environmental accounting section in this report are not the same.

Creating Together... Towards a "Sustainable Society"



President and CEO
Ichiro Taniguchi

The curtain has risen on the 21st century, the "century of the environment." From a socio-economic system of mass production, mass consumption and mass disposal that continuously places unsustainable burdens on the natural environment, this century will see the creation of a "sustainable society" in which scarce resources will be circulated efficiently and negative environmental impact limited. In society, and worldwide, we must join hands to build this new vision, and the members of the Mitsubishi Electric Group are actively playing their part.

The Mitsubishi Electric Group introduced its Environmental Plan company-wide in fiscal 1993. Since that time, we have made active efforts to commercialize technologies and products such as ozone technologies, photovoltaic and fuel-cell power generation systems, and environmentally friendly plant operations that contribute to environmental conservation and the development of a sustainable society. We have also striven to utilize resources and energy efficiently and reduce our reliance on the environmentally harmful substances used in production processes and products. Following implementation of the 3rd Environmental Plan, which sets targets for fiscal 2002 in fiscal 2000, in addition to strengthening the environmental protection activities of the entire Mitsubishi Electric Group, international operations included, we have continued to aggressively promote efforts to make our products more environmentally friendly by utilizing the data and product disassembly experience gathered from the operations of our home appliance recycling plant, the first of its kind in the industry.

Although realizing technologies capable of providing the required functionality at a minimal expenditure of energy while also being recyclable and having a low impact on the environment is no simple task, the Mitsubishi Electric Group has applied its superior technological capabilities and creativity to meet the many challenges involved. The corporate statement chosen to express the Mitsubishi Electric Group's determination and fundamental position in this, the first year of the new millennium, is "Changes for the Better." Step by step, we are forging a path towards a better tomorrow.

This report provides information on the efforts of the Mitsubishi Electric Group with regard to the environment in fiscal 2000 and the results thereof. With your understanding and support, we at the Mitsubishi Electric Group hope you will join us in creating a sustainable society for the future.

Addressing Environmental Matters… From the Viewpoint of MET

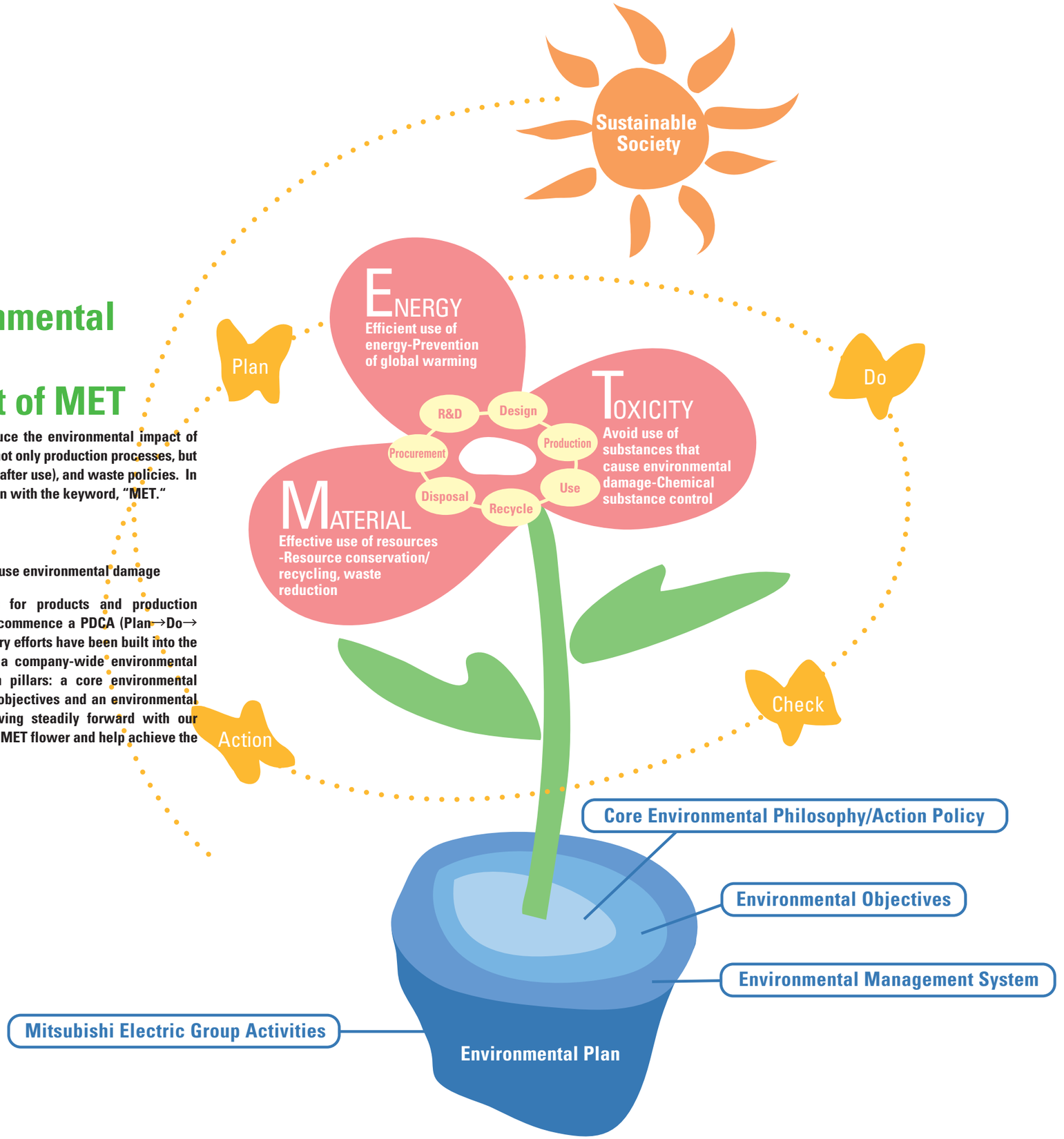
The Mitsubishi Electric Group is working to reduce the environmental impact of the entire life cycle of its products by considering not only production processes, but also procurement measures, recycling (during and after use), and waste policies. In this report, we specify these areas of concentration with the keyword, "MET."

M: Materials — Effective use of resources

E: Energy — Efficient use of energy

T: Toxicity — Avoid use of substances that cause environmental damage

After establishing concrete numerical targets for products and production processes with regard to these three areas, we commence a PDCA (Plan→Do→Check→Action) cycle of activities. These voluntary efforts have been built into the corporate organization under the framework of a company-wide environmental plan. The Environmental Plan has three main pillars: a core environmental philosophy/action policy, a set of environmental objectives and an environmental management system. We believe that, by moving steadily forward with our Environmental Plan, we will be able to nurture the MET flower and help achieve the promise of a sustainable society.



Core Environmental Philosophy

Under the international principle of "sustainable development," the Mitsubishi Electric Group is committed to protecting and improving the global environment through all business activities and employee actions, utilizing knowledge accumulated in the past as well as technologies developed in the future.

Environmental Action Policy

1 We will strive to reduce any negative environmental impact resulting from our products and activities. We will develop technologies and processes that are compatible with the environment. Products will be fully assessed over their entire lifecycle, and our facilities will promote resource efficiency, conservation and recycling.

2 We are committed to understanding environmental problems and contributing to a universal awareness of the need for businesses to integrate their activities with the natural cycles of nature.

3 We will establish environmental management systems at all of our business sites and operate them according to accepted standards. At the same time, we will continually improve environmental controls through environmental audits and similar methods.

4 We will educate, train and motivate employees to be good environmental stewards in their own right, as well as support employees when they engage in activities that promote environmental protection.

5 We will foster active communication and cooperation regarding environmental protection worldwide.

Basic structure of the Mitsubishi Electric Group in promoting active volunteer activities and making environmental contributions through business operations

Tangible numerical targets for activities to reduce negative environmental impact

Constructed to uphold the core philosophy and achieve action plans

Environmental Plan

3rd Environmental Plan

The Environmental Plan incorporates into the corporate organization the Mitsubishi Electric Group's mid-to-long term voluntary initiatives for the environment. Running from fiscal 2000 through fiscal 2002, the 3rd Environmental Plan has five main themes.

A Strengthening of Environmental Management in Consolidated Operations

The 3rd Environmental Plan targets Mitsubishi Electric's subsidiaries and major affiliated companies*1 that are important for strengthening and expanding the efforts of the Mitsubishi Electric Group.
Affiliated companies whose activities are deemed to have a relatively large impact on the environment are authorized as "plan-drafting companies."*2 These companies will introduce environmental management systems and draft annual implementations to meet the objectives set in the 3rd Environmental Plan.

B Setting of New Objectives to Reduce Negative Environmental Impact

In addition to expanding the existing objectives of the 2nd Environmental Plan, which began in 1996, we have also added new objectives to the 3rd Environmental Plan. The specifics of the new plan's objectives appear in the chart on page 6.

C Strengthening of Environmental Policies regarding Products

Although we have been actively involved in efforts to reduce the environmental impact of our products for some time, the 3rd Environmental Plan furthers our efforts by setting clear standards (as in fiscal 1999's "Core Philosophy regarding Design for the Environment" and the "Design for the Environment (DFE) Guidelines,"*3 which set tangible design and evaluation methods) and quantitatively assessing the level of conformance to these standards product-by-product. In this manner, we are attempting to improve and expand the range of DFE application throughout the company. (For specifics on the "Core Philosophy regarding Design for the Environment" and the "DFE Guidelines," please refer to page 17.)
In addition to promoting environmental policies for products as a whole, we are also aware of the need to reduce the negative environmental impact created during materials procurement. For this purpose, we are working to lower this environmental impact by promoting "green procurement" through partnerships with our suppliers.

D Preparation and Development of an Environmental Information System

We are continuing the preparation and development of an environmental information system that enables us to move forward in the area of environment-related operations more efficiently and effectively. The group's "integrated environmental information system" is scheduled to begin operation in fiscal 2001. This system will allow the entire Mitsubishi Electric Group to have joint access to environmental management data.

E Improving Disclosure through the Introduction of Environmental Accounting and Other Measures

It is becoming more and more important to provide relevant parties with information regarding a firm's efforts and achievements in environmental protection. In accordance with the 3rd Environmental Plan, we will publish environmental reports that provide more detailed information on the state of our group companies' efforts. In addition, we will promote further disclosure of information regarding the environmental features of our products.

*1) Targeted companies: 104 domestic and 39 overseas companies (as of April 2001).This excludes affiliated companies operating under the same environmental management system as a related Mitsubishi Electric facility.
*2) Plan-drafting companies: 48 domestic and 16 overseas companies (as of April 2001).
*3) DFE Guidelines: Guidelines for creating product designs that reduce environmental impact.

Actions to Present

The company began its environmental efforts with an anti-pollution drive in 1970. In the 1980s, we became active in initiatives to preserve the ozone layer. Since then, through the 1990s, we have further expanded our environmental efforts.

1970s
- President's policy for preventing environmental pollution introduced
- Mutual inspections of factories conducted
- Environmental White Paper issued

1980s
- Committee for the Reduction of Ozone-depleting Substances (ODSs) established

1991
- Corporate Environmental Management Planning Department established

1992
- Internal environmental audits conducted
- Plan to phase out specific CFCs introduced

1st Environmental Plan

1993
[Core Environmental Philosophy/ Action Plan adopted]
- "Environmental Pollution Control Regulations" revised to "Environmental Management Regulations"

1994
- Policy to obtain ISO 14001 certification adopted

1995
- ISO 14001 certification acquisition project started
- Phase out of specific CFCs completed

2nd Environmental Plan

1996
[Core Environmental Philosophy/ Action Plan revised]

1998
- ISO 14001 certification acquired by all domestic manufacturing sites
- Hyper-Cycle Systems Co., Ltd. established
- Green-Cycle Systems Co., Ltd. established
- Used Home Electronics Products Recycling Business Management and Promotion Office established
- First annual environmental report issued

1999
- Full-scale operations started
- Environmental accounting standards adopted

3rd Environmental Plan

2000
- DFE is applied to planning company-wide
- Testing of integrated environmental information system began

Environmental Action Objectives

The objectives of the 3rd Environmental Plan are as follows. Whether a manufacturing process or product, tangible numerical targets are set for each MET category.

Manufacturing Processes

■ Prevention of Global Warming

Minimize CO_2 emissions through activities to reduce energy consumption.

[Tangible Targets]
- Reduce greenhouse gas emissions by 25% by fiscal 2010 (compared to fiscal 1990 level of carbon-equivalent energy consumption to net sales).
  - Target a total improvement of over 1.5% per year at Mitsubishi Electric manufacturing sites.
  - Target a total improvement of over 1% per year at other Mitsubishi Electric facilities and affiliated companies.
- Set reduction targets for greenhouse gas (GHG)*4 emissions.
  - HFC+HCFC: Maintain plant emissions below 0.2% of total amount handled by fiscal 2002.
  - SF_6: Reduce plant/equipment emissions(at time of installation) below 3% by fiscal 2005.
  - PFC: Reduce plant emissions of PFC gas by 6% by fiscal 2002 (compared with fiscal 1998 levels); reduce plant emissions of liquid PFC (total greenhouse effect value) by 10% (compared with fiscal 1995 levels).

■ Resource Conservation/Recycling and Waste Reduction

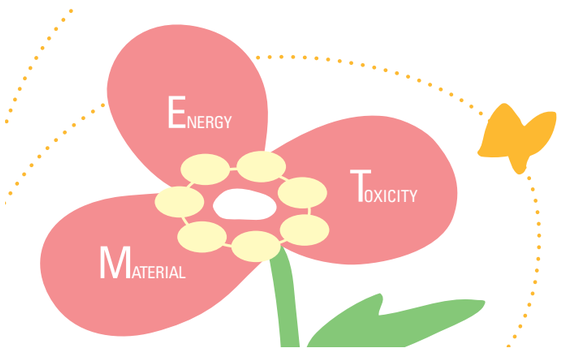
Consider resource conservation and recycling, and control the generation of wastes

[Tangible Targets]
- Shift the focus of waste reduction policies from conventional downstream (post-disposal) measures to upstream (pre-disposal: design) policies (i.e., promote measures integrated in product development, etc.).
- Assess emissions levels related to the manufacturing processes of our leading products by the end of fiscal 2000 and set targets for emissions control and resource reuse.
- Reduce the amount of waste handled by waste removal services by 30% (compared with fiscal 1998 level) by fiscal 2002. In addition, reduce the amount of waste disposed of by waste removal services to less than 10% of total waste by fiscal 2002.
- Set specific targets for reduction/reuse of each type of waste.

■ Control of Chemical Substances

Reduce emissions of chemical substances by controlling their use in manufacturing processes.

[Tangible Targets]
- Prepare for the operation of PRTR*5 and move forward with early implementation plans.
- Reduce the release of toluene and xylene group substances into the open atmosphere.



*4) Greenhouse gases: GHG
SF_6 (sulfur hexafluoride)
PFC (perfluorocarbon)
HFC (hydrofluorocarbon)
HCFC (hydrochlorofluorocarbon)
*5) PRTR: Pollutant Release and Transfer Register

Products

■ Design for the Environment

Reduce negative environmental impact by applying the internal standards stipulated in the "Core Philosophy regarding Design for the Environment" as well as the "DFE Guidelines" to all our products. Determine tangible targets on a product-by-product basis.

[Tangible Targets]
- Work to set targets that reduce the burden of a product that has reached the end of its service life by assessing the processing required at the end of its life (EOL processing).
- Conduct a Life Cycle Assessment (LCA) in which a product's specific impact on the environment is specified, materials are chosen and the manufacturing process adjusted accordingly, and the resulting reduction in environmental impact verified.
- Promote green procurement, working to reduce environmental burden from the procurement stage by assessing the chemical content of composite components and the suitability of utilizing recycled materials for new products.

■ Effective Use of Resources

Make efforts in recycling and ensure the effective use of resources for products and packaging materials.

[Tangible Targets]
- Reduce the types of materials using standard compound resins, etc.
- Plan to simplify disassembly and shorten disassembly times.
- Reduce the amount of packaging material used per product.
- Reduce company-wide use of packaging materials by 20% (compared with fiscal 1995 levels) by fiscal 2000, and 10% (compared with fiscal 1998 levels) by fiscal 2002.
- Promote the reuse of used components and the remanufacture of used products.
- Increase the use of recycled materials.
- Provide content information on products with plastic components.

■ Efficient Use of Energy

Improve energy efficiency and reduce power consumption in the active and standby modes of our products.

[Tangible Targets]
- Set targets for reducing power consumption in the active and standby modes of individual products.

■ Avoid Use of Substances that Cause Environmental Damage

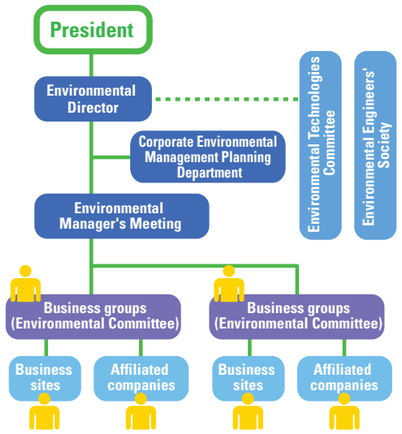
Maintain thorough control of all chemical substances used in our products,and make progress in the reduction/substitution of substances that pose risk to the environment.

[Tangible Targets]
- Maintain thorough control of all chemical substances used in our products,and make progress in the reduction/substitution of substances that pose risk to the environment such as the heavy metals (lead, cadmium, mercury, chromium 6), polybrominated biphenyl (PBB) flame retardant, vinyl chloride resins, ozone-depleting substances, and greenhouse gases.
- Design products so that, in cases where it is technologically difficult to use a substitute, the harmful substance is made clearly distinguishable and easy to remove during disassembly.
- Eliminate the use of HCFCs in air-conditioning/refrigeration equipment as a foaming agent by the end of 2004 and as a refrigerant by the end of 2010.

Promoting Environmental Management

The basic policies and measures taken by the Mitsubishi Electric Group regarding environmental problems are finalized by the Environmental Director, and the head office of each business group is responsible for implementation.

Organization Chart



Environmental Representatives
An Environmental Representative is assigned in each business group, works, and affiliated company.

Environment Management Cycle

Mitsubishi Electric's environmental management system can be broken down into two broad classifications, company-wide environmental management and site-specific environmental management (including sites of affiliated companies). The system thus works in two cycles:

Environmental Manager's Meeting

This biannual meeting of the environmental managers from all business groups provides a means of confirming policy, reviewing the progress of activities implemented under the Environmental Plan, exchanging information and coordinating related matters between the different operations.

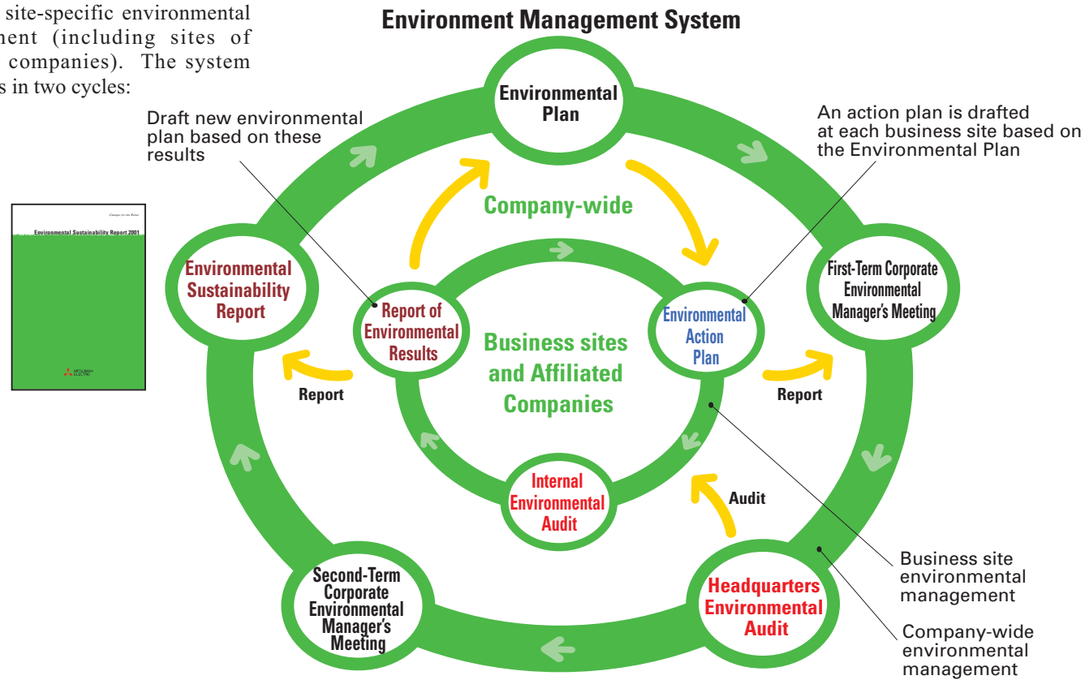
Environmental Technologies Committee

This committee is an advisory panel to the Environmental Director that addresses technological topics necessary for meeting environmental objectives and promotes the development of evaluative techniques and common technologies that can be used throughout the company. The Environmental Technologies Committee has three subcommittees: Design for the Environment; Waste Management and Recycling; and Control of Chemical Substances.

Environmental Engineers' Society

This is in effect an internal study group aimed at promoting the interaction and education of Mitsubishi Electric engineers involved with environmental technologies. Over 500 engineers are currently participating in this group's activities, which include lectures on environmental technologies, tours of related facilities, and presentations of R&D results.

Environment Management System



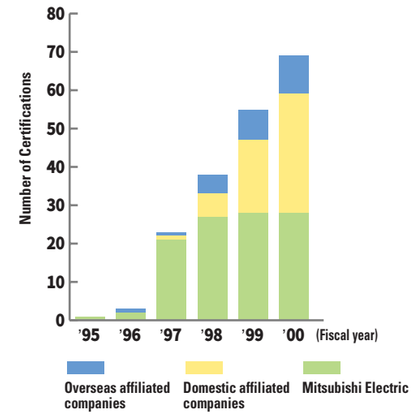
1. Company-wide Environmental Management

Mitsubishi Electric Group policies such as the Environmental Plan are transmitted to each business group through the Environmental Manager's Meeting. Business sites and affiliated companies then draft annual action plans under the oversight of the business groups. The Corporate Environmental Management Planning Department and environmental representatives of the business groups conduct regular audits to check the progress of each business site and affiliated company. The business groups submit a report detailing the results of company-wide environmental activities to the Environmental Director at the end of each fiscal year and the results are evaluated. The Environmental Sustainability Report is drafted based on this data.

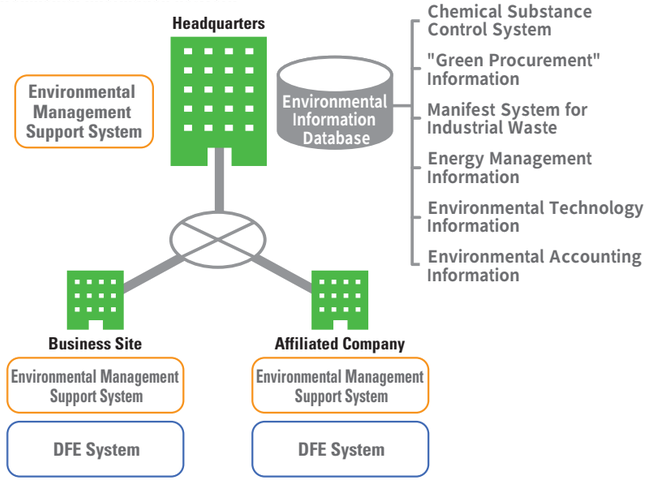
2. Business Site Environmental Management

The business sites of the Mitsubishi Electric Group, including those of affiliated companies, each pursue their own efforts for environmental protection using environmental management systems based on the international environmental management system standard; ISO 14001. Each business site, in addition to being subject to internal audits called for by the ISO 14001 standard, is also able to continuously improve its environmental efforts through regular evaluations by outside auditors. In fiscal 1998, all manufacturing sites, the plant construction division and research facilities (28 sites in all) received ISO 14001 certification, and the sites of all major affiliated companies, both domestic and international, received certification by fiscal 2000. (Domestic: 32 companies, 35 sites; International: 10 companies, 10 sites)

ISO 14001 Certification; Results and Plans



Increased efficiency of environmental management through joint access to environmental information network



"ECOrates"; Integrated Environmental Information System

Introduction of the "ECOrates"; Integrated Environmental Information System

As Mitsubishi Electric expands its environmental efforts, improving administrative efficiency and managerial control over related programs becomes more vital. Although we have already introduced a Chemical Substance Control System and a Manifest System for Industrial Waste*1, we are also moving forward with the development of an integrated environmental information system in order to make environmental management even more efficient and effective. After its introduction, the system is expected to make a large contribution to increasing the administrative efficiency of the Mitsubishi Electric headquarters for matters such as production of the Environmental Sustainability Report and the efficiency of environmental management at business sites by allowing joint access to and unified control over a variety of MET environmental information. This system is scheduled to be introduced company-wide by the end of fiscal 2001.

*1) Manifest System for Industrial Waste is a Japanese regulation established to ensure that each organization that discharges industrial waste maintains a strict records of its flow. The regulation also works to prevent illegal dumping and maintain adequate handling and treatment methods by each organization.

Results and Highlights of Fiscal 2000

The highlights of our environmental activities to date are listed below. Detailed accounts of each item are provided on the pages specified in parentheses.
For information regarding affiliated companies, see page 37.

Efforts regarding Products

Establishment of "Green Procurement Standards Guide"

(page 16)

Through partnerships with suppliers, we began green procurement of materials used in the manufacture of semiconductors, communications equipment and computer terminals.

Efforts to Comply with the Home Appliances Recycling Law

(page 19)

We built the Higashihama Recycle Center, which began full-scale operations in May 1999, the world's most advanced recycling technology center. We are working to create environmentally friendly product designs by fostering strong communication between the areas of recycling and product design.

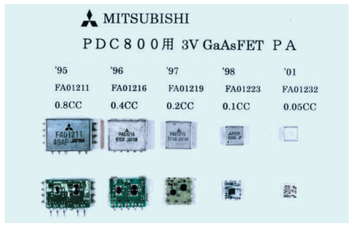
Green Procurement Standards Guide

Higashihama Recycle Center

M: Effective Use of Resources

(page 15)

This area includes various activities such as improving the ease of product disassembly, reducing packaging, and encouraging the reuse of resources and reducing the amounts used. From elevators without machine rooms to semiconductors, we are making efforts in all areas of business.



Resource conservation evolution of a high-output amplifier for cellular phones (high-frequency device)

New

Old

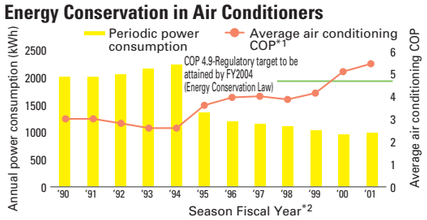
The newly developed thin traction motor used in our machine-room-less elevator is two-thirds the mass and one-fifth the thickness of conventional traction motors.

E: Efficient Use of Energy

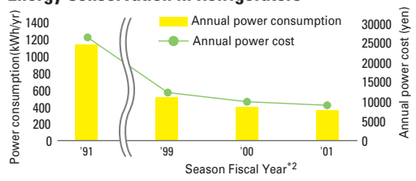
(page 15)

We are working to reduce power consumption in the active and standby modes of our products. In particular, we are making efforts to reduce power consumption during the active use of home appliances with long lifecycles.

Energy Conservation in Air Conditioners



Energy Conservation in Refrigerators

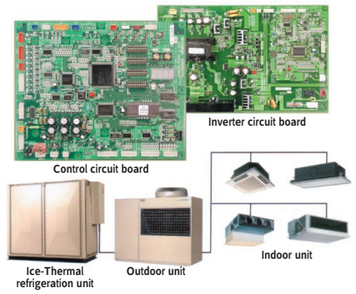


*1) COP: Co-efficient Of Performance energy rating
*2) Season Fiscal Year: Calendar year beginning from October, used in the refrigerator and air-conditioning industries.

T: Avoid Use of Substances that Cause Environmental Damage

(page 17)

We have implemented measures to reduce the use of lead, vinyl chloride, greenhouse gases, mercury, chromium 6, cadmium, and brominated flame retardant, and promote the collection of residual substances from used products as well as reduce their emissions. We are also working toward making our semiconductors and home appliances lead-free.



Lead-free packaged air conditioner

Efforts in Manufacturing Processes

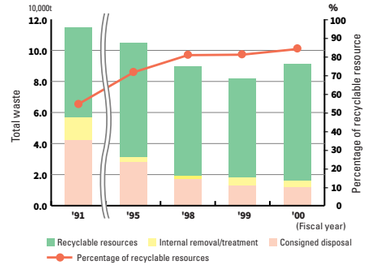
In order to improve "eco-efficiency," we are working to use resources efficiently and save energy. In addition, we are also applying thorough and appropriate controls in the handling of chemical substances.

M: Effective Use of Resources

(page 33)

In fiscal 2000, total waste in manufacturing increased to exceed the level in fiscal 1999 by 6,800t. However, through efforts to reuse 8,600t of this material, the total amount ultimately disposed of by waste treatment services fell by 900t.

Trend in Waste Emissions

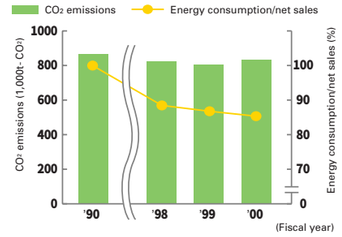


E: Efficient Use of Energy

(page 29)

Although total energy use increased by 6% compared with fiscal 1999, it fell as a percentage of total sales by 2%.

Trend in CO_2 Emissions

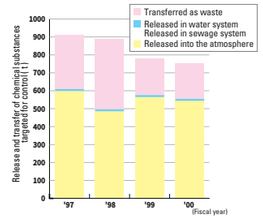


T: Avoid Use of Substances that Cause Environmental Damage

(page 35)

We are working to reduce the emissions of chemicals targeted for control and have been recording emission levels since fiscal 1997. Compared with fiscal 1997 levels, chemical emissions were reduced by about 18% in fiscal 2000.

Mitsubishi Electric's PRTR



ISO 14001 Certification

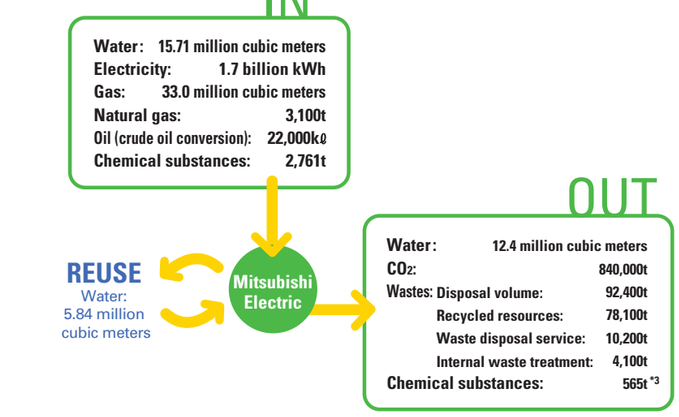
All of our manufacturing sites have received ISO 14001 certification. Among our affiliated companies, 35 sites of 32 domestic companies and 10 sites of 10 overseas companies have also received certification.

Communication

At the same time as the release of the Environmental Sustainability Report, we conducted a briefing for the media and members of relevant non-government organizations. During this briefing, as in the report, we presented the environmental activities of each of our business sites.

Key Environmental Data

Resource Input & Output to the Environment



*3) Excluding amounts contained in other wastes.

Environmental Account

Item	Cost (100 million yen)
Business area activities	86.9
Pollution prevention	32.9
Global environmental conservation	29.8
Resource circulation	24.2
Activities upstream and downstream of production	7.7
Environmental management activities	15.5
Research and development for environmental conservation	33.4
Social activities	7.7
Environmental damage	4.2
Total	155.4
Profit	8.7
Savings	45.9
Total	54.6

Major Awards

Major Awards	Site	Awarding Organization	In recognition of
Agency of Natural Resources and Energy Director's Prize for Excellence in Energy Management at a Production Facility	Kamakura Works	The Energy Conservation Center,Japan	Rationalization of electricity use
Kinki Bureau of Economy, Trade and Industry Chief's Prize for Excellence in Energy Management at a Production Facility	Sanda Works	The Energy Conservation Center,Japan	Perennial contribution to energy management
Kanto Bureau of Economy, Trade and Industry Chief's Prize for Excellence in Energy Management at a Production Facility	Shizuoka Works	The Energy Conservation Center,Japan	Energy conservation activities regarding electricity consumption
Shikoku Bureau of Economy, Trade and Industry Chief's Prize for Excellence in Energy Management at a Production Facility	Kochi Factory	The Energy Conservation Center,Japan	Perennial contribution to energy management
Kyushu Bureau of Economy, Trade and Industry Chief's Prize for Excellence in Energy Management at a Production Facility	Kumamoto Factory	The Energy Conservation Center,Japan	Contribution to energy conservation by improving energy management
Kanto Bureau of Economy, Trade and Industry Chief's Prize for Energy Conservation	Shizuoka Works	The Energy Conservation Center,Japan	Participation of all employees in innovative methods of reducing energy loss
The Energy Conservation Center Director's Prize for Energy Management (one individual)	Shizuoka Works	The Energy Conservation Center,Japan	Perennial contribution to energy management
The Energy Conservation Center Vice-Director's Prize for Energy Management (one individual)	Shizuoka Works	The Energy Conservation Center,Japan	Perennial contribution to energy management
The Energy Conservation Center Director's Prize for Superior Engineer in Energy Management (two individuals)	Shizuoka Works	The Energy Conservation Center,Japan	Perennial contributions to energy management in factory shops
The Energy Conservation Center Tokai Hokuriku Section Chief's Prize for Superior Engineer in Energy Management (one individual)	Shizuoka Works	The Energy Conservation Center,Japan	Perennial contributions to energy management in factory shops
Council for Promotion of Recycling Chairman's Prize for Distinguished Service in Recycling Promotion	Mitsubishi Electric Semiconductor Division	Council for Promotion of Recycling	Contributions to the promotion of recycling
Hyogo Governor's Prize for Creativity and Innovation (one individual)	Communications Systems Factory	Industry Association of Hyogo	Contributions to the promotion of recycling
Nakatsugawa Municipal Pollution Prevention Association, Chairman's Prize (one individual)	Nakatsugawa Works	Nakatsugawa Municipal Pollution Prevention Association	Perennial contributions to pollution prevention
Registration as Environmentally Friendly Factory (E Factory)	Nakatsugawa Works	Gifu Prefecture	Excellence (environmentally friendly factory)
Logistics Grand Prize	Air-conditioning and Refrigeration Systems Works	Japan Institute of Logistics Systems	Reductions in packaging and distribution costs
Nikkan Kogyo Shimbun Best 10 New Products Prize	Nagoya Works	Nikkan Kogyo Shimbun, Ltd.	2.5kW ML2525LC YAG laser processor laser diode for welding
Minister of Economy, Trade, and Industry Prize at Electrical Construction and Materials Fair	Fukuyama Works	Japan Electrical Construction Association, Inc.	Eco Monitor multi-circuit current meter
Itami City 60th Anniversary Prize for Voluntary Activities	Kita-Itami Administration Center	Itami City	Perennial contributions to the maintenance of park greenery
Nagoya City Award for Distinguished Efforts in Road Care Management	Nagoya Works	Nagoya City	Clean-up of roads near factory

Environmental Accounting

How much does it cost to protect the environment, and to what degree are positive results achieved through such expenditures? Environmental accounting provides quantitative answers to these questions. By understanding quantitatively the costs of environmental efforts, we are able to proactively advance placing the environment within the context of the entire company's activities and encourage management practices that consider the environmental impact of actions.

Environmental Accounting Standards of the Mitsubishi Electric Group

Mitsubishi Electric received an official set of draft guidelines for environmental accounting from the Environmental Agency in March 1999. Soon after, in December 1999, the company adopted a set of environmental accounting standards that include clear definitions of the expenditure items to be calculated and the range to which the standards are to be applied. Among the basic principles adopted, the most important four are as follows.

1 The revenues and expenditures of environmental businesses and products that are designed to reduce negative environmental impact are not included.

Although the costs of lowering the negative impact on the environment of basic operational activities (centering on manufacturing activities) are included in our calculations, the costs of R&D and production as well as income from individual products with superior energy-saving functions or environmental businesses such as photovoltaic power generation or water purification systems are not included. However, we do include the costs of research and development involving basic technologies that will be used in multiple products, such as work related to the development of HCFC*1 refrigerant substitutes.

2 Coverage is limited to activities whose main purpose is to reduce negative environmental impact.

Although there are many activities with the compound objectives of increasing production efficiency and reducing environmental impact, in our environmental accounting, the basic policy is to isolate and count only the portion intended to reduce the burden on the environment. When it is impossible to make clear distinctions, the entire amount is counted in cases where activities were initiated mainly for their environmental benefit and the entire amount is excluded if the case is otherwise.

3 The entire value of a capital investment is included in the total of the year in which it was actually implemented.

We have decided to include the entire value of a capital investment in the figures for the year in which the investment is implemented and do not make calculations relating to depreciation. In addition, in cases where the results of a particular investment will continue to provide returns over multiple years, estimates of the expected results for up to a maximum of three years will be added to the total of the first year in which such a result is realized.

4 Revenues are limited to those that can be calculated on the basis of reliable supporting data.

In figuring results, we do not include hypothetical calculations of risk avoidance effects such as estimates of the compensatory value of not pursuing a particular environmental policy. Instead, we only include the results that are actually achieved such as savings from energy conservation activities or sales profits achieved due to the reuse of resources. In addition, we will provide other kinds of quantitative measures for environmental protection activities that cannot be expressed in monetary terms, such as reductions in CO_2 emissions.

Environmental Account for Fiscal 2000

The cost of the environmental protection actions of Mitsubishi Electric and its 45*2 major domestic and international affiliated companies was 18.81 billion yen in fiscal 2000 (a 12% increase over the previous year), and the economic effect was 6.77 billion yen (a 6% decrease compared to the previous year). These figures were calculated based on the classifications in "Developing an Environmental Accounting System" (2000), which was announced by the then Environmental Agency (now Ministry of the Environment) in May 2000. The details are shown in the graph to the right.

Environmental Protection Expenditures

The company invested a total of 5.07 billion yen for energy-saving equipment such as micro-gas-turbines and photovoltaic power generation and preparations for the mass production of an HCFC substitute (22% year-on-year increase). A total of 3.37 billion yen (a 48% year-on-year increase) was also made in R&D investments related to the development of recycling technologies for used plastics, SF_6*3 gas substitute insulation technology, lead removal technology, and other energy-saving technologies. In addition, 10.37 billion yen (a 1% year-on-year decrease) was spent for continuing the implementation of our environmental management system, maintenance and operation of environment-related facilities, expansion of green areas within company sites, and environmental education.

Effects of Environmental Protection

Profits from the recycling of waste materials such as scrap metal were 1.1 billion yen (an 11% year-on-year increase), while savings from such areas as energy conservation and water reuse reached 5.67 billion yen (an 11% year-on-year decrease). In addition, although the absolute quantities of energy consumed (CO_2 emissions), water used and waste produced, all increased with the increase in sales, they all decreased as a percentage of total sales on a year-on-year basis. Thanks to resource reuse, waste handled by disposal services fell by 3,400t (a 17% year-on-year decrease). Chemical emissions were also reduced by 47t (a 37% year-on-year decrease) through efforts to minimize the release of specified chemicals.

*1) HCFC (hydrochlorofluorocarbon)
*2) Among the companies drafting action plans in order to meet the requirements of the 3rd Environmental Plan, only major affiliated companies that place a particularly high burden on the environment in the course of business operations are included. The results of affiliated companies operating on the grounds of Mitsubishi Electric sites using the same management system are also included.
*3) SF_6 (sulfur hexafluoride)

Environmental Protection Expenditures

Upper row: Mitsubishi Electric Group
Lower row: Mitsubishi Electric (non-consolidated)
Unit: 100 million yen

Item	Capital Investment	R&D Costs*4	Operational Expenses	Total	Compared to Last Year	Main Content
Business area activities	44.7 35.7	— —	64.1 51.2	108.8 86.9	6.9 6.0	
Pollution prevention*5	12.8 8.0	— —	30.2 24.9	43.0 32.9	8.8 5.4	Expansion and maintenance costs for facilities for treating gas and waste emissions; substitution of organic chlorine solvents, etc.
Global environmental conservation	29.9 27.0	— —	3.2 2.8	33.1 29.8	9.2 10.6	Introduction of equipment meeting environmental policy requirements such as micro-turbine co-generation systems, photovoltaic power generation equipment, etc.; preparation of manufacturing systems compatible with HCFC substitutes, etc.
Resource circulation	2.0 0.7	— —	30.7 23.5	32.7 24.2	△11.1 △10.0	Costs associated with water recovery/reuse, waste reduction, treatment and recycling, etc.
Activities upstream and downstream of production*6	1.4 1.3	— —	7.4 6.4	8.8 7.7	4.8 3.9	Costs associated with the expansion of facilities for the recovery of HCFC and SF_6 utilized in products, efforts to reduce and reuse packaging, etc.
Environmental management activities	— —	— —	21.4 15.5	21.4 15.5	△1.7 △0.3	Costs associated with the establishment, maintenance, and operation of environmental management systems, employee environmental education, etc.
Research and development for environmental conservation	1.8 0.3	33.7 33.1	— —	35.5 33.4	12.7 10.9	Development of technologies for HCFC refrigerant and SF_6 insulator substitutes, lead-free product technologies, recycling methods for waste plastics, etc.
Social activities	0.2 0.1	— —	8.6 7.6	8.8 7.7	0.8 0.5	Increasing greenery at business sites, regional volunteer activities, membership in industry associations, etc.
Environmental damage	2.6 2.1	— —	2.2 2.1	4.8 4.2	△4.0 △3.9	Expenses related to environmental surveys and clean-up activities, etc.
Total	50.7 39.5	33.7 33.1	103.7 82.8	188.1 155.4	19.5 17.1	
Compared to last year	9.3 6.3	10.9 10.6	△0.7 0.2	19.5 17.1		

*4) Regarding R&D expenses, only costs related to the development of basic technologies that reduce negative environmental impact are included; the development costs of specific products are not included in these calculations.
*5) The costs of substituting for organic chlorine solvents were included under the category of "Global environmental protection" in the fiscal 1999 report.
*6) Under the entry "Activities upstream and downstream of production" in the above chart, for "the costs related to the recycling, collection, reuse and proper processing of products produced and/or sold" and their related effects, the earnings figures of recycling business conducted inside the Mitsubishi Electric Group have been excluded.

Revenues from Environmental Protection Activities

Upper row: Mitsubishi Electric Group
Lower row: Mitsubishi Electric (non-consolidated)
Unit: 100 million yen

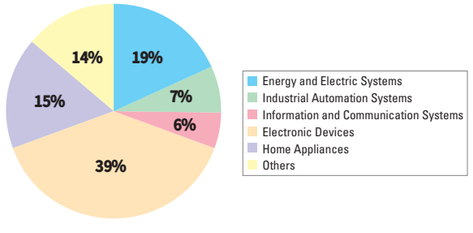
Item	Amount	Compared to Last Year	Main Content
Profit	11.0 8.7	2.9 1.9	Profits generated from the sale of scrap metal
Savings	56.7 45.9	△7.2 △1.7	Savings from reductions in electricity charges through energy conservation, water charges through water reuse, disposal charges through waste reduction, chemical expenses through reductions in the use of chemical substances, the costs of new items through the reduction/reuse of packaging, etc.
Total	67.7 54.6	△4.3 0.2	

*For fiscal 2000 environmental protection results expressed in material amounts, please refer to page 13.

Environmental Protection Expenditures and Economic Efficiency by Business Group (non-consolidated)

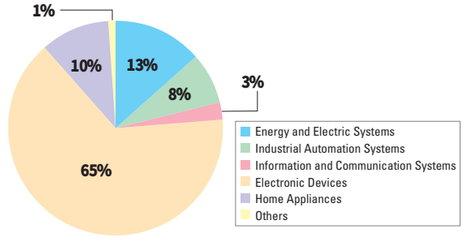
Environmental Protection Expenditures

Business Group	Cost (100 million yen)
Energy and Electric Systems	28.7
Industrial Automation Systems	11.1
Information and Communication Systems	8.6
Electronic Devices	61.3
Home Appliances	24.0
Others	21.7



Economic Efficiency

Business Group	Efficiency (100 million yen)
Energy and Electric Systems	7.2
Industrial Automation Systems	4.2
Information and Communication Systems	1.4
Electronic Devices	35.5
Home Appliances	5.6
Others	0.7



Environmental Objectives and Results

The end of fiscal 2000 marked the beginning of the 3rd Environmental Plan as well as the end of the last year of the 2nd Environmental Plan. The results of the 2nd Environmental Plan are provided in the following.

Environmental Management System Structure	Tangible Targets	Results	Evaluation
ISO 14001 Certification	⇒Receive certification at domestic manufacturing sites by the end of fiscal 1998. ⇒Receive certification at the main manufacturing facilities of affiliated companies by the end of fiscal 2000.	⇒Received ISO 14001 certification at domestic manufacturing sites as well as the plant construction division and research facilities (28 sites). ⇒Received ISO 14001 certification at main affiliated companies (domestic: 32 companies, 35 sites; international: 10 companies, 10 sites).	

Manufacturing Processes	Tangible Targets	Results	Evaluation
M **Resource Conservation / Recycling & Waste Reduction**	⇒Reduce the total amount of waste handled by waste treatment services by 30% as of the end of fiscal 2000 (compared with 1995 levels). ⇒Reduce total amount of waste generated to less than 100,000t/yr by the end of fiscal 2000. ⇒Increase resource reuse rate to more than 75% by the end of fiscal 2000.	⇒Reduced waste handled by waste treatment services by 64%. ⇒Reduced waste generated to below 100,000t/yr from fiscal 1998 onwards. ⇒Achieved a resource reuse rate of 85% by fiscal 2000.	See details beginning on page 33.
E **Prevention of Global Warming**	⇒Reduce greenhouse gas emissions by 25% by fiscal 2010 (compared to fiscal 1990 levels of carbon-equivalent energy consumption to net sales).	⇒Reduced CO_2 emissions by 4% compared with fiscal 1990 levels and 17% when expressed as a percentage of net sales.	See details beginning on page 29.
T **Control of Chemical Substances**	⇒Measure the amounts of chemicals used in manufacturing processes and set reduction targets. ⇒Eliminate the use of organic chlorine solvents at all sites, including those of affiliated companies, by fiscal 2000. ⇒Reduce the use of volatile organic solvents in open-air environments and promote their recovery and recycling.	⇒Set categories for chemical substances to be controlled and promoted reductions in the use of substances with high environmental impact. Reduced emissions into the atmosphere by 18% compared with fiscal 1997 levels. ⇒Eliminated the use of organic chlorine solvents at all Mitsubishi Electric facilities in the end of fiscal 1999 and at all domestic affiliated companies in April 2001. ⇒Instituted innovative methods for limiting the use of harmful solvents through the use of water-soluble paints, spray/powder painting, thin-film technologies, etc.	See details beginning on page 35.

Products	Tangible Targets	Results	Evaluation
M **Resource Conservation / Recycling & Waste Reduction**	⇒Increase use of recycled materials by 30% by the end of fiscal 2000 (compared with fiscal 1995 levels). ⇒Reduce the amount of packaging by 20% by the end of fiscal 2000 (compared with 1995 levels). ⇒Provide as much content information as possible on products with plastic components by fiscal 2000.	⇒Achieved target for use of recycled materials by fiscal 1998. Used 3.1 times more recycled materials in fiscal 2000 than in fiscal 1995. ⇒Reduced packaging materials amount by 21%, meeting target. ⇒Provided content information for a wide variety of product categories.	See details beginning on page 15.
E **Prevention of Global Warming**	⇒Improve energy efficiency and reduce power consumption in the active and standby modes of products in order to reduce environmental burden	⇒Established targets for a wide variety of product categories; worked to reduce power consumption in the active and standby modes of products.	See details beginning on page 15.
T **Control of Chemical Substances**	⇒Maintain thorough control of all chemical substances used in our products; make progress in the reduction/substitution of substances that pose risk to the environment. ⇒Eliminate the use of HCFC (hydrochlorofluorocarbon) as a refrigerant in air-conditioning equipment by the end of 2010 and as a foaming agent by the end of 2004.	⇒Worked to reduce the emission of substances harmful to the environment, beginning with heavy metals. ⇒Will change refrigerant from HCFC to HFC (hydrofluorocarbon) in air-conditioning products during the fiscal 2001 season.*1	See details beginning on page 15.

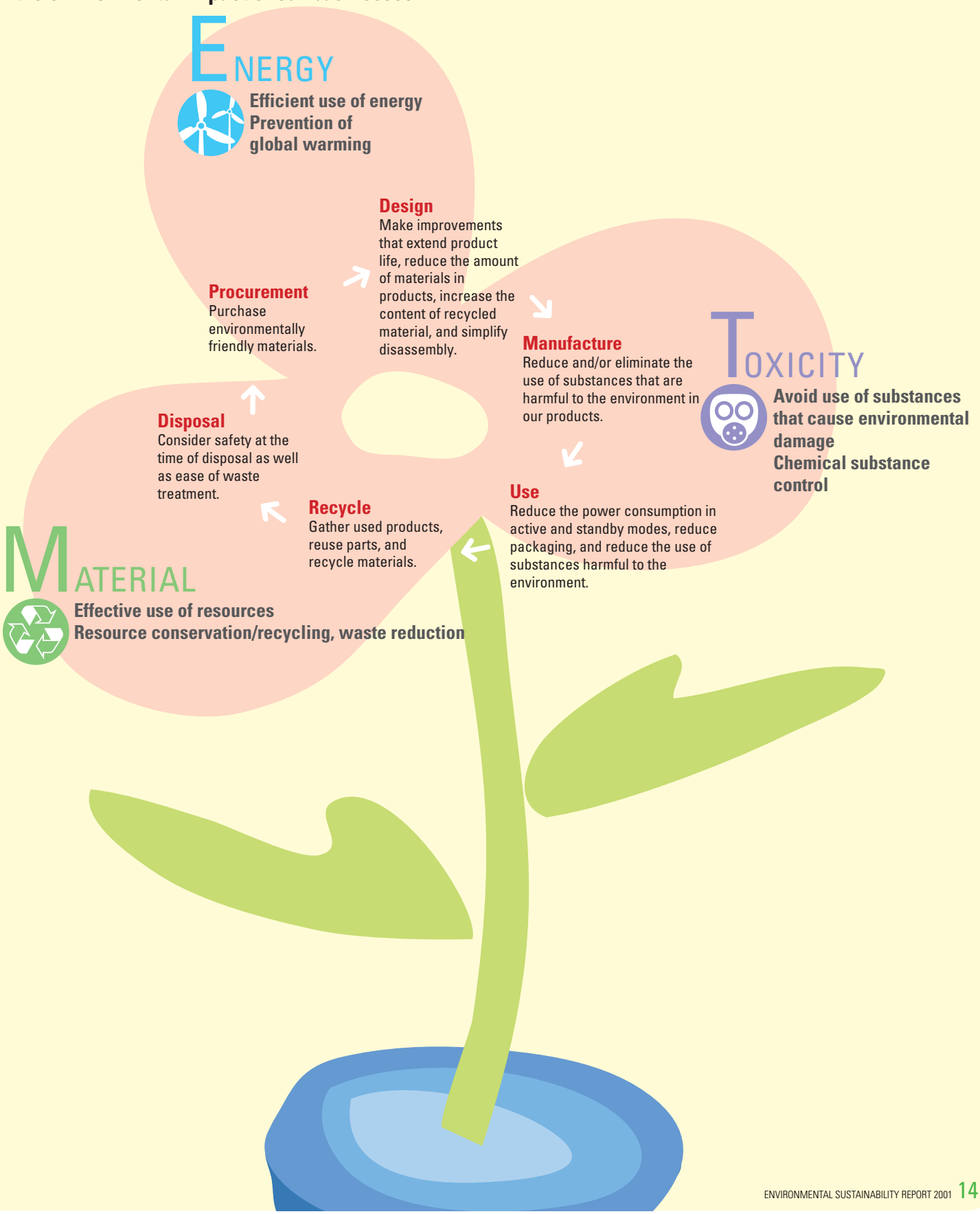
Extremely Good Very Good Must Try Harder

Standard self-evaluation

*1) Season in the air-conditioning industry; a sales year beginning in October. The fiscal 2001 season runs from October 2000 to September 2001.

Actions to Reduce the Negative Environmental Impact of Products

Mitsubishi Electric is now working to create products for which environmental impact has been considered for the entire lifecycle (procurement, design, manufacture, use, recycle and disposal). In addition, green procurement and the rationalization of distribution systems can serve to lower environmental burden; thus we are working together in partnerships with our suppliers to reduce the environmental impact of our businesses.



Results from Reducing the Negative Environmental Impact of Products

We are making improvement efforts by setting voluntary MET targets that better the environmental functionality of each of our products over its entire lifecycle. In fiscal 2000, 830 improvements[*1] were made in 101 product categories in Energy and Electric Systems, Industrial Automation Systems, Information and Communication Systems, Electronic Devices and Home Appliances.

Effective Use of Resources

A total of 321 alternations were made in 87 product categories in order to improve disassembly ease (e.g., disassembly time, number of parts and/or number of fastenings reduced[*2]), simplify packaging (reduced use of corrugated cardboard, styrofoam, etc.), increase use of recycled materials (use of reused materials) and reduce product weight. Examples include a Lossnay central ventilation fan, for which disassembly time was reduced by 43%, a fiber-optic transmitter/receiver, the weight of which was reduced by 53%, and a rooftop security camera, in which the number of parts was reduced by 30%.

Efficient Use of Energy

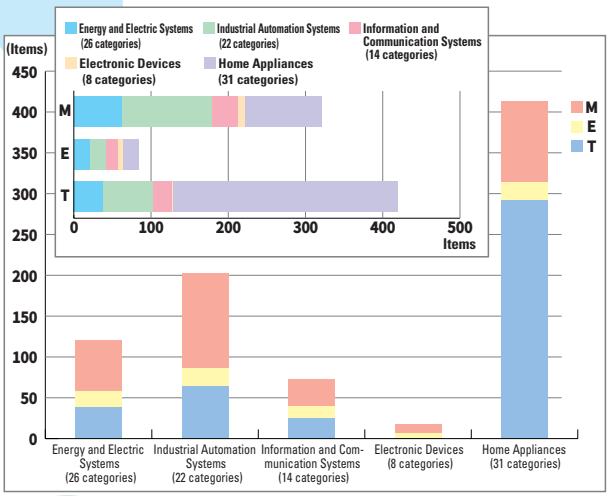
A total of 85 alterations were made in 76 product categories in order to reduce power consumption in active and standby modes. Examples of reductions in active-use power consumption include a 67% improvement in one of our electric water heaters and a 65% improvement in a cooling system for machinery. In addition, a 60% reduction in standby power consumption was achieved for televisions and a 50% reduction for a low-power satellite communications terminal.

Avoiding Use of Substances that Cause Environmental Damage

Chemical substances evaluated in this area include lead, vinyl chloride, greenhouse gases, mercury, chromium 6, cadmium, and brominated flame retardant among others. For 420 items in 61 product categories, we have achieved positive results, reducing the use and/or emission of substances and avoiding their residual traces in our products. Examples include a digital wireless telephone, in which the use of lead was reduced by 50%, the production process for room air conditioners, in which HFC emissions were reduced by 92%, and programable logic controllers, in which the use of vinyl chloride was reduced by 20%.

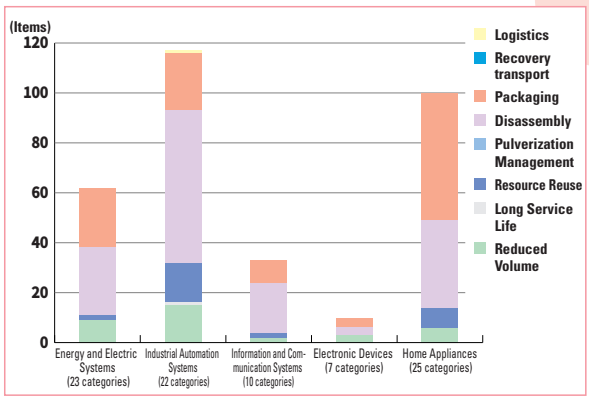
*1) Four items counted here were related to information disclosure.
*2) Includes nut-and-screw fastenings, snapfits, etc.

MET Total **Fiscal 2000 Results**



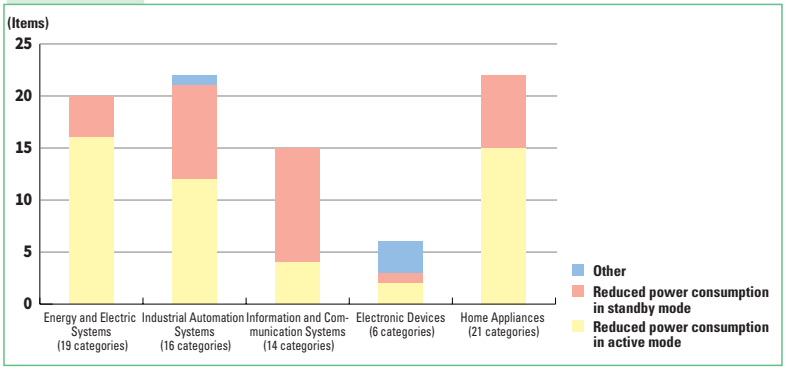
Number of Improvements by Business Group (Total MET)

M



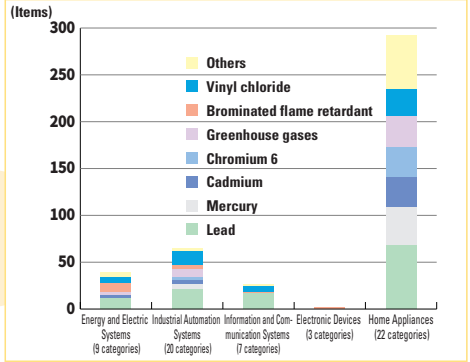
Number of Improvements by Business Group (M)

E



Number of Improvements by Business Group (E)

T



Number of Improvements by Business Group (T)

Reducing Environmental Burden through Partnerships

On April 1, 2001, the national and local governments in Japan launched the policy of "Green Purchasing" In parallel with this policy, Mitsubishi Electric promotes the successive registration of its products' environmental information in the "Special Procurement Information System" of the Ministry of the Environment.

As customers actively adopt and use Mitsubishi Electric products that lessen environmental burden, we are contributing to the reduction of society's overall impact on the environment. In fiscal 2000, we published the "Green Procurement Standards Guide" in an effort to promote the procurement of environmentally friendly materials throughout the group.

Disclosure of Product Environmental Information

To encourage the adoption of our environmentally friendly products, we are actively promoting the disclosure of product environmental information. In fiscal 1999, using the 12 ISO (International Organization for Standardization) criteria for self-advocacy, we set and began implementation of internal guidelines regarding the standards and procedures for the disclosure of quantitative data.

Moreover, we promote individual products by awarding our "environmental mark" (shown at lower right) for remarkable design features that meet the top standards in industry. Use of the environmental mark is allowed only after an internal committee has inspected each candidate product and confirmed its worthiness.

Green Procurement

Focusing mainly on office supplies, we are encouraging the purchase of products that have minimal environmental impact. We are also adding environmental considerations to our other standard procurement criteria - quality, cost and delivery time - when purchasing parts and materials. In fiscal 2000, the company drafted the "Green Procurement Standards Guide," and we now request suppliers to give careful consideration to MET. As a follow-up, we individually inspect supplier progress in meeting these considerations, provide feedback, and promote these activities through partnerships with relevant parties.

(http://www.melco.co.jp/green-p/index_e.htm)

Examples of Major Activities in Fiscal 2000

● Mitsubishi Electric's Semiconductor Group set standards for green procurement and conducted inspections of 555 major suppliers to evaluate their environmental protection activities. Moreover, beginning in June 2001, the Semiconductor Group will introduce a system that prioritizes the materials of suppliers that meet its green procurement standards. In the future, the group will move forward with an inspection for substances harmful to the environment contained in procured materials.

● The Communications System Group created an "Environmental Protection Substance Control System" in order to verify improvements without difficulty. The system makes possible the most appropriate design giving consideration to the amount of substances that could cause environmental risk in a given product. In the future, the group plans to expand its database, a move which will allow it to respond rapidly to customer requests for information (see graphic below) regarding potential environmentally harmful substances contained in products they have purchased.

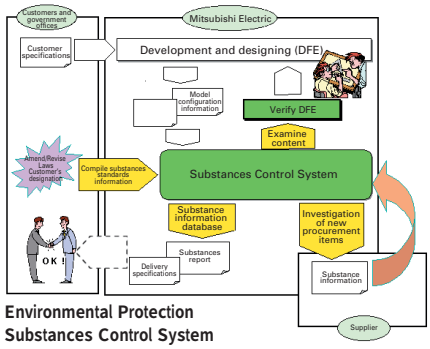
Disclosure of Product Environmental Information

Common key disclosure items for High Efficiency Oil-immersed Transformer/Super-high Efficiency Oil-immersed Transformer

We have disclosed the following information regarding our High Efficiency Oil-immersed Transformer and Super-high Efficiency Oil-immersed Transformer, products that make possible large energy savings through reductions in operating losses.

	Item	Displayed Content
Global warming (energy conservation)	Active mode power consumption	Operating loss rating at three-phase 1000kV: 10.2kW (6.3kW) Operating loss rating of commonly used equivalent: 13.8kW
	Standby mode power consumption	NA
	Total loss	Total loss reduction of approximately 25% at a 60% load factor (Total loss reduction of approximately 60%)
Resource exhaustion/ circulation (product body)	Body mass Breakdown by mass of key component materials Iron and iron alloys (including stainless steel) Copper and copper alloys Aluminum Plastic Glass Other	2,800kg (4,150kg) The mass of component materials marked with a ☆ = 10% of total weight ☆☆☆☆☆ ☆☆☆ ☆☆
	Recycled plastic	None
	User's manual, etc.	Paper, about 50g (100% recycled paper) Other (FD, CD-ROM, videotape, etc.) none
	Battery type	None
Resource exhaustion/ resource circulation (packaging material)	Breakdown of key component materials	Product body wrapping plastic bag Product secured in wooden palette
	Recycled materials used	None
Impact on air, water, and soil quality	Lead, vinyl chloride, specified flame retardant	None
ISO 14001 certification		Received November 1997
Other	Noise level	Approximately 45dB (standard noise level of commonly used equivalent: 62dB)
	Ease/Potentiality of Disassembly	Same as commonly used equivalent
	Greenhouse gases (HFC, PFC, SF6)	None
	Long product life considerations	Same as commonly used equivalent

Figures in parentheses ( ) are for the Super-high Efficiency Oil-immersed Transformer.



Environmental Protection Substances Control System

Environmental Mark

Green Procurement Standards

Design for the Environment

In order to ensure that our products are environmentally friendly, we made the basic philosophy of "Design for the Environment" an internal regulation in fiscal 1999.
We have since made progress with various products based on DFE*1 guidelines that require consideration of the environmental impact of the entire lifecycle of a product, from procurement through development, design, manufacture, distribution, reuse, recycling and disposal.

Introduction of DFE Guidelines

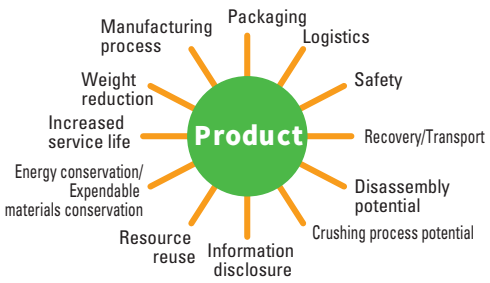
Mitsubishi Electric's Core Environmental Philosophy requires the improvement of environmental protection activities to be a part of all business operations and employees' actions. In addition, the Environmental Action Policy, by calling for the evaluation of operations and products with regard to their environmental impact and the development and introduction of environmentally friendly manufacturing technologies, expresses the company's commitment to minimizing environmental burden.

In 1999, the Design for the Environment Subcommittee of the Environmental Technologies Committee drafted the "DFE Guidelines," and introduced methods to assess a product's entire lifecycle in terms of the effective use of resources and energy and the avoidance of contamination by substances harmful to the environment. Although conventional assessments of this kind focus on EOL*2 issues such as resource conservation and recycling, the DFE guidelines expand the range of evaluation to include all stages of a product's lifecycle, including procurement, manufacture, transport, use and disposal, and subject each stage to MET assessments. The guidelines stipulate quantitative evaluative methods for 12 large (see graphic below) and 45 intermediate categories. We are working to apply these methods at all of our business sites, thereby raising the level of our product assessment activities. In fiscal 2000, the Home Appliances Group implemented the following measures regarding "resource reuse" and "ease of disassembly."

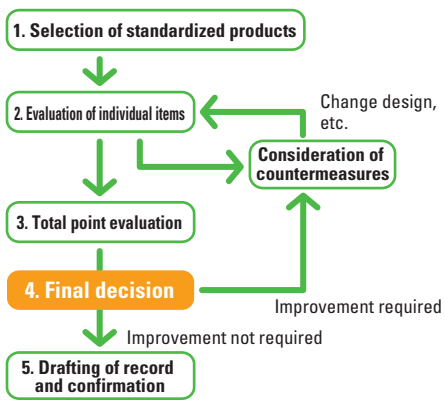
- Started purchasing standard plastic resins (PS resins, PP resins and ABS resins) as unified 3-grade resin (representing 80% of the total amount of resin purchased).
- Expanded labeling of the contents of plastic parts (contents labels placed on parts show 95% or more of total weight of plastics employed).
- Made content labels for plastic parts out of the same materials as the part itself to promote recycling.
- Added "recyclable" labels (see below) to recyclable plastic parts and "disassembly instruction" labels (see below) to ease the removal of parts for recycling.

*1) DFE: Design for the Environment—the design of products and services that reduce the negative impacts on the environment.
*2) EOL: End of Life

12 Categories for Quantitative Evaluation



Evaluation Flow for DFE Guidelines



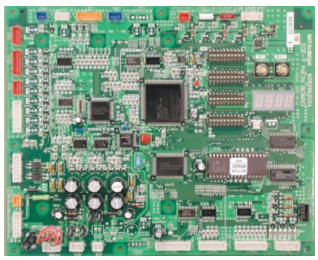
Structure of DFE Guidelines

- Mitsubishi Electric's DFE philosophy
- DFE evaluation points: implementation schedule, evaluation categories, evaluation standards, MET assessment
- Guide to select "Eco-materials"
- DFE rules and organization
- Mitsubishi Electric's chemical substance control
- Successful case examples

Developing Technologies for DFE (Lead-free Solder Mounting)

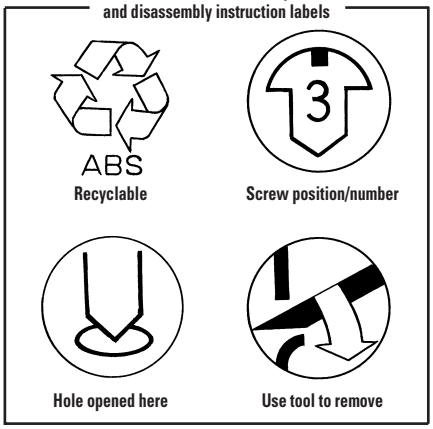
The problem of lead leaking into the soil from landfills containing crushed circuit boards with lead soldering from disposed electronics products has recently received much attention, and efforts to reduce the amount of lead used in products are gaining momentum.

At Mitsubishi Electric, we are working to develop technologies that will allow the elimination of lead from our products and conversion to lead-free solder. Because the melting point of lead-free solder is higher than conventional solder, problems related to the heat resistance of parts, temperature control during soldering, and the maintenance of product quality have arisen. However, through improvements to facilities and soldering techniques, we have applied lead-free soldering to products such as refrigerators and packaged air-conditioners. Moreover, through the cooperation of parts manufacturers, we have begun lead-free plating of parts surfaces.



Circuit board made using lead-free solder (refrigerator)

Mitsubishi Electric's recycle and disassembly instruction labels

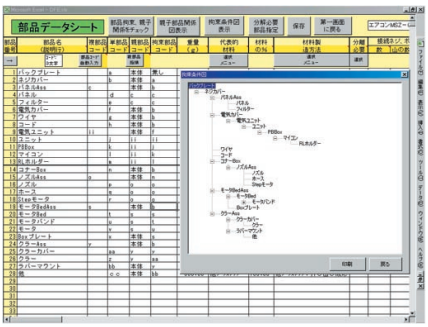


Applying the Results of Employee Education to Product Design

In order to create environmentally friendly products, it is necessary for engineers to have an awareness of the importance of environmental protection and to learn particular design methods.
To attain these requirements, we are implementing an internal course designed to inculcate and improve on the knowledge and methods of the most advanced environmental and recycling technologies.
By emphasizing practical exercises such as actual product disassembly, the course enables engineers to apply what they learn to product development. We are promoting the creation of better products by connecting the worlds of product development and employee education.

Lifecycle Assessment (LCA) Drafting the Implementation Manual

At Mitsubishi Electric's Advanced Technologies Laboratory, researchers analyze both the results of testing on the effects of product improvements and data regarding the environmental burden of waste disposal provided by the Higashihama Recycle Center. Through the accumulation of this kind of internal data, they are preparing the technological foundation for the practical use of LCA. In fiscal 2000, as part of our efforts to increase the quality of product assessment, we created an LCA manual ("LCA Evaluation Guidelines") for those responsible for conducting LCA. This manual is being used to verify the effects of our environmental polices on our products.

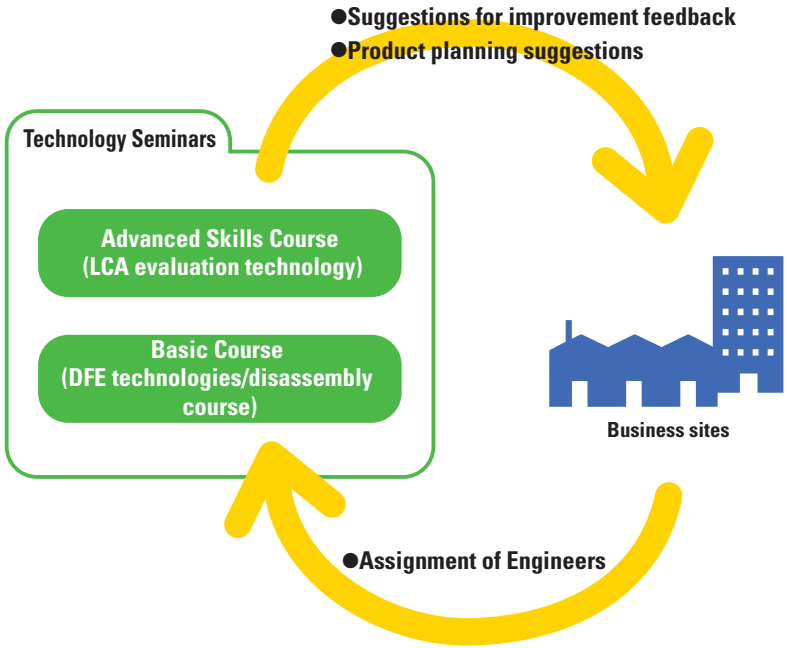


"cDFE (Compact DFE)" Design Support System

This design support system allows designers to make efficient assessments in the process of designing a product. "cDFE," in addition to calculating integrated end-of-life costs such as the recycling rate potential for conventional materials, product disassembly potential, disposal/recycling costs and sales profit, can also easily conduct environmental impact assessments. The database is composed of actual survey data from the Higashihama Recycle Center, allowing designers to consider improvements regarding the structure, materials and connection methods to be employed in new products.

Disassembly practice at a Mitsubishi Electric Technology Seminar

Product Planning from Technology Seminars



Mitsubishi Electric Technology Seminars

Mitsubishi Electric has established two internal courses designed to improve engineers' skills and knowledge regarding advanced environmental and recycling technologies. The number of engineers who have taken these courses now exceeds 400.

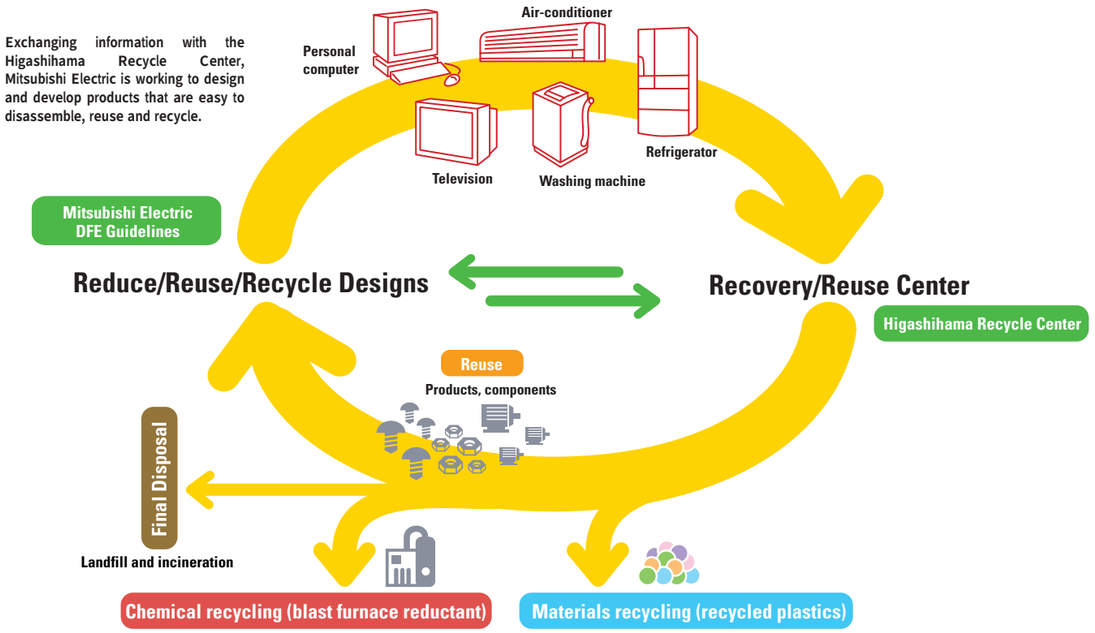
● In the three-day "Design for the Environment Course," which was first offered in fiscal 1997, employees learn the fundamentals of how to create environmentally friendly products, covering topics such as new laws and regulations, social trends, and the latest recycling technologies. In addition to disassembling Mitsubishi Electric products, engineers in the course also use the "cDFE" Design Support System developed by our Industrial Electronics & Systems Laboratory to practice verifying the ease with which designed products can be recycled or disassembled. In addition, the program includes lectures by experts from the Higashihama Recycle Center and a tour of the center itself. Through this tour, product designers receive feedback from those recycling their products and are able to pass on the suggestions for improvement that come out of this experience to their respective business divisions to be used in future product development.

● The advanced skills course ("LCA Evaluation Technology"), which was first offered in fiscal 2000, allows engineers to acquire the knowledge necessary for LCA analysis and familiarize themselves with LCA software. In this course, designers bring their own product design data and verify the effects of suggested improvements. The results are then provided as feedback to the teams involved in the actual design projects.

Home Appliance Recycling Activities

The Home Appliances Recycling Law went into effect in April 2001. In May 1999, far in advance of this enactment, Mitsubishi Electric began full-scale operations of the Higashihama Recycle Center*1 in Ichikawa City, Chiba Prefecture, a facility that recycles used home appliances and office equipment.
The most advanced technologies are utilized at this facility to remove metal and vinyl chloride impurities from plastics, allowing for their conversion to blast furnace reductant.

Exchanging information with the Higashihama Recycle Center, Mitsubishi Electric is working to design and develop products that are easy to disassemble, reuse and recycle.



Environmentally Friendly Works: Plants that Avoid Firing and Cleansing Processes

Hyper-Cycle Systems*2, which recycles home appliances such as refrigerators, air-conditioners, washing machines and televisions, has a processing capacity of about 600,000 units per year, and Green Cycle Systems*3, which recycles office equipment such as copiers, PCs and printers, has a processing capacity of approximately 400,000 units per year. Theses two companies, which make up the Higashihama Recycle Center, utilize environmentally friendly recycling methods that involve neither firing nor cleansing processes. In addition, we have technology in place that will allow us to exceed government-mandated recycling rates.

Processing at the Higashihama Recycle Center: Manual Disassembly and Crushing/Separation Processes

Manual Disassembly Process

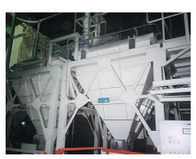
Because home appliances and office equipment are composed of complicated and varied components, in the first stage, components that can be reused or cannot be crushed easily in a compactor are removed by manual disassembly. In order to make manual disassembly efficient, we are working to emphasize disassembly potential when designing our products (see pages 21-22).

Crushing and Separation Processes

After manual disassembly is completed, the components are crushed and metals, such as high quality iron, stainless steel, copper and aluminum are recovered.


Manual disassembly line


Crushing process


Separation process

Televisions	During manual disassembly of a television, the power cord is cut and the cathode ray tube, deflection yoke, printed circuit board, wiring bundles, etc. are removed. A specialty contractor then crushes the glass panel of the removed cathode ray tube, which a glass manufacturer can then reuse as glass for new products.
Washing machines	Workers cut the power cord and remove the motor and large condenser. In addition, as about 1-litre of salt water is used in the liquid balancer located in the upper section of the washing tub of a fully automatic washing machine, this is also removed in order to avoid the danger of rust in the crushing and separating devices. The water is then reused.
Refrigerators	Workers cut the power cord and remove the door gaskets and internal glass parts. Using a special device, a hole is opened in the bottom of the compressor and the refrigerant and freezer oil are recovered. Then the compressor is removed using a cutter. The insulating chlorofluorocarbon is recovered by absorption into activated carbon first, after which it is heated and liquefied.
Air-conditioners	Workers cut the power cord and then, after recovering coolant and freezer oil in the same way as described for refrigerators above, use a cutter to cut the compressor loose and remove the motor.

*1) Higashihama Recycle Center is the general name for Hyper-Cycle Systems Co., Ltd. and Green-Cycle Systems Co., Ltd.
*2) Hyper-Cycle Systems Co., Ltd.: Paid-in Capital: 490 million yen (Mitsubishi Electric 69.5%)
*3) Green-Cycle Systems Co., Ltd.: Paid-in Capital: 110 million yen (Mitsubishi Electric 90.9%)

R&D Facility with the Most Advanced Recycling Technologies

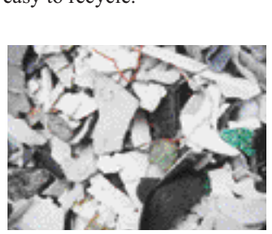
In order to achieve even higher recycling rates for our products, it is necessary to improve recovery rates through separating recyclable materials from items that are difficult to process or contain impurities. At Mitsubishi Electric, through operations either contracted or subsidized by the New Energy and Industrial Technology Development Organization (NEDO) (see chart on right), we are working to commercialize and promote research and development in recycling technologies through partnerships with a variety of companies. New technologies are emerging from the Higashihama Recycle Center, our main facility dedicated to the research and development of recycling technologies. We are planning to improve the recycling potential of our products by transferring the know-how attained at the Higashihama operation to our product design groups, where efforts are being made to develop new products that are easy to recycle.

R&D Operations Contracted or Subsidized by NEDO

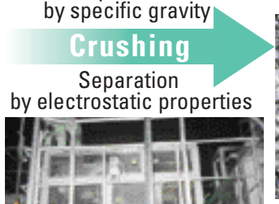
Theme	Content	Remarks
Development of advanced recycling technologies for home appliances /development of technology for the fine separation of resins and metals.	Development of system to separate materials by size and fine separation technology that utilizes the differences in the specific gravity and electrical properties of materials.	◎1998 contract from Association of Electric Home Appliances renewed.
Conversion of residual plastics from personal computers (after metal has been removed) into blast furnace reductant/RDF*4.	Conversion to blast furnace reductant/RDF by separating resins from personal computer dust and removing vinyl chloride.	○Fiscal 1998
Materials recycling of waste plastic parts from personal computers.	Materials recycling of waste plastics through the application of a sandwich structure.	○Fiscal 1998
Development of recycling technology for plastics from discarded electric and electronic devices.		◎from fiscal 1999
①Development of recycling technology for plastic component materials.	Development of materials recycling technology utilizing fine separation of plastics.	◎1999-2000: cooperation with Technopolymer Co., Ltd. ○2001 same as above
②Development of urethane recycling technology.	Technology to recycle urethane for reuse in refrigerators though the conversion of waste urethane into polyol.	◎Fiscal 1999-2000 ○Fiscal 2001
③Research related to treatment technology for magnetic materials.	Development of technology to recycle magnetic materials, which are difficult to handle at recycling plants.	◎Fiscal 1999
Development of technology to recover cyclopentane from insulation materials.	Development of technology to recover cyclopentane from refrigerator insulation, which will be used widely in the future.	◎Fiscal 1999-2000 Joint development with Hitachi Ltd. ○Fiscal 2001
Development of chemical recycling technology for ODS*5 refrigerant.	Development of technology to convert recovered ODS*5 refrigerant to fluororesin for reuse.	○Fiscal 2001 Joint development with Asahi Glass
Establishment of safety conditions and verification of safe operation in home appliances recycling plants.	Establishment of preventive measures to deal with accidental explosions and operational conditions at recycling plants for combustible materials.	○Fiscal 2001 Cooperation with Hitachi Ltd. Received guidance from National Institute of Advanced Industrial Science and Technology

*4) RDF: Refuse-derived fuel
*5) ODS:Ozone-depleting substance

◎Contracted operation ○Subsidized operation


Plastics after shredding (waste)

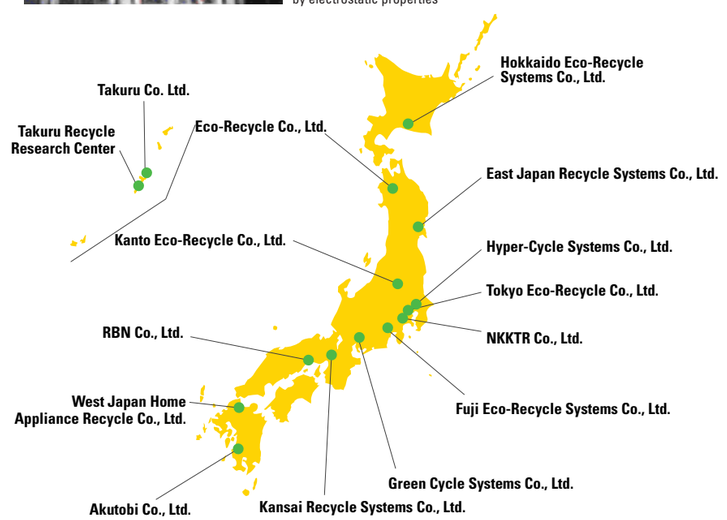
Separation by specific gravity
Crushing
Separation by electrostatic properties


Plastics with vinyl chloride and copper elements removed (blast furnace reductant, etc.)


Equipment for separating by electrostatic properties

Collaboration in Establishment of Home Appliances Recycling System

Mitsubishi Electric, Hitachi, Sanyo, Sharp, Sony and Fujitsu General Ltd. have joined together to establish an advanced home appliance recycling system. With the synergy from the interaction of new recycling plants operated by each company at its core, this system exploits technological advances to enable high-grade recycling at low cost. The system is comprised of 15 recycling plants strategically located throughout Japan (see map on right).



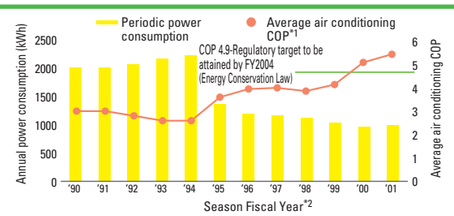
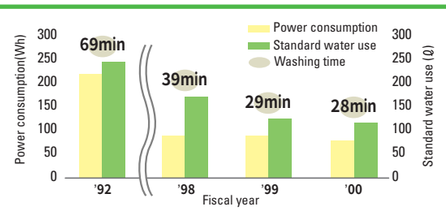
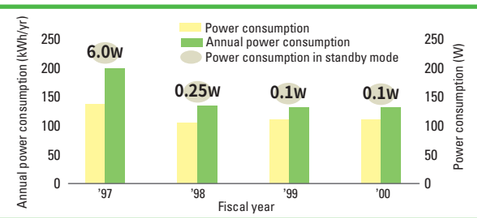
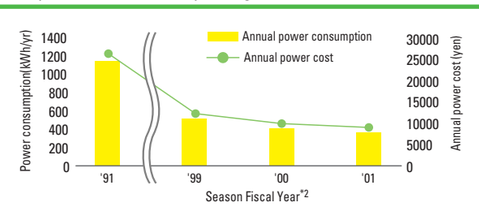
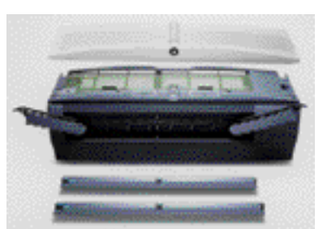
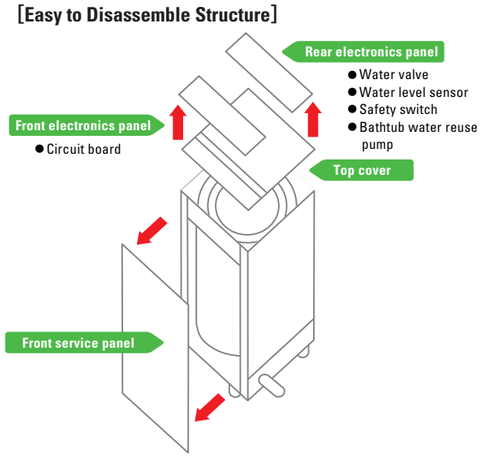
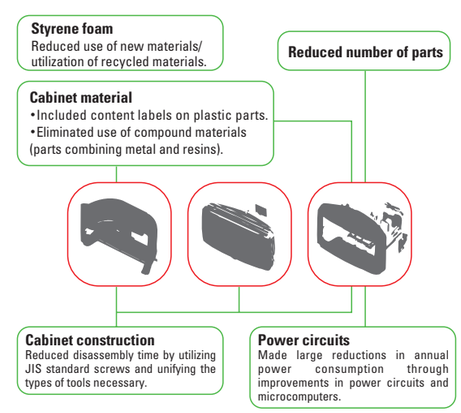
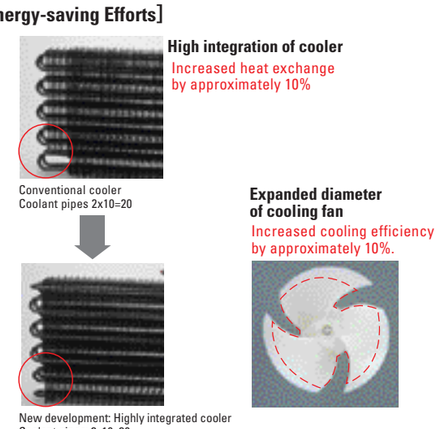
For more detailed information, please refer to the home appliances recycling page on the company website at http://www.lsg.melco.co.jp/recycle (in Japanese).

For more information: Living Environment & Digital Media Equipment Group
Home Appliances Recycling Business Development Office Tel: +81-3-3218-9186

Addressing Products Specified in the Home Appliances Recycling Law

Improving Product Economics and Recycling Rates

As televisions, refrigerators, washing machines and air conditioners place some of the highest burdens on the environment, reducing their power consumption during active use is one of our greatest priorities. In addition, in the pursuit of economy, we are moving forward with optimum designs that improve the recycling rates of our products. We are working to develop the most appropriate designs by sampling current problems involved with disassembly using data on "processing costs," "product recycling rates," and "disassembly times" made available by our recycling operation, Higashihama Recycle Center.

		Air-conditioners	Washing Machines	Color Televisions	Refrigerators		
MATERIAL	Product recycling	●Achieved an 80% recycling rate as the result of increasing the use of easily recyclable metals. This far exceeds the 60% rate required by the Home Appliances Recycling Law in fiscal 2001. (Figures provided by the Higashihama Recycle Center.) ●Utilized recycled materials for condenser net in external unit (90g: 0.2% of total product weight), utilized recycled paper in product and installation instruction manuals. ●Reduced types of plastic used, and added contents and screw position labels in order to reduce manual disassembly time.	●Reduced the number of screws in top cover from four to two, reduced the types of screws and made disassembly possible using only standard tools; reduced disassembly time by 10% by redesigning the structure of the spin tub. ●Utilized recycled materials (0.7% of total plastic weight) for non-decorative plastic components such as casing flange (50g) and pump holder (40g). ●Added guide to mark drilling point to remove saltwater from liquid balancer; began reusing saltwater recovered from all brands of washing machines at the Higashihama Recycle Center.	●Applied content labels on plastic parts (shows 95% or more of total weight of plastics employed). ●Included labels indicating flame-retardant grade on new plastic parts over 100g. ●Eliminated the use of difficult-to-disassemble compound materials (parts in which metals and resins are molded). ●Reduced types of screws; used only Phillips pwls head screws allowing complete disassembly with Phillips pwls screwdriver. ●Promoted use of recycled paper by using 100% recycled paper for operation manuals. ●Reduced the number of component parts by 22% on the 28-inch television (compared to 1997 level). ●Changed paper label for back cover to plastic(PS resin). ●Changed PVC label for cabinet to plastic(PS resin). ●Utilized recycled materials for back cover (21C-L33).	●Used recycled plastic for nine plastic parts outside the unit (0.690% of total product weight expected for fiscal 2000; compared with fiscal 1995: 0.214%; fiscal 1999: 0.285%). ●Used 100% recycled paper for user's manuals. ●In addition to recycle marks on parts, included manual disassembly instruction marks. ●Redesigned refrigerator interior so that clear shelves (PS resin) and stainless steel beams (metal) may be removed without the use of a tool (Mitsubishi Electric has filed a patent application for this technology). ●Established basic technology for recycling urethane foam used as insulating material in refrigerators. Currently researching commercialization possibilities for a recycling technique to breakdown waste urethane foam into polyol (project contracted and subsidized by the New Energy and Industrial Technology Development Organization (NEDO)).	Product recycling	MATERIAL
	Packaging reduction	●Along with reducing the volume and mass of the external unit by 7 and 11%, respectively, the amount of cardboard packaging and styrene foam materials used with our air conditioners has been reduced by 22 and 14%, respectively (compared to previous year).	●Reduced the use of cardboard packaging by 5% (compared to previous year) through size reductions in the entire lineup of fully automatic washing machines.	●Reduced the use of styrene foam by 25% in the packaging of our 21-inch television (compared with 1997 levels). ●Used recycled styrene foam.	●Reduced use of styrene foam in packaging by 12% (compared to fiscal 1999 level) through **"Component Concentration Variation", a new forming method).** ●Reduced use of corrugated cardboard by 22% (compared to 1997 level) through a review of the specifications and simplification of internal packing cardboard.	Packaging reduction	
ENERGY	Energy savings					Energy savings	ENERGY
TOXICITY	Chemical substance reduction	●Reduced the number of parts by 15% through higher integration of the control board of the external unit. Reduced use of solder by 33% (compared to previous year).	●Began use of wiring with low vinyl chloride content.	(Eliminated the use of specific brominated flame retardant from main plastic parts.→ Planned for fiscal 2001 model televisions.)	●Reduced use of HCFC141b for insulation foam by 99.7% (compared to 1995 level). Used cyclopentane, a substance from the hydrocarbon family with low global potential, in urethane. ●Reduced use of vinyl chloride by 40% (compared to 1995 level) by building the insert groove (for cushion packing) directly into the door of all 4-door models, thus eliminating the use of vinyl chloride in this part of the unit. ●Introduced lead-free solder in part of the circuit board.	Chemical substance reduction	TOXICITY
	Example	**[Indoor Unit]** Expanded heat exchange surface area by 13% Improved ease of disassembly and cleaning (Utilized body allowing easy cleaning) 	**[Easy to Disassemble Structure]** 	**[Efforts for Color Televisions]** 	**[Energy-saving Efforts]** 	Example	

*1) COP: Co-efficient Of Performance energy efficiency
*2) Season Fiscal Year: In the air-conditioning industry, a sales year begins in October. The 2001 season runs from October 2000 through September 2001.

Activities for Products Other than Home Appliances

At Mitsubishi Electric, all of our Business Group—Energy and Electric Systems, Industrial Automation Systems, Information and Communication Systems, Electronic Devices, and Home Appliances—are involved in activities that promote the group's environmental policies.
This page introduces our efforts to reduce the negative environmental impact of products other than home appliances by applying MET.

◎Industrial Automation Systems

MELSEC-Q Series PLC*1

A PLC is a device that controls machine tools on an automatic production line. At present, PLCs are used over a wide range of areas, particularly in factory automation.

M : Effective Use of Resources

We have realized resource conservation by reducing the size of our MELSEC-Q Series PLCs; they are 50% smaller in overall volume*2 compared to our conventional Q2ASH model and weigh 40% less. The system features content labels and an easy-to-disassemble structure that makes recycling easier. In addition, we are also instituting policies such as printing user's manuals on recycled paper and issuing them on CD-ROMs.

E : Efficient Use of Energy

With the smaller dimensions of the product, the effect of heat generated during operation became more apparent and a further reduction in power consumption became necessary. The MELSEC-Q Series utilizes a low-voltage drive IC and a MOS-FET*3 that allow operation with low power in the output element of the output unit in order to cut power consumption. Compared with the conventional Q2ASH,*4 power consumption has been lowered by more than half, from 25 to 12W. We also improved conversion efficiency to 70% from the 65% of the conventional model by utilizing a resonant converter that is efficient and quiet.

T : Avoid Use of Substances that Cause Environmental Damage

Neither nickel cadmium batteries nor mercury relays that include mercury and cadmium are utilized in MELSEC-Q Series PLCs.

Improvements and Effects

Point	Improved Q Series Technology	Effect
Parts reduced	Developed large-scale ASIC*5 (12 types); used software setup that obviates need for switch; simplified LED display	Realized higher integration; eliminated switch; reduced LED
Smaller product size	Used BGA*6, TSSOP*7 package; used small terminal block; used USB*8 for CPU peripheral interface; used small PC card	Miniaturized IC, connector, and memory card; conserved space; increased wiring efficiency
Redesigned structure	Used 1 mm-think circuit board; used thin case	Realized more efficient case capacity
Redesigned power circuits	Used 3.3V power supply; made power unit more efficient	Controlled heat generation allowing smaller product size

*1) PLC: Programable Logic Controller
*2) Comparison with eight I/0 modules system
*3) MOS-FET: Metal-Oxide Semiconductor-Field Effect Transistor
*4) Comparison of systems with 256 input points and 256 output points
*5) ASIC: Application-Specific Integrated Circuit
*6) BGA: Ball Grid Array
*7) TSSOP: Thin-Shrink Small Outline Package
*8) USB: Universal Serial Bus

MELSEC-Q Series PLC

2.5kW LD Excitation YAG Laser Oscillator for Welding Applications(2525LC)

The model 2525LC laser diode (LD) excitation YAG laser oscillator is the core machine tool for laser welding. With conventional lamp excitation*9 YAG lasers, key topics were reductions in power consumption through improvements in excitation efficiency and longer light source (lamp) life. We realized resource and energy savings through the development of a laser oscillator that utilizes a laser diode as the light source.

*9) Conversion to a higher energy level through exposure to energy from an outside source.

M : Effective Use of Resources

Compared with the 1,000hr life of a conventional lamp, the LD excitation YAG laser has a life of approximately 10,000hr. This long life reduces the number of replacements necessary, maintenance costs, and the amount of waste in the form of exhausted units.

E : Efficient Use of Energy

In addition to increasing the oscillation efficiency from the 3% of conventional models (lamp excitation) to 18% (LD excitation), we reduced power consumption to one-tenth by shifting the lamp excitation model, which requires excitation even when not in operation, to LD excitation, which does not.

T : Avoid Use of Substances that Cause Environmental Damage

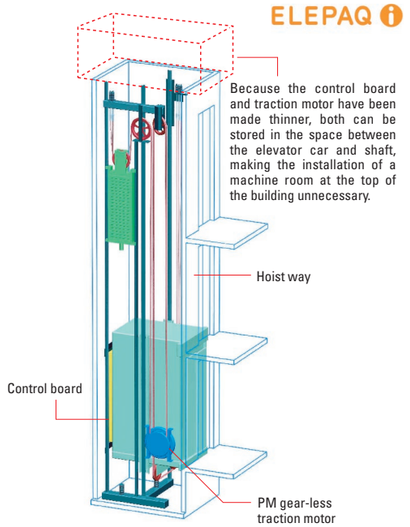
We are conducting product assessments and strictly checking substances that present environmental risk in order to prevent their emission and reduce their use.

YAG Laser - Awarded the 43rd Nikkan Kogyo Shimbun Best 10 New Products Prize in January 2001.

◎Energy and Electric Systems

ELEPAQ-i Machine-room-less Elevator

The ELEPAQ-i machine-room-less elevator realizes the industry's smallest installation space among standard elevators and considerable energy savings.



◎Semiconductor Industry

Semiconductors

We are working to minimize the negative environmental impact of our products through the introduction of environment friendly manufacturing technologies/processes and environmental assessment at the time of product design. In addition, we are contributing to the reduction of environmental burden caused by our customers' systems by continuing to develop products with the semiconductor characteristics of high functionality and performance.

M : Effective Use of Resources

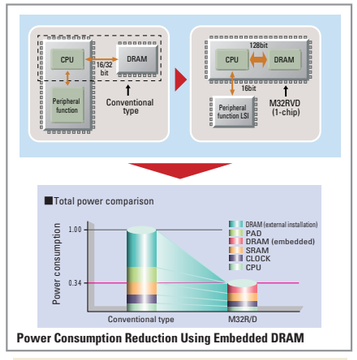
The amounts of materials and chemical substances utilized are being reduced by designing products that are thinner, more compact and capable of performing multiple functions. We have made contributions to resource conservation by reducing the size of the high-output amplifiers (high-frequency device) and transmitters in our mobile telephones.

E : Efficient Use of Energy

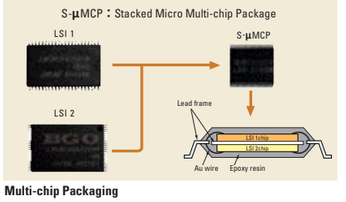
The power consumption of the semiconductors contained in a product has a large effect on the total power consumption of the product itself. Through such measures as reducing IC operating voltage (from 5V to below 3V), shifting to a structure with lower power consumption (from bipolar to complementary metal-oxide semiconductor), making further advances in design rules (to below the sub-micron level), and incorporating multiple functions on one chip, we have lowered the power consumption of our semiconductors and thereby contributed to reducing the power consumption of the various products that contain them.
In addition, we are planning to reduce the internal power consumption of our power, high frequency and optical devices through adjustments and new developments in structure and materials. In fiscal 2000, our highly functional, high-performance system LSI (M32R/ECU) was employed in automotive electrical systems. Through the integration of engine and automatic transmission control systems, two systems conventionally designed separately, this product realizes compact size, resource conservation (40% reduction number of components, 50% reduction in unit surface area) and low power consumption.

T : Avoid Use of Substances that Cause Environmental Damage

Although we use solder (Sn-Pb) on the terminals and for part of the interior of our semiconductors (connection between chip and frame) to allow customers to easily insert them onto circuit boards, we are working to make our products lead-free in recognition of the environmental risk of lead. We will begin successive efforts to make our ICs, high frequency and optical devices, low-power devices (SCR-LM) and hybrid ICs lead-free in fiscal 2001. We are also experimenting with potential substitutes for solder in medium-power devices (IPM,SCR) and high-power devices.



Power Consumption Reduction Using Embedded DRAM



Multi-chip Packaging

M : Effective Use of Resources

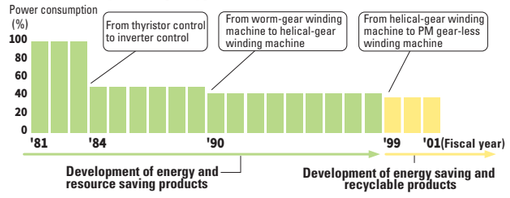
Installation space has been reduced by 28%*9 compared to conventional models by making parts smaller and thinner. In addition to saving resources, there is no longer a need for a machine room on the top of the building, as is necessary for conventional elevators.

E : Efficient Use of Energy

Power consumption has been reduced by about 60% compared to our 1983 model. With the aim of further reducing power consumption, we plan to market the ELESAVE Elevator Power Regeneration and Storage System beginning in October 2001. The system stores the regenerative power*10 normally released as heat when the elevator is operating in a "nickel hydrogen battery" for later use.

*9) In the case of a five-stop elevator with a 9-person capacity.
*10) Regenerative power: the power that is generated by the motor when a fully loaded car is lowered.

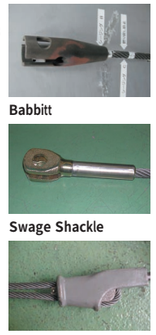
Energy Savings in Rope-type Elevator



T : Avoid Use of Substances that Cause Environmental Damage

In fixing the position of the rope that holds an elevator car, the "Babbitt" method has been used traditionally; i.e., the rope is fixed by fused lead cast during installation of the elevator. However, in order to reduce the use of lead, a substance that can damage the environment, in January 1998, we switched to the "swage shackle" method, in which caulk is applied to one side of the rope connection at the factory. Since the other side of the rope is still treated with lead as before, in July 2001, we introduced the "wedge method," a new method for fixing the rope in place that will allow us to further reduce our reliance on lead.

Three Rope Fastening Methods



Babbitt

Swage Shackle

Wedge

Logistics Activities

When creating a more efficient distribution system for the transport of materials and products, one consideration that cannot be left out is the need to minimize the exhaust emissions (CO_2, NOx) produced during transport. In addition to reducing the use of packaging materials, we at Mitsubishi Electric are working to lessen the environmental burden of our activities through logistical innovations that reduce the number of vehicles utilized for shipping, such as encouraging direct transport of materials and products, shifting to rail transport and introducing large freight trucks.

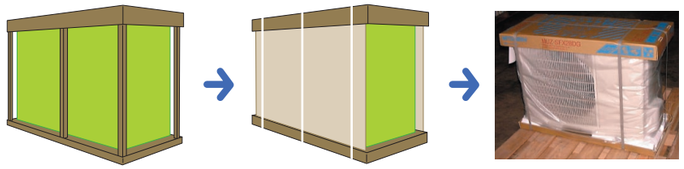
Reducing Packaging Materials

Although packaging is a necessary part of product shipment, it is also necessary to use packing material efficiently if a sustainable society is to be achieved.

We are making large reductions in the use of packaging materials while aiming to maintain or improve upon the performance of materials when it comes to protecting products. We are actively promoting a reduction in the use of packaging materials as well as improvement in packaging methods by developing and introducing lightweight packaging, use of packaging made from one material only, etc.

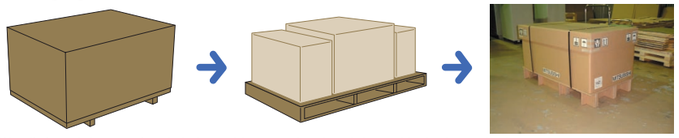
At Mitsubishi Electric, we set the goal of reducing packaging materials by 20% by fiscal 2000 (compared to fiscal 1995 level) and by 10% by fiscal 2002 (compared to fiscal 1998 level). In fiscal 2000, we used about 45,000t of packaging materials, 21% less than in fiscal 1995 and 7% less than in fiscal 1998.

Packaging Improvement for Room Air-conditioner Outdoor Unit



Changed from a packing crate that used wood beams to a "wood-less" crate. In addition, by increasing the strength of our products, we realized reductions in packaging by using only cardboard and styrene foam.

Packaging Improvement for Standard Inverter



We eliminated the use of sealed plywood boxes and replaced them with simpler packaging such as cardboard and wood palettes, cardboard and paper palettes, etc.

Packaging Improvement for Elevator Cars

Simple packaging using wood beams. Structural innovations allow packaging with less wood than was used previously.

Packaging Improvement for Elevator Car Motors

Reduced the amount of wood used in this simple fixed skid package.

Container and Packaging Recycling Law

The "Container and Packaging Recycling Law" requires that paper and plastic packaging containers be labeled as such as of April 1, 2001. We are labeling our containers based on the voluntary standards set by the Japanese electronics industry.

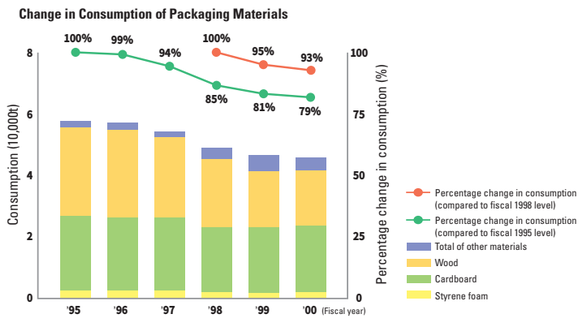
In addition, the Paper Drinking Container Recycling Association and the Japan Cardboard Industry Association have set voluntary labeling standards for paper cups and cardboard containers, which are not covered by the "Container and Packaging Recycling Law." For example, the Japan Cardboard Industry Association has created a recycle mark for cardboard. Mitsubishi Electric has adopted these additional, voluntary standards.

Paper packaging container mark

Plastic packaging container mark

Cardboard recycle mark

Change in Consumption of Packaging Materials



2000 Logistics Grand Prize from the Japan Institute of Logistics Systems

The Air-conditioning and Refrigeration Systems Works received this award as a result of its efforts in realizing a "summarized distribution system on a production site" through supply-chain management, which covered, with production at its core, all logistical considerations such as distribution and customer service.

Reducing Environmental Impact by Increasing Shipping Efficiency

We are striving to reduce the environmental impact of our shipping activities by reducing emissions of CO_2 and NOx. Efforts include the use of Japan Railways (JR) container shipping, efficient use of large trucks, the use of sea shipping and joint shipping.

Expanding Modal Shift*1 to JR Container Shipping

Although trucking is the main means of shipping in Mitsubishi Electric's distribution system, we are expanding efforts to switchover to JR container shipping, mainly for long-distance transport (more than 400km). Using the 5t container as the main basic measure, we have increased shipping volume from 6,050 containers in fiscal 1998 to 6,648 containers in fiscal 1999, and 12,686 containers in fiscal 2000.

Use of Large Trucks (more than 10t)

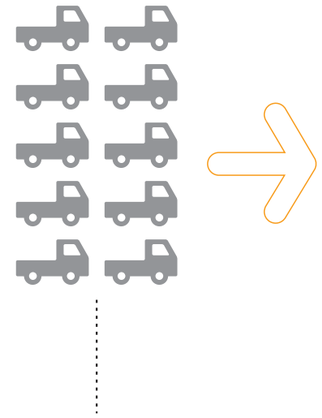
The key to controlling CO_2 and NOx emissions is reducing the number of trucks used. In order to limit the number of trucks used and increase load efficiency, we are promoting direct transport routes for trucks larger than 10t. Our use of large trucks (10t or more) was 44,000 in fiscal 1998, 41,000 in fiscal 1999, and 41,000 in fiscal 2000.

Use of Sea Shipping

We use domestic sea shipping for large products such as power generators and transformers. We shipped 22,500t by sea in fiscal 1998, 19,500t in fiscal 1999, and 21,600t in fiscal 2000, for an average of 20,000t per year over the period.

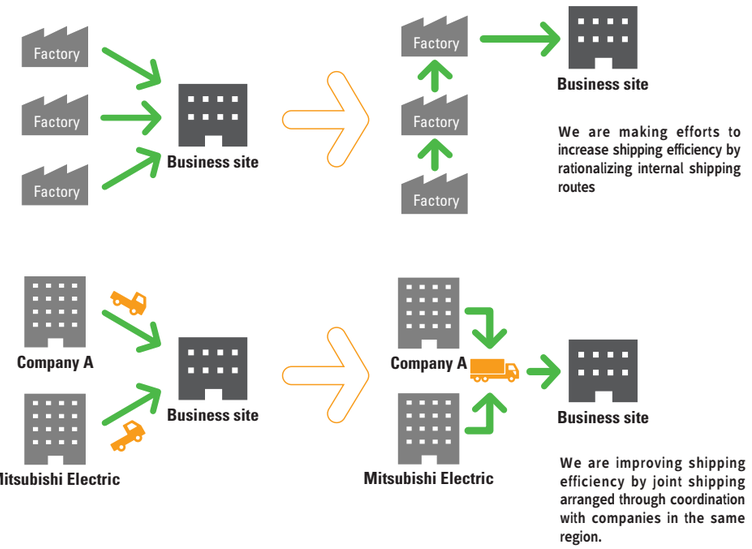
We are also promoting reforms in work activities and reductions in CO_2 and NOx emissions through such activities as joint transport arrangements with other companies and changing the battery type in the forklifts utilized in loading at our business sites and warehouses.

Reducing Environmental Impact by Increasing Shipping Efficiency



*1) Modal shift: Although generally referring to changing the mode of shipping, here the term is used to refer to improvements in the efficiency of energy spent on distribution through the use of rail and sea transport for the main long- and medium-distance routes.

Reducing Environmental Impact through Joint Shipping



Increased Shipping Efficiency through Product Size Reduction

By reducing the size of our gas-insulated transformers, it is now possible to ship products on trucks that formerly required the use of trailers as well. In order to increase shipping efficiency, we are working to reduce environmental impact by reviewing product shape and size.

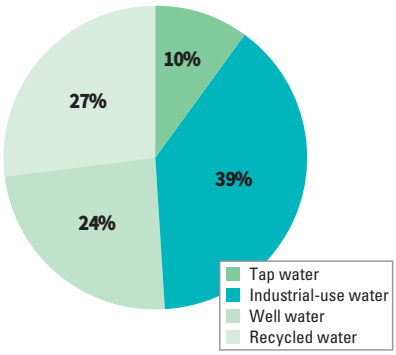
Water and Greenery Protection Activities

**We are working to conserve water resources and protect the greenery of the planet.
In order not to waste the Earth's precious water resources, we are endeavoring to conserve and reuse water.
In addition, we are expanding activities that raise employee awareness such as tree planting projects and setting up biotopes on the grounds of our facilities.**

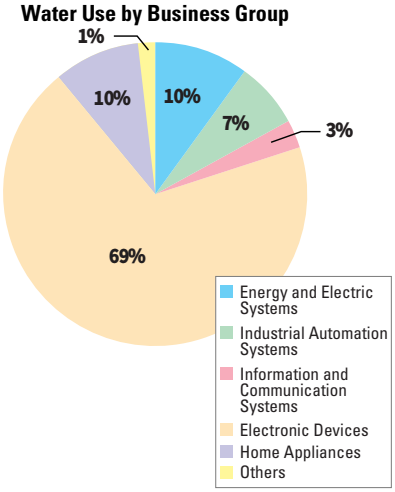
Water Usage

In fiscal 2000, Mitsubishi Electric used 15.71million cubic meters of water resources, up 0.19million cubic meters from the previous year. Of that used, we recycled and reused 5.84million cubic meters. Recycled water thus came to 27% of the total water used by Mitsubishi Electric in fiscal 2000, 21.55million cubic meters.

Fiscal 2000 Water Usage



Water Use by Business Group



On a divisional basis, Electronic Devices used the largest amount of water over the year. This is because large quantities of water are used to wash parts and to serve as coolant water in machines. However, this division has also made the most progress in recycling water, and recycled water now makes up 97% of its total water use.

Biotope Natural Habitat

A biotope natural habitat (affectionately named "Dragonfly Pond") has been created within the premises of the Transmission & Distribution, Transportation Systems Center. At the water's edge, we planted asaza, cattails, and water lilies. Killifish swim in the pond, and little birds and dragonflies dance about. Along the street from the main gate, various plants are flourishing, including large eucalyptus trees, azaleas , and Japanese cheery trees.

Biotope: a natural condition, this term refers to the smallest environmental unit inhabited by certain flora and fauna. In Japan, activities to protect and restore biotopes are becoming more prevalent.

Mitsubishi Medaka—Friends of the Community

Formerly known as the Matsumoto River, the waterway that crosses the Fukuoka Works complex is derived from rainwater runoff and water expelled from the factory. However, the expelled water is processed so thoroughly that the waterway maintains a purity sufficient to support killifish (known as "medaka" in Japanese). These fish are called the "Mitsubishi Medaka" and are adored as the seed fish for the zoological/botanical gardens and schools in Fukuoka City.

Conservation of Forest Resources

We are involved in efforts to reduce our use of paper by utilizing alternatives such as e-mail and Intranet/Internet services. In addition to using high-percentage recycled paper for photocopying, catalogs, pamphlets, business cards and toilet paper, we also separate and collect paper for recycling. In fiscal 2000, our efforts resulted in the preservation of the equivalent of approximately 370,000 trees*1.

*1) One ton of used paper is equivalent to 20 logs (14cm in diameter,8m long) as per the Green Procurement Network Guidelines.

Committee for the Cherry Blossoms of Zugaike Park

As part of the Kita-Itami Administration Center's efforts to protect and expand the greenery of Itami City, since 1986, we have maintained (cleaning/weeding) approximately 700 Japanese cherry trees in Zugaike Park. For this activity, the center received a certificate of appreciation for "perennial contributions to building a better city through efforts with the environment and greenery" at a ceremony celebrating the city's 60th anniversary.

Waterway inhabited by the "Mitsubishi Medaka"

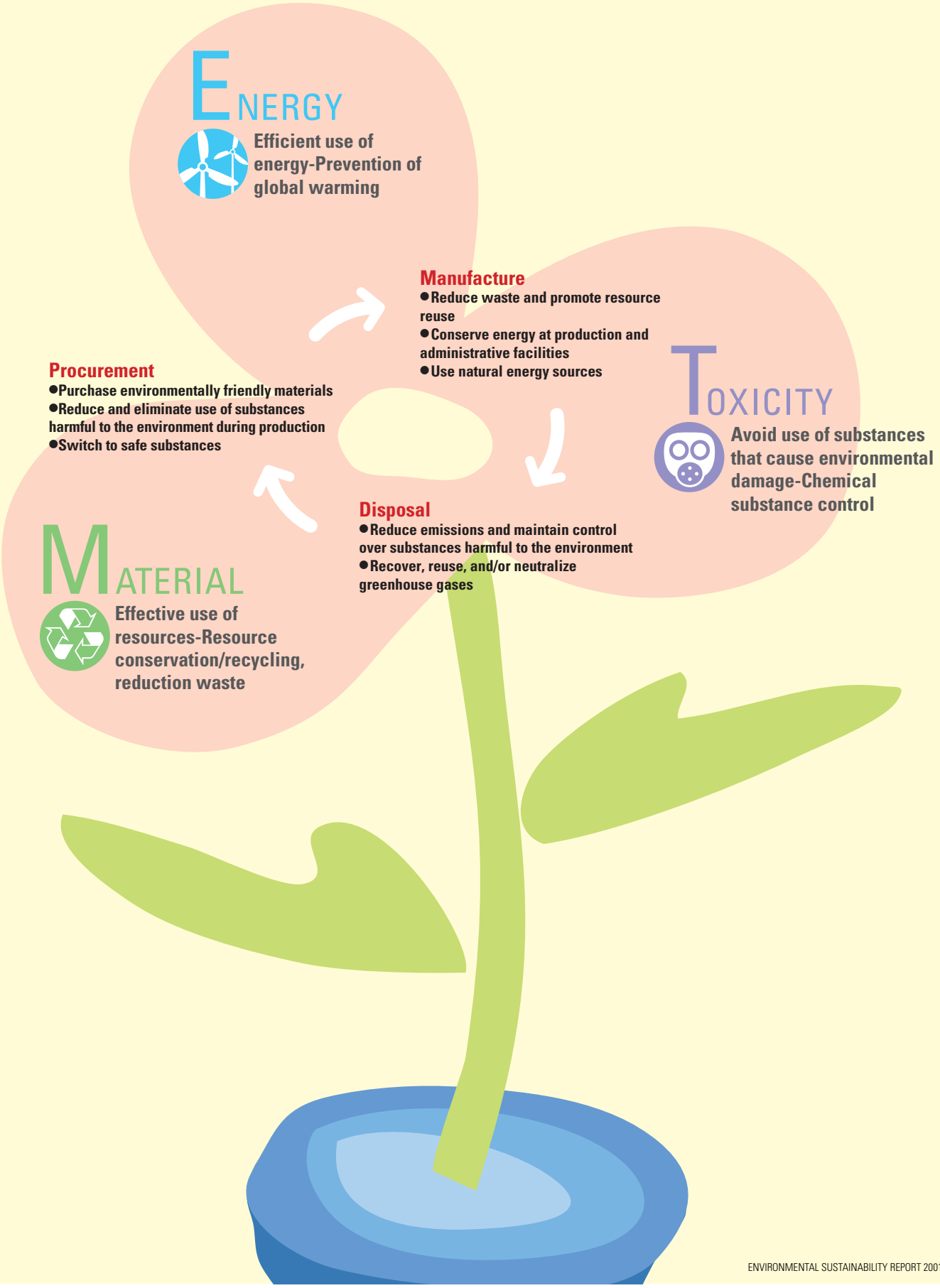
Cleaning and weeding at Zugaike Park

Recycling Waste PET Bottles into Uniforms Fukuyama Works

Our work to conserve resources includes efforts on a more personal level as well. In April 2000, the Fukuyama Works introduced polyester work uniforms made from recycled PET bottles. One of the aims of this action is to increase employee awareness regarding recycling.

Actions to Reduce the Negative Environmental Impact of Production Processes

From materials procurement to waste disposal, we are considering the environment in our manufacturing processes through measures to procure environmentally friendly materials, reduce/eliminate the use of substances harmful to the environment, conserve energy, reuse resources, and reduce waste.

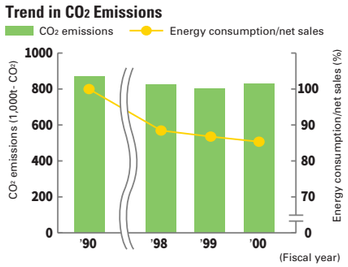


Preventing Global Warming through Energy Conservation

Although the objective of our energy conservation activities is the reduction of CO_2 emissions, the main cause of global warming, these efforts are also financially sound activities that reduce costs. We are actively moving forward from the dual perspective of reducing environmental burden and cutting costs.

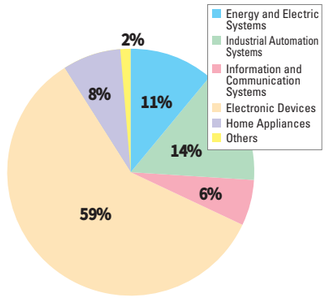
Results of Fiscal 2000 Activities

We are moving forward with voluntary efforts to conserve energy in order to reduce CO_2 emissions. In fiscal 2000, total CO_2 emissions came to 840,000t-CO_2. Although this represents a 6% increase over the previous year, due to an 8% increase in sales, energy use decreased by 2% in terms of (carbon-equivalent) energy consumption to net sales.



Energy Use by Business Group

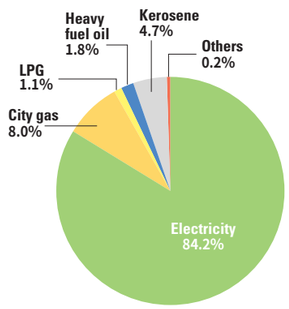
Although we manufacture a variety of electronic products, analysis of the company's energy use by business group reveals that the Electronic Devices Group, which includes semiconductors, represents 59% of our total energy consumption, and the Industrial Automation Systems Group, which includes factory automation, ranks second at 14%.



Energy Use of Each Business Group

Breakdown of Energy Use

Of all the energy utilized by Mitsubishi Electric in fiscal 2000, electricity accounted for 84.2%, or 1.7 billion kilowatt-hours per year. We are moving forward with efforts to switch to energy sources that place less burden on the environment. These efforts include the introduction of renewable energy sources such as co-generation and photovoltaic power generation systems at business sites.



Details of Energy Use by Source

On-going Energy Conservation Activities

Kamakura Works

Although the Kamakura Works has experienced expanding energy demands along with its increasing production requirements in the areas of satellite and fiber-optic communications, the factory has actually realized a reduction in energy use as a percentage of production value as the result of a variety of energy conservation activities. In recognition of this achievement, the facility received the Agency of Natural Resources and Energy Director's Prize for Excellence in Energy Management at a Production Facility in 2000.
The major measures taken and their results are also follows:

More Efficient Lighting

Introduced highly efficient lighting as well as lighting capable of taking advantage of natural light during the day.
(Reduction effect: approximately 400,000kWh/yr)

Use of Inverter for Ventilation Fans

Installed an inverter for the large fan used to ventilate the plating factory, allowing control of its operation in accordance with workload.
(Reduction effect: approximately 110,000kWh/yr)

Reduction of Standby Mode Power Consumption

Made alterations allowing for the automatic stoppage of power circuits in machine tools that previously operated continuously in order to maintain precision.
(Reduction effect: approximately 100,000kWh/yr)

Reconfiguration of Air-conditioning System

Set up a duct allowing test equipment used to evaluate the performance of products to vent heat exhaust outside.
(Reduction effect: approximately 90,000kWh/yr)

Receiving the Agency of Natural Resources and Energy Director's Prize for Excellence in Energy Management at a Production Facility

Introduction of Photovoltaic Power Generation

Communications Systems Center

A 40kW photovoltaic power generation system was installed on the southern wall of a building at the Communication Systems Center to provide electricity for the compound.

Solar panel affixed to a building wall.

Energy Conservation Efforts at a 24hr Factory

Kumamoto Factory

Because the Kumamoto Factory produces integrated circuits 24-hours a day, consuming about 200 million kilowatt-hours of electricity a year, the entire facility is dedicated to energy conservation. In recognition of this achievement, the Kumamoto Factory received the Kyushu Bureau of Economy, Trade and Industry Chief's Prize for Excellence in Energy Management at a Production Facility.
The major measures taken and their results are also follows:

Reduction of Production System Emissions

Reduced the load on exhaust treatment equipment and refrigerating machines by returning heat exhaust from production equipment to the circulating air.
(Reduction effect: approximately 640,000kWh/yr)

Introduction of Low-pressure Demineralized Water to Production System

Reduced the load on water pumps through the introduction of a low-pressure reverse-osmosis filter.
(Reduction effect: approximately 350,000kWh/yr)

Introduction of Winter Cold Water System

Reduced the load on refrigerating machines by pre-cooling water with cold air from outside.
(Reduction effect: approximately 910,000kWh/yr)

Energy Conservation through Introduction of Micro-gas Turbine

Transmission & Distribution, Transportation Systems Center

A micro-gas turbine that is a version of an extremely compact, highly efficient co-generation system commercialized by Mitsubishi Electric has been introduced at Transmission & Distribution, Transportation Systems Center.
We are promoting integrated energy conservation polices combined with conventional energy-saving measures (such as switching to air conditioning with thermal storage features and highly efficient transformers). We are also better able to set controls to match electrical and heating demands through an energy management system that monitors operation of the co-generation system.
The data and know-how gained from these experiences are reflected in our Energy Solution Service (ESS) consulting business. (For more on these operations, please see page 42.)

Activities at Transmission & Distribution, Transportation Systems Center

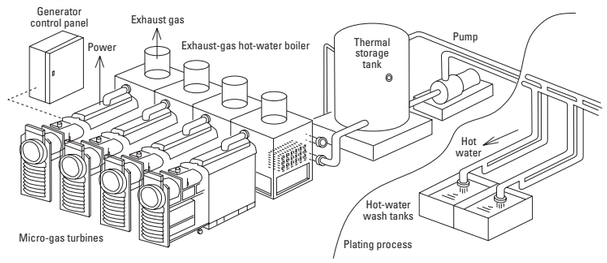
Air conditioning	Demand control Hybrid air-conditioning system, Thermal-storage air-conditioning
Lighting	Switched to Hf lighting, Use of natural daylight, Incorporated inverters
Improved building insulation and heat emission	Installed insulation coating on rooftops, Applied insulation film to windows
Transformers	Upgraded internal-use compact transformer to high-efficiency type
Heating furnace	Increased insulation using thyristor switch control

Company-wide Activities

All Mitsubishi Electric business sites are conducting energy conservation plans in accordance with their environmental management systems.
In terms of company-wide activities, we have established an "energy conservation database" by compiling the results obtained from checking and reviewing energy conservation. We plan to make this information available to all business sites for the purpose of identifying and encouraging the spread of successful energy-saving measures.

Screen showing the energy conservation database

Micro-gas Turbine Co-generation System (Hot-water System)



We introduced the micro-gas turbine in September 2000 and constructed a highly efficient co-generation system. With this system, it is possible to set controls to match internal electrical and heating demands (for the plating process, etc.) using an energy management system that monitors co-generation system operations.

Preventing Global Warming Caused by Greenhouse Gases other than CO_2

HFC (hydrofluorocarbon), which is used as refrigerant in room air-conditioners and refrigerators, PFC (perfluorocarbon)[*1], which is used in the manufacture of semiconductors, and SF_6 (sulfur hexafluoride), which is used as an insulator in electronic devices, are three gases with global warming effects that are hundreds to many thousand times greater than that of CO_2. Accordingly, the Kyoto Protocol included measures to reduce the emission of these gases. Mitsubishi Electric has been working to minimize the emissions of these gases since 1996 by means such as limiting their areas of use, promoting recovery, reuse and breakdown and conducting R&D to create substitute substances/technologies.

Reduction of HFC

Although CFC (chlorofluorocarbon) and HCFC (hydrochlorofluorocarbon) have been used widely as refrigerants in air-conditioning equipment, both are substances that are harmful to the ozone layer. Accordingly, Mitsubishi Electric eliminated the use CFC in 1995 and began a shift from HCFC to HFC (which is not harmful to the ozone layer) in 1998. This shift is scheduled for completion in major products by 2005 and in all products by 2010.

However, because HFC is also a greenhouse gas, our long-term plan is the development of a substitute refrigerant technology that has less of an impact on global warming. Considering the shift from HCFC to HFC and the fact that HFC is a greenhouse gas of the same level as HCFC, Mitsubishi Electric expresses its emission reduction targets as indexed figures that combine HCFC and HFC. The following lists our emission reduction targets.

Reduction of PFC

Fluorine gases such as PFC, HFC, SF_6 and NF_3 (trifluoride nitrogen) are used widely in semiconductor manufacture to clean production equipment. Mitsubishi Electric is conducting the following voluntary activities to reduce the use of PFC:

- Considering reductions in the amount of PFC used (through efficiency and process condition improvements).
- Considering the introduction of a PFC neutralization device (improve neutralization efficiency, evaluate test models).
- Considering substitute gases and PFC recovery/recycling methods(study, consideration, basic evaluation, test model evaluations).

Our PFC emission reduction targets and fiscal 2000 results are listed below.

Reduction of SF_6

SF_6 is used as an insulating gas in electronic devices and along with PFC in the production of semiconductors and liquid-crystal devices. In order to reduce the amount of SF_6 released into the atmosphere, we are working to improve the efficiency of our use of the substance, shift to a substitute substances, and develop new chemical resolution techniques.

We established the SF_6 Emissions Suppression Committee and are currently working to reduce and control the emission of SF_6 gas used for electrical insulation. Furthermore, an SF_6 gas recovery device is being introduced in order to collect SF_6 gas for reuse.

The company's SF_6 emission reduction targets and results are listed below.

*1) CF_4 (perfluoromethane), C_2F_6 (perfluoroethane), etc.

Target

HFC and HCFC Emission Reduction Targets and Results

Maintain plant emissions below 0.2% of total amount handled by fiscal 2002.

Results

	Fiscal 1999	Fiscal 2000
Total amount handled	2,286.4t/yr	2,777t/yr
Emissions	69.1t/yr	26t/yr
As percentage of total amount handled	3.0%	0.9%

Target

PFC Gas Emission Reduction Targets and Results

Reduce plant emissions of PFC gas by 6% by fiscal 2002 (compared with fiscal 1998 levels); reduce plant emissions of liquid PFC (total greenhouse effect value) by 10% (compared with fiscal 1995 levels).

Results

		Fiscal 1999	Fiscal 2000
Plant PFC gas emission	401,544 t-CO_2/yr (fiscal 1998)	390,684 t-CO_2/yr	435,603 t-CO_2/yr
Percentage decrease from fiscal 98		2.7%	△8.5%
Plant liquid PFC discharge	85,803 t-CO_2/yr (fiscal 1995)	58,460 t-CO_2/yr	55,063 t-CO_2/yr
Percentage decrease from fiscal 95		31.8%	35.8%

Target

SF_6 Emission Reduction Targets and Results

Reduce plant/equipment emissions (at time of installation) below 3% by fiscal 2005.

Results

	Fiscal 1999	Fiscal 2000
Amount purchased	362t/yr	222t/yr
Emissions	66t/yr	37t/yr
Emissions/ Amount purchased	18.2%	16.7%

Establishment of Global Warming Business Promotion Committee to Pursue Business Opportunities Related to the Prevention of Global Warming

The effort to create international regulations to bring the mechanisms of the Kyoto Protocol (e.g., Emissions Trading[*2], Joint Implementation[*3], Clean Development Mechanism[*4]) into effect is moving forward. These mechanisms represent opportunities for the business world. In order to participate actively in joint implementation and clean development mechanism projects, we established an internal global warming business promotion committee and are moving forward with planning.

We have already conducted a feasibility study for a joint project regarding a trolley bus system in Mexico (AIJ), and are now investigating clean development mechanism opportunities in power generation plants, highly efficient fluorescent lighting, lighting fixtures, and creating energy-saving model plants for developing countries through organizations such as the BeSeTo International Meeting between Japan, China and South Korea.

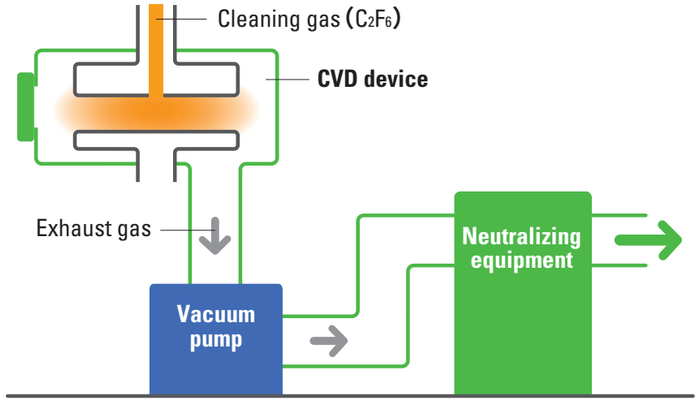
*2) Emissions Trading: An arrangement allowing for the sale of portions of greenhouse gas emissions reduction targets (emission permits) between advanced industrial countries.
*3) Joint Implementation: An arrangement allowing an advanced industrial country to acquire additional emission permits by participating in joint environmental projects such as energy conservation in other advanced industrial countries.
*4) Clean Development Mechanism: An arrangement allowing advanced industrial countries to acquire additional emission permits by participating in joint projects that reduce emissions in developing countries.

[Examples of Gas Reductions]

Cyclopentane Foam

In the past, urethane foam was used in the insulation of refrigerators, with HCFC utilized as a foaming agent. HCFC has been used as a replacement for chlorofluorocarbon substances banned by the Ozone Layer Protection Law in 1995. However, although HCFC has a low impact on ozone depletion, its effect is not zero. Mitsubishi Electric is gradually switching from HCFC to a cyclopentane foaming agent, a substance that is not only safe for the ozone layer, but also has an extremely small greenhouse effect in comparison with HCFC. The switchover in major products was completed by February 1999 and will be completed in all products by the end of 2004.

Rear faceplate on a refrigerator
It reads: This refrigerator uses cyclopentane as the foaming agent.



CVD Cleaning Gas Neutralization System Configuration

CVD[※5] Cleaning Gas Neutralization

C_2F_6 (Perfluoroethane), a type of PFC, is being utilized as a cleaning gas to remove the film coating inside of the CVD equipment used in the manufacture of semiconductor devices.

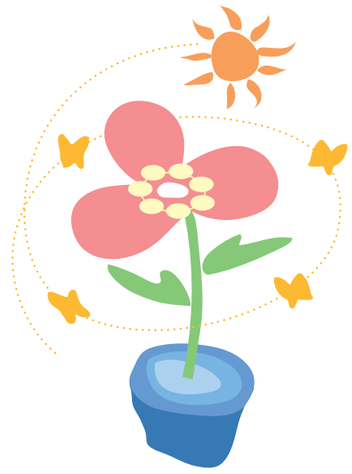
Part of the C_2F_6 within the CVD equipment breaks down in the process of removing the film while the remainder is expelled through the use of a vacuum pump. We have reduced gas emissions by installing a neutralization device to breakdown the remaining C_2F_6 following the use of the vacuum pump.

*5) CVD: Chemical Vapor Deposition

Elimination of SF_6 Gas in Power Distribution Equipment

We have succeeded in the elimination of SF_6 gas in power distribution equipment by introducing a 34kV (rated voltage) dry-air insulated switching device that utilizes air for insulation. The new product pressurizes and dries air, and the dry air is optimally positioned as an insulation barrier that serves as a substitute for the use of SF_6 gas. Having the industry's smallest board width of 550mm and an installation footprint 60% smaller than conventional products, the new unit is extremely compact. Moreover, by simplifying product configuration, it was possible to make the unit maintenance-free.

Dry-air insulated switching device

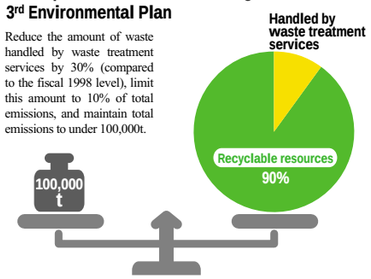


Resource Conservation/Recycling and Waste Reduction

"Limiting the extraction of resources from the Earth to the furthest possible extent while keeping the quantity of waste emitted into the environment at an absolute minimum." This is the objective of a sustainable society. The "zero waste" and "zero refuse" policies that are the final goals of "zero emissions" activities (waste reduction, reuse-reduce-recycle, etc. aimed at establishing a sustainable society) called for in the Promotion of the Formation of a Sustainable Society Law (enacted in June 2000) are becoming increasingly more important.
Mitsubishi Electric is working to reduce the amount of its waste handled by waste treatment services by 30% (compared to the fiscal 1998 level), and limit this amount to 10% of total emissions by fiscal 2002.

Concept of Waste Reduction Targets in 3rd Environmental Plan

Reduce the amount of waste handled by waste treatment services by 30% (compared to the fiscal 1998 level), limit this amount to 10% of total emissions, and maintain total emissions to under 100,000t.

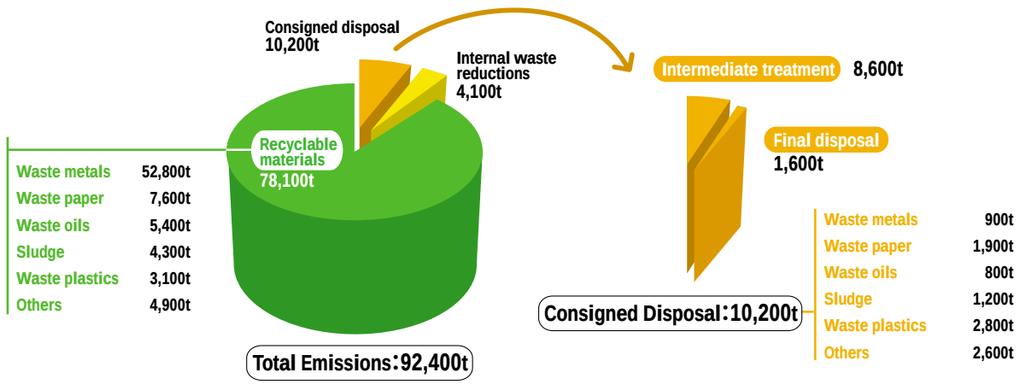


Establishment of Reduction Targets for Each Product

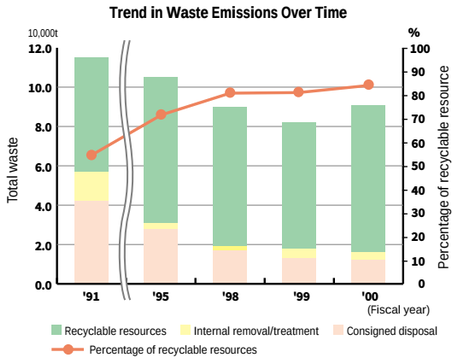
To suppress the generation of waste farther upstream in the flow from manufacturing to recycling and waste, one objective of the 3rd Environmental Plan is to establish limits on the generation of waste material for each product by fiscal 2002.
For example, for refrigerators, our goal is to reduce the amount of defective urethane insulators produced during the foaming process by 10% over two years. For televisions, the goal is to reduce the amount of sludge produced per cathode ray tube by 27%. In addition, for our elevators, we are working to achieve a 25% reduction in the amount of refuse paint produced per 10,000 paint-coated steel plates, which are utilized for elevator bodies.

Waste Generation and Treatment Results for Fiscal 2000

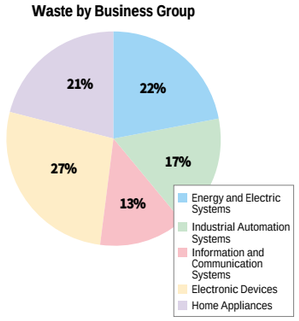
In fiscal 2000, total emissions increased by 6,800t compared to fiscal 1999. However, because the reuse of resources increased by 8,600t, and the amount handled by waste treatment services fell by 900t (a 30% reduction from the 1998 level).



Trend in Waste Emissions Over Time



Waste by Business Group

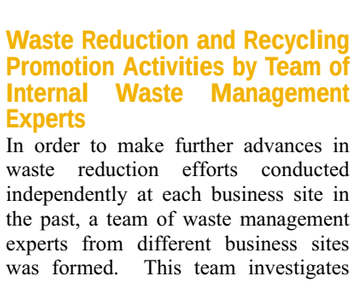


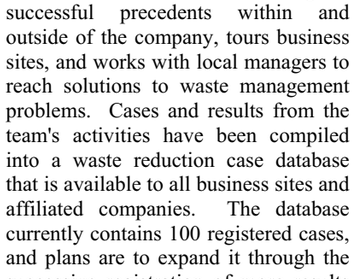
Fiscal 2000 Results

Although total emissions increased slightly along with net sales in fiscal 2000, it has fallen since the introduction of the 1st Environmental Plan in 1991 and has been kept to approximately 90,000t in recent years. Our percentage of recyclable resources has risen from 54% in fiscal 1991 to 85% this year, and the amount of waste handled by waste treatment services is down 75% from fiscal 1991.
On a divisional basis, Electronic Devices Group accounted for 27%, with its semiconductor operations making up 9% of the total.

Waste Reduction and Recycling Promotion Activities by Team of Internal Waste Management Experts

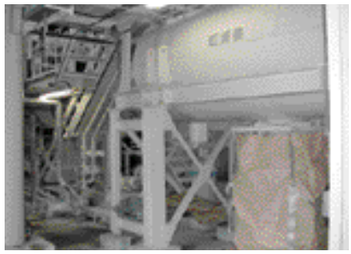
In order to make further advances in waste reduction efforts conducted independently at each business site in the past, a team of waste management experts from different business sites was formed. This team investigates successful precedents within and outside of the company, tours business sites, and works with local managers to reach solutions to waste management problems. Cases and results from the team's activities have been compiled into a waste reduction case database that is available to all business sites and affiliated companies. The database currently contains 100 registered cases, and plans are to expand it through the successive registration of more results and cases.
As an example of activity results, along with strict separation efforts to reduce waste paper, the Shizuoka Works asked a paper manufacturer to recycle waste paper (e.g., colored paper, heat-sensitive paper, paper cups, shredded paper) that was thought too difficult to recycle or incinerate in the past. This arrangement has resulted in 130t of waste paper being recycled into toilet paper each year.


Display for Waste Management Database System


Paper separation area at the Shizucka Works

Award for Distinguished Service in Recycling Promotion

Working to recycle calcium fluoride sludge as a basic material for cement since 1983, our five semiconductor facilities were jointly awarded-as the Mitsubishi Electric Semiconductor Group-the Chairman's Prize for Distinguished Service in Recycling Promotion from the Council for Promotion of Recycling.


Machine for drying calcium fluoride sludge

Clean Information Management System

Mitsubishi Electric and its domestic affiliated companies have jointly setup and began using an electronic manifest system for industrial waste disposal (please refer to page 8). The purpose of the system is effective operation of waste management, which is obtained by maintaining a database (approximately 15,000 cases annually) of related information such as records, costs and contracts with more than 500 waste treatment companies. It is now possible to easily trace industrial waste from one of our sites until its final treatment.


Display for Clean Information Management System

Measures for PCB*1

In the aftermath of the 1968 Kanemi cooking oil poisoning incident, when the effects of PCB on living organisms and the environment became clear, the Japanese Diet enacted the Law concerning the Examination and Regulation of Manufacture,etc. of Chemical Substances in 1974. This law banned the production, importation and use of PCB. In addition, in 1992, legal standards for the storage requirements of equipment containing PCB and PCB-contaminated materials were established under the Waste Disposal and Public Cleansing Law. Every year, Mitsubishi Electric and its affiliated companies make certain of the status of stored waste PCB materials (listed in the chart below) through environmental audits. Moving forward with efforts to appropriately breakdown the material as quickly as possible, we are cooperating in a plan proposed by national and local government agencies to establish a facility for the breakdown and neutralization of PCB over the next five years.

Inventory of our PCB wastes

Item	Amount
Waste PCB oil	Approx. 12,000kg
Power condenser	Approx. 1,600 units
Power transformer	Approx. 120 units
Compact condenser	Approx. 32,000 units
Fluorescent light stabilizer	Approx. 59,000 units
Impact paper	Approx. 8,700kg
Pollution containers/cloth	Approx. 3,500kg
Pollution equipment/tools	Approx. 30 units

*1) PCB: polychlorinated biphenyl

Measures for Dioxins

In recent years, it has become clear that dioxins are released from incineration facilities as a result of incineration. Accordingly, the Waste Disposal and Public Cleansing Law and the Law Concerning Special Measures against Dioxins have been established and provide strict standards for the building and maintenance of incineration facilities. There are 12 incineration facilities in active operation at Mitsubishi Electric sites, and all satisfy these legal standards. In addition, we are working to develop incineration and dioxin emission control and removal technologies.

Appropriate Control of Chemical Substances

Many chemical substances of various forms are utilized during the manufacturing process, and how best to control the environmental risks presented by these substances and maintain safety are important topics. The Special Measures to Promote the Improvement of Control/Measurement of Chemical Substance Emissions was added to the Environment Law (Chemical Substance Control Law) and went into effect in April 2001. With this, the Pollutant Release and Transfer Register (PRTR*1: a registry that accounts for the release of chemical substances into the environment as well as the transport of chemicals) became a legal system and the first measurements of the quantities of targeted chemical substances began. In addition to the "first category chemical substances" targeted for PRTR by the new law, Mitsubishi Electric is controlling and measuring other substances on a voluntary basis.

Review of Chemical Substances Controlled by Law

Since fiscal 1997, Mitsubishi Electric has prohibited the use of 27 types of chemical substances and targeted 488 other chemical substances for the company's voluntary control system. In addition to the "first category chemical substances" announced for the PRTR in the Chemical Substance Control Law of September 2000, a Mitsubishi Electric Chemical Substances Control List was drafted. It includes alternate CFCs and SF_6 (sulfur hexafluoride), substances that place a considerable burden on the environment if released in large quantities. The new classification system is shown in the accompanying chart.

Our selection and classification of chemical substances for control reflects the requirements of the Chemical Substance Control Law, other national and international laws, voluntary industrial control plans, and Mitsubishi Electric Group's own position regarding the emission of substances into the environment. The Chemical Substances Subcommittee of the Environmental Technologies Committee, an internal group of chemical substance experts, debates and determines standards in this area.

New Chemical Substance Classification

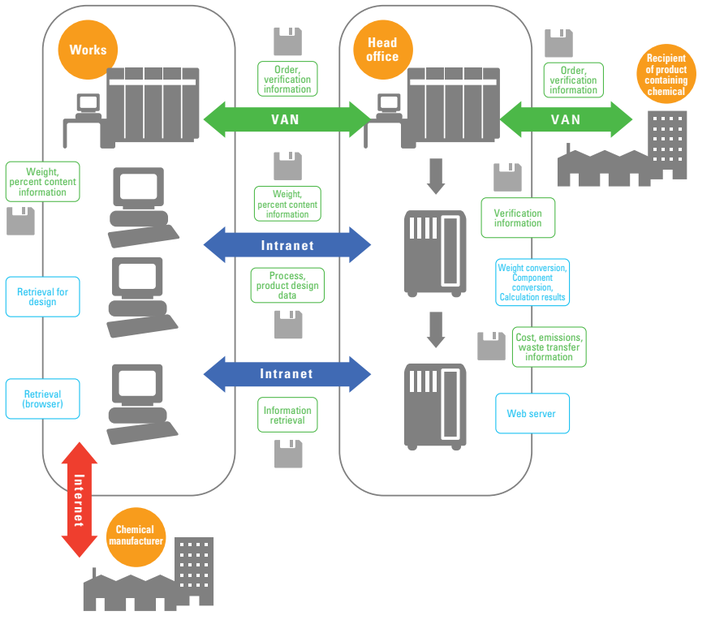
Control classification	Substance (type) number	Substance example	Control measure
S substances	35	PCBs, specified chlorofluorocarbons, dioxins, organic chloride solvents (10 types), etc.	Eliminated from manufacturing processes and products
A substances	62	Substances targeted for voluntary control by the Air Pollution Control Law (chloroform, acetaldehyde, etc.), GHG*2 such as PFC, HFC, SF_6, etc.	Measurement of release and transfer amounts, reduction of emissions
B substances	295	Substances identified as a "first category chemical substances" by the PRTR system but not included in "S substances."	Measurement of release and transfer amounts, elimination utilization beginning from those possible using current technology.

When the substance types above are broken down into individual substances, the total number comes to 1,499 (as of April 1, 2001).

Chemical Substance Control System

Mitsubishi Electric calculates chemical substances from data regarding the types of substances in procured materials and their content percentages by combining EDI (Electronic Data Interchange) transaction data for materials purchased at operations sites and MSDS (Material Safety Data Sheet) information received from chemical manufacturers. Our chemical substance control system is also capable of automatically determining the release and waste transfer amounts based on past results.

Chemical Substance Control System

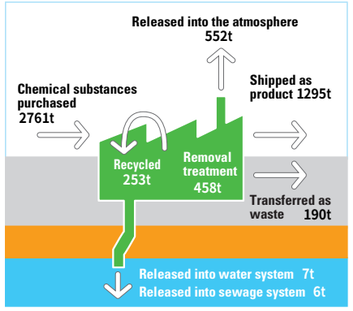


*1) PRTR: Pollutant Release and Transfer Register
*2) GHG:greenhouse gases

Mitsubishi Electric PRTR

Mitsubishi Electric utilized a total of 53 chemical groups (81 different types) in fiscal 2000. With the exception of the greenhouse gases introduced on page 31, the material balance of controlled substances is as follows.

Materials Balance

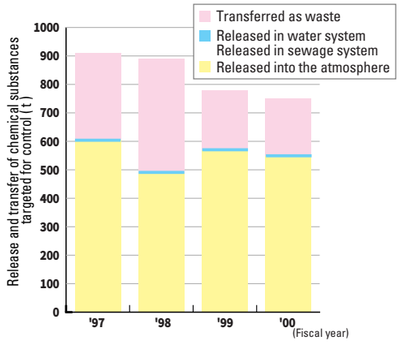


Excluding materials shipped as products, recycled, or treated by a removal method*2, materials released to the environment amounted to 755t, or 27% of the total 2,761t of chemical substances purchased in the year. Of this, 73% (552t) was released into the atmosphere. Of the materials released into the atmosphere, 71% was toluene and xylene group substances utilized in paint solvents.

*2) Removal treatment: The amount of targeted chemical substances converted into different substances onsite through neutralization, breakdown, chemical reactions, etc.

Change in Release and Transfer of Chemical Substances Targeted for Control

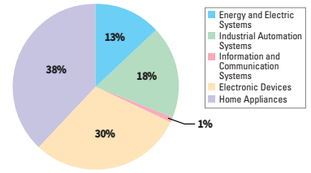
Mitsubishi Electric PRTR



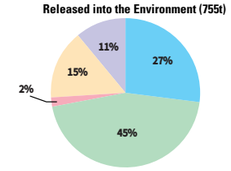
The total amount of chemical substances released into the environment in fiscal 2000 fell by 18% compared to the fiscal 1997 level. The two main emission routes were release into the atmosphere and transfer as waste.

Quantities Handled and Emitted by Business Group

Quantity Handled in Fiscal 2000 (2,761t)



Released into the Environment (755t)



In the Home Appliances Group, the urethane used in refrigerators and air-conditioners makes up a majority of all substances handled. In terms of the amount released into the environment, the Industrial Automation Systems and Energy and Electric Systems groups combined represent 72% of the total. For the Electronic Devices Group, where removal treatment and recycling amounts are high, the amount of substances released into the environment is smaller than the amount of quantities handled.

Fiscal 2001 Plan for Reduction in Toluene and Xylene Group Substances

Toluene and xylene group substances, two materials released into the environment in great quantities, have the following properties:

① Breakdown and disperse in the open atmosphere within a few days to a few months
② Easily broken down by microbes
③ Low potential to concentrate in living organisms
④ Inexpensive
⑤ Superior performance (corrosion resistance, coloring, etc.)when used in paint

While having many advantages as industrial substances, these materials have also been reported to have a negative effect on the central nervous system and kidneys. While always giving sufficient care to the handling of these substances, we are using innovative techniques to reduce their uses and find substitutes for them. Activities include switching to water-soluble paints and spray/powder painting, using thin films, using paints containing limited amounts of toluene and xylene group substances (slurry), etc.

By combining the above efforts, we will reduce the emission of toluene and xylene group substances into the environment.

Actions Related to Groundwater Issues

In June 1998, Mitsubishi Electric responded to the then Ministry of International Trade and Industry's request to the electrical and electronics industry to conduct individual surveys of groundwater contamination levels. As a result of investigating all sites, we confirmed that organic chloride compounds were detected in the groundwater at nine (Koriyama, Sagami, Kyoto, Kita Itami, Amagasaki, Himeji, Wakayama, Fukuoka, and Nagasaki) out of 29 sites in Japan. We immediately reported the contamination to local authorities in the vicinity of each of site, and proceeded with clean-up procedures with their guidance.

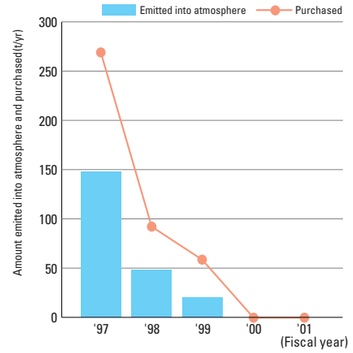
In December 2000, while conducting an environmental assessment of a lot previously used for the old Kumamoto No.1 Plant (closed in 1999) in accordance with company rules in order to reuse the land, we detected contaminated groundwater and immediately reported it to the Kumamoto City government. Here too, we are proceeding with clean-up procedures under the guidance of the local government.

By the end of fiscal 1999, Mitsubishi Electric eliminated the use of organic chloride compounds that cause groundwater contamination. For further information regarding the efforts of our domestic affiliated companies in managing groundwater issues, please refer to page 38.

*3) 10 types of organic chloride compounds were eliminated completely:
- dichloromethane
- carbon tetrachloride
- 1,2- dichloroethane
- 1,1-dichloroethylene
- cis-1,2-dichloroethylene
- 1,1,1-trichloroethane
- 1,1,2-trichloroethane
- trichloroethylene
- tetrachloroethylene
- 1,3-dichloropropane

Does not include use of reagents (for analytical applications) allowed by law.

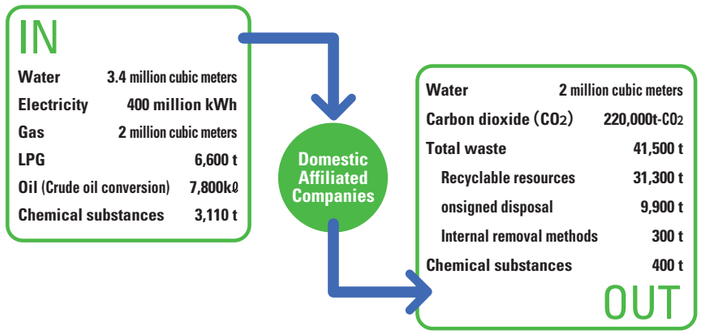
Trend in Trichloroethylene Emitted into the Atmosphere and Amount Purchased



Actions of Affiliated Companies

Our affiliated companies work together with us as an integrated group in activities undertaken on behalf of the environment.

Resource Input & Output to the Environment



Affiliated Companies Environmental Account*1

Item	Cost(100 million yen)
Business area activities	21.9
Pollution prevention	10.1
Global environmental conservation	3.3
Resource circulation	8.5
Activities upstream and downstream of production	1.1
Environmental management activities	5.9
Research and development for environmental conservation	2.1
Social activities	1.1
Environmental damage	0.6
Total	32.7
Profit	2.3
Savings	10.8
Total	13.1

*1) Refer to list on page 1 for companies covered here.

Product-related Activities

Concentrating on industrial products, we are moving forward with efforts to lower environmental burden by considering MET for each of our products. We made 169 alternations*2 in 19 product categories.

M
Effective Use of Resources

A total of 102 alternations in 19 product categories were made related to improving ease of disassembly, reducing packaging, encouraging resource reuse, reducing product weight, etc. Through structural innovations, we improved the ease of disassembly for the "Tankuro" packaged air-conditioner (Tada Electric Co., Ltd.) and a communications cubicle (Ryoden Electronics & Machinery Co., Ltd.) by 20 and 10%, respectively.

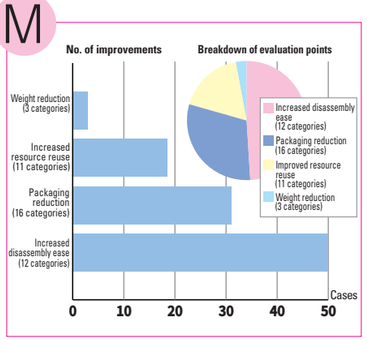
E
Efficient Use of Energy

A total of 13 alternations in 18 product categories were made for improvements such as reducing power consumption in active and standby modes. We achieved zero standby mode power consumption for our microwave oven ranges (Home Appliances Group).

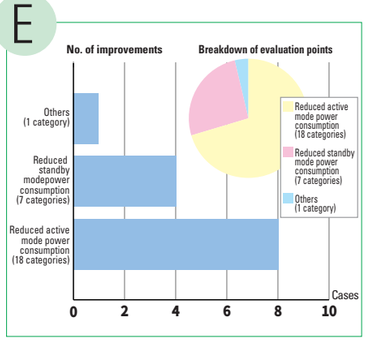
T
Avoid Use of Substances that Cause Environmental Damage

Chemical substances evaluated in this area include lead, vinyl chloride, mercury, chromium 6, greenhouse gases, and brominated flame retardant. A total of 53 alternations covering reductions in the use of substances in manufacturing processes and products were made. We reduced the use of lead in the manufacturing process of refrigerated showcases (Nihon Kentetsu Co., Ltd.) by 30% and the use of mercury in circular fluorescent lamps (OSRAM-MELCO Co., Ltd.) by 50%.

M



E



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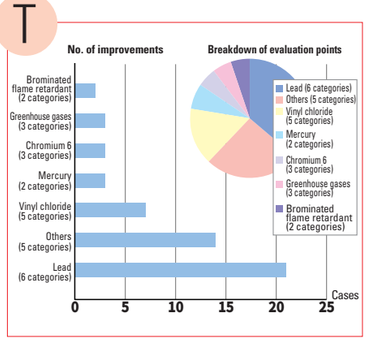


*2) One item counted here is related to information disclosure.

Manufacturing Process-related Activities

M
Resource Conservation/ Recycling, Waste Reduction

Our affiliated companies are active in a variety of businesses and thus generate many different types of waste. In order to gain ISO 14001 certification, they must be sincere in their pursuit of waste reduction. In fiscal 2000, total waste came to 41,500t and waste handled by waste treatment services was 9,900t, a 30% decrease from the previous year. A total of 31,300t of resources were recycled, an 11% increase over the previous year. Breaking down the types of materials consigned to waste treatment, waste plastic, slag, waste alkaline and waste paper were the four largest categories in that order.

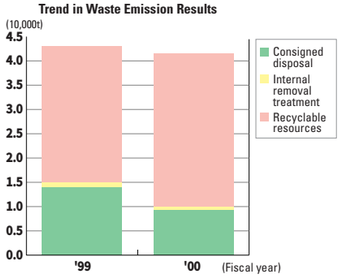
E
Prevention of Global Warming

The total CO_2 emissions from our affiliated companies in fiscal 2000 came to 220,000t-CO_2. Looking at energy use by source, electricity was the largest at 80%, while LPG (liquid petroleum gas) and oil (heavy (fuel) oils, etc.) represented 12 and 8%, respectively. Compared to the fiscal 1999 levels, use of heavy (fuel)oil decreased while electricity usage increased. In the future, plans are to continue efforts to switch to energy sources that place less burden on the environment.

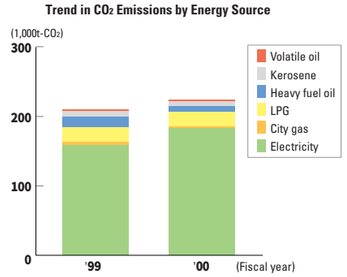
T
Chemical Substance Control

In fiscal 2000, our affiliated companies purchased a total of 3,110t of 49 chemical groups (52 different types). Compared to the fiscal 1999 levels, neither total amount nor release/transfer breakdown changed significantly. In fiscal 2000, emissions came to 21% of total substances purchased, with roughly half of the emissions being released into the atmosphere. Toluene and xylene group substances used in paint solvents made up 71% of the atmospheric emissions. From April 2001, all domestic affiliated companies ceased the use of organic chloride solvents that cause groundwater contamination.

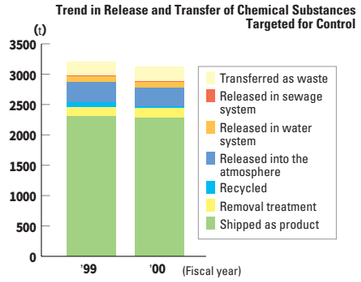
Trend in Waste Emission Results



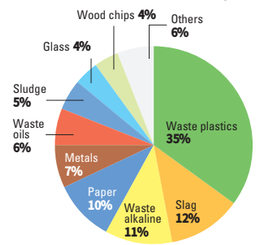
Trend in CO_2 Emissions by Energy Source



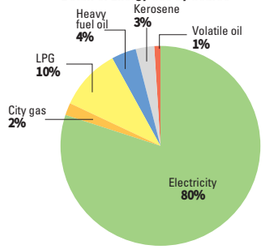
Trend in Release and Transfer of Chemical Substances Targeted for Control



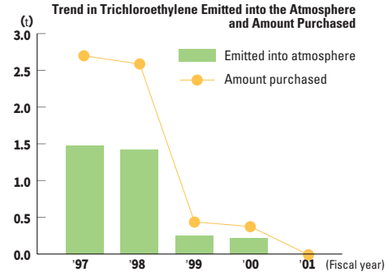
Detail of Waste Consigned to Disposal



Detail of Energy Use by Source



Trend in Trichloroethylene Emitted into the Atmosphere and Amount Purchased



Groundwater-related Activities

From fiscal 1999 to fiscal 2000, all affiliated companies conducted voluntary groundwater testing based on the then-Environmental Agency's Environmental Quality Standards for Soil/Groundwater Pollution. Companies that detected contamination in the test results reported the pollution to relevant authorities and proceeded with clean-up efforts.

Our affiliated companies have also set the goal of eliminating the use of organic chloride compounds, the major cause of groundwater pollution, by the end of fiscal 2000. The five companies that continued to use these substances moved ahead with substitution plans, and as a result, utilization of the substances was halted by the end of April 2001.

Elimination of Organic Chloride Compounds (Introduction of Device to Remove Oils without the Use of Organic Solvents)

Mitsubishi Electric METECS Co., Ltd.

Mitsubishi Electric METECS Co., Ltd. (METECS) produces copper alloys such as phosphor bronze and nickel silver used in connectors in electric products, lead frames, etc. In order to meet customer demand regarding the length and width of sheets made from these copper alloys, after melting and casting, METECS had to roll the material, subjecting it to repeated heat treatment. In order to attain pure surface quality, after the last rolling, the alloy was treated with an organic solvent of the chloride family and residual oils from the rolling mill were removed. In March 2001, METECS introduced new equipment enabling the use of a basic aqueous solution to remove the residual rolling mill oil. This enabled elimination of the use of organic chloride compounds while maintaining product quality.

New equipment to remove rolling mill oil

ISO 14001 Certification

In fiscal 2000, 14 sites of 14 domestic affiliated companies and 2 sites of 2 overseas affiliated companies received ISO 14001 certification. In total, 35 sites of 32 domestic affiliates and 10 sites of 10 overseas affiliates have received certification.

Certification Results of Plan-drafting Companies

Country	Company Name	Certification Date	Certifying Authority
Japan	Melco Technolex Co., Ltd., Headquarters	May 24, 2000	JACO※1
	Taku Electric Co., Ltd.	May 24, 2000	JACO
	Taku Industrial Corporation	August 9, 2000	JACO
	Sowa Technica, Inc.	October 6, 2000	JQA
	Shoryo Electronics Co., Ltd., Kamakura Factory	November 24, 2000	JACO
	SPC Electronics Corporation Shimada Factory*2	November 29, 2000	JACO
	Advanced Display Co., Ltd.,	December 27, 2000	JACO
	Koryo Electric Co., Ltd	January 24, 2001	JACO
	Sanwa Electric Co., Ltd.	March 9, 2001	JQA
	Mitsubishi Electric Systems Service Co., Ltd.	March 14, 2001	JACO
	Nihon Kentetsu Co., Ltd., Headquarters/Factory	March 16, 2001	JQA
	Mitsubishi Electric Micro-computer Application Software Co., Ltd., Headquarters	March 23, 2001	JQA
	Ryoden Electro Mechanics Corporation.	March 28, 2001	JACO
	Miyoshi Electronics Corporation, Hiroshima Headquarters	March 28, 2001	JACO
	Higashihama Recycle Center*3	April 18, 2001	JACO
China	Mitsubishi Electric Dalian Industrial Products Co., Ltd.	November 21, 2000	*4
Thailand	Mitsubishi Electric Consumer Product (Thailand) Co.,Ltd.	January 26, 2001	B.V.Q.I

*1) JACO:Japan Audit and Certification Organization for Environment and Quality; JQA:Japan Product Quality Assurance Organization; BVQI:Bureau Veritas Quality International
*2) SPC Electronics: Shimada Works is the second SPC Electronics site to receive certification.
*3) Higashihama Recycle Center is the general name for Hyper-Cycle Systems Co., Ltd. and Green-Cycle Systems Co., Ltd.
*4) China Quality Certification Center for Import and Export Commodities

Certification Results for Companies Other than Plan-drafting Companies

Country	Company Name	Certification Date	Certifying Authority
Japan	Mitsubishi Electric (China) Co., Ltd.	November 24, 2000	JACO
	Taiyo Musen Co., Ltd., Headquarters	March 9, 2001	JQA
	BCC Corporation	March 14, 2001	JACO
	Mitsubishi Electric Osram Co., Ltd.	March 19, 2001	JACO
	Mansei Electric Co., Ltd.	March 19, 2001	JACO

ISO 14001 Certification Mitsubishi Electric Systems Service Co., Ltd.

Mitsubishi Electric Systems Service Co., Ltd. received ISO 14001 certification at all 170 of its sites across Japan. This was in response to rising demand for a selection of environmentally friendly parts from companies conducting maintenance checks as a result of the enactment of laws such as the Home Appliance Recycling Law. Having eliminated the use of surface-active agents used in cleaning and packing materials that generate dioxins when incinerated, the company has established a system to select and utilize components and materials with low impact on the environment.

Major Awards Received in Fiscal 2000

Award	Company Name	Awarding Organization	In recognition of
Kyushu Bureau of Economy, Trade and Industry Chief's Prize for Excellence in Energy Management (one individual)	Nagasaki Ryoden Technica Co., Ltd.	The Energy Conservation Center	Perennial contribution to energy management
The Energy Conservation Center Tohoku Section Chief's Prize for Energy Management (one individual)	Mitsubishi Electric METECS Co., Ltd. (Joetsu Factory)	The Energy Conservation Center	Perennial contribution to energy management
The Energy Conservation Center Director's Prize for Energy Conservation	Mitsubishi Electric METECS Co., Ltd. (Joetsu Factory)	The Energy Conservation Center	Perennial contribution to energy management
The Energy Conservation Center Director's Prize for Energy Conservation	General Manufacturing and Technology Center, Mitsubishi Electric Building Techno-Service Co., Ltd.,	The Energy Conservation Center	Achievement of energy savings through continuous management and measurement
Chugoku Bureau of Economy, Trade and Industry Chief's Prize for Excellence in Energy Management at a Production Facility	Miyoshi Electronics Corporation	The Energy Conservation Center	Contributions to energy conservation through improvements in energy-using technologies
Kanto Bureau of Economy, Trade and Industry Chief's Prize for Excellence in Energy Management at a Production Facility	Nihon Injector Co., Ltd.	The Energy Conservation Center	Perennial contribution to energy management
Prize for Voluntary Pollution Prevention Management Activities	Nihon Injector Co., Ltd.	Kanagawa Prefecture Environmental Protection Association	Efforts to improve environmental protection
Award for Voluntary Waste Management Activities	Ryoden Electro Mechanics Corporation	Kanagawa Prefecture Environmental Protection Agricultural Bureau	Five years of contributions to voluntary waste reductions
Award for Superior Business Site Consuming Specific High-pressure Gas	Advanced Display Co., Ltd.	Kumamoto Prefecture High Pressure Gas Safety Association	Perennial contribution to securing safety in business sites consuming specific high-pressure gas
Environmental Agency Director's 2000 Westtech Grand Prize	Higashihama Recycle Center	Westtech Action Committee	Completion of the first domestic recycling plant in operation
2000 Prize for Superior Advanced Site	Higashihama Recycle Center	Nihon Keizai Shimbun Co., Ltd.	Completion of the first domestic recycling plant in operation

Examples of Affiliated Companies' Environmental Activities

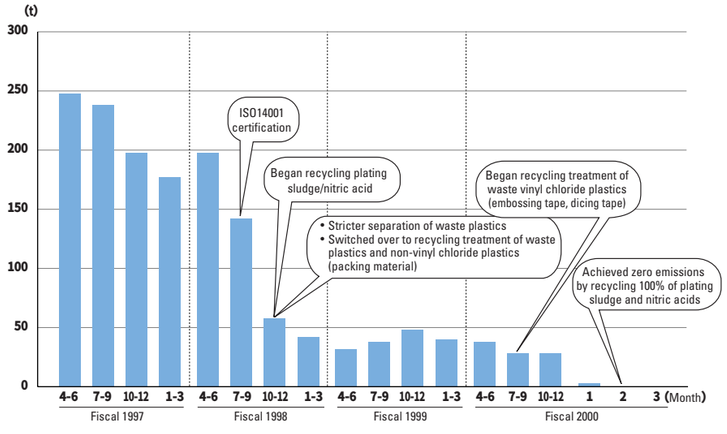
M

Achieving Zero Emissions

Mitsubishi Electric Kumamoto Semiconductor

Mitsubishi Electric Kumamoto Semiconductor, together with six partners, received ISO 14001 certification in July 1998 and achieved "zero emissions" (100% resource reuse rate for industrial waste) in February 2001. Beginning with the setting up of a waste collection area, the company then established strict waste collection and separation, a waste measurement system, and finally a recycling certification system. In July 2000, the company began providing its waste plastic (embossing tape, dicing tape, etc.) to the steel industry as starter material for electric furnaces and other residual plastics as material for roadbed construction. In January 2001, the company began treating nitric acid, fluoride plating liquid, and wastewater from the plating process and reused this liquid as cooling water for incinerators. In addition, lead is recovered from inorganic sludge and reused as basic material for pellets by steel companies. As a result of these efforts, the factory has achieved a 100% resource reuse rate. For the future, in addition to maintaining zero emissions, the factory is also working to reduce the total emissions of industrial waste.

Mitsubishi Electric Kumamoto Semiconductor Zero Emission Activities



E

Introduction of Micro-gas Turbine Co-generation System

Mitsubishi Electric Osram Co., Ltd.

At the Kakegawa Factory of Mitsubishi Electric Osram, employees have united in energy conservation activities, an important part of the plant's environmental management system. As a result, the factory has achieved a 30% reduction in CO_2 emissions per lamp produced (compared to the 1993 level). In fiscal 2000, the factory introduced a micro-gas turbine co-generation system with the aim of reducing CO_2 emissions through improved energy efficiency. This system, which has a maximum output of 28kW, is capable of recovering 47Mcal/hr of thermal energy and improves energy efficiency by a maximum of 75%. Japan's first LPG model, the system, which internalizes the heat recovery equipment, is compact, low-noise and low-vibration. The power generated can be used to light busy production lines, and the system produces sufficient heat to meet the demands of kitchens, baths, etc. during high modes of operation.

Micro-gas turbine co-generation system installed at OSRAM-MELCO Co., Ltd.

T

Steam Boiler Drain Water pH*5 Neutralizer

Toyo Takasago Dry Battery Co., Ltd.

Toyo Takasago Dry Battery received ISO 14001 certification in November 1998. In November 2000, the company installed a pH neutralizer when sewage water testing revealed pH readings below but close to the regulation level, even though overall water quality was found to be acceptable. The introduced device reduced the pH level from 8.5 to less than 7.5. In addition, the company began recycling rubber (20t), paper and cardboard (10.2t), and wood (5.7t), which were previously discarded as waste. Promoting the use of recycled materials, the company is utilizing recycled material in its TPU (thermoplastic polyurethane) resin (0.8t, recyclable resource percentage of 3.3%).

pH neutralizer installed by Toyo Takasago Dry Battery.

*5) pH: potential of hydrogen. High pH values reflect alkalinity.

Environment-related Business

In addition to the numerous activities that focus on reducing environmental impact, Mitsubishi Electric is active in environment-related businesses. We believe that the know-how gained from our activities to lessen environmental burden and our efforts to commercialize newly developed environmentally friendly technologies can support the environmental policies of our customers as well. Here, we introduce topics in our environment-related businesses for fiscal 2000.

E

Compact, High-performance Photovoltaic Power Generation System

This system supplies power through the conversion of DC (direct-current) power generated by solar cells into AC (alternating current) power. As a new energy source, this system is not only environmentally friendly, in combination with a storage cell it can also function as an emergency power supply during times of natural disaster. We have marketed various systems including one for residential homes, one for use in public buildings such as schools and community centers and one for use in factories and offices, among others. With these new systems, we have improved the basic functionality of the solar cell module and expanded the variations available.

The PV-MY075A roofing material-type photovoltaic battery module blends in with surrounding roofing material so that the modules can go undetected on the roofs where they are mounted. With module miniaturization and the freedom provided by a versatile positioning method, a 4.20kW system can be mounted on a roof that could previously only support a 3.02kW system. Installation time has been shortened through the use of a mounting method in which a stand is not required.

M

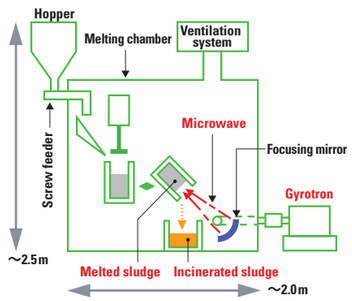
Avoiding Residual Plastics Waste with Electrostatic Separation

Although residual plastics generated in the recycling process can be used in materials recycling and as blast furnace reductant, this is not feasible if vinyl chloride is mixed into the plastic. An electrostatic separation device can sort materials using a dry process in the place of the conventional wet separation process that utilizes liquid densities. Capable of removing 99.9% of metal and vinyl chlorides and improving material purity by accurately separating 95% of the subject plastics, the system enables the recovery of 99% of recyclable plastics. With a processing capacity of 400kg/hr, the unit is also capable of continuous operation.

Electrostatic plastic separation device

Ultracompact Incinerator Ash-melting System with Resource-saving Design

This incinerator ash-melting system, which reaches the melting point rapidly through the use of high-power density radiation, breaks down dioxins. Its special characteristics include a resource-saving, compact design, elimination of the need for exhaust treatment since burning is not involved, and ease of maintenance. The system has a processing capacity of 100kg of incinerator ash per day (list capacity), and its volume has been reduced to one-fourth of its original size.



Ultracompact incinerator ash-melting system

Environmental Information Management Service

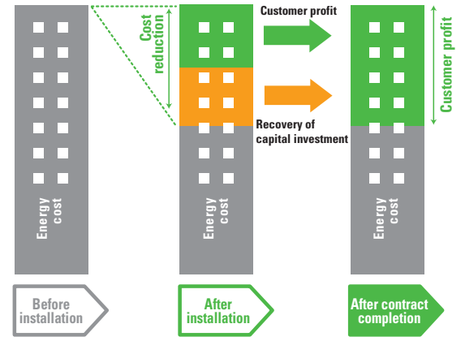
The Diamond Solution Plaza has begun ASP (application service provider) operations that allow the easy incorporation of the electronic "manifest" developed by the Japan Waste Network with a client's individual waste management database. Using the Environmental Information Management Service, which contains the manifest data, customers can improve administrative efficiency by communicating with registered waste transport and disposal service providers electronically. The service has been updated to handle changes made to the "Waste Management Law" enacted on April 1, 2001.

E

ESS (Energy Solution Service) - Applying Energy-saving Know-how to Business

Mitsubishi Electric is developing an ESS that realizes energy-saving and cost-cutting measures without sacrificing comfort or convenience. This is being done by fusing information technologies (IT) with developments like highly efficient co-generation systems, miniature micro-gas turbines that can be positioned in dispersed patterns, and various other power generation systems (e.g., fuel cell, photovoltaic, wind power). Mitsubishi Electric guarantees cost reductions, and since the savings recovers capital investment costs, there is no need for further investment on the customer's part during the early stages of the service agreement. Our integrated consulting service also frees customers from bothersome work related to installation and operation, such as the initial energy conservation inspection and follow-up activities. This service also has the environmental merit of advancing energy conservation policies at more companies. In September 2000, we began the operation of an ESS verification plant that serves as a storage facility for all types of related data and know-how (see page 30) at our Transmission & Distribution, Transportation Systems Center.

ESS Administration System



T

Eco-process that Limits Environmental Impact to 1/10 Conventional Burden

Large quantities of specialized chemicals are used for the cleaning and resist (light-sensitive resin) removal processes during the manufacture of semiconductors and liquid-crystal displays (LCDs). We have developed a new method of removing resist through the hydrolysis that is caused when highly concentrated ozone gas*1 (including water saturation) is sprayed on circuit boards. This process has been commercialized in the manufacture of our LCDs*2. By not using chemical baths, we can reduce the environmental impact of the production process to below one-tenth and operating costs to one-fifth of their original levels. Since this allows us to simplify the cleaning process, it was possible to reduce the floor space required for the production line. We expect this technique to be applied to circuit board manufacture in other fields as well.

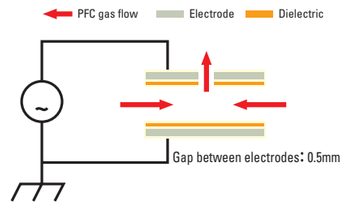
*1) Utilizing its oxidizing properties, ozone deodorizes, disinfects, and bleaches. It then turns to oxygen, generating no other by-products.

*2) We have realized an operational speed of 1 μm/min for the LCD resist removal technique. This is 10 times faster than conventional resist removal applications.

PFC (perfluorocarbon) Gas Neutralizer for Neutralizing Greenhouse Gases

Fluoride gases such as PFC (e.g., CF_4, C_2F_6) HFC, SF_6 and NF_3 are widely used for dry etching and cleaning production equipment in semiconductor manufacturing processes. As PFC is designated as a greenhouse gas, Mitsubishi Electric is working on ways to reduce the use of, create a substitute for and recover/recycle this gas (see page 31). We are currently studying the introduction of a PFC neutralizer and commercialization of the technology. This device utilizes a discharge breakdown method under atmospheric pressure and there is no combustion involved, thus the generation of NOx is limited. With few parts being subject to wear, maintenance is easy. In addition, as the use of heating is unnecessary, the resultant ability to respond instantly to starts and stops on the production line lowers operating costs.

"hi-ECO" resist removal system



PFC gas neutralization system

Education and Social Activities

Improving employee awareness about the environment is indispensable to corporate efforts for creating environmentally friendly products and operations.
Mitsubishi Electric is promoting technological education through technology seminars as one means of realizing the creation of environmentally friendly products. Additionally, we broadcast seminars via satellite to impart basic knowledge of environmental problems to all employees.

Employee Education

Mitsubishi Electric conducts the following programs to educate employees regarding the environment.

Technology Committee

In 1997, we established the Environmental Engineers' Society a group created to promote the voluntary development and storage of environmental technologies through employee interaction. The society is also working to strengthen the company's technological efforts such as Design for the Environment (DFE).

Mitsubishi Electric Technology Seminars

The company holds a variety of technical seminars ranging from lectures for trainees by guest speakers at training facilities to in-house satellite broadcasting of lectures company-wide. In addition to themes like ISO 14001, among others, seminars focusing on DFE began in 1997 (see page 18 for details).

Satellite-based lecture

Lectures via Satellite Broadcast

Utilizing a satellite communications system has increased the effectiveness of giving lectures by enabling us to reach an increasingly larger number of employees. Communication links connecting many locations allow interactive, informative discussions between lecturers and trainees

Mitsubishi Business Seminars MBS Courses

On Environment Day (June 5th) every year, a program entitled "Mitsubishi Electric's Concept for the Environment - A Challenge for the Future" is broadcast throughout company sites in Japan via an internal satellite communication network.

Regional Activities

Mitsubishi Electric has sites in every region of Japan and we are participating in various regional activities designed to deepen environmentally themed exchanges with local citizens. A few of these activities are introduced below.

Participation in Shizuoka Prefecture Environmental/ Social Welfare/Technology Fair

The Shizuoka Works participated in the Shizuoka Prefecture Environmental /Social Welfare and Technology Fair that was held over three days beginning on November 23, 2000. Based on the concept of "Harmonizing the environment, social welfare and technology," the fair offered proposals for fostering personal lives and societies that are friendly to the environment through universal designs and environmental considerations. Beginning from the 1st Environmental Fair, the Shizuoka Works has exhibited environmentally friendly air-conditioners and refrigerators.


Recycle Fair Exhibition Booth

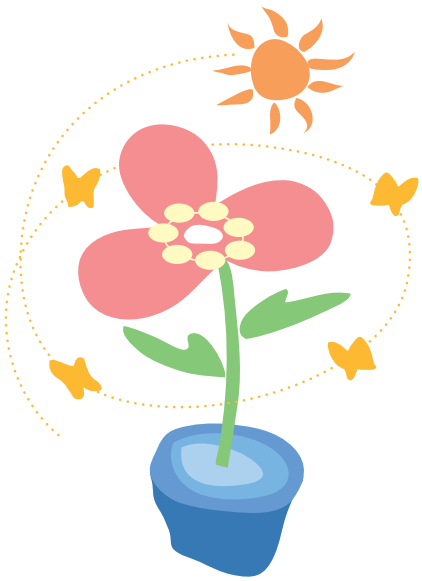
Participation in Recycling Fair

The Kitaitami Administration Center participated in the "Recycling Fair" held at Itami's Koyaike Park on October 14, 2000. The Semiconductor Division exhibited reusable tube trays, recyclable isopropyl alcohol and calcium fluoride sludge.

Roadside Cleanup by Factory

The employees of the Nagoya Works are involved in cleaning activities that emphasize the importance of living together with the Earth. In addition to cleaning a 1km stretch of walkway everyday, ten times a year, employees volunteer to pick up trash at the nearby Nagoya Dome on mornings following professional baseball games. In recognition for these steady activities, Nagoya City awarded the works the Nagoya City Award for Distinguished Efforts in Road Care Management in August 2000.


Employee during clean-up activities



Environment-related Education

Company-wide Activities	Individual/Site Activities
● Technology subcommittees ● Technology seminars Lectures via satellite broadcast General training MBS (Mitsubishi Business Seminar) courses ● Sales courses	● Development of managerial staff responsible for anti-pollution and energy issues ● Education of internal auditors ● Separate training New employees, group leaders ● Training for new managers, new supervisors, newly appointed department heads, new section managers, and new group leaders

Environmental Communication Activities

Mitsubishi Electric has issued an environmental report annually since 1998 for the purpose of informing the public about the environmental activities of the Mitsubishi Electric Group.
We recently began expanding our communication activities, including a briefing on the environmental report and participating in various exhibitions.

Environmental Communication

Publication of Annual Environmental sustainability Report

An environmental sustainability report is published annually in both Japanese and English. The report, concentrating on the company's Environmental Plan, also introduces various corporate activities related to the environment. The corporate website also includes information about our environmental activities.

Environmental Sustainability Report for Fiscal 2000

Environmental Sustainability Report website
http://www.melco.co.jp/kankyo/kankyo_e/

Semiconductor Division Issues Its Own Environmental Report

We are promoting information disclosure, not only at the Mitsubishi Electric Group level, but also at the business group and individual site levels.

Semiconductor Division
Environmental Report for Fiscal 2000

Environmental Report Briefing

On June 30, 2000, Mitsubishi Electric held a briefing on the 1999 environmental report for members of the press and representatives from non-governmental agencies, etc. In addition to providing an overall outline of the document, presenters reported on individual activities. The assembly of individuals from various sectors of society produced a wide range of questions. Although this was a first-time experience for the Mitsubishi Electric Group, a favorable reception was received from those who attended. It is planned to continue this event in the future as part of expanding our environmental communication activities.

Briefing on the environmental report

Eco-Products 2000 Exhibition

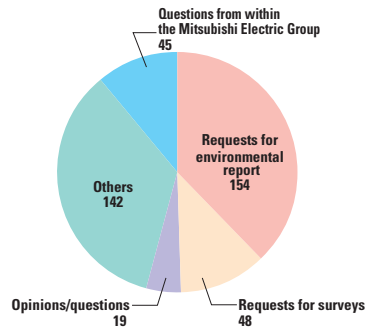
Mitsubishi Electric has participated in "Eco-Products," a trade show designed to raise the environmental awareness of manufacturers and consumers and to promote the spread of "eco-products" (environmental consious products) since December 1999. At Eco-Products 2000 (December 14-16, 2000), we exhibited our efforts related to the recycling of home appllances and the DFE activities of the Mitsubishi Electric Group.

Mitsubishi Electric's booth at Eco-Products 2000

Opinion Mailbox Created

We set up an e-mail address (eqd.eco@hq.melco.co.jp) to receive opinions about our environmental activities from both inside and outside the company. Most of the messages received so far have been requests for copies of our environmental report. As of this writing, we have also received 67 messages regarding requests for Mitsubishi Electric surveys and questions about products.

E-mail Questions Total: 408 (Fiscal 2000)



Towards Drafting the Next Report...

Last year, among the opinions regarding the environmental report we received by e-mail and facsimile, there were numerous comments to the effect that "there's too much text" and "the lettering is too small." In this year's report, we used larger fonts, made efforts to simplify the writing, and used more charts and graphs than in last year's report. In addition, beginning this year, we expanded the information disclosed on the corporate website in parallel with the printed version of the environmental report. Readers may view detailed data on the website, while the data included in the printed edition has been kept to the minimum necessary to show the overall picture of our environmental activities. The numerical data featured in the environmental report has been verified by and is the sole responsibility of Mitsubishi Electric Corporation. It was decided not to incorporate opinion statements from outside the company. This decision was based on our belief that, under the current system of voluntary disclosure, establishing clear responsibility for the veracity of report data with the issuer is the most important factor.
This is the fourth report issued since 1998. In order to harmonize the business management cycle (fiscal year: April-March) with the environmental management cycle, we begin gathering and analyzing reports from business sites and affiliated companies in March each year and issue the report in June. The next report is scheduled for issue in June 2002.

Efforts to Improve the Environmental Sustainability Report

Mitsubishi Electric incorporates the opinions expressed by people who read the previous year's report into new reports.
This year, we have gathered experts involved in the environmental field and asked their opinions regarding what our environmental report should be as well as what is expected from our environmental activities. Below is an excerpt from a 2-hour discussion regarding our environmental report at the headquarters of Mitsubishi Electric Corporation on February 7, 2001.
(A complete version will be posted on the corporate website at a later date.)

[Participants]
Mr. Itaru Yasui, Professor, Production Technology Research Center, University of Tokyo
Mr. Masaru Nakagawa, Assistant Manager, Environmental Management Promotion Department, Japan Management Association
Ms. Toshie Inoue, Manager, Environmental Audit Department, Chuo Aoyama Audit Corporation
Mr. Ikuo Sugimoto, Chief Coordinator, Environmental Citizen Group
Mr. Wataru Minami, Managing Director, LCA Applied Technology Research Center/Graduate Student, Toyohashi Technology University

A More User-friendly Environmental Report

It has been pointed out that our 2000 report "has an abundance of good information, but is not easy to read" and is "difficult for the average person to understand." Mr. Minami commented, "You will probably distribute this report to job seeking college students, but I wouldn't want to have to read something this thick. (laugh) Please create a report that maintains a level of detail but has fewer pages and is easier to read."

This year, we have organized the information systematically and created headers on each page summarizing the goals of each activity. However, we still need to work on the problem of the information being too specialized since many products are industrial equipment.
Mr. Yasui pointed out that, "If Mitsubishi Electric's position was indicated relative to other companies' positions in the electric industry, the listed data would be easier to understand." Currently, it is difficult to compare our efforts with other company's efforts, but we will bear this issue in mind.
Mr. Sugimoto pointed out that, "Even though the report uses 100% recycled paper, because of the whiteness of the paper, it looks too luxurious." Starting with the 2001 report, we will use 70% whiteness, 100% recycled paper.

Ms. Inoue rated our "explicit disclosure of groundwater pollution" quite highly. We will continue to disclose as much information (even negative information) regarding groundwater pollution.

Does Our Environmental Report Have Personality?

Mr. Nakagawa, who through his work reads other companies' reports, answered, "I'd like to read something more interesting." Mr. Yasui also suggested, "In addition to improving the style of the current report, what about developing a unique style?"

We have noticed that the role of environmental reports is shifting from an information disclosure tool to a communication tool. We believe that we can also use the report more as a communication tool if we can incorporate our views regarding what should be done for the environment. We believe that people want to know the everyday efforts of each individual employee's environmental protection activities.

Dilemma of Using Forest Resources in Printing the Report

Mr. Nakagawa pointed out, "Is it even necessary to distribute the environmental report using valuable forest resources?" We have also received opinions such as "It's wasteful to use so much paper and such high-quality paper. Some people will argue that it is bad for the environment. Future environmental reports should be distributed electronically and information printed on paper should be limited to the most important information. Printed reports should be given to people that are interested in the environment or Mitsubishi Electric." In this regard, we believe that it is an issue that needs to be actively pursued since information technology (IT) is one of our operations. Mitsubishi Electric is making every effort to continue to provide a valuable environmental report. Please send us your opinions and requests using the attached survey sheet or by email.

Questionaire Mailing Address:

Corporate Environmental
Management Planning Department
Mitsubishi Electric Corporation
Mitsubishi Electric Building
2-2-3 Marunouchi, Chiyoda-ku,
Tokyo 100-8310, Japan
Int'l Fax: 81-3-3218-2465
E-mail: eqd.eco@hq.melco.co.jp

For Your Information

Safety Measures regarding the Use of PCB (polychlorinated biphenyl) in Ballast Devices for Industrial/Commercial Fluorescent Lighting

In Japan, the production of ballast devices that use PCB for industrial/commercial fluorescent lighting was terminated in 1972, yet some facilities continue to use them.
Last fall, there was an incident where a ballast device using PCB exploded because it was being used beyond its lifecycle capacity. Due to this accident, the Japan Lighting Industry Association began a "PCB Lighting Equipment Check & Change Movement" to facilitate and advocate information disclosure and information exchange. Mitsubishi Electric Lighting Corporation is actively participating in this movement through its public relations activities, providing information to teacher's associations and personnel involved in the installation, distribution and retail of lighting equipment at all levels across the nation.
Lighting devices with PCB ballast devices include industrial/commercial fluorescent lighting equipment, mercury lighting equipment, and sodium vapor light equipment produced between 1957 and 1972. The model names of the applicable equipment can be found on the website of Mitsubishi Electric Lighting Corporation. Please note that PCB is not used in household fluorescent lighting fixtures since the production process differs from industrial/commercial lighting.

For further questions, please contact:
Mitsubishi Electric Lighting Corporation, Lighting Technology Center
Tel: 0120-384-027 (toll free within Japan)
Homepage: http://www.lsg.melco.co.jp/mlf/ (in Japanese)

Collection and Recycling of Used Computers*1

Mitsubishi Electric Information Technology Corporation has joined forces with Green Cycle Systems Co., Ltd. of the Mitsubishi Electric Group and four other recycling companies in Japan to create a collection and recycling system for used computers. We are currently developing a system where recyclable parts are utilized as spare components and the remaining material is crushed, separated and processed through material or thermal recycling, thereby nearly eliminating the need for landfill disposal.

For further questions, please contact:
Diamond PC Corporation, Information Processing Systems Recycle Center
Int'l Tel: 81-3-5487-4639 (Japan time zone: 9:00-17:00, closed Sat/Sun/Holidays)
Int'l Fax: 81-5487-4852
Homepage: http://www.diapc.co.jp/user/solution/diarcs/recycle.html (in Japanese)

Collection & Recycling of Small Auxiliary Batteries

Mitsubishi Electric is participating in the creation of a sustainable society through partnerships with battery manufacturers. We are working together to establish processing facilities and appropriate treatment for used small auxiliary batteries (e.g., nickel-cadmium, nickel-hydrogen, lithium, small capsule-type lead storage) used in our products after they are collected at the Small Auxiliary Battery Center*2.

For further questions, please contact:
Mitsubishi Electric Corporation, Corporate Environmental Management Planning Department
Int'l Tel: 81-3-3218-9024
Int'l Fax: 81-3-3218-2465
Homepage: http://www.melco.co.jp/kankyo/battery/ (in Japanese)
E-mail: eqd.eco@hq.melco.co.jp

*1) We are preparing to obtain a license based on relevant laws (Law for Promotion of Efficient Use of Resources, enacted April 1, 2001) in our operation of used computer voluntary collection systems.
*2) The Battery Association of Japan established this used auxiliary battery recycling center on April 1, 2001.