Environmental Sustainability Report 2002

Changes for the Better

MITSUBISHI ELECTRIC

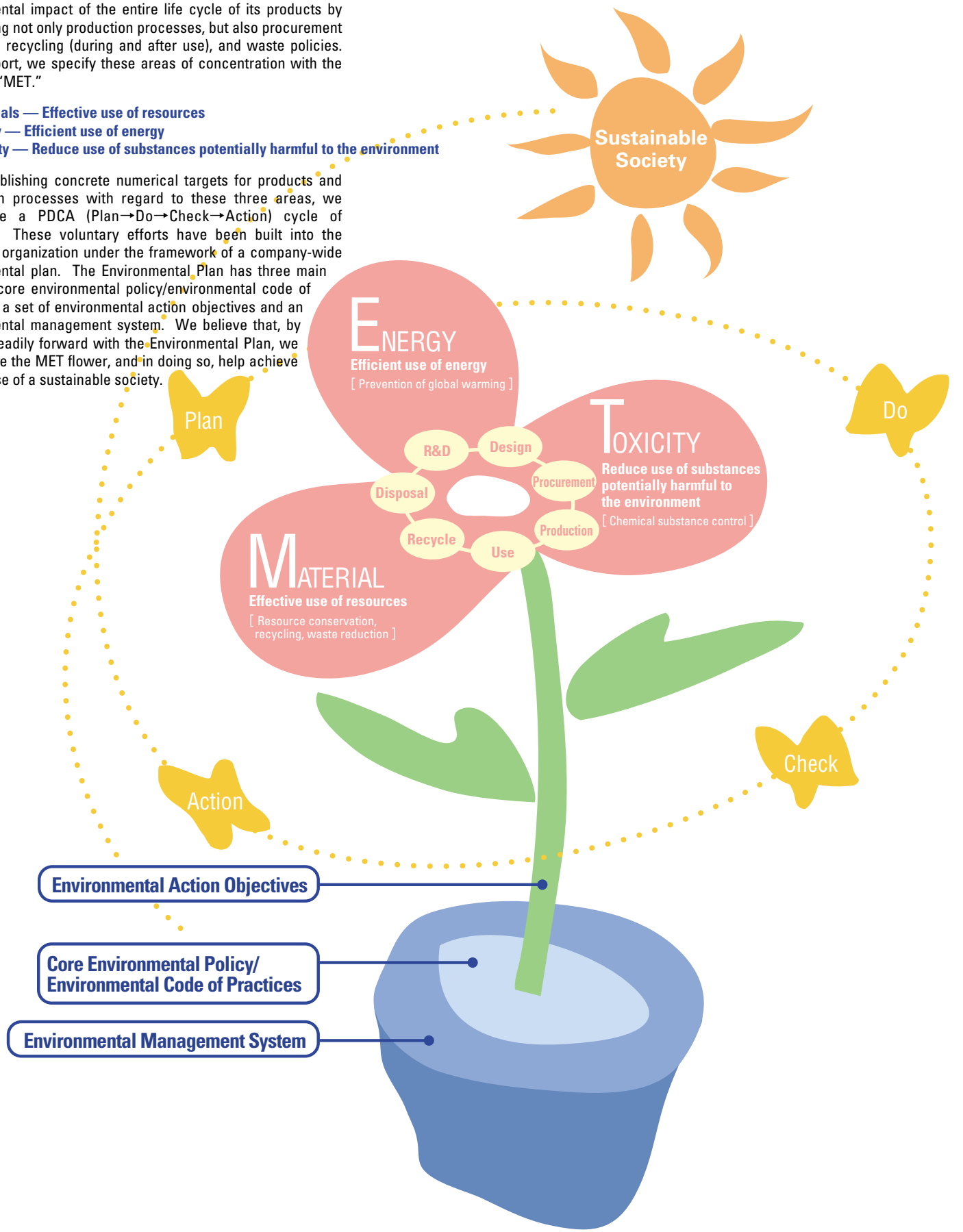
C O N T E N T S

Addressing Environmental Matters…
The "MET" flower symbolizes the blooming of innovative measures that contribute to global environmental management.

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 — Reduce use of substances potentially harmful to the environment

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 policy/environmental code of practices, a set of environmental action objectives and an environmental management system. We believe that, by moving steadily forward with the Environmental Plan, we will nurture the MET flower, and in doing so, help achieve the promise of a sustainable society.



Core Environmental Policy

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 yet to be developed.

Environmental Plan

The basic structure of the Mitsubishi Electric Group in actively promoting volunteer activities and making contributions to the environment through business operations

Tangible numerical targets for activities to reduce negative environmental impact

Constructed to uphold the core policy and achieve action objectives

Environmental Code of Practices

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.

Cooperative Creation - Ensuring the Development of a Sustainable Society

Entering the 21st century, people around the world began expressing the common recognition that a socio-economic system capable of progressing harmoniously without causing harm to the global eco-system is indispensable. The desire to create a "sustainable society," a social system where negative impact on the natural environment is minimized to the furthest possible extent and limited resources are utilized more effectively, has led to the planning and implementation of a multitude of projects throughout the globe. The Mitsubishi Electric Group is contributing towards the realization of a truly sustainable society in the 21st century through the promotion of environmentally safe business operations and the manufacture of products and systems that utilize original, state-of-the-art solutions and technologies.

Maintaining the group's initial stance of systemizing and promoting independent projects that result in improvements to the environment and answers to related problems, as stated in the corporate "Environmental Plan" introduced in 1993, we are committed to the promotion of global environmental protection without compromise. Among other things, every member of the group is striving to ensure the effective utilization of resources and energy in manufacturing processes, products and administrative activities and the reduction or abolition of substances harmful to the environment. To date, our operations have made positive contributions to the realization of a sustainable society, such as the development of technologies that led to our entry into business areas such as high-density ozonizer systems, photovoltaic power generation systems, fuel cell systems and environmental management systems for factories and commercial operations.

A new corporate statement, "Changes for the Better," was introduced in 2001 as a part of the Mitsubishi Electric Group's resolve to "Reform for the purpose of continual improvement." This is a reflection of our commitment to manufacture products with originality, high added value and minimal environmental impact.

To achieve this, although we have made and continue to make great advancements in product development and manufacturing process technologies, we are determined to raise our standards even higher, and have thus introduced a new "Factor X," an index that indicates the degree of improvement in eco-efficiency. We are aware that it is our duty as a company and as a member of society to steadily improve Factor X in every product of every business group, utilizing means like evolving product recycling tendencies and designs that better conform to current environmental circumstances.

In the Environmental Sustainability Report 2002, information on, and the results of, the environmental protection efforts made by the Mitsubishi Electric Group in fiscal year 2001 are reported. In order to actualize a sustainable society within today's rapidly changing socio-economic environment, change must be recognized in advance of its occurrence so that we may consider the optimum countermeasures, and then we must implement them without hesitation.

The Mitsubishi Electric Group gives wholehearted consideration to all elements, customers, stockholders, suppliers, employees and society, and strives to obtain their full understanding and support so that it can work together with them to provide cooperative creation that will ensure the development of a sustainable society.

President and CEO

T. Nomakuchi

Corporate Profile

Editorial Policy

This report is a compilation of the environmental activities conducted by the Mitsubishi Electric Group in fiscal 2001 in accordance with the "Environmental Reporting Guidelines" prepared by the Ministry of the Environment in Japan. As with last year's report, this year we have divided the report into four sections that explain the Company's environmental management polices, actions to reduce the negative environmental impact of products, actions to reduce the negative environmental impact of production processes and other miscellaneous environmentally related articles.
An attempt has been made to make descriptions and page layouts more reader friendly, including the addition of an environmental activities digest in the form of the "Fiscal 2001 Environmental Activities Highlights" section (pages 9-10) and a list of the proper names for laws mentioned in this report (page 26). We hope that you find this year's report informative, and look forward to your candid comment and opinions.

Report Coverage

Period: April 1, 2001 ～ March 31, 2002
Companies: Mitsubishi Electric Corporation and 83 domestic and overseas affiliated companies (67 domestic, 16 overseas)

○Mitsubishi Electric Building Techno-Service Co., Ltd.
Kodensha Co., Ltd.
Mitsubishi Electric Engineering Co., Ltd.
Kita Kodensha Corp.
Mitsubishi Electric System & Service Co., Ltd.
Mitsubishi Electric Control Software Co., Ltd.
Ryoden Kouki Engineering Co., Ltd.
Mitsubishi Electric Micro-Computer Application Software Co., Ltd.
Mitsubishi Electric Mechatronics Software Corp.
Ryoden Semiconductor System Engineering Co., Ltd.
Fukuryo Semiconductor Engineering Co., Ltd.
BCC Corp.
○Advanced Display Inc.
○SPC Electronics Corp.
○Mitsubishi Precision Co., Ltd.
OSRAM-MELCO Ltd.
Nippon Injector Corp.
○Mitsubishi Electric METECS Co., Ltd.
Nihon Kentetsu Co., Ltd.
Toyo Takasago Dry Battery Co., Ltd.
○Mitsubishi Electric Logistics Support Co.,Ltd.
○Mitsubishi Electric Lighting Corp.
○Mitsubishi Electric Home Appliance Co., Ltd.
Miyoshi Electronics Corp.
○Ryoden Asahi Technica Co., Ltd.
○Soryo Electronic Devices Corp.
○Tada Electric Co., Ltd.
○Mitsubishi Electric Kumamoto Semiconductor Corp.
○Mitsubishi Electric Nagano Semiconductor Corp.
○Toyo Electric Co., Ltd.
○Ryosan Industry Corp.
○Ryoden Kasei Co., Ltd.
Mitsubishi Electric Documentex Co., Ltd.
○Nakayama Kikai Co., Ltd.
Ryohoku Electronics Corp.
○Ryoden Electro Mechanics Corp.
○Koryo Electric Co., Ltd.
○Koshin Electric Co., Ltd.
Seiryo Technica Co., Ltd.
MELCO Mechatronics System Engineering Corp.
○Sanwa Electric Co., Ltd.
○DB Seiko Co., Ltd.
Choryo Media Inc.
○Taku Electric Co., Ltd.
Nagasaki Ryoden Technica Co., Ltd.
Meiryo Technica Corp.
○Shoryo Electronics Corp.
○Sowa Technica, Inc.
○Toyo Engineering Co., Ltd.
○Ryosai Technica Co., Ltd.
MELCO Airtech Corp.
Himeryo Technica Co., Ltd.
Inaryo Technica Co., Ltd.
Ryoma Technica Co., Ltd.
Sanryo Technica Co., Ltd.
Tsuryo Technica Corp.
Uemori Denki Co., Ltd.
Waryo Technica Co., Ltd.
Rakuryo Technica Co., Ltd.
Ryoei Technica Co., Ltd.
Setsuryo Technica Co., Ltd.
Churyokouki Technica Co., Ltd.
○Melco Technolex Co., Ltd.
Mitsubishi Electric Life Service Corp.
○Mitsubishi Electric Logistics Corp.
Hyper Cycle Systems Co., Ltd.
○Ryoden Elevator Construction Co., Ltd.
(Circle denotes 30 companies included in environ-mental accounting.)

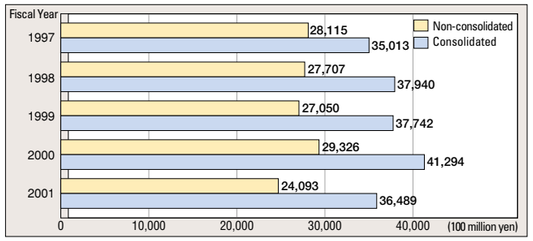
○Mitsubishi Electric Automation, Inc. (US)
○Mitsubishi Electric Automotive America, Inc. (US)
○Mitsubishi Electric Power Products, Inc. (US)
○Melco de Mexico S.A. de C.V. (Mexico)
○Mitsubishi Electric Air Conditioning Systems Europe Ltd. (UK)
○Mitsubishi Electric Telecom Europe S.A. (France)
○Mitsubishi 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 14 companies included in environmental accounting.)

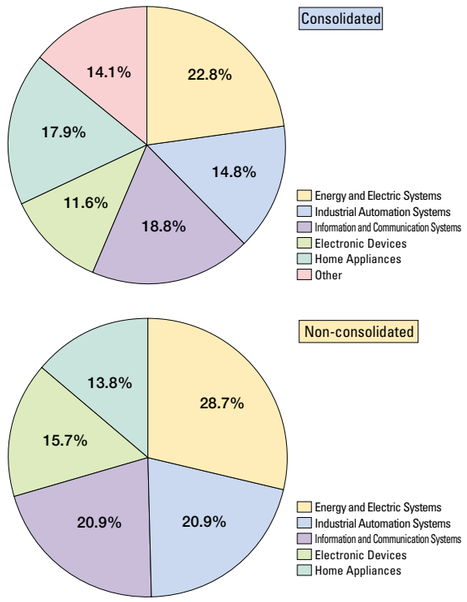
Company Outline (as of March 31, 2002)

Name:	Mitsubishi Electric Corporation
Head Office:	Mitsubishi Denki Building, 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:	116,192 (consolidated)
	38,363 (non-consolidated)
Sales:	3.6489 trillion yen (consolidated)
	2.4093 trillion yen (non-consolidated)

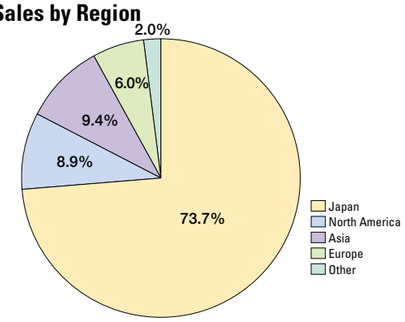
Sales



Sales by Division



Sales by Region



Energy and Electric Systems

Turbine generators, water-wheel generators, nuclear-power equipment, electric motors, transformers, power electronics equipment, gas circuit breakers, gas insulated switchgears, switchgears, supervisory control and protection systems, transportation equipment, elevators and escalators, others

Image Information Network System Train Vision
Contributing to better passenger service with high-resolution LCDs

Industrial Automation Systems

Programmable controllers, inverters, servo motors, factory automation systems, electric motors, hoists, electro-magnetic circuit breakers, no-fuse breakers, earth leakage breakers, distribution transformers, electric meters, industrial sewing machines, computerized numerical controllers, electrical-discharge and laser-processing machines, industrial robots, car audio, car navigation, electrical automotive equipment, engine management systems, clutches, others

DVD Car Navigation System CU-V7000RVP
Enjoy movies and live performances as well as games and other entertainment using Java™ Technology*.
*Java™ Technology: Java is the name of an application program (registered trademark of Sun Microsystems, Inc., of the United States of America).

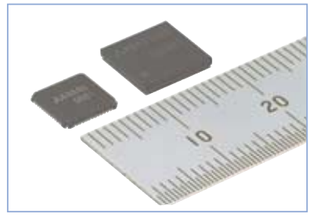
Information and Communication Systems

Wireless communication equipment, mobile handsets, wire communication equipment, satellite communication equipment, satellites, radar equipment, antennas, defense equipment, ultrasonic inspection meters, medical electronic equipment, broadcasting equipment, data transmission equipment, mainframe computers, servers, office computers, personal and mobile computers, peripheral devices, others

FOMA* D2101V
Leading the world with third-generation service capability and real-time 2-way communications.
*FOMA is a registered trademark of NTT DoCoMo of Japan.

Electronic Devices

Memory ICs (DRAMs, SRAMs, non-volatile memory), logic ICs (MCUs, system LSIs, ASICs), display monitors, CRTs, plasma displays, LCD devices, printed-circuit boards, others



High-performance LSIs
Bluetooth™* Chip Set
Enables wireless data exchange between computers, home appliances, mobile telephones, etc.
*Bluetooth™ is a registered trademark of Bluetooth SIG, Inc., of the United States of America.

Home Appliances

Color televisions, projection televisions, video projectors, VCRs, room air conditioners, package air conditioners, refrigerators, fan heaters, electric fans, washing machines, ventilators, photovoltaic power generating systems, electric water heaters, fluorescent lamps, lighting fixtures, compressors, freezers, humidifiers, dehumidifiers, air purifiers, air conditioning systems, commercial refrigeration units, vacuum cleaners, microwaves, others

Room Air-Conditioner
Comfort Sensor - Kirigamine
Sensors maintain the desired temperature with automatic heating and cooling for year-round comfort.

Others

Finance, distribution, real estate, advertising, material procurement and other services, materials, others

Factory and Building Automation System
SA1
Web browser-based remote monitoring and control of electric power usage conditions and facilities operations in factories or buildings.

Outline of Corporate Environmental Management

The basic polices and measures taken by the Mitsubishi Electric Group regarding environmental problems are finalized in management meetings in the presence of the Environmental Director, and are then relayed to the environmental managers at the Environmental Manager's Meeting for implementation throughout each business group.

Organization for Corporate Environmental Management

Corporate Environmental Management Planning Department

The Corporate Environmental Management Planning Department works with the environmental managers of each business group and business site to enforce and support the activities stated by the Environmental Director for the purpose of upholding the basic environmental polices and directives of the Mitsubishi Electric Group. This report and other announcements regarding the environmental activities of the Mitsubishi Electric Group are provided to promote environmental communications within the group as well as to release information of ongoing matters to the public.

Environmental Manager

The position of "Environmental Manager" has been established in each business group, and at each business site and affiliated company.

Environmental Manager's Meeting

The environmental managers from each business group, business site and affiliated company convene together twice a year to evaluate their activities, exchange information and make adjustments in order to achieve the environmental objectives of the Mitsubishi Electric Group.

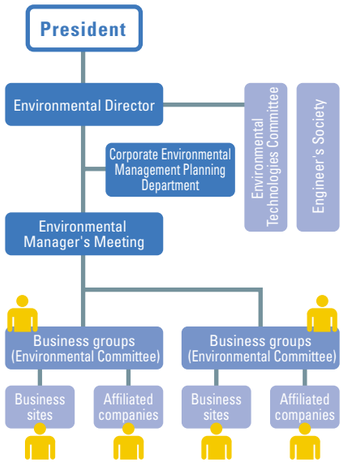
Environmental Technologies Committee

This committee is an advisory organ 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 Disposal and Recycling, and Energy Conservation.

Engineer's Society

Formed as an engineer's society related to environmental matters, researchers and engineers involved in the group's environmental activities promote mutual exchange for the purpose of self-enlightenment in order to excel in their work. Activities include seminars and study tours regarding the latest environmental technologies, as well as meetings to announce research results. The society was reorganized in April 2002 and expanded from a specialized society related to one area of environmental preservation to include six different areas (please refer to page 27 for details).

Organization Chart



Management at the Mitsubishi Electric Group

Environmental management within the Mitsubishi Electric Group is carried out utilizing a two-column strategy: one management column covers the company and the other covers business sites and affiliated companies. These two columns operate in unison to carry out what we call the PDCA (Plan→Do→Check→Action) cycle and promote environmental activities throughout the entire group.

The Environmental Plan and other related polices and measures for the Mitsubishi Electric Group are stipulated by the Environmental Director, made known to the environmental managers at the Environmental Manager's Meeting and further developed within the Environmental Committee of each business group. As requested in the policies and measures, each business site and affiliated company works under the guidance of its related business group to draft, implement and promote a new action plan each fiscal year.

The progress of the promotional activities being carried out by the business sites and affiliated companies is checked periodically in the form of an environmental audit conducted by the Corporate Environmental Management Planning Department (Mitsubishi Electric head office) with the cooperation of the environmental manager from each business group. Each business group also submits an "Environmental Results Report" to the Environmental Director each year, the results of which are utilized to produce this report.

C O L U M N

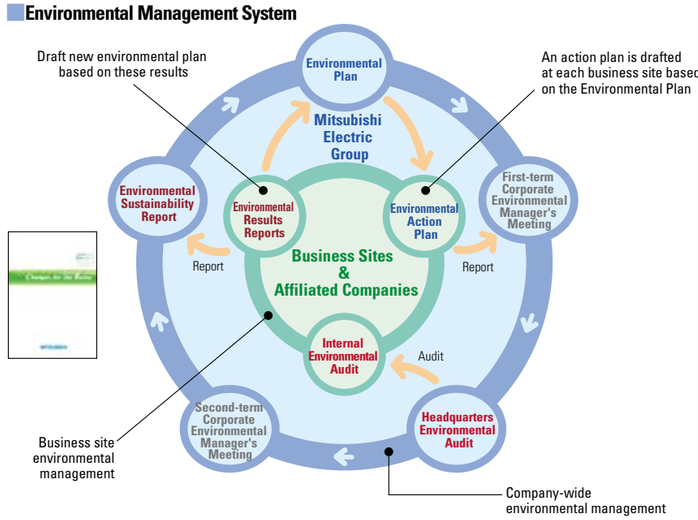
Corporate Environmental Management Planning Department Plans for Expanding Environmental Awareness via Company Operations

I joined the Corporate Environmental Management Planning Department about a year and a half ago. Before this assignment, I worked on improving processes and productivity at the Manufacturing Engineering Center. It wasn't easy to realize in my former position, but I gained a new awareness of how important it is to increase resource and energy use efficiency and substitute less harmful substances for harmful materials in production processes, and it's basically the same for improving productivity, too. The awareness of environmental concerns is spreading not only via the activities of our business sites, but through the operations of the entire company; it's growing in administrative, marketing, procurement, R&D and design departments, just to name a few. I believe an important task of the Corporate Environmental Management Planning Department is to help people realize clearly once again the connection between their work and environmental preservation activities as well as further expand awareness of environmental concerns via corporate operations. Fiscal year 2002 is the final year of the 3rd Environmental Plan*. We will continue striving to raise the environmental consciousness of all employees as we work to achieve the goals we have established and draft the 4th Environmental Plan.

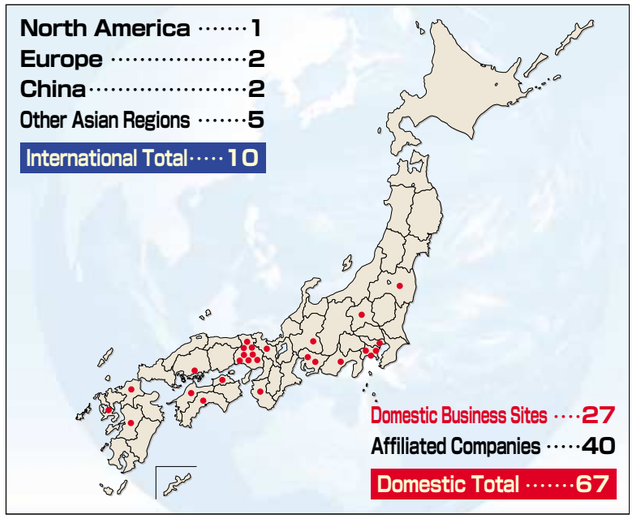
*Please refer to page 7 for the 3rd Environmental Plan.

Susumu Hoshinouchi
General Manager,
Corporate Environmental Management Planning Department

Environmental Management System



ISO14001 Registered Site Map



Business Site Environmental Management

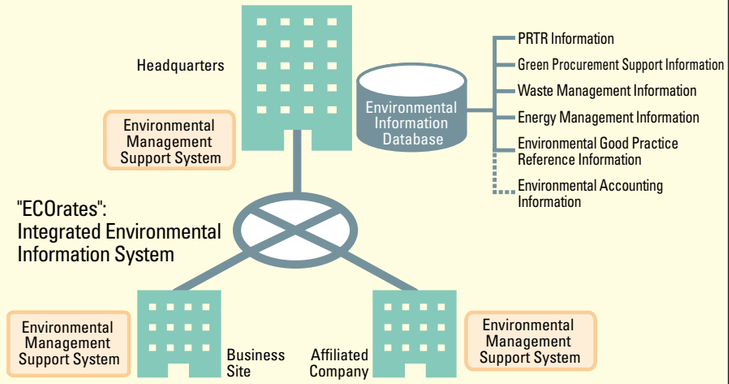
Business sites and affiliated companies each construct environmental management systems based upon the international environmental system standard, ISO14001, and promote their environmental management activities accordingly.

In addition to being subject to internal audits called for by the ISO 14001 standard, each business site works to continuously improve its environmental efforts through regular evaluations by outside auditors. In fiscal 1998, all manufacturing sites, the plant engineering & construction division and research facilities (27 sites in all) received ISO 14001 certification, and the sites of all major affiliated companies, both domestic and overseas, received certification by fiscal 2000. As of the end of fiscal 2001, ISO14001 certification has been acquired by 37 companies and 40 sites domestically and 10 companies and 10 sites overseas.

Integrated Environmental Information System - Introducing "ECOrates"

The information related to environmental management activities is both complicated and extensive. It was therefore decided to construct an integrated in-house information management system that is easy to manage and simple to use. Mitsubishi Electric began company-wide use of the system, nicknamed "ECOrates," in July 2001. Plans are to introduce the system to the company's main domestic affiliated companies in fiscal 2003.
Presently, ECOrates accumulates and stores five types of data, such as PRTR information. The inclusion of "Environmental Audit Information" is also planned. (Please refer to page 13 for details.)

Joint Environmental Information Network and Increased Efficiency in Environmental Management



3rd Environmental Plan – Targets and Results

The Mitsubishi Electric Group drafted mid-term voluntary initiatives for improving corporate environmental management and systematically introduced them as the "Environmental Plan." Running from fiscal 2000 through fiscal 2002, the 3rd Environmental Plan has, as its major objectives, the following five themes.

Strengthening Environmental Management

In support of the environmental policies of the Mitsubishi Electric Group and to strengthen related activities, the 3rd Environmental Plan identifies Mitsubishi Electric subsidiaries and major affiliated companies as "companies targeted for application" *1 of the Environmental Plan. Additionally, those 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 that will be introduced in order to meet the action objectives stipulated in the 3rd Environmental Plan.

Setting New Action Objectives

In addition to expanding the objectives of the 2nd Environmental Plan (initiated in fiscal 1996), the 3rd Environmental Plan incorporates new objectives introduced based on the M.E.T. concept. (Please refer to details in the chart below.)

Creation of Eco-Products

The 3rd Environmental Plan further clarifies the "Core Principles regarding Design for the Environment" and the "Design for the Environment (DFE) Guidelines," *3 which were initially drafted in fiscal 1999. Mitsubishi Electric has introduced "Factor X" *4 as an additional tool for quantitatively evaluating the eco-efficiency and degree of social contribution each product has. These three items are applied in promoting the development of eco-products. (Please refer to page 15 for details on "DFE Guidelines" and page 16 for details on "Factor X.")

Preparation of an Environmental Information System

The utilization of "ECOrates," an integrated environmental information system designed to enable more efficient environmental activities by providing related information in an easy to retrieve and manage format, began company-wide in fiscal 2001. The system is scheduled for introduction to the company's main domestic affiliated companies in fiscal 2003.

Promotion of Environmental Information Disclosure

Through the process of publishing environmental reports and posting information on websites, Mitsubishi Electric is working to make detailed information regarding the environmental activities of the entire group, including data on environmental accounting and the environmental performance of products, freely available to interested parties.

*1) Companies targeted for application (as of April 2002): 105 domestic companies, 39 overseas companies.
*2) Plan-drafting companies (as of April 2002): 46 domestic companies, 16 overseas companies.
*3) DFE Guidelines: Outline for tangible design and evaluation of eco-products.
*4) Factor X: Standard for evaluating a product's eco-efficiency, calculated by Mitsubishi Electric based on the M.E.T. concept.

Major Awards

Main Results	Award Name	Awarding Organization	
Communication Systems Center	Superior Energy Conservation Award, The Energy Conservation Center Chairman's Prize	The Energy Conservation Center	Completion of energy-efficient technology building
Power Device Division	Factory Energy Management Excellence Award (Electrical Dept.), Agency of Natural Resources and Energy Director's Prize	The Energy Conservation Center	Energy conservation through centralization of all employees in Fukuoka district
Kitaitami Administration Center	Factory Energy Management Excellence Award (Electrical Dept.), Kinki Bureau of Economy, Trade and Industry Chief's Prize	The Energy Conservation Center	Long-term energy conservation efforts
Nagoya Works Shinshiro Factory	Factory Energy Management Excellence Award (Electrical Dept.), Chubu Bureau of Economy, Trade and Industry Chief's Prize	The Energy Conservation Center	Noteworthy energy conservation investment
Kumamoto Factory	Factory Energy Management Excellence Award (Heating Dept.), Kyushu Bureau of Economy, Trade and Industry Chief's Prize	The Energy Conservation Center	Promotion of energy conservation through improved energy management
Gunma Works	Energy Conservation Grand Prix Award (Energy-efficient Machinery/System), Minister of Economy, Trade and Industry Grand Prize	The Energy Conservation Center	Mitsubishi Eco-Cute Hot-Water Heater (SRT-HP711) with natural refrigerant heat pump
Fukuyama Works	Meritorious Work in Energy Management Award, The Energy Conservation Center's Chugoku Branch Manager's Award	The Energy Conservation Center	Remarkable achievement in energy management and promotion of energy conservation awareness
Energy & Industrial Systems Center	Superior Energy-Conserving Machinery Award, Minister of Economy, Trade and Industry Award	The Japan Machinery Federation	GCT inverter (MELBEC-3000C)
Nagoya Works	Superior Energy-Conserving Machinery Award, The Japan Machinery Federation Chairman's Prize	The Japan Machinery Federation	High-output YAG laser system with LD excitation (remarkable energy savings effect)
Energy & Industrial Systems Center	Superior Energy-Conserving Machinery Award, The Japan Machinery Federation Chairman's Prize	The Japan Machinery Federation	700m ultrahigh-head high-speed, large-capacity pumped-storage hydroelectric generator system (Kunogawa Power Station, Tokyo Electric Power Company)
Air-Conditioning & Refrigeration Systems Works	Superior Energy-Conserving Machinery Award, The Japan Machinery Federation Chairman's Prize	The Japan Machinery Federation	Scroll compressor with condenser unit (UB Series)
Air-Conditioning & Refrigeration Systems Works	Power Load Standardization System Award, Heat Pump & Thermal Storage Center Promotion Prize	Heat Pump & Thermal Storage Center	MEL ICE SYSTEM, low-temperature thermal-ice storage system
Air-Conditioning & Refrigeration Systems Works	Japan Society of Refrigerating and Air Conditioning Engineers Prize, Technology Award	Japan Society of Refrigerating and Air Conditioning Engineers	Scroll compressor (UMJ Series)
Nakatsugawa Works	New Energy Grand Prix, New Energy Foundation Chairman's Award	New Energy Foundation	Photovoltaic power system for hip roof
Transmission & Distribution, Transportation Systems Center	Commendation for the Promotion of Recycling, Council for Promotion of Recycling Chairman's Award	Council for Promotion of Recycling	Contributions to recycling activities through waste reduction and recycling of resources
Shizuoka Works	Commendation for the Promotion of Recycling, Council for Promotion of Recycling Chairman's Award	Council for Promotion of Recycling	Contributions to recycling activities through waste reduction and recycling of resources
Communication Systems Center	Ministry of Education, Science, Sports and Culture Award	The Hyogo Industrial Association	Achievements in waste reduction through fraction elimination and informative internal meetings
Shizuoka Works	The Patent Office Director's Prize, Kanto Regional Invention Award	Japan Institute of Invention and Innovation	Non-reciprocal oil application technology for HFC refrigerant-complaint refrigeration and air-conditioning equipment
Sagami Administration Center	River Beautification Cleaning Volunteer Commendation	Kanagawa Prefecture Sagami River Preparation Center	Volunteer cleaning activities along Sagami River
Kamakura Works	Ministry of Labour and Welfare Award of Excellence	Kanagawa Bureau of Labor	Promotion of non-chrome and non-cyanogen plating, pre-evaluation of chemical substances, labeling
Fukuyama Works	Ministry of Land, Infrastructure and Transport Award	Japan Electrical Construction Association Inc.(Fiscal 2001 Densetsu Industrial Product Exhibition Competition)	Supporting energy conservation activities and concern for the environment (use of recyclable materials, ending use of vinyl chloride, labeling of materials used), WS Series circuit breakers (including MDU model)

Environmental Action Objectives

The Environmental Action Objectives of the 3rd Environmental Plan are listed below. Whether a product or a manufacturing process, tangible numerical targets have been set for each MET category.

Products	Tangible Targets	Main Results	Evaluation
MET Common Objectives	**Promote consideration of designs that are environmentally friendly.** ●Set targets that reduce the negative environmental impact of products that have reached the end of their service life by assessing the processing required for each product at the end of its life (EOL *1). ●Conduct LCAs *2 that specify a product's specific impact on the environment so that materials can be chosen and production processes adjusted accordingly, thus resulting in verification of reduction in environmental impact. ●Promote "green" procurement. Reduce negative environmental impact from the procurement stage by assessing the chemical content of composite components and determining the suitability of using recycled materials for new products.	●Environmental assessments of products have been used to introduce disposal management systems at EOL. Application to a vast range of product groups has begun. ●LCA is being used on representative models to verify improvements and to set targets for reducing negative environmental impact further. ●In the Information and Communication Systems Group, in accordance with the original Chemical Substance Control System, minimization of environmentally harmful substances in products and procured materials at the product design level is being enforced.	Please refer to the details on page 14 and thereafter.
M Resource Conservation/ Recycling & Waste Reduction	**Make sincere efforts to recycle materials and ensure the effective use of resources for products and packaging materials.** ●Use standard compound resins, etc., to reduce the kinds of materials used. ●Simplify and shorten disassembly times. ●Promote the reuse of used parts and re-manufacturing of used products. ●Increase the use of recycled materials. ●Provide content information on products with plastic parts. ●Reduce the amount of packaging material used per product ●Reduce company-wide use of packaging materials by 10% (compared with fiscal 1998 levels) by fiscal 2002.	●Taking back and recycling used home appliances as a business concern has begun. ●Higashihama Recycle Center is now recycling plastic parts to be used in the manufacture of new products. ●Determining overall product design and shortening disassembly time. In addition, not only identifying the plastic materials used but also indicating screw positions and how many of them are used. ●Reduction targets set for product packaging materials. 17% reduction compared with fiscal 1998, achieving target set for fiscal 2002 one year early.	Please refer to details on page 14 and thereafter.
E Prevention of Global Warming	**Improve energy efficiency and reduce power consumption in the active and standby modes of individual products.** ●Set targets for reducing power consumption in the active and standby modes of individual products.	●Established a target with suitable characteristics to match a wide range of product groups. Made advancements in reducing the power consumption of active and standby modes in various products.	Please refer to details on page 14 and thereafter.
T Control of Chemical Substances	**Maintain close control of chemical substances used in products—make progress in reducing/substituting substances that are harmful to the environment.** ●Maintain close control of chemical substances used in products—promote reduction/substitution of substances harmful to the environment such as heavy metals (lead, cadmium, mercury, hexavalent chromium), polybrominated biphenyl (PBB) flame retardant, vinyl chloride resins, ozone depleting substances, greenhouse gases, etc. ●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 HCFC *3 in air-conditioning and refrigeration equipment as a foaming agent by the end of fiscal 2004 and as a refrigerant by the end of fiscal 2010.	●We have succeeded in securing the same level of reliablity with lead-free solder using any application form (flow, reflow or manual) as provided with the existing method (lead solder) and have introduced lead-free solder technology as an in-house standard; this is an industry first. *4 It will be applied to mass production products (air-conditioners, refrigerators) beginning in fiscal 2002. ●The refrigerant used in some of the thermal units of heating/cooling products was changed from HCFC to HFC *3 in the fiscal 2001 season. For the volume of refrigerant used, please refer to page 34.	Please refer to details on page 14 and thereafter.

Extremely Good Good Must Try Harder

*Evaluation standards set by the Mitsubishi Electric Group

Manufacturing Processes	Tangible Targets	Main Results	Evaluation
M Resource Conservation/Recycling & Waste Reduction	**Consider resource conservation and recycling, and reduce the generation of wastes.** ●Shift from end-of-pipe waste reduction policies (post-disposal) to source reduction (pre-disposal: design) policies (i.e., promote measures integrated in product development, etc.). ●Assess emission levels related to the manufacturing processes of leading products by the end of fiscal 2000 and set targets for emissions control and resource reuse. ●Reduce the waste handled by waste removal services by 30% (compared with fiscal 1998 levels) by fiscal 2002. 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 material.	●For mass-production products, 19 targets were set for emissions control or reuse of resources in 18 representative model groups. Of the 19, 16 were achieved, with 3 remaining. ●Consigned disposal companies removed 8,100t in fiscal 2001, a reduction of more than 30% compared to fiscal 1998. The volume is 9.6% of total emissions, thus achieving the target set for fiscal 2002 one year early. ●All business sites set targets to reduce the amount of waste plastic and wastepaper. As a result, waste plastic volume was reduced 21% and wastepaper volume by 16% (both compared to fiscal 2000 volumes). For those business sites that create sludge or waste oils, targets for reducing volumes have also been set.	Please refer to details on page 29 and thereafter.
E Prevention of Global Warming	**Minimize CO_2 emissions through activities to reduce energy consumption.** ●Reduce CO_2 emissions by 25% by fiscal 2010 (compared to the 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.	●CO_2 emissions have been reduced by 4% and 7% compared to the volumes emitted in fiscal 2000 and 1990, respectively. However, taking the lower sales figure into account (down 18% compared to last year), there was an increase of 17% considering the carbon-equivalent energy consumption to net sales. (The increase compared to fiscal 1990 is 0.1% and has leveled off.)	Please refer to details on page 31 and thereafter.
T Control of Chemical Substances	**Reduce emissions of chemical substances by controlling their use in production processes.** ●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. ●Set reduction targets for greenhouse gas (GHG) *6 emissions (excluding CO_2 emissions). ・HFC+HCFC: Maintain plant emissions below 0.2% of the total amount handled by fiscal 2002. ・PFC: Reduce factory emissions of PFC gas by 6% by fiscal 2002 (compared with fiscal 1998 level); reduce factory emissions of liquid PFC (total greenhouse effect value) by 10% (compared with fiscal 1995 level). ・SF_6: Maintain emissions of plants/equipment below 3% of the amount at the time of installation by fiscal 2005.	●The volumes and emission transfer amounts of the chemical substances targeted for management by the Mitsubishi Electric Group were set utilizing PRTR. Emission transfer dropped by 23% compared to fiscal 1997. ●Total emission of toluene, xylene and styrene into the atmosphere was reduced by 10% compared to fiscal 1999. ●Emission of HFC and HCFC was 0.65% of total volume used. ●Emission of PFC gas was reduced by 6.5% compared to fiscal 1998, and that of liquid PFC was reduced by 50% compared to fiscal 1995. Continual improvements in manufacturing processes allowed achievement of the target early on. ●The emission of SF_6 was 8.5% of the total volume purchased.	Please refer to details on page 33 and thereafter.

*1) EOL: End of life
*2) LCA: Life Cycle Assessment
*3) HCFC: Hydrochlorofluorocarbon
HFC: Hydrofluorocarbon
*4) As of June 2002
*5) PRTR: Pollutant Release and Transfer Register
(mechanism for determining emissions of chemical substances)
*6) Greenhouse Gases (GHG)
HCFC: Hydrochlorofluorocarbon
HFC: Hydrofluorocarbon
PFC: Perfluorocarbon
SF_6: Sulfur hexafluoride

Environmental Activity Highlights of Fiscal 2001

Highlights of the environmental activities conducted by the company in fiscal 2001 are listed below. For a more detailed account, please refer to the page specified in parentheses. For information regarding affiliated companies, please refer to page 37.

Results regarding Products

■Providing Public to Access to Product Environmental Information (page 17)
Providing access to environmental information about products that the group manufactures is a vital part of our activities. Information like a list of products compliant with the Green Procurement Law, which provides customers the opportunity to compare and select environmentally friendly products, and the "MET-Profile" (i.e., quantitative environmental information about products) is openly available to the public and posted on the Mitsubishi Electric website. The list of targeted product models scheduled for release is being expanded as well.

■Product Eco-efficiency Index ("Factor X") Calculated and Introduced at Eco-Products 2001 (page 16)
"Factor X" is a newly introduced index that is being carefully watched by many. Utilizing the Factor X formula, a product's degree of social contribution to the environment (i.e., improvement through reducing negative environmental impact) can be calculated and is presented as a numerical value. Trial calculations were carried out for a number of products and the results released to the public at the Eco-Products 2001 Exhibition. The company will continue studying Factor X and its application for the purpose of learning how to better utilize the new eco-efficiency index as well as improve its accuracy.

List of Products Compliant with Green Procurement Law

MET-Profile

M Effective Use of Resources (page 23)

In parallel with the enactment of the Home Appliances Recycling Law, Mitsubishi Electric began home appliance recycling activities in which it takes back used home appliances, disassembles them and uses the recyclable materials to manufacture new products. Various product parts, such as the baseboard that holds the electrical components of our commercial-use air-conditioners, are now being made from plastic that is collected from used appliances at the Higashihama Recycle Center. We are focusing great effort on accelerating the materials recycling program and applying recycled materials to mass-produced products.

Plastic separation system

Electrical component baseboard (recycled plastic)

E Efficient Use of Energy (page 8 and after page 18)

In addition to the devices specified (home appliance products) in the Energy Conservation Law, we are continuously working to reduce product energy consumption in all of our product groups, especially in the areas of power generation/conversion systems, industrial machinery and electronic devices. In fiscal 2001, a number of our products received high evaluations for their impressive energy-efficient operation.

Superior Energy-Conserving Machinery Award, The Japan Machinery Federation Chairman's Prize from The Japan Machinery Federation

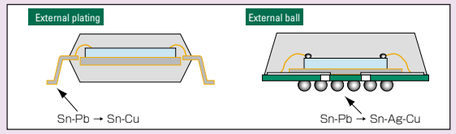
Scroll Compressor with condenser (UB Series)

Energy Conservation Grand Prix Award (Energy-efficient Machinery/System), Ministry of Economy, Trade and Industry Grand Prize from The Energy Conservation Center

Mitsubishi Eco-Cute Hot-water Heater (SRT-HP711) with natural refrigerant heat pump

T Reduce Use of Substances Potentially Harmful to the Environment (page 15)

Through joint efforts with other manufacturers, we have developed a lead-free solder that can be used for flow, reflow and manual soldering and provides reliability equivalent to that of lead-based solders (patent pending). Use of the new solder has been standardized throughout the company. The lead-free solder technology was used to develop lead-free plates and balls for the semiconductor Group. Mass production of these components has already begun. The technology is also being used in the manufacture of room air-conditioners and refrigerators that will reach the market in the fall of 2002. Plans are to fully integrate it into mass production (i.e., several 100,000 units scale) and use it for all models in the Home Appliances Group.



Lead-free products in Semiconductor Group

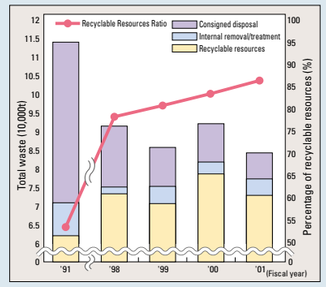
Packaged air-conditioners manufactured using lead-free technology

Results regarding Manufacturing Processes

M Effective Use of Resources (page 29)

In line with the reduction in production and integration of businesses, the total waste generated decreased to 84,600t in fiscal 2001, a drop of 7,800t compared to fiscal 2000. The volume of waste consigned for disposal companies was 8,100t, a reduction of 2,100t compared to fiscal 2000 and 9.6% less than all emissions total, thus achieving the target of the 3rd Environmental Plan one year ahead of time. Furthermore, the recyclable resources ratio increased another 2 points (rising to 87%) since last year.

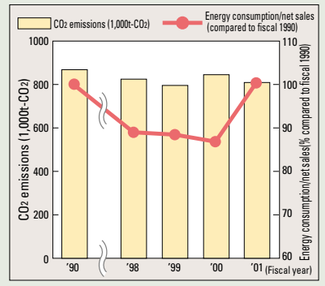
Trend in Waste Generation



E Efficient Use of Energy (page 31)

As sales decreased by 18% compared to fiscal 2000, the influence on carbon-equivalent energy consumption/net sales rate was an increase of 17%. However, owing to the many various energy conservation activities undertaken, the total amount of energy consumed last year fell by 4% compared to the last fiscal year. In the category of greenhouse gases, the reduction in CO_2 emissions was 810,000t (7%) compared to fiscal 1990. In terms of energy consumption/net sales, there was an increase of only 0.1% compared to fiscal 1990, so that has leveled off.

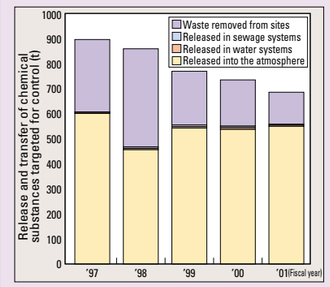
Trend in CO_2 Emissions



T Reduce Use of Substances Potentially Harmful to the Environment (page 33)

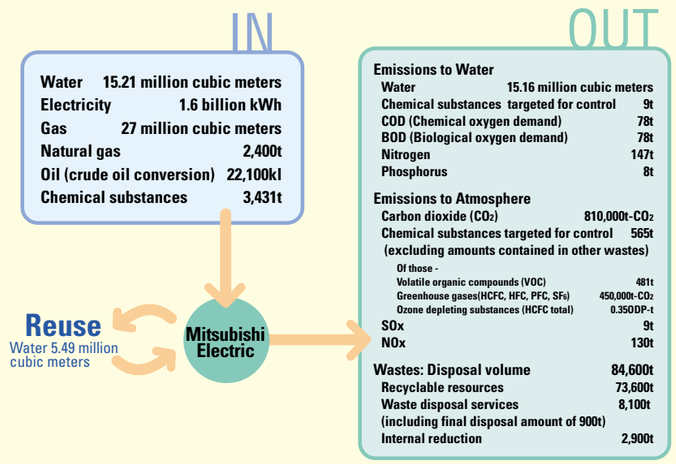
Efforts to reduce the emission of chemical substances targeted for control continue, and we have been monitoring and recording the emissions transfer volume since fiscal 1997. The emissions transfer amount in fiscal 2001 fell by 23% compared to fiscal 1997. Activities targeting the reduction of chemicals with large emissions into the atmosphere (i.e., toluene, xylene and styrene) began in fiscal 2000. By rationalizing processes, implementing substitution methods and introducing combustion control and filtering systems, emissions transfer was reduced 10% compared to fiscal 1999.

Mitsubishi Electric's PRTR



Key Environmental Data

■Resources Input & Emissions Output to the Environment



■Environmental Account (Non-consolidated)

Item	Cost (100 million yen)
Business area activities	75.1
Pollution prevention	31.5
Global environmental conservation	18.9
Resources circulation	24.7
Activities up/downstream of production	6.6
Environmental management activities	22.4
R&D activities for environmental conservation	18.9
Social activities	0.2
Environmental restoration	1.3
Total	124.5
Profit	6.0
Savings	26.1
Total	32.1

■Acquirement of ISO14001 Certification
All of the Mitsubishi Electric production sites and the majority of its affiliated companies (37 companies and 40 sites domestically, 10 companies and 10 sites overseas) have acquired ISO14001 certification.

Environmental Accounting Fiscal 2001

Environmental accounting provides a quantitative view of the cost involved in environmental management activities as well as an understanding of the effect the activities have made. Following draft guidelines received from the Ministry of the Environment, Mitsubishi Electric drafted a set of environmental accounting standards that stipulate the extent to which environmental accounting is to be applied.

The environmental management cost for Mitsubishi Electric and 44 of its major domestic and overseas affiliated companies*1 was 15.74 billion yen in fiscal 2001, a reduction of 16% compared to fiscal 2000. Of this, facilities investments totaled 4.13 billion yen (down 19%) and development investments were 1.9 billion yen (down 44%). In terms of effect on environmental protection, the emissions of greenhouse gases and ozone depleting substances were reduced in terms of materials to net sales ratio.*2 The economic effect of the group's environmental management activities fell 30% to 4.74 billion yen. These figures are based upon classifications in the Environmental Accounting Guidelines – Fiscal 2002 Edition, published and distributed by Japan's Ministry of the Environment. Details are provided below and on the next page.

*1) Among the companies (plan-drafting companies) working to achieve the objectives of the 3rd Environmental Plan, only the main affiliated companies targeted for having a significant environmental impact in the course of business operations are included.
*2) Absolute amount (materials)/net sales

Environmental Accounting Standards of the Mitsubishi Electric Group

In December 1999, Mitsubishi Electric drafted and adopted a set of environmental accounting standards that includes clear definitions of expenditure items to be calculated and the range to which the standards would be applied. The important principles of the company's standards are listed here. Even though the environmental accounting in fiscal 2001 was calculated in accordance with the classification in the Environmental Accounting Guidelines - Fiscal 2002 Edition, our principles have not changed.

1 The revenues and expenditures of environmental businesses and products that are designed to reduce negative environmental impact are not included.
The costs for lowering the negative impact on the environment in the company's business activities (centering on manufacturing activities) are calculated. However, costs for environment-related business like photovoltaic power generation or the development and production expenses of Eco-Products or proceeds from their sales are not included.

2 Coverage is limited to activities whose main purpose is to reduce negative environmental impact.
There are many activities with the compound objectives of increasing production efficiency and reducing environmental impact, however, our basic policy is to isolate and count only the portion intended to reduce the negative impact on the environment. When it is impossible to make clear distinctions, judgment is determined by the main objective of development.

3 The entire value of a capital investment is included in the total of the year in which it was actually implemented.
The entire value of a capital investment is included in the figures for the year in which the investment is implemented, and calculations for depreciation are not made. If the results of a particular investment will continue to provide returns over multiple years, an estimate of the expected results for up to a maximum of three years will be added to the total of the first fiscal year in which the results are realized.

4 Revenues are limited to those that can be calculated on the basis of reliable supporting data.
We do not include hypothetical calculations of risk avoidance effects (so-called "equivalency 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.

Environmental Protection Expenditures

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

Item	Capital Investment	R&D Costs*5	Operational Expenses	Total	Compared to Previous Fiscal Year	Main Content
Business area activities	37.9 28.6	— —	61.9 46.5	99.8 75.1	▲9.0 ▲11.8	
Pollution prevention	12.2 8.7	— —	28.6 22.8	40.8 31.5	▲2.2 ▲1.4	Expansion and maintenance costs for facilities for treating exhaust gases and wastewater emissions; expansion costs for dioxin countermeasure facilities, etc.
Global environmental conservation	22.2 17.4	— —	2.7 1.5	24.9 18.9	▲8.2 ▲10.9	Costs for introducing facilities for energy countermeasures such as thermal-ice storage air-conditioning systems and preparation of manufacturing systems compatible with HCFC substitutes, etc.
Resources circulation	3.5 2.5	— —	30.6 22.2	34.1 24.7	1.4 0.5	Costs associated with expansion of facilities for recovering wastewater, water recovery/reuse, waste reduction, treatment and recycling, etc.
Activities up/downstream of production*3	2.9 2.7	— —	4.1 3.9	7.0 6.6	▲1.8 ▲1.1	Costs associated with the expansion of facilities for the recovery of HCFC utilized in products, efforts to reduce and reuse packaging, etc.
Environmental management activities*4	0.3 0.0	— —	28.9 22.4	29.2 22.4	7.8 6.9	Costs associated with the maintenance and operation of environmental management systems, employee environmental education, etc.
R&D for environmental conservation	0.0 0.0	19.0 18.9	0.0 0.0	19.0 18.9	▲16.5 ▲14.5	Development of technologies for HCFC refrigerant substitutes, lead-free product technologies, recycling methods for waste plastics, development of technologies for analyzing gases harmful to the environment, etc.
Social activities	0.0 0.0	— —	0.2 0.2	0.2 0.2	▲8.6 ▲7.5	Regional volunteer activities, etc.
Environmental restration	0.2 0.2	— —	2.0 1.1	2.2 1.3	▲2.6 ▲2.9	Expenses related to environmental surveys and clean-up activities, etc.
Total	41.3 31.5	19.0 18.9	97.1 74.1	157.4 124.5	▲30.7 ▲30.9	
Compared to previous fiscal year	▲9.4 ▲8.0	▲14.7 ▲14.2	▲6.6 ▲8.7	▲30.7 ▲30.9		

*3) 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.
*4) The costs for enabling access to environmental information and environment-related advertising, as well as those for environmental improvement measures such as nature conservation, greening, beautification and landscape maintenance in and surrounding business sites, which are included in "Environmental management activities" above, were included in "Social activities" in fiscal 2000.
*5) 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.

Environmental Protection Effect*1

Upper row (Black): Mitsubishi Electric Group／Lower row (Blue): Mitsubishi Electric (non-consolidated)／Only one row: Mitsubishi Electric (non-consolidated)

		Effect	●Decrease indicates reduction in negative environmental impact ○Increase indicates reduction in negative environmental impact	Unit	Fiscal 2001 Results	Compared to Previous Fiscal Year*6	Compared to Previous Fiscal Year after Adjustment for Net Sales *6*7	Compared to Previous Fiscal Year's Unit/Net Sales*6
Business Area Internal Activities	Resources introduced into business activities	Environmentally harmful substance use	●PRTR*3 targeted substances used	t	6,672 3,431	▲2,356 ▲2,389	▲1,305 ▲1,350	84% 72%
		Energy use	●Total energy used	10,000 GJ	2,353 1,880	▲112 ▲82	175 268	108% 117%
		Water use	●Water used	10,000 m^3	1,823 1,521	▲88 ▲50	134 230	108% 118%
	Negative environmental impact and wastes from business activities	Emitted to atmosphere	●Greenhouse gases emitted*4	t-CO_2	2,177,000 1,668,000	▲550,000 ▲546,000	▲232,684 ▲150,929	90% 92%
			●Emission of ozone depleting substances	ODP-t	0.35 0.35	▲0.95 ▲0.85	▲0.80 ▲0.64	30% 36%
			●PRTR*3 targeted substances used	t	793 565	▲95 13	8 112	101% 125%
			●VOC (volatile organic compounds)	t	680 480	▲80 ▲50	8 45	101% 110%
			●SOx (sulfuric oxide)	t	9	—	—	—
			●NOx (nitrogen oxide)	t	130	—	—	—
		Emitted to water/ground	●Total wastewater	10,000 m^3	1,769 1,516	329 276	497 497	139% 149%
			●PRTR*3 targeted substances used	t	10 9	▲83 ▲4	▲72 ▲2	12% 84%
			●COD (chemical oxygen demand)	t	78	—	—	—
			●Nitrogen	t	147	—	—	—
			●Phosphorus	t	8	—	—	—
		Emitted as wastes	●Total wastes emitted	t	126,600 84,600	▲7,300 ▲7,800	8,281 8,688	107% 111%
			●PRTR*3 targeted substances used (waste transfer amount)	t	473 131	40 ▲59	90 ▲25	124% 84%
			○Percentage of resources reusable, recyclable or capable of thermal recovery in total wastes emitted	%	81 87	▲1 2		
Up/downstream Activities	Property and services from business activities*2	Negative environmental impact at time of disposal	●Packaging material used	t	40,400	▲5,000	—	—
			○Percentage of reusable amount in used products collected*5	%	68	—		

*1) Excluding overseas affiliated companies.
*2) Product negative environmental impact calculated using company's Factor X index; refer to page 16 for details.
*3) Substances targeted for control by Mitsubishi Electric (including substances targeted by PRTR Law).
*4) CO_2 and greenhouse gas emissions excluding CO_2 (CO_2 conversion) were tabulated together.
*5) The average value of the recyclable resources ratio for Mitsubishi Electric's home appliances (air-conditioners, TVs, refrigerators and washing machines) as defined by the Home Appliance Recycling Law.
*6) "—": Not compared to previous fiscal year as there is no record for previous year. Red-framed box means reduction in negative environmental impact compared to previous fiscal year.
*7) This fiscal year's negative environmental impact – Previous year's negative environmental impact x (Present fiscal year's net sales / Previous fiscal year's net sales).

Economic Effect of Environmental Protection Activities

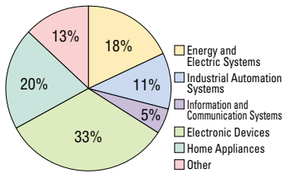
Upper row (Black): Mitsubishi Electric Group Lower row (Blue): Mitsubishi Electric (non-consolidated)(Unit: 100 million yen)

Item	Amount	Compared to Previous Fiscal Year	Main Content
Profit	8.1 6.0	▲2.9 ▲2.7	Profits generated from recycling, such as the sale of scrap metal, etc.
Savings	39.3 26.1	▲17.4 ▲19.8	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	47.4 32.1	▲20.3 ▲22.5	

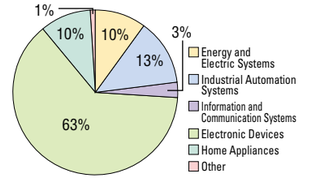
Circumstances by Business Group

Business Group	Environmental Protection Cost (100 million yen)	Economic Effect (100 million yen)
Energy and Electric Systems	22.0	3.3
Industrial Automation Systems	13.7	4.2
Information and Communication Systems	6.6	0.8
Electronic Devices	41.7	20.4
Home Appliances	24.9	3.2
Other	15.6	0.2

Environmental Protection Expenditures



Economic Effect of Environmental Protection Activities



ECOrates – The Integrated Environmental Information System

The massive amount of data involved in administrative and managerial issues related to the environmental management business requires the utilization of various information systems. To improve the efficiency of its environmental management activities, Mitsubishi Electric has developed and introduced an integrated environmental information management system designed to promote the achievement of environmental action objectives throughout the group.

Unification of Environmental Information

The company began operating the ECOrates integrated environmental information system in July 2001 with the aim of achieving the environmental action objectives of the entire group in a concerted manner. The ECOrates system can provide a quantitative description (i.e., numerical values) of the amount of chemical substances and energy used or waste emissions from a particular works, factory, or business group, thus making it easy to understand the environmental management activities at different levels throughout the entire company. All of the data is accessible to employees via the company's Intranet, making it common property and enabling environmental management operations to be run more efficiently.

The 5 Functions of ECOrates

ECOrates is a combination of five different systems: 1) PRTR*1 System, 2) Environmental Good Practice Reference System, 3) Waste Management System, 4) Environmental Information Sharing System, and 5) Green Procurement Support System. Of the five systems, the Environmental Good Practice Reference and Waste Management systems are currently being introduced to affiliated companies as well, and plans are to introduce the entire ECOrates system to major domestic affiliated companies by March 2004. It is planned to improve the database for negative environmental impact information on parts and materials of the current Green Procurement Support System, and development for inclusion of the Environmental Accounting System is underway.

Manufacturing Process System Design

The Mitsubishi Electric headquarters, Corporate Total Productivity Management & Environmental Programs Group and 15 business sites set up a close network and started partial operation of the ECOrates system for the purpose of improving systems design for manufacturing processes. Now, three years later, the ECOrates system is in use throughout the entire company. Because of its convenience for providing detailed information regarding emission levels, costs and waste disposal services, other companies have been utilizing the Waste Management System since fiscal 2001. Beginning in fiscal 2002, plans are to actively market each of the ECOrates systems to other companies as ASP*2 services offered by Mitsubishi Electric Application Services Co., Ltd.

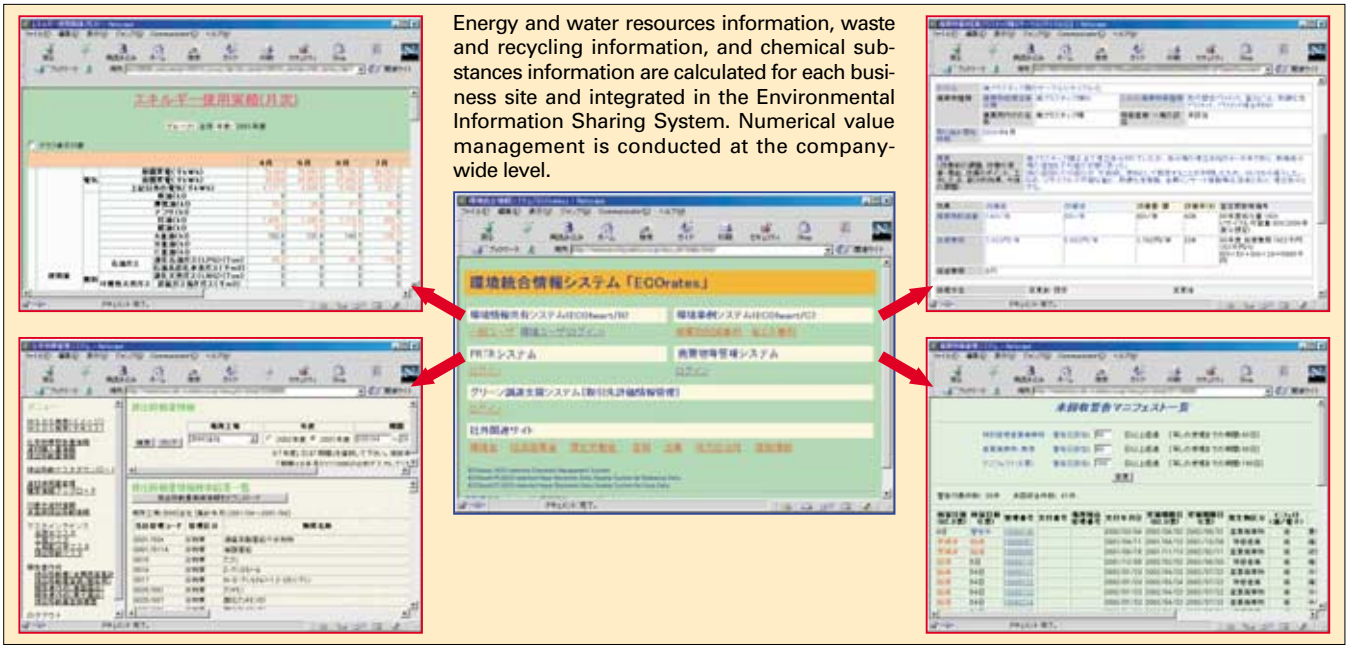
*1) PRTR: Pollutant Release and Transfer Register
*2) ASP: Application Service Provider

ECOrates Display Screens

Individual System Names	Main Function	System Introduction Date
①PRTR System	Control purchase, emission and transfer amounts of substances targeted by the PRTR Law; MSDS*3 information is simultaneously placed in a database that can be accessed by group members.	April 1999 (functions upgrade in March 2002)
②Environmental Good Practice Reference System	Waste reduction and energy conservation examples of each business site are compiled into a database, utilized for storing knowledge of the entire company (180 cases in fiscal 2001).	August 2000
③Waste Management System	In addition to listing waste emissions and materials by type, cost of disposal and data on disposal service companies, management of manifest voucher circumstances and publication of an electronic manifest is made more efficient.	October 2000
④Environmental Information Sharing System	Business site version automatically extracts data for amounts of energy, water, types of paper used, wastes and chemical substances used by process, department and business site. The company-wide version manages and lists comprehensive numerical values in time sequence.	July 2001
⑤Green Procurement Support System	Database of environmental management information provided by suppliers capable of being accessed internally and by member companies of the group. Circumstances regarding a supplier's acquisition of ISO14001 can be referenced.	January 2002

*3) MSDS: Materials Safety Data Sheet

ECOrates Display Screens



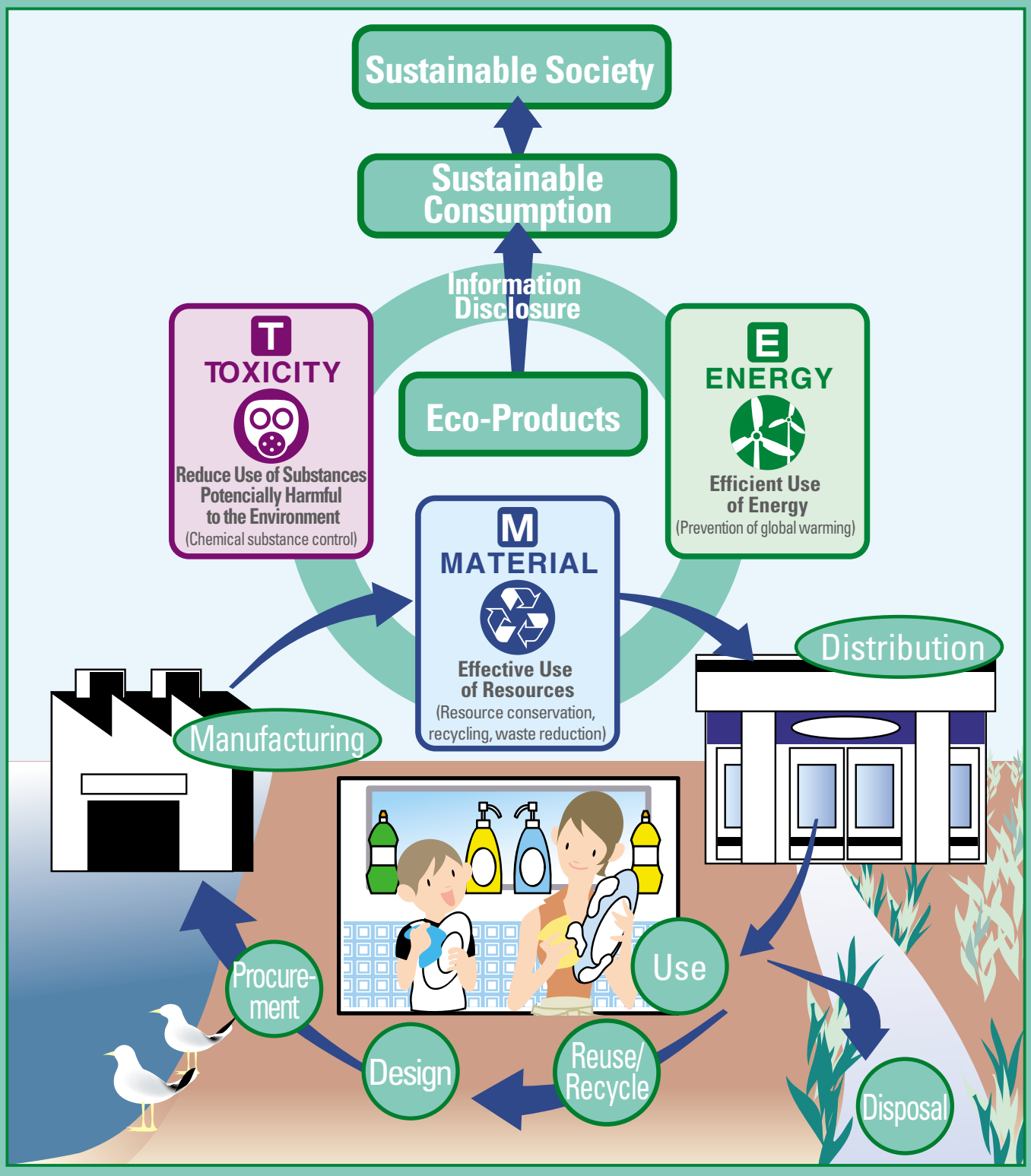
Energy and water resources information, waste and recycling information, and chemical substances information are calculated for each business site and integrated in the Environmental Information Sharing System. Numerical value management is conducted at the company-wide level.

Eco-Products

Combine all of the latest-model air-conditioners* recently shipped by Mitsubishi Electric, add up the annual total electricity saved through energy-efficiency technologies introduced, and the savings could provide power to 60,000 average-sized homes in Tokyo for a full year.

Mitsubishi Electric is contributing to the creation of a sustainable society through the manufacture of Eco-Products; goods and systems designed and built giving undivided attention to saving energy and resources, and reducing the use of environmentally harmful substances.

*Annual electricity savings of 1,041kWh (1 Mitsubishi Electric MS2-WX28J air-conditioner, recent shipment of 200,000 units)Calculation conducted by Mitsubishi Electric based upon electricity consumption of average-sized home in Tokyo: electricity use and power fee for one average-sized home provided by Tokyo Electric Power Company.



Design for the Environment

Introducing an environmentally conscious design requires that consideration be given not only to resource conservation and recycling, but also to the negative environmental impact over a product's entire lifecycle. Mitsubishi Electric has developed and implemented evaluation criteria for each phase, from procurement through manufacture to distribution and disposal.

Introduction of DFE Guidelines

In fiscal 1999, the Environmental Technologies Committee drafted the "Design for the Environment (DFE*1) Guidelines" to clarify design objectives and prepare for the assessment of next-generation products. Although conventional assessments 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, from procurement and manufacture to transportation, use and disposal, doing so using quantitative evaluation of environmental design effects from the viewpoint of MET.

Implementation of 3-R Product Assessment

The DFE Guidelines were fully revised in October 2001 in preparation for the implementation of the Reduce, Reuse and Recycle (3-R) Product Assessment plan. This revision is fully compliant with the requirements of the "Revised Recycling Law" enacted in April 2001. It stipulates that clear targets be specified for 3R design, and that 3R product assessments should be carried out, not only for designated products, but for all products manufactured by Mitsubishi Electric. The guidelines stipulate quantitative evaluation of 14 large and 51 smaller intermediate items. We have also introduced the new "Factor X*3" index, an eco-efficiency indicator that calculates the overall environmental improvements in a product, thus allowing comprehensive judgments to be made.

Establishment of LCA Implementation Manual

LCA*4 is one of the evaluation items utilized in 3-R Product Assessment. The Advanced Technology R&D Center has taken the initiative in accumulating data regarding the negative environmental impact of waste disposal from the Higashihama Recycle Center*5, and is addressing the development of assessment techniques, including ways to verify the effects of product improvement.
From fiscal 2000 to fiscal 2001, in effort to improve the quality of product assessment, a manual for those conducting LCA, the "LCA Evaluation Guidelines," was prepared and distributed throughout the company.

Technologies for Creating Eco-Products

Mitsubishi Electric's DFE Guidelines have led to the successful development of a number of leading-edge technologies. One such example is introduced in the following.

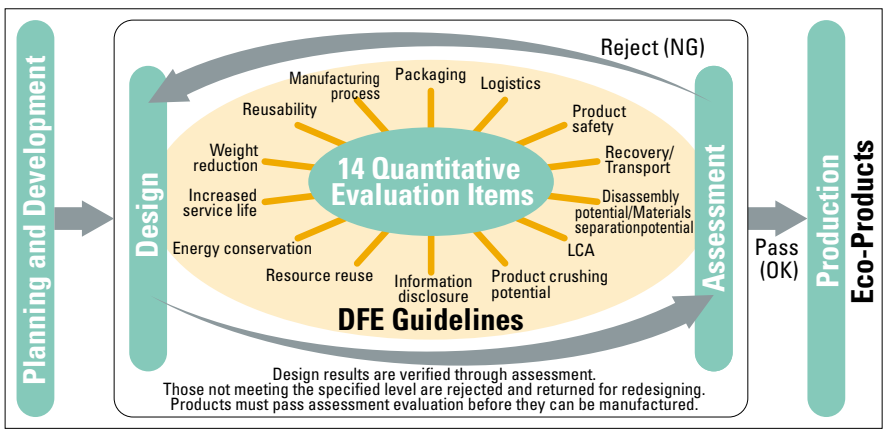
DFE in Product Disassembly

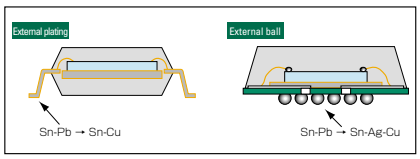
Economic efficiency is not achieved if all screws must be removed and all parts disassembled. Prototype products being developed at Mitsubishi Electric are taken into the Higashihama Recycle Center and data such as the time required for disassembly, materials balance, etc. is obtained so that an optimal design considering negative environmental impact and economy can be determined.
Technologies that make it possible to use inexpensive and quick disassembly processes, such as labeling of housing structures that explains materials and disassembly procedures so that anyone can easily identify them, ensure that efficient disassembly is possible many years later when the home appliances are returned to the recycling plant.

Lead-free Soldering Technology

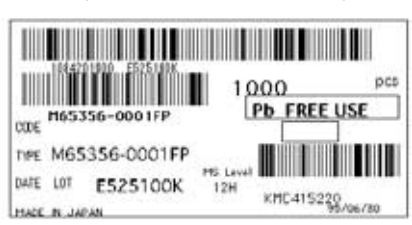
We have successfully addressed the problem of reducing the use of lead, a main ingredient in conventional solder, in products. Since the melting point of lead-free solder is higher than lead solder, we were faced with the challenge of improving facilities and soldering techniques. A company-wide project team was established to head the conversion to lead-free soldering. In order to suppress development costs, a new solder material (patent pending) was jointly developed with a solder manufacturer. In fiscal 2001, we began utilizing the new lead-free solder for flow, re-flow and manual soldering processes after proving it has a reliability equivalent to that of lead-based solders. Use of the joining technology and identification indicators has been standardized company-wide. To further reduce the total amount of lead utilized by the Mitsubishi Electric Group, future technologies will be published in manuals and instructional videotapes.
The lead-free soldering techniques are currently being utilized in parts of commercial-use air-conditioners and ventilation fans. The technology is being used in the manufacture of several hundred thousand residential-use air-conditioners and refrigerators that will reach the market in the fall of 2002. Plans are to fully integrate it and use it for all types of products in the Home Appliances Group by fiscal 2004. Meanwhile, aiming to eliminate the use of lead entirely by 2004, the Semiconductor Group also developed lead-free plating and lead-free balls. After confirming the performance of the components, mass production was started.

*1) DFE: Design For Environment. Design of products or services with minimal negative environmental impact.
*2) EOL: End of life, end of product's service life.
*3) Please refer to page 16 for details on Factor X.
*4) LCA: Life Cycle Assessment.
*5) Please refer to page 23 for details on the Higashihama Recycle Center.





Lead-free products in Semiconductor Group



Identification indicator on semiconductor package

"Factor X"–Trial Computation of Eco-efficiency

The actualization of a sustainable society requires that the suppression of materials usage and economic growth happen simultaneously in a compatible manner; thus the challenge is to improve the eco-efficiency of products. Mitsubishi Electric has introduced and applied "Factor X," an index that indicates the overall eco-efficiency of its products, and has publicly announced trial computations conducted on some of its products.

Management Index for Negative Environmental Impact of Products

Since its introduction, Factor X has received a great deal of attention for its ability to be utilized as a management index for a negative environmental impact of products, since it indicates a product's overall improvement in terms of eco-efficiency. The larger the value, the greater the product's contribution to reducing negative environmental impact.

Standardization of the computation and evaluation methods has only just begun and the technology itself is still at the trial and error stage at the global level. Mitsubishi Electric, however, introduced a specific computation method based on its MET concept, and this approach is driving a unique breakthrough in environmental related activities under the supervision of Dr. Ryoichi Yamamoto, general manager of the Center for Collaborative Research, The University of Tokyo. Wishing to contribute to the standardization of environmental management indices, the company chose not to wait until Factor X had been standardized, and in Japan in 2001, proactively announced environmental information about its products based on the unique technique. The trial computation value was presented as "degree of social contribution" and was the measurement of various products' overall improvement in eco-efficiency.

Factor X Computation

The computation of eco-efficiency is generally made by determining the degree of improvement in negative environmental impact and performance using the following equation: Eco-efficiency = Product performance ÷ Negative environmental impact.
However, if innovative improvements are made in a product's performance while the reduction of negative environmental impact is minimal or remains unchanged, the value given for eco-efficiency may rise, but in appearance only. This results in ambiguity when factoring negative environmental impact. We therefore decided to introduce a "factor" from the eco-efficiencies of old and new products based on the MET concept (refer to equation at right). First, the vector length of the present product and standard product (as a rule, manufactured in 1990) is calculated to obtain the negative environmental impact. The factor value is then obtained from the equation: Eco-efficiency of present product ÷ Eco-efficiency of standard product. The MET evaluation items are product weight, energy consumption and use of substances potentially harmful to the environment.

Basic Factor Computation

- **Comparison is made with standard product (as a rule, manufactured in 1990).**
- **Do not take performance improvements into account.**
- **Improvement in negative environmental impact is calculated utilizing the combined improvements from each MET category.**

Product eco-efficiency = 1 / Negative environmental impact
Factor = Eco-efficiency of present product/ Eco-efficiency of standard product

Example: Room air-conditioner

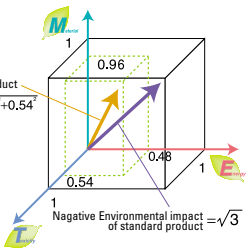
		M: Effective use of resources	E: Efficient use of energy	T: Reduce use of substances potentially harmful to the environment
Standard product	MSZ2800 (1990 model)	1	1	1
Present product	MSZ-WX28J (2002 model)	0.96	0.48	0.54
Improvements		Weight 4% reduction	Electricity consumption 52% reduction	Usage of lead soldering 24% reduction Usage of ozone depleting substances 0

I_{90} (negative environmental impact of standard product) $=\sqrt{1^2+1^2+1^2}=1.73$

I_{02} (negative environmental impact of present product) $=\sqrt{0.96^2+0.48^2+0.54^2}=1.20$

Negative Environmental impact of present product $\sqrt{0.96^2+0.48^2+0.54^2}$

Factor = Eco-efficiency of present product / Eco-efficiency of standard product
$= (1/I_{02}) / (1/I_{90})$
$= (1/1.20) / (1/1.73)$
$= 1.44$



Degree of social contribution

- **Reduction in Resources Used** ※1 **Resources 400t**
- **Reduction in Electricity Consumption** ※2 **1,874GWh**
- **Reduction in Potentially Harmful Substances** ※3 **0.8t (lead)**

※1 Reduction in Resources Used: Amount reduced per unit x Quantity of units shipped.
※2 Reduction in Electricity Consumption: Amount reduced per unit x Quantity of units shipped x Estimated years of present product's durability
※3 Reduction in Potentially Harmful Substances: Amount reduced per unit x Quantity of units shipped
In the above computations, 200,000 units was utilized as the one-year figure for "Quantity of units shipped" and 9 years was utilized as the "Estimated years of present product's durability." The latter figure was determined from the minimum inventory holding period of air-conditioner repair parts used for performance (as stated in the "Investigation on Trends of Newly Purchased Durable Consumer Goods," published by the Economic Planning Agency).

Value Forecast for the Year 2050

In December 2001, during the Eco-Design 2001 Conference held in conjunction with the Eco-Products 2001 Exhibition, Mitsubishi Electric announced the Factor X evaluation method and other factor values of 14 of its products attained in a one-year study. The company is a member of the eco-efficiency Investigation Committee, established by the Japan Environmental Management Association for Industry (under the jurisdiction of the Ministry of Economy, Trade and Industry), where further research is to be carried out in fiscal 2002.

Contrary to lifecycle assessment, which requires the utilization of a vast database, Factor X provides a simple, clear product evaluation, making it a most noteworthy index for utilization as a product development tool and when releasing environmental communications externally. Among knowledgeable scholars, a factor of 2-4 for home appliances and a factor of 10 for semiconductors have been proposed as example targets for the year 2050 (products compared to 1990 models). With these forecasts in mind, Mitsubishi Electric is diligently at work developing technologies and methods that will further increase product eco-efficiency ratings based on Factor X.

Eco-Products – Contributing to a Sustainable Society

Dr. Ryouichi Yamamoto
(The University of Tokyo)
General Manager, Center for Collaborative Research

(Chief Secretary, LCA Japan Forum, Japan Environmental Management Association for Industry; chairman of various other committees; consultant)

Eco-products with high eco-efficiency will play a significant role in actualizing a sustainable society. Factor X is based on the concept that we must reduce the utilization of natural resources while simultaneously improving conveniences in daily life. The benefit of utilizing Factor X on the side of the consumer is that it provides a simple way of understanding how much a specific technology has contributed to the progress of an environmentally friendly product.

Promoting Green Procurement & Products Information Disclosure

Environmentally conscious materials procurement is a vital factor for improving the eco-efficiency of operations. Mitsubishi Electric published the "Green Procurement Standards Guideline" in fiscal 2000 to promote green procurement throughout the group, and has recently enhanced information disclosure efforts by making environmental information regarding its products available to the public via "MET-Profile" on the corporate website.

Promoting Green Procurement

Reducing negative environmental impact should start from the procurement process. The company maintains its stance on environmental protection when purchasing office supplies, parts and other materials in addition to its traditional focus on cost and delivery time. We printed the "Green Procurement Standards Guideline" in fiscal 2000 and distributed it throughout the group and to suppliers, and have since requested every supplier to consider the MET concept when providing materials to us. In support of our efforts towards greater eco-efficiency, we investigate suppliers' environmental information and circumstances and feed back the results of the investigation. Doing so, we have built close partnerships with our suppliers, which helps to promote green procurement further.

Green Procurement in the Semiconductor Group

The Semiconductor Group conducted an investigation of the environmental management activities of 517 of its main suppliers in fiscal 2000-2001 and checked the type and amount of environmentally harmful substances contained in each of the 3,000 different manufacturing materials it uses. The results and the group's evaluations have been compiled into a database complete with a search function and placed on the company's Intranet, with access available from February 2002. Being able to reference such information makes it easier for the Design and Development Division to select the most environmentally efficient materials, thus enabling reductions in the negative environmental impact of a product that need to be achieved at the procurement stage to be realized.

Procurement Activities in the Communications Systems Group

The Communications Systems Group introduced the "Environmental Protection Substance Control System" in March 2001 to promote environmental conformance in the design process by creating a database of environmentally harmful substances found in materials utilized in the production process and making the information available for reference. The system is equipped with a rapid and accurate information retrieval system that is used in requests for the disclosure of environmentally harmful substances contained in products delivered to customers. The database continues to grow, thanks to partnerships fostered with our customers in the communications infrastructure and mobile communications business. Plans for the future include increasing the volume of information and improving the search function.

Providing Public Access to MET-Profile

Environmental information on our products is listed in the "MET-Profile" on the corporate website. The public has free access to the information, allowing customers the opportunity to compare and select products from the viewpoint of environmental protection. Approximately 40 items of environmental information, such as the main materials for construction, recyclable materials usage, lead usage and power consumption, can be viewed for each product. In April 2002, the number of main products in the profile was increased to 120, and plans are to expand it to 200.

Product List Compliant with Green Purchasing Law

With the enactment of the Green Purchasing Law (effective April 2001), national and local governments in Japan are required to practice green procurement, and companies and residents are requested to support it as well. The Mitsubishi Electric Group created a list of its products that are compliant with the law and made it public by posting it on the corporate website. There are currently more than 250 products listed, such as information equipment, household appliances, lighting fixtures and other merchandise.

Example of Product Environmental Information Disclosure (MET-Profile)

Addressing Environmental Matters

MET-Profile Environmental Information Data Sheet

〔Return to MET-Profile Product Environmental Information〕

Product Name	Complex Integrated Surveillance Camera
Model Name/Type	CIT-7300
Product Name	Surveillance camera
Product Features	・Compact, fitting in 30 x30 cm body, contains leading-edge technologies ・Instantly check targeted surveillance area using zoom-in function (up to 60x magnification!)

External view

For more information, please contact

Company Name (Division Name)	No.4 Department, Communications System Group, Mitsubishi Electric Corporation
Telephone	03-6221-2665
Facsimile	03-6221-2778
E-mail address	
Product website:	http://www.cctv.melco.co.jp

	Data item	Unit	Data
Basic Information	Outer dimension (width)	mm	283.3mm
	Outer dimension (depth)	mm	214mm
	Outer dimension (height)	mm	281.4mm
	Weight (kg)	kg	8kg
	Release date	Year Month	May 2001
	Product nickname	—	Roboty
	Features	—	Electronic zoom, Electronic increasing sensitivity
		—	Flicker correction, Backlight correction
		—	Character display, One-push automatic
		—	Focus, Placement posture switching
		—	Position preset Communication port for control
		—	Wiper, Defroster
	Product power consumption	W or Wh	—
	Electricity consumption during operation	W	45W or less
	Electricity consumption during standby	W	25W or less
	Main materials used in product construction (% by weight)	—	—
	Iron and iron alloy (including stainless steel)	%	21%

The MET-Profile is not included in our official environmental website in English. The sample page shown here is a translation of the MET-Profile page of that site.

Eco-Product Results in FY 2001

Activities for improving the environmental performance of Mitsubishi Electric products are based upon a product's entire lifecycle and specific targets independently established under the MET concept. For fiscal year 2001, 801 improvements were completed in 90 product groups.

M Effective use of resources

A total of 413 successful results were obtained in 80 product groups, including improvements such as shorter disassembly time, fewer parts and fasteners*1 required, use of less corrugated cardboard and Styrofoam in packaging, increased use of recycled materials, and lighter weight.

Specific improvements include a 50% reduction in disassembly time for an air-conditioning ventilator, a 16% weight reduction as the result of installing a MELFLEX Series wide-area surveillance and control system, and a 50% reduction in parts for an IC-based fingerprint verification system.

E Efficient use of energy

In the area of reducing power consumption during normal operation or standby state, a total of 85 improvements were made in 62 product groups.

Reductions in power consumption during operation were achieved for the VL-908HPF ventilation heat pump system, a continuous airflow range-hood fan and a wall-mount Lossnay ventilation system, each attaining an energy savings of 33% (for cooling), 29% and 23%, respectively.

In the area of reductions in standby power consumption, impressive results were obtained for the VL-908HPF ventilation heat pump system (78%) and the JT-SB116D and JT-SB216DS model Jet Towels (50%).

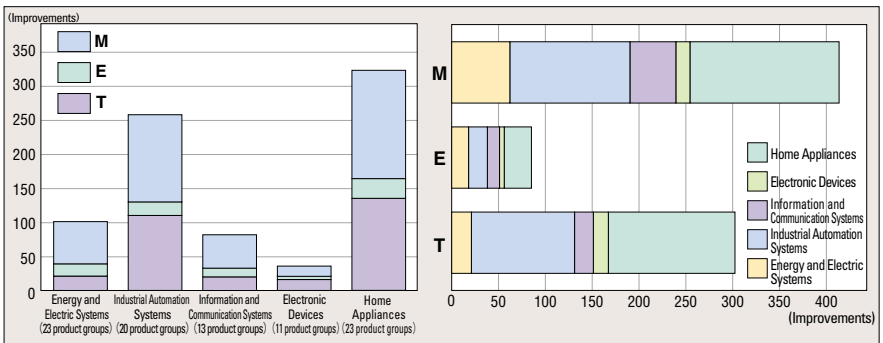
T Reduce use of substances potentially harmful to the environment

The main chemical substances targeted for evaluation included lead, mercury, cadmium, hexavalent chromium, greenhouse gases, vinyl chloride and brominated flame retardant. In terms of reducing utilization, preventing leakage and reducing the emissions of the above-mentioned substances, there were 302 improvements made in 52 product groups.

A printed circuit board assembled using lead-free solder is a component of the company's new City-Multi ICE Yp ice storage packaged air conditioner, and good results were reported for mass production. The lead-free soldering technology will be consecutively introduced to other multi-unit air-conditioning systems, with all models ultimately using it in the near future. Introduction of the printed circuit board technology has also led to the designing of lead-free circuit boards to be used in refrigerators and video copy processors.

In yet another area, the use of vinyl chloride resin in an air-cooled heat pump refrigeration unit was reduced by 25%. For the company's next-generation machine-room-less elevator, the vinyl chloride resin used in the architectural design of the cage was reduced by 80% and halogen-based flame-retardant material by 50%.

Results for Fiscal 2001



Breaking down the 90 product groups to which improvements were introduced into business groups, 23 groups each belonged to the Energy and Electric Systems Group, and to the Home Appliances Group, 20 groups belonged to the Industrial Automation Systems Group, 13 groups belonged to the Information and Communications Systems Group and 11 groups belonged to the Electronic Devices Group.

Classifying the 801 improvements (of which 1 was a product information disclosure effort)according to the MET categories, 413 improvements were related to effective use of resources (M), 85 improvements were related to efficient use of energy (E), and 302 improvements were related to reducing the use of substances potenially harmful to the environment (T).

*1) Number of fastenings refers to screw settings, snap-fitting, etc.

C O L U M N

Balanced Contribution with MET and Product Information Disclosure

Degree of Social Contribution: Resources reduction 13.8t, energy reduction 49.3kWh*2 and chemical substance reduction (lead) 0.58kg.

The CIT-7300 Roboty, a complex integrated surveillance camera, was conceived with the utmost attention being given to energy conservation, preventing the emission of substances harmful to the environment, miniaturization and weight reduction, and then the resultant design was verified by product assessment. Specifically, in making comparisons with the previous model, miniaturization realized a weight reduction of 63%, and motor power consumption was reduced by 27% to 36.9W. Reducing the dimensions of the printed circuit board resulted in a 15% reduction (to 3.8g) in lead usage. The improvements described above are industry-leading standards and have been inspected by the company's Internal Authorization Committee, making the camera qualified to receive the Environmental Mark.

*2) Assuming operating time of two hours per day for 5 years.

Hitoshi Tamayama,
Technology Division 4th Section
Visual Communication Systems Department
Koriyama Works

The development of such a complex integrated camera was a first-time experience for every member of the developing team. The actualization of this product required the integration and fusion of original knowledge from each member. Saying it in a good way, "It's because it was a new product that it turned out so well."

Eco-Products – A Part of Daily Life

Mitsubishi Electric applies Reduce, Reuse and Recycle (3-R) product assessment in its design process and adds product assessment based upon the MET concept to it before continuing to the manufacturing phase. Introduced below are a few of our eco-products utilized in the home.

Air-Conditioner

Energy Savings throughout the Product Lifecycle

Factor 1.44

Degree of Social Contribution : Resources reduction 400t, Energy reduction 1,874GWh, Lead reduction 0.8t

The electricity consumption of the Kirigamine MSZ-WX28J air-conditioner has been reduced to 959kWh (i.e., less than half that of the same series 10 years ago). In addition to the installation of a large air-purification filter, energy consumption throughout the air-conditioner's entire lifecycle has been reduced. This enables the product to provide superior air purification, prevents dust from making its way into the air-conditioner, and helps maintain product performance. The structure of the indoor unit allows easy dismantling, enhances cleaning ease and promotes the recycling of materials.

Yoshihiro Tanabe
Technology Section, Room Air-Conditioner Manufacturing Department
Shizuoka Works

The tighter enforcement of regulatory systems, in addition to the Energy Conservation Law, has led to the situation where designers abide by the laws. Starting from the customer's viewpoint, we worked hard designing this product for compatibility with regulations and operation ease.

MSZ-WX28J

2004 Energy Conservation Standard Achievement 115%
COP=Co-efficient of Performance energy rating: 5.64

Color Television

2003 Energy Conservation Standard Achievement 116%
Annual Electricity Consumption 128kWh/yr

25T-D101S

Power Consumption and Insulation Material Weight Reduced

Factor 1.33

Degree of Social Contribution : Styrofoam reduction 3.16t, Energy reduction 31.6GWh, Lead reduction 0.04t, Brominated flame-retardant material reduction 12.3t

Improvements to the 25T-D101S color television include the addition of a special standby mode with less power loss and a new energy-saving electric circuit for the power source section. Compared to our 25C-X30 model produced in 1996, annual electricity consumption has been reduced 37%, from 203→128kWh. Furthermore, because of a reduction in Styrofoam insulation owing to an improvement in the foam expansion rate from 60 → 70 times, the weight of the new model has been reduced 20%.

Tomoyuki Hayashi
TV Technology Group, TV Manufacturing Department
Kyoto Works

I was in charge of designing the Styrofoam insulation. I repeated drop tests and vibration testing many times in an effort to reduce volume. I worked diligently until the TV passed assessment and made it to mass production.

Lighting Fixture

Improved Fixture and Control System Achieves Amazing Energy Savings

Factor 2.44

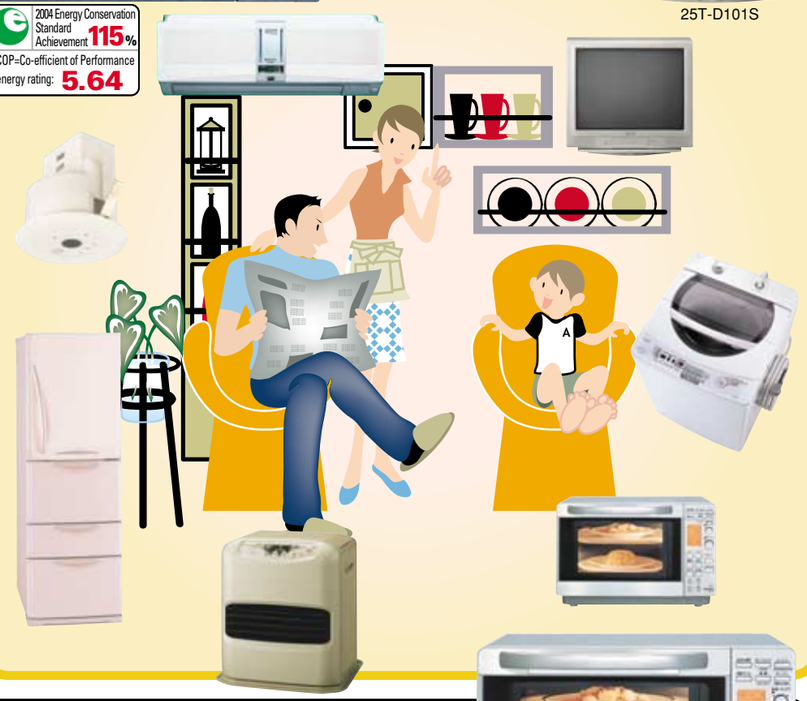
Degree of Social Contribution : Resources reduction 37t, Energy reduction 24GWh, Lead reduction 0.116t

The characteristics of the EasyecoSuper lighting fixture are high efficiency, high output and modular light adjustment capability. A newly developed automatic lighting fixture control system, MELSAVE SYSTEM III, enhances the daylight use, luminance correction and time switch functions, among others. Compared to the FB45123 Rapid Magnetic Lighting Fixture of fiscal 1998, the EasyecoSuper-MELSAVE SYSTEM III combination actualizes a 58% savings in energy consumption and approximately 50% in resources as determined by weight comparison.

EasyecoSuper YB4002A & MELSAVE SYSTEM Ⅲ

Koki Iwatsubo
Fixture Technology Department, Mitsubishi Electric Lighting Co., Ltd.

We examined improvement measures, such as analyzing deficiencies in matching the delicate changing of lamp luminance with daylight and the light sensor, repeatedly in trial-and-error fashion when developing the control system. We finally developed an original countermeasure and were able to make the product.



Automatic Washing Machine

Developed Aiming at Adapting to the Environment

Factor 2.00

Degree of Social Contribution : Resources reduction 5,700t, Water resource reduction 230 million liters, Energy reduction 90GWh, Lead reduction 3t

The MAW-V8SP automatic washing machine operates using a water misting technology that results in the effective use of water resources. Utilizing the "Mist Gravity" system, the water volume required to run this model one time is less than half that (245l→119l) of the AW-A89V1 model made in 1991. Considerations for operation control and power use resulted in the amount of electricity used per load to drop from 219 to 82Wh, thus achieving remarkable energy savings*.

MAW-V8SP

*) Operation one time per day at rated capacity.

Yuichi Hasebe
Technology Section No.1, Laundry Technology Department
Nihon Kentetsu Co., Ltd.

We worked very hard searching for the proper amount of water, and optimum nozzle shape, position and direction in order to spray the mist over all of the clothing during high-speed rotation.

Kerosene Fan Heater

Unique Compatibility - Larger Tank Capacity and Smaller Design

Factor 1.73

Degree of Social Contribution : Resources reduction 326t, Energy reduction 26.9GWh, Complete elimination of trichloroethylene, 0.4t

Our new KD-D32B kerosene fan heater is a unique product created in response to customers' conflicting needs of wanting a smaller product manufactured and wanting a larger capacity fuel tank. Compared to the KD-285D model manufactured in 1990, the new heater is smaller (10% reduction in product weight, 13.4→12.1kg), but has a larger tank (1.8 times larger, 5→9l), so refilling is less frequent.

KD-D32B

Yasumitsu Touda
Heater Technology Section, Heater Manufacturing Department, Gunma Works

There were a number of candidate sizes, like 6, 7 or 9 liters, when considering a larger tank size, so we were worried which one would be best. We actually made a full-sized model out of cardboard before solving the problem.

Microwave Oven

Reducing Standby Power to Zero

Factor 1.27

Degree of Social Contribution: Resources reduction 66.4t, Energy reduction 15.9GWh

In addition to reducing the standby power of the RO-LE1 microwave oven to "0," power loss in circuits was reduced by revising the magnetron drive system of the inverter power source. Compared to the RO-340AF model made in 1990, annual electricity consumption has been reduced 28%, from 291.8 to 210kWh. Increases in performance efficiency and output have resulted in shorter cooking times as well.

RO-LE1

Naoya Sugiyama
Range Technology Group
Cooking Technology Department
Mitsubishi Electric Home Appliances Co., Ltd.

I was in charge of designing the inverter power source. In view of having to consider such limited power, I worked hard on compatibility for efficient control of the magnetron so that there could be high output, yet reliable circuits would be ensured.

Refrigerator

Impressive Energy Savings via Precise Inverter and Refrigeration Control

Factor 1.54

Degree of Social Contribution : Resources reduction 176t, Energy reduction 176GWh, Ozone Depleting Substances reduction 70.4t

Inverter control has been added for better control of the highly efficient compressor equipped in the MR-Y40B refrigerator. The temperature of each compartment is controlled precisely using thermal sensors. Compared to an existing model (made in 1993), a 40% reduction in electricity consumption has been achieved. The general lifetime of a refrigerator is said to be 10 years, so a number of improvements were made in consideration of recycling in the future. They include parts disassembly, materials unification and thorough labeling.

MR-Y40B

2004 Energy Conservation Standard Achievement 115%
Annual Electricity Consumption 360kWh/yr

Kouichi Nakagawa
Technology Section, Refrigerator Manufacturing Department
Shizuoka Works

Our aim is to make products that are environmentally friendly, and a part of that task is making designs that make recycling easy. Thinking from the viewpoint that all raw materials may be important resources in 10 years, we question ourselves about what we can do now.

Eco-Products—Spreading throughout Society

In addition to home appliances, Mitsubishi Electric is pressing on with the development of Eco-Products in the fields of energy and electrical systems, electronic devices, information and communications systems and industrial automation.

Energy and Electric Systems

Elevator — Compact Machine-Room-Less Elevator Design Utilizes Less Lead

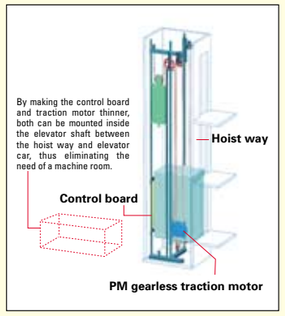
Factor 2.02

Degree of Social Contribution :
Resources reduction 1,500t, Energy reduction 800GWh, Lead reduction 12.6t

The ELEPAQ-i" machine-room-less elevator is designed to be more compact, narrower and require fewer resources than conventional elevators. A comparison of the present product to the 1983 model (standard product) reveals an overall size reduction of 28% and a reduction in electricity consumption of approximately 60%. For even larger energy savings, the company has introduced "ELESAVE," which provides additional energy conservation of more than 20%. In the area of environmentally harmful substances, the installation method for the traction motor has been changed from that of a suspended body to a wedge-like system, resulting in a reduction in the amount of lead utilized in the manufacturing process.

Takanori Komatsu
Traction Motor Development Section
R&D Department, Inazawa Works

I was in charge of designing the thinner traction motor. We worked extremely hard on ensuring that the new motor was compatible with previous motors in terms of high quality and reliability. Of course, special attention was given to maintain the comfortable ride Mitsubishi elevators are renowned for.



Transformer — Energy & Resource Conservation through Element Technology

Factor 1.34

Degree of Social Contribution :
Resources reduction 2,400t, Energy reduction 246GWh, Lead reduction 6kg, Toluene/Xylene Reduction 3.7t

The total high- and low-voltage windings (windings group no.) in our new steel-cased transformer has been reduced to half that of the standard product (made in 1996). Combining the new winding reduction technology and new insulating structure, the overall product weight was reduced to 76% and electricity consumption to 88% that of the standard product. Other important environmental factors include a 50% reduction in the amount of lead used and a 37% reduction in the amount of toluene and xylene used.

Shoji Nakatsuka
Planning Section, Transformer Manufacturing Department, Transmission & Distribution, Transportation Systems Center (Ako)

I was in charge of functional design for the main body of the transformer. Reducing the winding group number causes an increase in thermal load and level of severity on mechanical components. We were able to overcome the problem by developing a new element technology.

Electronic Devices

Semiconductors/Microcontrollers — Promoting Compact, Lead-free, Low-noise Products

Factor 8.07

Degree of Social Contribution :
Resources reduction 61.2t, Energy reduction 106GWh, Lead reduction 0.36t

The core of the MC16 family of microcontrollers (MC16C/62P group) is an original high-performance CPU developed by Mitsubishi Electric. By suppressing operation frequency and power source voltage, the utilization of a lower power source voltage was made possible. Furthermore, we were able to expand the family by offering another model with faster processing speed, which was achieved by increasing the operation frequency. Understanding our customers' concern for negative environmental impact, careful attention is paid to environmental protection through activities like product miniaturization, producing lead-free products and reducing noise.

Akitoshi Osaki
Section 2, MCU Second Department
System LSI Division

There were many conflicting factors in the designing process, such as the needs for low cost, compatibility between new and old products, fast processing speed, noise characteristics, development timeframe, etc. Everyone involved thought very hard about how we were going to make the best product.

Semiconductor/Memory — Substantial Reduction in Memory Mounting Area

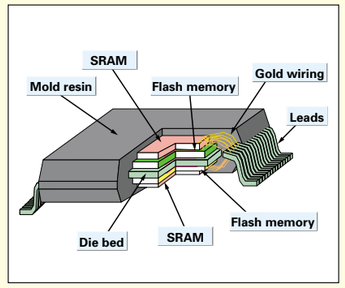
Factor 73.1

Degree of Social Contribution :
Resources reduction 1.48t, Energy reduction 670GWh, Lead reduction 1.2t

The utilization of S- µMCP memory has enabled the realization of a four-chip multi-layered (stacked multi-chip) packaged memory consisting of flash memory and SRAM* with large-capacity memory and low electricity consumption characteristics. The memory mounting area required on the circuit board has been reduced considerably, thus enabling further miniaturization and weight reductions in mobile phones. Additionally, by reducing operation voltage, lower electricity consumption has been realized. A substantial reduction in the amounts of mold resin and soldering material has been achieved as well.

Akira Okugaki
NVM 3 Group
System Memory No.1 Department
Memory IC Division

Even though the number of storage devices was increased, we managed to keep the number of pins required to a minimum. This enabled us to keep the package size down to an increase of 9% compared to the standard product.



*) SRAM : Static Random-Access Memory

Information & Communication Systems

Mobile Telephone — Drastic Reduction in Resin Use

Factor 2.97

Degree of Social Contribution :
Resources reduction 68.9t, Energy reduction 266GWh, Lead reduction 0.33t

Compared to the company's 1991 Analog Mova D, the Digital Mova D211i is approximately half the volume and is only about one-third as heavy. This is the result of integrating internal components, utilizing a high energy-density battery and other measures. By switching the molded body resign from PC*1 to PC+ABS*1 and introducing a thinner body design that is about half the thickness on average, the amount of resin used has been reduced remarkably as well.

*1) PC: Polycarbonate; ABS: Acrylonitrile Butadiene Styrene Copolymer

Satoshi Okamoto
Technology Section No.1, Mobile Telephone R&D Department No.1
Mobile Terminal Center

Being a portable terminal, strong resistance to shock is required in case it is dropped. We achieved this using a combination method for the main body and installing a reinforcement rib. I worked diligently to design and verify the optimum rib position and size.

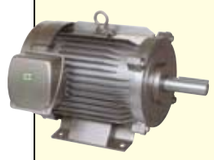
Industrial Automation Systems

Motor — Industry-Leading Energy Savings Achieved

Factor 1.17

Degree of Social Contribution :
Energy reduction 78.9GWh

The Superline Eco-Series SF-HR motor is built utilizing an original sheet steel, new wire winding method, and optimized slot shape and combination. Compared to the standard product (made in 1990), power loss was reduced 20-30%. In fiscal 1999, the series was presented the Superior Energy-Conserving Machinery Award, Chairman's Prize from The Japan Machinery Federation, and acquired EPAct certification number CC012A from the U.S. Department of Energy.



Yuji Kurata
Electric Motor Design Section
Shinshiro Factory, Nagoya Works

I am proud that we were able to create an optimal design and develop new materials for the motor. This was achieved by utilizing the latest magnetic field analysis technology and verification of the actual product. As a result of our efforts, an exceptional loss reduction technology was established.

Programmable Logic Controller — Next-Generation Model Created Using the Latest Technologies

Factor 1.44

Degree of Social Contribution :
Resources reduction 1.8t, Energy reduction 18GWh, Lead reduction 0.45t

The MELSEC-Q Series Programmable Logic Controller is a next-generation general-purpose model developed under the concept of "evolution and inheritance." The development and incorporation of high-density mounting technology and a large-scale ASIC*2, and a notable reduction in product components has enabled us to reduce the overall size of the programmable logic controller to 60% that of the standard product (made in 1990). Other improvements include remarkably enhanced operation ease, reduction in energy consumption and easier recycling of resources as the result of labeling plastic materials.

Keiichi Akizuki
FA Basic Systems R&D Section
FA System Department, Nagoya Works

I was in charge of the core calculations portion of the CPU. We had a very difficult time developing the proper high-density mounting required for the printed circuit board as well as the ASIC, which has a gate scale fivefold that of the previous model.

EcoMonitor — Measurements of Six Units Possible by One

Factor 2.62

Degree of Social Contribution :
Resources reduction 5.4t, Energy reduction 6.45GWh, Lead reduction 54kg

The EMU-B7P4-6 EcoMonitor is an energy conservation support device. It divides the measurement time of electric power into minute packets and allots electricity input processing using multiple circuits. This makes it possible for one unit to process measurements equal to the work of six EMU-B395 units (company's previous model, made in 1998). The power consumption for 1 unit has been reduced from 128 → 20kWh per year, an amazing energy savings. Additionally, the number of parts in the measurement circuit has been reduced 75%, allowing for product miniaturization.

Received the Ministry of International Trade and Industry Award at the Fiscal 2000 Densetsu Industrial Product Exhibition Competition

Hitoshi Kanagawa
Technology Group No.3, Measurement Control Manufacturing Department, Fukuyama Works

I was in charge of circuit design. In addition to concentrating efforts on designing the measurement time so that accuracy could be maintained, I also struggled with a circuit design that would allow the number of parts in the analog circuit to be minimized.

Airbag Controller — Weight Reduction Contributes to Enhanced Fuel Efficiency

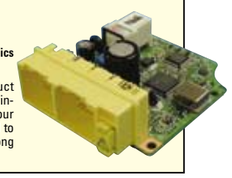
Factor 1.39

Degree of Social Contribution :
Resources reduction 10.5t, Energy reduction 2.52GWh

Efforts to integrate parts in the company's Airbag Control Unit led to improvements in the circuit layout and a substantial reduction in printed circuit board size. Overall product size has been reduced to 71% of the standard product (made in 1998), electricity consumption is 60%, and switching packaging materials enabled weight to be reduced to 64%. These results also contribute to better fuel efficiency for the vehicles in which the product is installed.

Yukihiro Okimoto
Car Electronics Design Section No.2, Car Electronics Manufacturing Department, Sanda Works

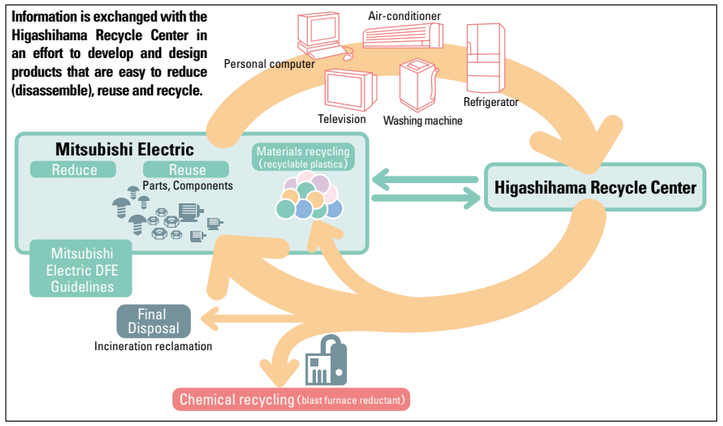
We worked very hard to make the product more compact and reduce costs while maintaining the specifications demanded by our customers. Development of the ASIC*2 used to integrate the circuits took a particularly long time.



*2) ASIC: Application-Specific Integrated Circuit

Recycling System for Used Products

In 1999, Mitsubishi Electric established a recycle center for used home appliances and information processing equipment, and in doing so constructed an efficient system for reusing resources. In the year 2001, it began offering a reusable resources service that targets recycling commercial-use personal computers that are no longer being used.



Addressing Home Appliance Recycling

Mitsubishi Electric established the Higashihama Recycle Center*1 in Ichikawa City, Chiba Prefecture, prior to the enactment of the Electrical Home Appliances Recycling Law in April 2001. The center operates as an environmentally conscious processing facility for the remanufacture of used home appliances and acquired ISO14001 certification in April 2001. In addition to this project, in an effort to promote the recycling of used home appliances, Mitsubishi Electric and five other companies*2 collaborated together to create a home appliances recycling system that reaches across the nation with 15 processing facilities.

The results of our fiscal 2001 efforts to recycle products are listed below.

① No. of used home appliances collected at specified sites (in weight): 764,000 units (30,651t)
② Weight of recycled materials: 21,077t
③ Percentage of recycled materials (4-product average; ② ÷ ①): 68.8%
④ Weight of substances such as chlorofluorocarbon refrigerant decomposed : 71,195kg

In February 2002, Kansai Recycle Systems Co., Ltd.,*3 one of the above-mentioned processing facilities, conducted operations in violation of the law when a chlorofluorocarbon refrigerant was emitted into the atmosphere while being removed from a specific product. As a result, 16 companies (including Mitsubishi Electric) were reprimanded for responsibility as a subcontracting manufacturer and given recommendations for correction dated March 20, 2002, from the Ministry of Economy, Trade and Industry and Ministry of the Environment. We have confirmed that operations in all of the other processing facilities comply fully with the regulations stipulated by law, and understand that it is our duty to support the management of recyclable product subcontractors in order to prevent such a problem from recurring.

A Challenge for Home Appliance Recycling Plants

The total amount of waste plastics generated nationwide in one year is estimated to be approximately 9,760,000t*4, of which 270,000t is waste materials from used home appliances. The amount of waste plastics from used home appliances is a small percentage of the total; however, it characteristically has more high-grade resins than container package plastics.

The Home Appliances Recycling Law requires manufacturers to establish systems to ensure the stable circulation of high-grade resins. In taking costs, negative environmental impact and other factors into consideration, in our plan to improve the recyclable products ratio, we are working to create a materials recycling system where high-grade resins will be included directly and reused along with other items in the materials recycling process.

However, components made from resins that are brought to home appliance recycling plants have metals like screws and hinges attached to them, or other foreign matter like labeling seals or spongy sound-absorbing materials stuck to them. An easier, more efficient, less costly way of removing such materials must be found.

Recycling Waste Plastics into Our Products

Traditionally, it has been both time-consuming and costly to remove foreign materials stuck or attached to resins because it has been a manual process. In answer to this problem, we developed the Plastic Separation System,*5 which polishes resin surfaces clean without the use of water, thus enabling the creation of an inexpensive high-quality materials recycling system capable of processing flame-retardant resins.

Some of the flame-retardant resins recovered at the Higashihama Recycle Center go through the Plastic Separation System, are processed into pellets and then reused again as a 100% pure reclaimed resource in manufacturing processes, such as in the baseboards that hold the electrical components of our commercial-use air-conditioners (see photo below). We will continue to promote activities that expand the reuse of plastics in products that are mass-produced with the aim of increasing the ratio of recyclable products.

Foreign matter stuck to plastic parts


Plastic Separation System


Baseboard for holding electrical parts (recycled plastic)

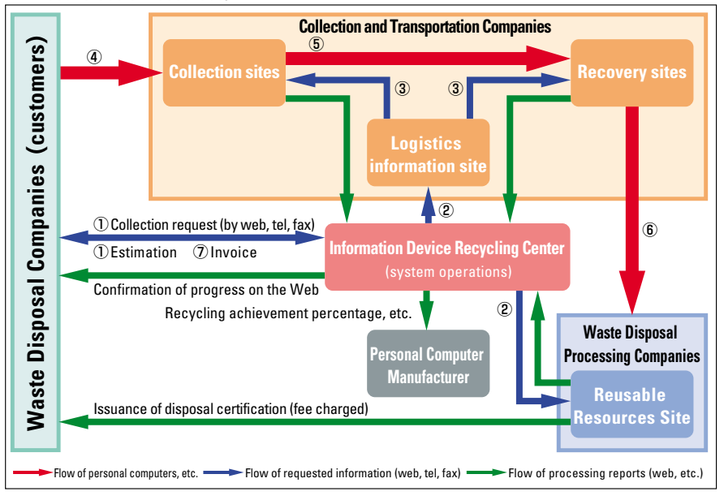
*1) Higashihama Recycle Center is the general name for Hyper-Cycle Systems Co., Ltd.(Paid-in Capital: 490 million yen; Mitsubishi Electric, 67.3%), and Green-Cycle Systems Co., Ltd. (Paid-in Capital: 110 million yen; Mitsubishi Electric, 100%).
*2) Fujitsu General Ltd., Hitachi, Ltd., Sanyo Electric Co., Ltd., Sharp Corporation and Sony Corporation (in alphabetical order)
*3) Paid-in Capital: 300 million yen (Mitsubishi Electric, 3.3%)
*4) This figure was cited from the 1999 Manufacturing Framework Commission, 1999 Ironworkers Statistics Survey and Ministry of International Trade and Industry Data for 1999.
*5) This technology was developed by support from the New Energy and Industrial Technology Development Organization (NEDO) in receiving the Fiscal 2000 Cyclical Society Construction Promotion Technology Development Aid Grant

Personal Computer Recycling Service

The Law for Promotion of Effective Use of Resources (enacted in April 2001) and related ministry regulations require that manufacturers recover and reuse resources from used personal computers utilized for business. In response to the law, the Mitsubishi Electric Group joined together with other manufacturers and established a nationwide resource recovery and reuse network with the aim of providing an efficient recycling system for used personal computers and other devices. The network began operating in August 2001. Those manufacturers that do not have a recycling management system for information equipment are allowed to use the network for a fee.

The fundamental foundation of the service is "DiaRCS+," an information device recycling management system developed and operated by Diamond PC Co., Ltd.*6 The system is characterized by the fact that it connects disposal companies, personal computer manufacturers and other collection/transportation companies and recycle management companies participating in the system's operations via the Internet. In addition to being able to provide timely estimations of waste removal requests and issuance of management vouchers, companies can view ongoing processes via website screens and arrange to optimize their removal, storage and reclamation activities.

Information Device Recycling Service Concept (compliant with the Law for Promotion of Effective Use of Resources)



Recovery of Small Secondary Batteries

The Law for Promotion of Effective Use of Resources also requires the manufacturers of small secondary batteries, as well as the manufacturers of devices that use them, to conduct recovery and resource recycling activities.

As a member of the Battery Association of Japan's Small Secondary Battery Resource Recycling Promotion Center, the Mitsubishi Electric Group has began recovering the small secondary batteries used in the products made by the group. In doing so, it utilizes the Used Small Secondary Battery Collection System operated by the above-mentioned center.

Small secondary batteries being recovered include Ni-Cd, Ni-H, lithium ion and other small sealed lead-cell batteries. There are approximately 30,000 specified recovery sites (Rechargeable Battery Recycling Cooperatives of the Battery Association of Japan) located throughout the country. The Mitsubishi Electric Group itself has 96 sites carrying out this activity.

*6) Diamond PC: Paid-in Capital: 100 million yen (Mitsubishi Electric, 72%)

C O L U M N

Environmentally Friendly Personal Computer Design – Apricot Series Notebook

Degree of Social Contribution: Resources reduction 3.1t, Energy reduction 360MWh, Lead reduction 0.02t

We sell the Apricot Series Pedion SL200 Notebook Computer. Even with the installation of a high-performance CPU, an impressive level of energy savings has been successfully achieved compared to the standard product (MAXY NOTE H model made in 1992), giving it a Factor rating of 1.99. Electricity use has been reduced from 0.227 to 0.013W/Mtops,*7 which when converted into effect as a result of quantity shipped, is equivalent to a drop from 809.3MWh to 449.6MWh over a 5-year use period. The overall effect is a social contribution of 360MWh in the category of energy conservation.

Isamu Funakoshi
P Manufacturing Department
Mitsubishi Electric Information Technology Co., Ltd.

Improving energy efficiency is by no means an easy task. The better results in this case were achieved through successfully conquering a rather big technological challenge.

*7) Mtops: Compound theoretical calculation performance stipulated in the Energy Conservation Law.

Logistics – Targets and Results

Improving the efficiency of the company's distribution system plays an important part in the activities carried out to reduce negative environmental impact. In the area of logistics, we are reducing the amounts of packing materials used and working on the emissions control of gases such as CO_2 and NOx.

Reducing Packing Materials

Even though the use of packaging materials is required to ensure the safe delivery of products to customers, the amount used and resulting wastes thereof must be reduced to an absolute minimum in a sustainable society. Important factors for consideration here are product durability and transportation system characteristics, as well as using lighter materials and simpler packing processes. In terms of waste disposal, we are actively promoting the return of packaging used and the utilization of a single material rather than combinations of materials to simplify final waste disposal processing.
Mitsubishi set the goal to reduce packaging materials 10% from the fiscal 1998 level by fiscal 2002, and as the result, the amount of materials used in fiscal 2001 was approximately 40,000t, achieving a reduction of 17% compared to fiscal 1998 and a 35% reduction compared to fiscal 1995.

New Packaging Materials for Exported Freight

In order to protect their forest resources, countries like China, Europe and the United States have stipulated strict regulations for using wood as packaging material for export products in order to ensure that wood-damaging insects are exterminated. The targeted wood is the coniferous tree, which is used widely for export packaging, and the targeted insect is the pine weevil. Effective wood treatment processes include heat treatment or hot kiln drying, so the importing countries required that the wood be treated by heat. As a result, we have switched from using the wood of coniferous trees to the utilization of other materials such as plywood, steel and cardboard.

Reducing Negative Environmental Impact Due to Transportation

We are focusing on reducing the creation of greenhouse gases and other harmful substances by developing more efficient logistics. Activities include increasing the modal shift*1 in transportation, reducing the number of vehicles used and sharing transportation with other companies.

Shift to JR*2 Container Shipping

The use of trucking is the main method used to transport products from the company to the customer. Especially in the first transfer of goods from the production site to distribution centers located more than 400km away, however, we have implemented a modal shift to JR containers. Using the 5t container as the basic measurement unit, we have increased the number of units shipped using the new method from approximately 6,000 in fiscal 1998 to approximately 10,000 in fiscal 2001. Our environmental effort was reported in "JR Freight," a monthly magazine published by the Railway Freight Association. Since we have begun increasing our use of JR containers, we have made various requests to Japan Freight Railway Company. These include shortening transportation time, clarification of departure and arrival times, redesigning of containers to improve loading efficiency (reconsideration of height limitations) and ensuring substitute routes should the planned route be blocked at the time of a disaster.

Promoting Use of Transport by Sea

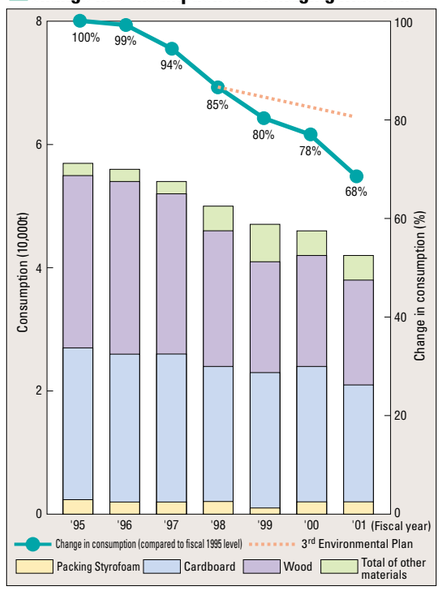
For the transport of large-sized products such as power generators and transformers as well as products shipped to distant locations, we are promoting the use of transportation by sea, including the use of ferries. Since fiscal 1998, we shipped approximately 20,000t via sea transportation, and in fiscal 2001 alone product transportation via sea was nearly 20,000t.

Other Activities for the Reduction of CO_2

In addition to the shift to the use of JR containers and sea transportation, we have started using large-sized trucks (10t and over) to improve loading efficiency and reduce the number of vehicles required for transporting products in order to further reduce the negative environmental impact related to distribution. Some 40,000 shipments were delivered using 10t or larger trucks in fiscal 2001. We are also conducting joint transportation activities not only with affiliated companies in the Mitsubishi Electric Group, but with other companies as well in an effort to further reduce the emission of CO_2 and other gases, and applying the use of battery-driven forklifts (in place of the gas engine-drive type) at business sites and warehouses.

*1) Modal shift: Change in means of transportation. Here, the term means switching from the use of trucks to railway or sea transportation for middle to long-distance transfer, and improving energy efficiency in the distribution process.
*2) JR: General name for the seven companies of Japan Railway Group.

Change in Consumption of Packaging Materials



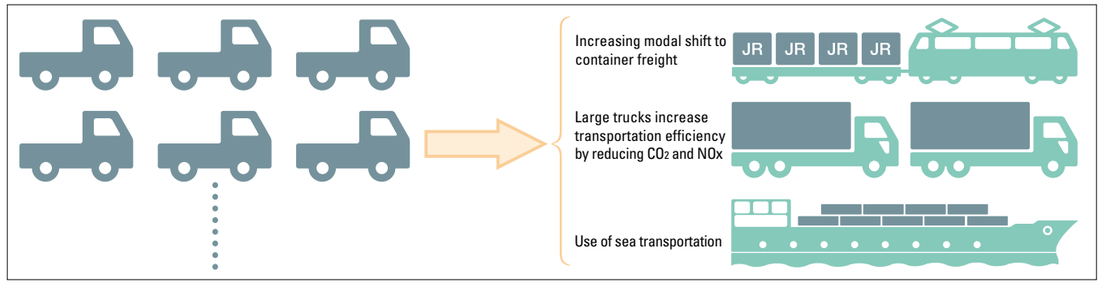
Improvement in Wood Packaging

Motor Packaging

From Wooden Pallets to Steel and Paper Pallets

Previous: Wooden pallet — New: Steel pallet — New: Paper pallet

Reducing Negative Environmental Impact Using by Increasing Shipping Efficiency



Reducing Negative Environmental Impact Using JR Container Transportation

Photos: Railway Freight Association

Cathode ray tube packaging (returnable container) — Transportation to and storage in JR container station — Container train loading process

List of Formal Names of Laws Utilized in this Report

Page	Name Used in Report	Formal Name
9, 12, 23	Home Appliance Recycling Law	Law for Recycling of Specified Kinds of Home Appliances
9, 16, 46	Green Procurement Law	Law on Promoting Green Purchasing
9, 19, 24	Energy Conservation Law	Law Concerning the Rational Use of Energy
12, 13, 33	Pollutant Release and Transfer Register Law	Pollutant Release and Transfer Register
15, 24	Revised Recycling Law	Law for the Promotion of Utilization of Recycled Resources
34	Air Pollution Control Law	Air Pollution Control Law
34	Water Pollution Control Law	Water Pollution Control Law
36, 46	PCB Waste Disposal Special Measures Law	Special Measures Law for Promoting Adequate Treatment of PCB Waste Disposal
36	Waste Disposal Law	Waste Disposal and Public Cleaning Law
36	Special Measures Against Dioxin Law	Law Concerning Special Measures against Dioxins

Employee Education and Awareness

Continuously raising employee awareness is a key factor in developing products and promoting a business that is conscious of the environment. Mitsubishi Electric focuses on raising its employees' consciousness year-round through education and enlightenment activities such as technology seminars, broadcasting of lectures via satellite and meetings of the Engineer's Society.

Technology Seminars

The company holds two comprehensive seminars a year for the purpose of disseminating knowledge regarding the latest environmental and recycling activities. The total number of attendees at both seminars since fiscul 1997 exceeded 1,200 employees.

Practicing disassembly processes at technology seminar

DFE Technology

The company has been holding a 3-day DFE (Design For Environment) Technology Seminar that is open to all employees every year since 1997. Participants learn the basics of DFE by studying laws and regulations, social trends and the latest technologies. They are also given the opportunity to utilize a design support system—developed by the Industrial Electronics & Systems Laboratory, which has been absorbed by the Advanced Technology R&D Center—to practice actual evaluation of disassemblability and recyclability using the company's products. The curriculum includes a tour of the Higashihama Recycle Center and a presentation given by one of the technicians from the center. The visit to the recycling center is a very important part of the training, as it presents a common understanding of subjects and know-how of an actual recycling site to all participating designers. Additionally, suggestions for improvements proposed during the training course are fed back to related departments for consideration in Eco-product designs.
In fiscal 2001, the students that completed the course were promoted to instructor, and they are now studying to rise to the level of technician.

BOX

Increasing Awareness of Environmental Laws and Regulations

Environment-related education is important not only for manufacturing operations. Employees that meet with customers on a daily basis in the process of sales, maintenance, replacement services, etc., must be fully aware of matters as well. Informative meetings are also held for the purpose of educating sales and construction personnel about environmental laws and regulations.

Environment-related Education

Company-wide

- Engineer's Society
  - Announcements, presentations, etc.
- Technology seminars
  - Seminars (elemental technologies and skills)
- MBS (Mitsubishi Business Seminar) courses
- Other
  - Informative meetings for sales and construction personnel, etc.

At Business Sites

- Developing managerial staff responsible for anti-pollution and energy management issues
- Education of internal auditors
- Training classes
  - New employees, group leaders
- Training of new managers, supervisors,
  - newly appointed department heads, new section managers and new group leaders

Practical LCA* Evaluation Technologies

An annually held seminar entitled "Practical LCA Evaluation Technologies" was established in fiscal 2000. Presentations focus on teaching the knowledge necessary for LCA and participants get firsthand experience using analytical software. Each participant brings the development data for the product that he/she is currently in charge of and uses it to examine and verify proposals for improvement. The results are then fed back to the actual product development site.

*LCA: Life Cycle Assessment

Reorganization of the Environmental Engineer's Society

The Engineer's Society reorganized into 11 different committees where engineers can exchange subject-specific information independently through opportunities such as announcements and presentations. There are currently more than 30,000 members in total.
The committees concentrate on the technical aspects of manufacturing process and core product technologies. For example, the Maintenance and Replacement Technologies Committee discusses matters regarding maintenance, the EOL (End OF Life) period of products and business models in three separate sub-committees. The R&D and Systems Technologies Committee runs the Environmental Management sub-committee, the Design and Reliability Technologies Committee runs the DFE sub-committee, and the Manufacturing Technologies Committee runs the Eco-Process sub-committee. This organization actively promotes information exchange and self-enlightenment.

Engineer's Society Organization

Manufacturing Process Technologies

- R&D and Systems
- Design and Reliability
- Manufacturing
- Maintenance and Replacement

Core Product Technologies

- Information and Software
- Communications
- Media
- Electronic Devices
- Measurement Control
- Electrical Devices and Energy
- Machinery

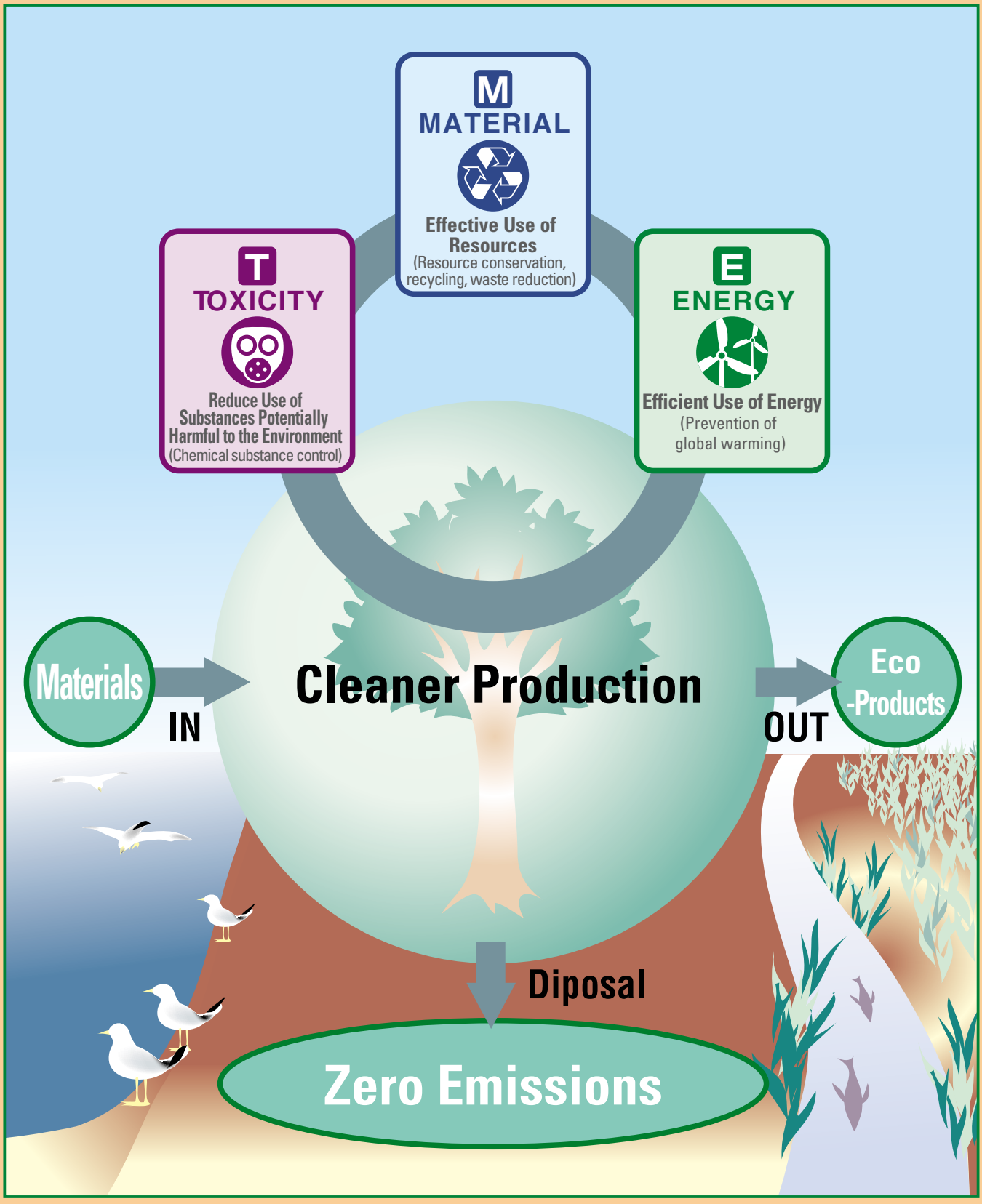
Satellite Communications Applications

The company's satellite communications network is an important part of the employee education program. A special studio broadcasts information via satellite to the audio-visual facilities of each company site, thus making it possible for a large number of employees, even if not located in the same facilities, to attend a presentation at the same time. The ability to have interactive discussions allows questions and answers to be exchanged.
On June 5th (Environmental Day), a Mitsubishi Business Seminar (MBS) course entitled "Corporate Management and Environmental Challenges in the 21st Century—Product Environmental Challenge Activities of Mitsubishi Electric" was broadcasted using the satellite communications network.

MBS course broadcasted over satellite communication network

Cleaner Production

All phases of manufacturing, from materials procurement through product and waste disposal, are carefully designed and monitored for environmentally safe operations, including activities like the reduction and elimination of substances that are potentially harmful to the environment., energy conservation, increasing the use of recyclable resources and waste reduction.



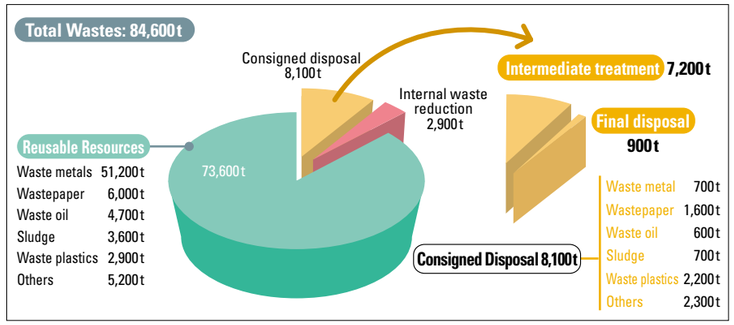
Effective Use of Resources

Applying the motto "Reduce, Reuse and Recycle," Mitsubishi Electric is working towards achieving zero-emission operations, and in doing so is suppressing the exploitation of resources and the disposal of wastes into the natural environment.

Summary of Achievements in Fiscal 2001

The total amount of waste in fiscal 2001 was 84,600t, a reduction of 7,800t compared to the previous fiscal year. The overall amount of waste has continued on a downward trend since 1991, the base year in our environmental plan (see graph). The amount of waste consigned for disposal was 8,100t, a decrease of 2,100t compared to fiscal 2000. Out of the total waste for disposal, the amount of reusable resources, including that earmarked for incineration (thermal recycling), was 73,600t, an improvement from 54% in fiscal 1991 to 87% in fiscal 2001 in terms of percentage of reusable materials.
In addition, the volume of waste plastics was reduced 21% and that of wastepaper was reduced 16% as compared to their fiscal 2000 amounts. These results reflect the efforts of the targets established at all business sites. Some business sites are also promoting reductions in sludge and waste oils according to their specific targets and depending on the degree of waste generated.

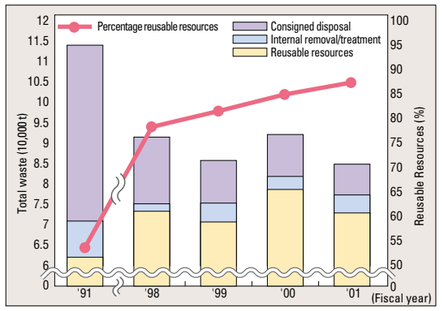
Waste Generation and Treatment Results for Fiscal 2001



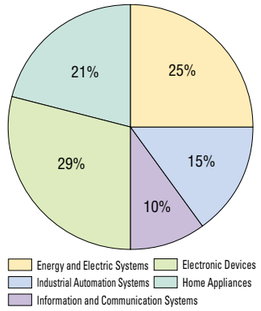
Consigned Waste Disposal Target Achieved One Year Early

According to the 3rd Environmental Plan prepared by the company in 2000, we will reduce the amount of consigned waste disposal by 30% of the total reported for fiscal 1998, and maintain it at a volume of less than 10% of the total amount of waste generated. The amount consigned for disposal includes that earmarked for incineration, disposal as landfill and intermediate processing. The overall total was reduced to 8,100t in fiscal 2001 (the final disposal of which was 900t). As a result, the amount consigned for disposal was only 9.6% of the total wastes, achieving the target value set for the 3rd Environmental Plan one year early. This reduction was particularly attributable to the conversion of wastewater sludge into raw materials for cement and that of waste plastics into combustibles for cement baking. For fiscal 2002, we are aiming at reducing the amount of wastes for final disposal to less than 1% of total emissions and achieving 100% full re-utilization sometime in the future.

Trend in Waste Emissions Over Time



Waste Disposal by Each Business Group



Setting Reduction Goals for Each Product

In the 3rd Environmental Plan we set a quantitative target value to be achieved by the end of fiscal 2002 for each product as a means for actively promoting reductions in waste generation and the reuse of resources upstream in the design and manufacturing of products as well as downstream where recycling and disposal are considered. In fiscal 2001, we gave particularly special attention to addressing 18 typical types of products, most of which are produced in mass-production processes (see table at right).
For example, we raised the rate for reuse of wasted plastics from 39% to 55% in the areas of gas-insulated switchgear and vacuum circuit breakers, reduced waste by 29% through improving faulty insulation molding materials of refrigerators and a prototyping method, and reduced sludge generation by 9% per CRT surface area by introducing a new cleaning method for CRTs. We achieved 16 out of the 19 targets for 18 products, including reducing the solvent for joining superconducting magnets, the reuse of packaging materials by improving the parts packaging for video copying processors, and the reuse of chemical polishers in the manufacture of printed circuit boards, etc.

Main Product Targets Achieved in Fiscal 2001

Product Targeted	Main Waste	Generation Process	Fiscal 2001 Results
Generator	Waste plastics (insulating material)	Generator construction process	Waste plastics reduced by 58%
Gas-insulated switchgear	Polyethylene tubes	Gas leakage testing	Reuse of polyethylene tubes, 100%
Superconducting magnet	Nitric acid (waste acid)	Melting copper for connecting superconducting wire	Copper solvent reduced 10%
70kV gas-insulated switchgear, 3kV/6kV vacuum circuit breaker	Waste plastics (insulating material)	Injection molding process	Reuse of waste plastics, 55%
Elevator	Painting sludge	Painting booth	Painting sludge reduced, 23%
Refrigerator	Waste plastics (faulty outer packaging foam)	Urethane packaging	Faulty molding reduced, 29%
Videocopy Processor	Shipping materials cardboard	Mechanicals, chassis ASSY-VCP process	Reuse of shipping cardboard, 53%
Electric water heater	Water heater tank material, shipping materials	Tank machining	Returnable shipping materials, 40%
CRT (Braun tube)	Dehydrated sludge	Wastewater treatment facility	Sludge from CRT wastewater processing per cubic meter reduced 9%
Programmable logic controller, Inverter	Waste plastics (printed circuit board edge material)	Printed circuit board fabrication	Reuse of part of printed circuit board edge material, 80%
General-use printed circuit board	Sulfuric acid	Chemical polishing process	Reuse of chemical abrasive, 100%
Geared motor	Water-soluble cutting oil	Machining	Emissions reduced 5%
Transformer	Resin	Injection molding process	Reusable portion, 62%
Car electronics equipment	Wastepaper	Electronic components mounting process	Reusable portion improved 4 points
Compressor	Waste oil	Machining	Emissions reduced 6%
Emergency power supply control board	Waste paint, waste solvent	Painting process	Emissions reduced 20%

Recycling Activities at Business Sites

Mitsubishi Electric's many business sites are taking their own initiatives towards ensuring that resources are used effectively. A few examples are listed here.

Commendation for Contributing to the Promotion of Recycling

The Shizuoka Works, the Transmission & Distribution, Transportation Systems Center and Mitsubishi Electric Kumamoto Semiconductor (MKS) Co., Ltd. were presented the Commendation for the Promotion of Recycling, Council for Promotion of Recycling Chairman's Award. The Shizuoka Works was highly evaluated for its contribution to advocating the "Zero Loss to Zero Emissions" concept and cost reductions related to the establishment of the six grades of recycling and promoting the reuse of materials.
The Transmission & Distribution, Transportation Systems Center, on the other hand, was highly evaluated for conducting visitations and meetings for the purpose of raising awareness and carrying out thorough separation and reuse activities. MKS established a recycling system together with a cooperative of six companies and has nearly achieved the level of zero emissions for its industrial waste disposal.

New recycling center at the Transmission & Distribution, Transportation Systems Center.

Internal Recycling of Office Chairs, Etc.

The Kitaitami Administration Center is promoting the reuse of office chairs, electric hot water pots and telephones. The used office equipment is manually disassembled, repaired and reused, while the disposable wastes are thoroughly separated and considered for reuse even though they had been traditionally scrapped as is.

Chairs are disassembled and separated for recycling.

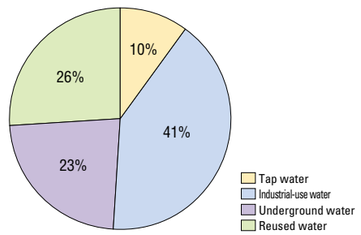
Recycling of Occupational Safety Related Items

The Fukuyama Works advocates total recycling of occupational safety related items. Members at the works have been recycling their work uniforms (since April 2000) and used safety shoes (since November 2001). In safety shoes alone, some 660 pairs (approx. 462kg) are used and then taken to a waste treatment plant for recycling each year. Other items planned for recycling and to cut down waste reduction include helmets, safety glasses and masks.

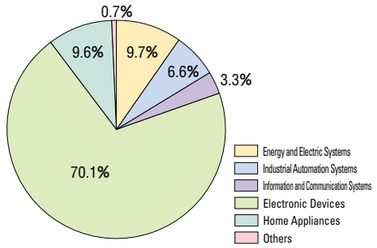
Effective Use of Forest and Water Resources

In total, Mitsubishi Electric used 15,210,000m³ of water resources during fiscal 2001, 500,000m³ less than in fiscal 2000. Of the amount used, 5,490,000m³ was reused making the percentage of water reused 26%. When broken down by business group, the Electronic Devices Group reused the largest amount, being some 97%. This is because the group's total use of water is the largest among others in the company due to the large volumes of water needed for cleaning parts, cooling machines and so on.
For the effective use of paper resources, we have introduced efforts to scale-down printing, use both-sided printing, reuse paper that has only been printed on one side and other practices that help reduce paper use such as encouraging the use of E-mail and Intranet/Internet communications. In addition, we promote internal green procurement for copy paper, catalogues, pamphlets, business cards, toilet paper, etc., contributing to the use of recycled paper containing a high proportion of waste paper whenever possible. Separation and recovery activities for used paper are always conducted giving great care to the possibility of paper being reused. Such efforts made during fiscal 2001 saved forest resources equal to about 290,000 trees (14cm diameter and 8m height).

Water Use



Water Use by Business Group



C O L U M N

Endangered Species of Freshwater Fish Found Alive

In May 2001, a freshwater fish (i.e., Japanese bitterling) listed in the Regulations for the Conservation of Wild Living Animals (Hiroshima Prefecture) was observed in the river adjacent to the Fukuyama Works. The average size of the fish is 3-4cm in length and is the smallest of the bitterling family. It is known to be found only in parts of Okayama and Hiroshima prefectures, and there is concern of its becoming extinct. The Fukuyama Works and local community have collaborated together over the past 15 years making efforts to keep the quality of the water high in the river through various cleaning activities, and now knowing of the bitterlings, concerted efforts will continue in order to protect the natural environment so that such rare species can live there.

Addressing Energy Conservation

Mitsubishi Electric is exercising energy conservation efforts in order to reduce carbon dioxide (CO_2) emissions that are a main cause of global warming. This activity will contribute to the reform of corporate management through cost reduction.

Energy Conservation Results

The company independently encourages energy saving activities with the aim of reducing CO_2 emissions. The amount of CO_2 emitted in fiscal 2001 was 810,000t, a reduction of 4% compared to fiscal 2000. However, as a percentage of energy consumption to net sales, it increased 17% per sales unit due to decreasing sales. The target for greenhouse gas reductions in Japan was set forth in the Kyoto Protocol at 6% of the 1990 level in the year 2010. Out of the greenhouse gases, the CO_2 emitted from our company during fiscal 1990 was 870,000t, thus making the figure for fiscal 2001 a 7% reduction. That marks a 0.1% increase from the fiscal 1990 level when viewed as percentage of energy consumption to net sales.

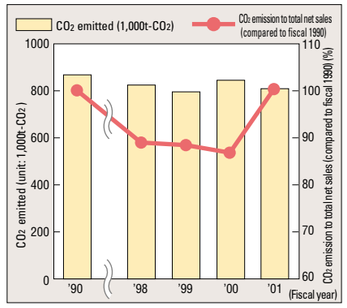
Breakdown of Energy Use

Electricity use was 1.6 billion kWh per year, making up 84.9% of the energy utilized company-wide, down 3% compared to fiscal 2000. For the other energy sources, the shares of city gas, LPG and heavy fuel oil decreased slightly, while use of kerosene increased accordingly. Each of our business sites is promoting conversion to energy sources that have less negative environmental impact by introducing co-generation or solar power generation, etc.

Energy Use by Business Group

Of all the groups making the many diverse products manufactured by Mitsubishi Electric, the Electronic Devices Group, where semiconductors are produced, utilized 60.2% of all the energy consumed by the company. The next largest share was 13.6%, which was consumed by the Industrial Automation Systems Group, where industrial equipment is manufactured.

Trend in CO_2 Emissions



Continuous Promotion of Energy Conservation Activities

Mitsubishi Electric promotes energy conservation activities on a continual basis, and encourages the same type of individual activities at the business site level.

Agency of Natural Resources and Energy Director's Prize

The Power Device Division, located in the Fukuoka region, was awarded the Agency of Natural Resources and Energy Director's Prize in fiscal 2001. The division first started IC production in 1976 and currently manufactures power modules and semiconductor equipment utilized for manufacturing semiconductors. As the result of switching from a high-pressure reverse osmosis (RO) membrane-type* water purifier to an ultra-low pressure system, power consumption was reduced 73% compared to that of conventional units. For the cooling tower, a 66% reduction in energy use was achieved by switching the material of the heat exchange section from steel to copper and employing a smaller cooling fan and water-spraying pump than conventionally utilized. The other energy conservation activities include stopping the use of power facilities on holidays, downsizing facilities and improving the preparation of chilled water for the cooling tower during the winter months. This attributed to a reduction of 1,070t in CO_2 emissions during fiscal 2001 alone.

*RO membrane: Reverse Osmosis, utilized to separate ions, organic matter and particulates in water.

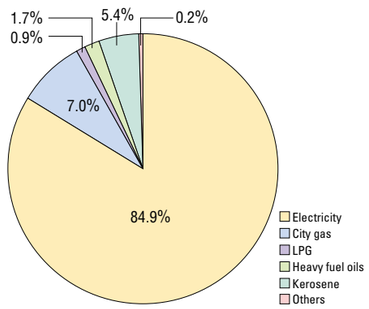
Kyushu Bureau of Economy, Trade and Industry Chief's Prize

The Kumamoto Factory received the Factory Energy Management Excellence Award as the Chief's Prize from the Kyushu Bureau of Economy, Trade and Industry (Heating Department) in fiscal 2001, marking the second consecutive year for winning the award. All employees in the Kumamoto Factory act in concert on energy conservation activities under their ISO 14001-compliant environmental management system. The award for 2001 was given in recognition of their continuous activities in the areas of promoting the reduction of negative environmental impact and reducing costs. The main energy conservation activities included the integration of existing boilers into smaller circulating boilers, resulting in a reduction of 780t of CO_2, a reduction of 210t of CO_2 from improving air-conditioner operation performance by reducing emissions from manufacturing equipment, and a reduction of 140t of CO_2 emissions owing to regular inspections for leakage utilizing a vapor trapping diagnostic system. Other works and factories that received the Factory Energy Management Excellence Award for Fiscal 2001 include the Kitaitami Administration Center (Electrical Department, Kinki Bureau of Economy, Trade and Industry Chief's Prize) and the Nagoya Works' Shinshiro Factory (Electrical Department, Chubu Bureau of Economy, Trade and Industry Chief's Prize). For awards received by affiliated companies, please refer to page 39.

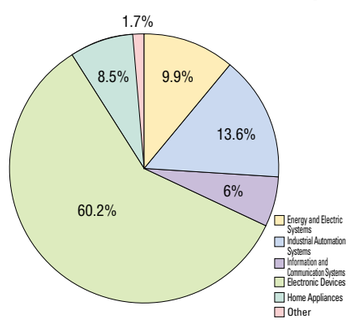
Sanda Works Energy Conservation Activities

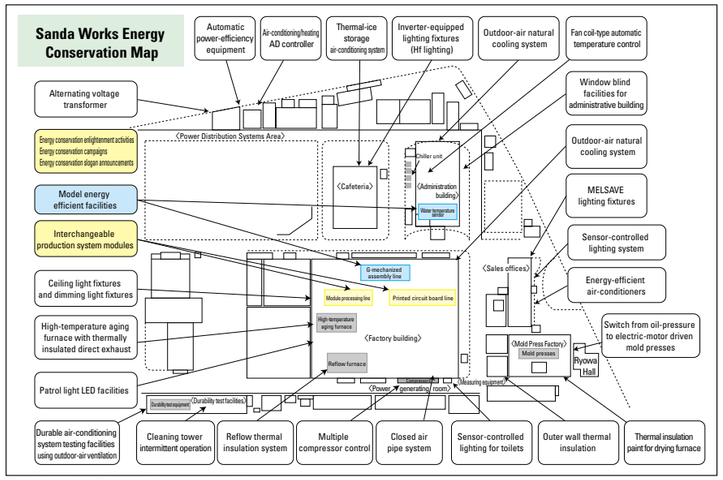
The entire plant of the Sanda Works is involved in promoting energy conservation activities. In addition to conventional energy savings primarily focused on power supply equipment, the works extends activities into production lines where the use of electric power is strictly measured and analyzed, and then the energy truly required for manufacturing is separated from other energy. The aim is to reduce any loss. Examples of energy-saving activities being conducted by Sanda Works are shown in the figure above. These activities led to a reduction of 1,000t of CO_2 during fiscal 2001.

Energy Use by Source



Energy Use by Each Business Group





Sanda Works Energy Conservation Map


Nagoya Works (FA R&D Center)
Photovoltaic power-generation system panels mounted on rooftop.

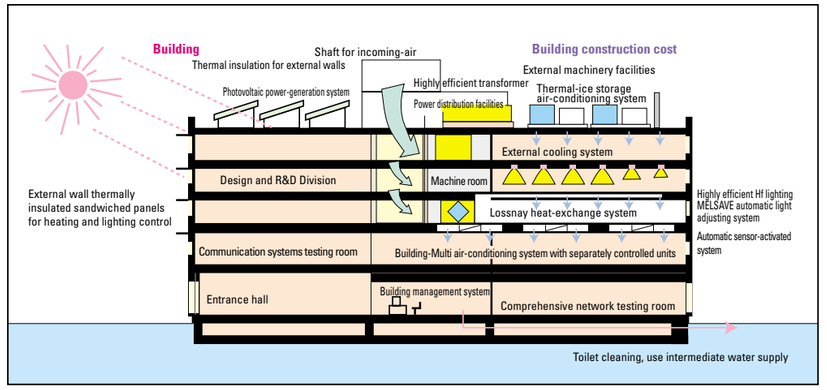

Communication Equipment Works
Photovoltaic power-generation system panels mounted on rooftop.

FA Development Center's Energy Conservation Measures

The FA R&D Center of the Nagoya Works is busy at work devising new concepts and activities that promote energy savings. The center, which is utilized by some 1,000 designers, is equipped with advanced energy-saving facilities like a 300kW-rated thermal-ice storage air-conditioning system, 10kW-rated photovoltaic power generation system and lighting fixtures that are controlled automatically. The center also utilizes a scheduling system for turning premises lighting on and off and has a cooling system that utilizes outdoor air. The combined improvements of these activities resulted in a CO_2 conversion-equivalent reduction of 520t in fiscal 2001.

Latest Technologies Included in New Building Design

In fiscal 2001, the Communication Equipment Works constructed a new building applying the concept of creating an "earth-friendly factory" where new technologies and ideas for utilizing natural energy were proactively applied. The former building housed the communications system design and R&D divisions as well as the testing division, even though the work environments are different in nature. The new layout provides an optimal arrangement with proper working environments for each specific area. Building construction utilized sandwich-type thermal insulation panels and eaves installed on external walls to prevent heating by direct sunlight, and thermally insulated roofing and flooring materials were utilized as well, giving the building an energy conservation efficiency rating of 26% compared to standard building structures. Inverter-equipped lighting fixtures and automatic lighting control achieve a 43% reduction in conventional power usage, and a high-efficiency transformer achieved a 23% reduction. A (10kW) photovoltaic power generation system has been installed for natural energy generation. The air-conditioning systems include the company's own "Building Multi Air-conditioning System," known for superior air-conditioning management, a thermal-ice storage air-conditioning system that shifts peak power operations to utilize nighttime power rates, and a Lossnay heat exchanger. Integrating air-conditioning demand control, electricity power management functions and the deluge lighting feature with the other technologies mentioned achieved an energy savings of 640t (converted to CO_2-equivalent value) in fiscal 2001.



Energy conservation technologies for new building of Communication Equipment Works

Appropriate Control and Emission Reduction of Chemical Substances

We utilize a variety of chemical substances in manufacturing processes, and it's therefore essential for us to manage and control the possible risks created due to using them. Mitsubishi Electric has established a custom management system that works to control both the substances stipulated in the PRTR Law and additional substances chosen on a voluntary basis.

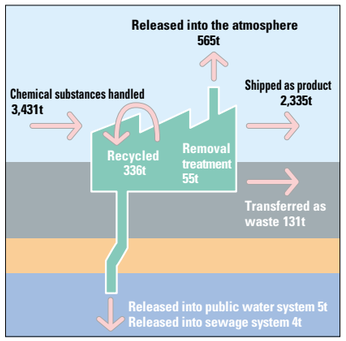
Framework for Chemical Substance Control

Since 1997, Mitsubishi Electric has prohibited the use of 27 types of chemical substances and targeted another 488 chemical substances for the company's voluntary control system.

In September 2000, we prepared the "Mitsubishi Electric Chemical Substance Control List," to which substances like CFC alternatives and SF_6 (sulfur hexafluoride) were added in addition to those stipulated in the PRTR Law*1. It is that list to which Mitsubishi Electric and its affiliated companies refer when considering the control of chemical substances. To further our efforts in this area, beginning in April 2001 we began to analyze and study the amounts of each substance handled by us and learn how much is emitted into or transferred to the natural environment. The results gathered are compiled and stored in the company's Chemical Substance Control System, a management system database built from the transactional data accumulated in each business site when purchasing materials and from the chemical manufacturers MSDS*2 data, which describes the type and content of chemical substances contained in the purchased materials.

Fiscal 2001 Overview

Based on a summary of the Mitsubishi Electric Chemical Substance Control List, we determined that the materials balance of chemical substances controlled and utilized throughout the company in fiscal 2001 is shown in the figure below. In total, 88 different chemical substances were used during fiscal 2001, and the total amount handled was 3,431t.

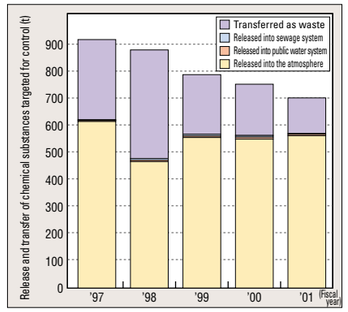


Materials Balance of Controlled Chemical Substances

The amount of emissions released into the environment (e.g., into the atmosphere or water) was 570t, and that transferred as waste and released into sewage system was 135t.

Trend in Release and Transfer Amounts

For the chemical substances that appear on our control list, the total amount released or transferred into the environment during fiscal 2001 was 705t, a decrease of 23% as compared to fiscal 1997 (refer to chart below). Most of the substances were released into the atmosphere or transferred as waste materials, a trend not unlike that in the past. Of the substances released into the atmosphere, 62% was toluene or xylene, with the top three substances, toluene, xylene and styrene, sharing that same order in terms of volume. These three together comprised 85% of the total substances released or transferred during fiscal 2001. As for the substances released or transferred into water, large amounts of "hydrofluoric acid and its water-soluble salt" and "boron-based compounds" were reported.

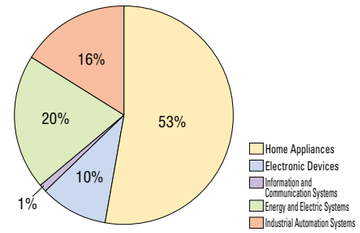


Mitsubishi Electric PRTR

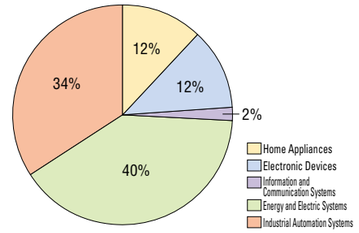
Quantities Handled and Emitted by Business Group

The Home Appliances Group handled the largest amount of controlled substances. Following it in order were the Energy and Electric Systems, Industrial Automation Systems, Electronic Devices, and Information and Communication Systems groups. In terms of release to the external environment, the groups in descending order are Energy and Electric Systems, Industrial Automation Systems, Home Appliances, and Information and Communication Systems (see figure above at right).

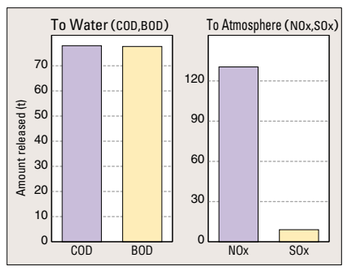
The percentage shared by the Electronic Devices Group is smaller than fiscal 2000, but the reason for this is a slump in production. The Home Appliances Group releases a rather small amount compared to the large amount treated there, and this is because products are shipped with the substance as an internal part, for example, refrigerators charged with refrigerant, etc. To maintain our efforts of reducing the emissions of controlled chemical substances that are potentially harmful to the environment, processes and designs will be continuously reviewed, the use of materials that contain such chemical substances decreased, and where possible, the use of alternative substances will be implemented.



Quantity Handled in Fiscal 2001 (3,431t)



Released into the Environment (705t)



Amounts Released into the Water and Atmosphere

*1 PRTR: Pollutant Release and Transfer Register
*2 MSDS: Material Safety Data Sheet. MSDS data is provided by the chemicals manufacturer.

Items Related to Preventing Pollution

Each of the manufacturing sites of Mitsubishi Electric has established, and manages on its own, criteria that are equal to or more stringent than the regulations required to comply with laws such as the Air Pollution Control and Water Pollution Control laws, and the regulations adopted by local governments. Beginning from fiscal 2001, we have learned the total amounts of NOx, SOx, COD and BOD*3 utilized and released annually and included them in the company's environmental impact index.

PRTR Results*4 (unit: t)

Rank	Substance Name	Amount Treated	Total Released /Transferred	Amount Released				Amount Transferred			Consumed	Properly Treated	Recycled
				Into Atmosphere	Into Public Water System	Into Soil	Total Released	As Waste	Into Public Sewage	Total Transferred			
1	Toluene	329.4	204.3	183.8	0	0	183.9	20.5	0	20.5	17.6	2.2	105.3
2	Xylene	250.6	179.3	167.2	0	0	167.2	12.1	0	12.1	9.0	3.6	58.7
3	Styrene	302.2	132.2	129.8	0	0	129.8	2.4	0	2.4	152.9	10.9	6.2
4	Hydrofluoric acid and its water-soluble salt	78.1	33.1	21.2	1.0	0	22.2	7.2	3.7	10.8	16.1	12.8	16.1
5	Sulfur hexafluoride	212.9	17.7	17.7	0	0	17.7	0	0	0	191.8	2.6	0.7
6	Ethyl benzene	20.4	15.8	14.7	0	0	14.7	1.0	0	1.0	0.5	0.6	3.5
7	HFC + HCFC	1696.2	32.5	11.0	0	0	11.0	21.5	0	21.5	1659.0	0	4.5
8	Ethylene-glycol-monoethyl-ether	10.0	10.0	9.9	0	0	9.9	0	0	0	0	0	0
9	1,3,5-trimethylbenzene	5.9	5.5	3.6	0	0	3.6	2.0	0	2.0	0	0.3	0
10	PFC	4.7	3.3	3.3	0	0	3.3	0	0	0	1.0	0.4	0

Note: Errors have been introduced to some totals by rounding off to the nearest tenths decimal place.

VOCs Elimination

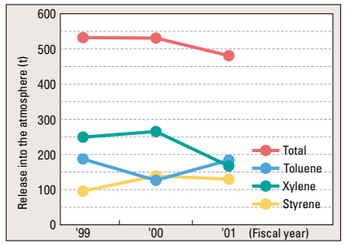
In fiscal year 1999, Mitsubishi Electric eliminated the use of 10 types of organic chloride compounds from its operations as a means of reducing volatile organic compounds (VOCs) said to cause soil and groundwater pollution. The company's domestic affiliated companies (subsidiaries and their manufacturing sites) also stopped utilizing the same substances in the spring of 2001. Additionally from fiscal 2001, the entire electrical and electronics products industry is focusing on chloroform as a significant chemical substance to be controlled in the movement to reduce environmentally harmful air pollutants. The amount of chloroform handled by the Mitsubishi Electric Group was 0.03t in fiscal 2001, less than one-tenth that of the 0.34t handled in fiscal 1998.

Reductions in Toluene and Xylene

Toluene, xylene and styrene are VOCs whose release amounts into the atmosphere are relatively high. Beginning in fiscal 2000, we have worked continuously to reduce amounts released by streamlining processes, utilizing alternative substances, and introducing an incineration system that decomposes harmful chemicals. In fiscal 2001, the total combined release of toluene, xylene and styrene into the atmosphere was reduced by 10% compared to fiscal 1999 (see figure below).

Improving Removal of Fluorine from Wastewater

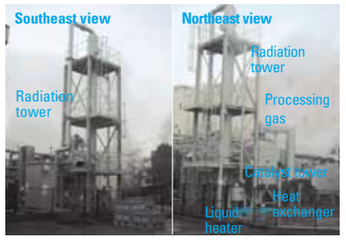
The Kochi Factory has reduced the level of fluorine concentration in its sewage system to less than 8mg/l. In July 2001, a supplement, "Wastewater Standards," was added to the Water Pollution Control Law as a revision requiring the drainage criteria for fluorine content to be changed from 15 to 8mg/l. The factory accordingly installed an advanced fluorine affluent treatment facility that utilizes a chelating resin capable of absorbing fluorine, and has thus reduced the average fluorine concentration to 3.8mg/l. It is anticipated that the fluorine content will be reduced to approximately one-half that conventionally measured.



Trend in Toluene, Xylene and Styrene Reduction

Facilities for Reducing Ammonium Nitrate

The Kumamoto Factory began operation of a facility that removes ammonium nitrate in October 2001 for the purpose of reducing the amount of ammonia being released into its drainage system. As the result, the concentration was reduced to less than half that stipulated for the drainage criteria (30mg/l) under the Water Pollution Control Law. Treatment involves a heating process in which the ammonium nitrate is separated and transformed into harmless nitrogen gas and water using a catalyst. The thermal energy generated while processing the ammonia is recovered and reused, thus contributing to energy savings as well.



Overall view of treatment facilities

*3 NOx: Nitrogen oxide, SOx: Sulfuric oxide, COD: Chemical oxygen demand,BOD:Biological oxygen demand.
*4 Only top ten substances released into the atmosphere are listed. Please visit the corporate website for the results of all chemical substances.

Reducing Greenhouse Gas Emissions

The Kyoto Protocol calls for reductions in the emission of greenhouse gases, those gases with stronger global warming effect than CO_2. Mitsubishi Electric established a set of voluntary reduction targets and has been actively engaged in emission reduction initiatives including limitation of use, promotion of gas recovery and reuse since 1996.

Establishment of Emission Reduction Targets

Greenhouse gases known to have a far worse global-warming effect than CO_2, from some hundreds of times to tens of thousands of times, include HFC, PFC and SF_6*1. Our efforts regarding voluntary targets and use reduction performance for these three specific greenhouse gases are discussed in the following.

HFC Reduction Results

CFCs and HCFC*2 have long been utilized as refrigerants for refrigerators and air-conditioners in the past, but since both substances are known to be detrimental to the ozone layer, in 1995 we eliminated the use of CFCs. In 1998, we began shifting from the use of HCFC to HFC. The shift will be completed by 2005 for our major production models and by 2010 for all products.
HFC is not an ozone depleting substance, yet it is a greenhouse gas, and we are tackling this issue by adopting refrigerants other than HFCs in our efforts to reduce the impact on global warming on a long-term basis.

We set as our target the reduction of HFCs as the total amount of HCFCs and HFCs because we believe the warming effects of these two substances are nearly equivalent, and we have been successful at making stepwise shifts from HCFCs to HFCs. The total emissions into the air from site operations in fiscal 2001 was 11t, and the emissions rate out of all total gases dealt with in our operations was 0.65%. Our goal is to bring the rate down to below the 0.2% level in fiscal 2002.

PFC Reduction Results

Fluoric gases like PFCs, HFCs and SF_6 are utilized to clean devices in semiconductor manufacturing processes. We are working to use PFC gas more efficiently and optimizing production processes in an attempt to minimize gas volumes used. In addition, we are currently evaluating and verifying the utilization of PFC decomposition equipment before making a formal introduction. We are also simultaneously identifying alternative gases for PFCs and conducting process evaluations of recovery and recycling systems.
The amount of PFC gas emitted from our works was 375,000t-CO_2 in fiscal 2001. Partially due to reduced production output, this was a 6.5% reduction compared to fiscal 1998. The amount of liquefied PFC emitted was reduced remarkably owing to improvements in manufacturing processes, achieving a 50% reduction compared to the fiscal 1995 level and reaching our target for fiscal 2002 early on.

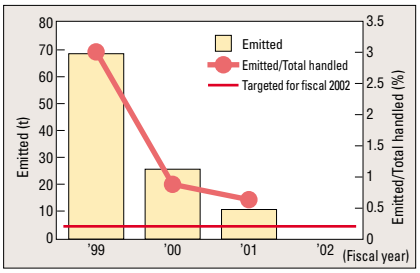
SF_6 Reduction Results

SF_6 is used as an insulating gas for electronic devices and is also used in semiconductor and liquid-crystal production processes along with PFCs. We established the SF_6 Emissions Suppression Committee as a part of our attempts to control and reduce emissions of the gas. The committee is addressing the recovery and reuse of the gas as well and has fielded the recommendation of promoting a shift to alternative gases and developing gas-decomposition technologies.
The amount of SF_6 gas emitted in fiscal 2001 was 18t, accounting for 8.5% of the total purchased. Our goal is to reduce the emissions/procurement rate to below 3% by fiscal 2005.

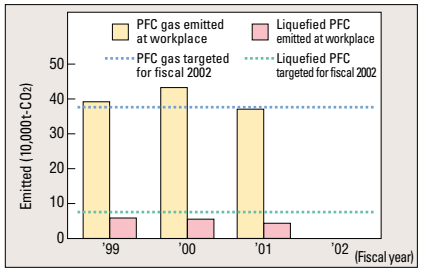
*1) HFC: Hydrofluorocarbon
PFC: Perfluorocarbon
SF_6: Sulfur hexafluoride

*2) CFC: Chlorofluorocarbon
HCFC: Hydrochlorofluorocarbon

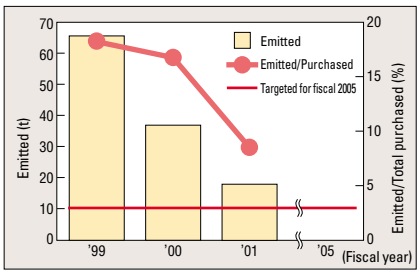
HCFC & HFC Emission Reduction Results



PFC Emission Reduction Results



SF_6 Emission Reduction Results



C O L U M N

Addressing the Recovery and Decomposition of CFCs

Companies in the Mitsubishi Electric Group are actively engaged in the decomposition of CFCs used in semiconductor manufacturing equipment as well as in the recovery of CFCs from refrigerator/air-conditioner and insulating equipment production as a means of avoiding emissions. We established and have been running a system in which CFCs are recovered when we conduct refrigerator/air-conditioner maintenance and are then transferred to appropriate CFC waste management operators. Along this line, all branches and sales offices of Mitsubishi Electric Building Techno-Service Co., Ltd. and Mitsubishi Electric Systems&Service Co., Ltd. have registered with their prefectural governments as CFC waste management operators and have prepared the equipment necessary for recovering refrigerants upon the customer's request. The CFCs thereby recovered are transferred to a CFC waste management operator for reuse or decomposition. Another of our affiliated companies, Hyper Cycle Systems Co., Ltd. , which specializes in recycling electric home appliances, is engaged not only in the recovery of refrigerants from refrigerators and air-conditioners, but also in the recovery of CFCs contained in refrigerator bodies as an insulator. The Advanced Technology R&D Center has developed PFC decomposition equipment that employs the utilization of plasma under normal atmosphere. The method enables us to conduct efficient PFC decomposition because it does not require any supporting gases or resultant CO_2 gases otherwise generated in the process.

Environmental Risk Management

Mitsubishi Electric promotes stricter control of chemicals and other substances with the aim of minimizing risk to the environment. In fiscal 2001, we confronted several problems and are making the utmost effort to ensure that such problems will not recur as we continue to introduce improvements.

Addressing Groundwater Issues

Mitsubishi Electric had totally eliminated the use of chlorinated hydrocarbons that cause groundwater contamination*1 by the end of fiscal 1999. Prior to that time, we carried out surveys throughout our manufacturing sites based upon a request from the Ministry of International Trade and Industry (now reorganized as METI, Ministry of Economy, Trade and Industry) for electric appliance and utilities manufacturers to investigate groundwater contamination. Based on the results of our own environmental assessments as well as the requested survey, we report contamination identified in the process to local authorities and then implement decontamination measures following the authorities' guidelines.
At present, we are carrying out decontamination operations for pollution caused by chlorinated hydrocarbons at 11 out of 29 sites: Koriyama, Gunma, Sagami, Kyoto, Kita-Itami, Amagasaki, Himeji, Wakayama, Fukuoka, Nagasaki, and Kumamoto. The methods we employ vary depending on the level of contamination, but basically include pumping and aeration of groundwater*2, ozone treatment*3, and removal of soil gases via suction technology*4.

Please refer to page 38 of this report for measures taken by affiliated companies to address contaminated groundwater issues.

PCB Storage Management

The PCB Waste Disposal Special Measures Law went into effect on July 15, 2001. Under the law, business operators who utilize PCB in their products or store PCB wastes must report to the prefectural governor a list of all the electric appliances PCB is used for. Companies in the Mitsubishi Electric Group are not currently manufacturing any products containing PCB, however, some products we manufactured in the past required the use of PCB in the manufacturing process. Please refer to the corporate website (only in Japanese) maintained for our customers' convenience, for a list of the products we manufacture utilizing PCB insulating oil.
In addition, our group companies conduct verification of PCB waste storage facilities during regular environmental audits. Based on the PCB Waste Disposal Special Measures Law, we will monitor the use of PCB-contained devices and equipment still in use in addition to checking storage status. The following table lists all of the PCB wastes and products containing PCB in the Mitsubishi Electric Group. We will maintain tight and proper control of storage through regular verifications until we complete proper disposal. We are also actively involved in the development of PCB disposal facilities, a matter which is being addressed nationwide.

Item	Volume
Waste PCB oil	**Approx. 60,000kg**
Power condenser	**Approx. 2,300 units**
Power transformer	**Approx. 120 units**
Compact condenser	**Approx. 35,000 units**
Fluorescent light ballast	**Approx. 68,000 units**
Impact paper	**Approx. 9,400kg**
Pollution containers/cloth	**Approx. 5,000kg**
Pollution equipment/tools	**Approx. 30 units**

Note: Based on survey conducted in 2001.

Measures for Dioxins

In recent years, it has become clear that dioxins are released due to poor burning conditions at incineration facilities. The Waste Disposal and Public Cleansing Law and the Law Concerning Special Measures Against Dioxins stipulate a set of tight criteria for the construction, maintenance and operation of incinerators. Mitsubishi Electric Group has established its own set of control standards for related operations, and in expectation of tighter criteria and regulations in the future, by August 2002 we are going to discontinue the use of all incinerators except for two units that we believe are sufficiently advanced to be compliant with future control standards.
In fiscal 2001, dioxin contained in the gases emitted at the Nagasaki Works was found to be 1.6 times the allowable standard level, and the Nagasaki Prefectural Government ordered us to stop operations of the facility. We immediately launched an investigation into the cause and implemented equipment improvements. The improvements were verified and approved by the government, and operations were allowed to resume.

Oil Spill Incident

In December 2001, 60 liters of heavy oil spilled into the Nakatsu River as the result of an automatic feeder switch malfunction at the Nakatsugawa Works. Oil fences and oil-absorbing mats were deployed immediately as a part of the recovery effort. In the future, permanent countermeasures, including the dismantling of equipment, to ensure that the incident will not recur are planned. A thorough inspection of similar types of equipment and the installation of additional oil fences will also be carried out.

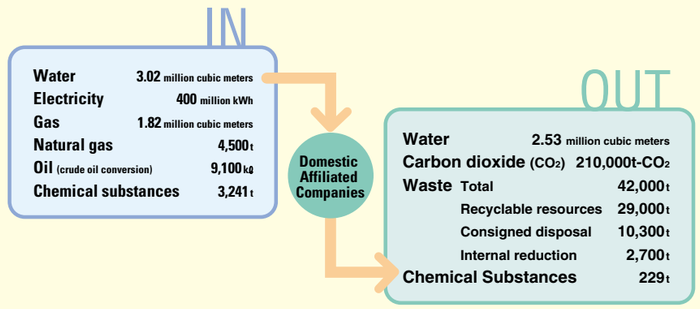
*1)The following 10 chlorinated hydrocarbons have been totally eliminated from business operations
- Dichloromethane
- Carbon tetrachloride
- 1,2-dichloroethane
- 1,1-Dichloroethylene
- cis-1,2-Dicholoroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Tetrachloroethylene
- 1,3-Dichloropropane

Does not include use of reagents (for analytical applications) allowed by law.
*2)Pumping and aeration of groundwater:
A typical groundwater purification process. This method releases the chlorinated hydrocarbons dissolved into the groundwater through a purification process in which the water is pumped from the ground and aerated. The released hydrocarbons are adsorbed by activated charcoal and destroyed before being released into the atmosphere.
*3)Ozone treatment
This method utilizes the oxidative effect of ozone to decompose chlorinated hydrocarbons into CO_2 gas and a chlorine ion.
*4)Removal of soil gases by suction
Gaseous soil containing the chlorinated hydrocarbons is vacuumed up, and the chlorinated hydrocarbons are adsorbed by activated charcoal for removal.
*5)PCB: polychlorinated biphenyl

Actions of Affiliated Companies

Our affiliated companies are undertaking various activities in collaboration with us for the purpose of reducing negative environmental impact. This section introduces the results of our affiliated companies' environmental activities related to products and manufacturing processes.

Resources Input & Emissions Output to the Environment



Affiliated Companies' Environmental Account*

Item	Cost (100 million yen)
Business area activities	24.7
Pollution prevention	9.3
Global environmental conservation	6.0
Resources circulation	9.4
Green procurement, production and products	0.4
Environmental management activities	6.8
R&D activities for environmental conservation	0.1
Social activities	0.0
Environmental restoration	0.9
Total	32.9
Profit	2.1
Savings	13.2
Total	15.3

*Refer to page 3 of this report for a list of the affiliated companies from which data has been collected.

Eco-Products Results

**Mitsubishi Electric's affiliated companies have implemented a variety of undertakings based on the MET concept as a part of their efforts to reduce negative environmental impact, particularly in the area of products.
For fiscal 2001, 230 improvements were completed in 26 product groups.**

M Effective use of resources

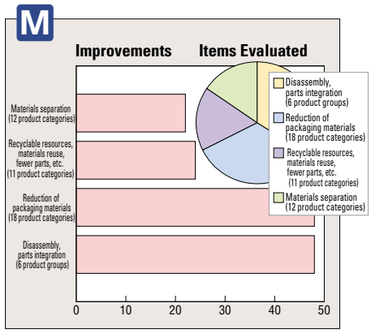
A total of 142 improvements were implemented in 20 product groups. They included improvements in ease of disassembly, use of recyclable resources and reductions in the amounts of composite and packing materials used. Below are some specific examples.
The disassembly time of the LB55 circuit breaker (Toyo Electric Co., Ltd.) was reduced by 40% as the result of a structural modification. The consumption of corrugated cardboard in the packaging of a bulb-type fluorescent lamp (OSRAM-MELCO Ltd.), an electricity indicator device (Koshin Electric Co., Ltd.) and a washing machine (Nihon Kentetsu Co., Ltd.) enabled packaging materials reductions of 18, 13 and 12%, respectively. In addition, plastic packaging materials for the AEF-type cooler with insulating oil and fin and the air cooler for motors (both manufactured by Tada Electric Co., Ltd.) have been reduced by 35 %.

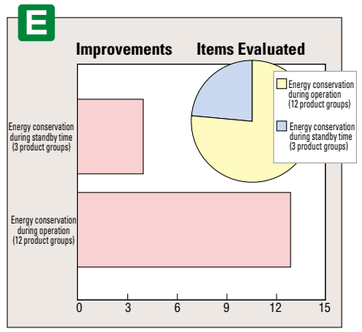
E Efficient use of energy

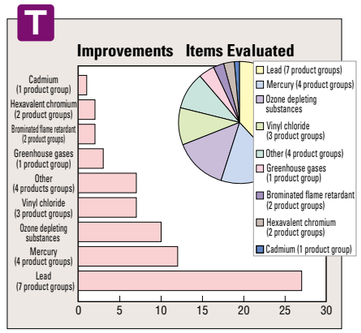
In the area of energy conservation, a total of 17 improvements were made in 13 product groups. Efforts here included reducing the electricity consumption of products when in use as well as cutting standby electricity. Specific examples include: The power consumption for a microwave oven (Mitsubishi Electric Home Appliances Co., Ltd.) was reduced by 15%, and the standby electricity was reduced to "zero." The electricity required for the light source of a projector (OSRAM-MELCO Ltd.) was reduced 14%, and a 5% reduction in energy required for a fault-current protection plug (Koshin Electric Co., Ltd.) was also achieved.

T Reduce use of substances potentially harmful to the environment

Chemical substances at issue include lead, mercury, hexavalent chromium, cadmium, poly vinyl chloride, greenhouse gases, and brominated flame retardant. Our affiliates are striving to reduce chemical substance consumption in manufacturing processes while also aiming to reduce the amounts of the substances in products as well. A total of 71 improvements were made in 12 product groups. Specific examples include reducing the amount of mercury used in LCDs (Advanced Display Co., Ltd.) by 5% and achieving a 30% reduction(excluding electrical cables) in the amount of soft vinyl chloride plastic utilized for commercial and household lighting fixtures (Mitsubishi Electric Lighting Co., Ltd.).







Environmentally Conscious Manufacturing Processes

Affiliated companies are actively engaged in promoting MET-related environmental activities at the manufacturing level. They have succeeded in reducing the amount of CO_2 by 14,000t compared to fiscal 2000.

M Effective use of resources

Our 46 affiliated companies generated 42,000t of waste in fiscal 2001, posting a slight increase compared to fiscal 2000. The amount of waste consigned for disposal increased by 4% to 10,300t. In looking at a breakdown of the wastes, waste plastics accounted for the largest share, the same as last year, followed by slag, waste acids and paper. The amount of reusable materials fell by 29,000t, a decrease of 7% compared to fiscal 2000. These results, from our viewpoint, are due to changes in the organizational business structure of our affiliated companies. We will continue to collaborate with them in an effort to help them reduce wastes further and promote the reuse of materials so improvements will continue in spite of changes that must be made.

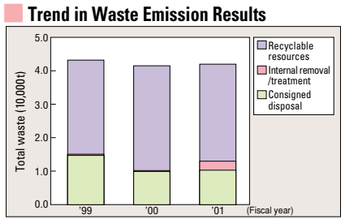
E Efficient use of energy

CO_2 emissions from the 46 affiliated companies in Japan totaled 210,000t in fiscal 2001, marking a decrease of 14,000t compared to fiscal 2000. Approximately 9,000t (CO_2-equivalent terms) of that reduction was achieved as a result of reduced energy consumption. Breaking this down by energy source, there were no major changes compared to fiscal 2000, with the major constituents being as follows: electricity, 80.2%; gases including LPG, 8.3 %; and heavy oil, kerosene and other petroleum products, 11.5 %. We will continue promoting a shift towards the use of alternative energy resources that have less negative environmental impact.

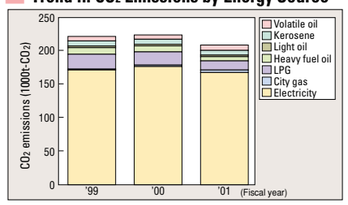
T Reduce use of substances potentially harmful to the environment

The total amount of controlled chemical substances purchased by our 46 affiliated companies in Japan was 3,241t in fiscal 2001. This is an increase of 2% compared to fiscal 1999. The total amount shipped as products reached 2,511t, representing a 9% increase compared to fiscal 1999. The total amount released or transferred into the environment was 570t, showing a decrease of 12% compared to fiscal 1999.
The ratio of substances released and transferred compared to total amount of chemical substances purchased stood at 19%, with that transferred as waste being 60%. We will continue to promote more efficient use of controlled substances, and at the same time, work to help affiliated companies introduce and use alternative substances, thereby minimizing the pollution caused by environmentally harmful materials.

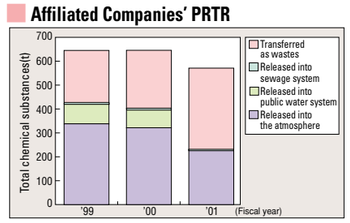
Trend in Waste Emission Results



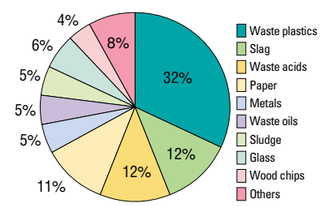
Trend in CO_2 Emissions by Energy Source



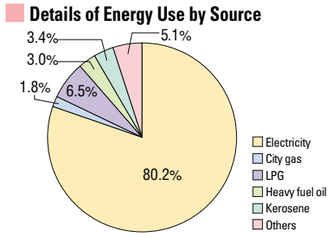
Affiliated Companies' PRTR



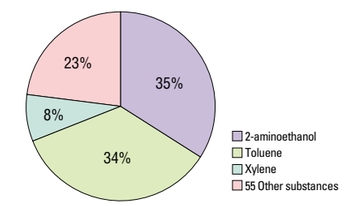
Consigned Waste Breakdown



Details of Energy Use by Source



Details of Chemical Substance Waste Transfer



Addressing Groundwater Issues

The member companies of Mitsubishi Electric Group in Japan (consolidated subsidiaries and manufacturing companies held by our holding company) eliminated the use of chlorinated hydrocarbons at the end of April 2001. Our overseas subsidiaries and affiliated companies have established the target of doing so by the end of December 2002 and are currently working on shifting to alternative substances.
From fiscal 1999 through fiscal 2000, voluntary groundwater inspections were conducted at domestic sites in accordance with the "Operation Standards of Guidelines for Surveys and Countermeasures Concerning Soil and Groundwater Pollution" of the Environment Agency (i.e., now the Ministry of the Environment of Japan). Those companies where polluted groundwater was discovered have been registered with local authorities, and they are currently proceeding with restoration procedures.

Shift from Heavy Oil Fuels to City Gas

One of our subsidiaries, Ryoden Kasei Co., Ltd., acquired ISO14001 certification in December 1999. It made further improvements, introducing the latest boilers and using city gas in October 2000. In addition, in May 2001, it shifted to incineration-based deodorizing equipment that operates using city gas. These changes have resulted in 87% of the heavy oil consumption being replaced by city gas and a 33% reduction in CO_2 emissions (1,200t/yr). NOx reduction was 2.0t and SOx reduction was 1.9t for the year. The firm will continue to shift the remaining 13% to city gas.

Deodorizing equipment burner section after shift to city gas.

ISO 14001 Certification & Major Awards

Affiliated companies that have recently acquired ISO 14001 certification or received a major award are listed below.

Certification Acquirement

Plan-drafting Companies

In fiscal 2001, five sites of five domestic affiliated companies and one site of an overseas affiliated company acquired ISO 14001 certification. In total, 40 sites of 37 domestic affiliated companies and 10 sites of 10 overseas affiliated companies have acquired certification.

Country	Company Name	Certification Date	Certifying Authority
Japan	Higashihama Recycle Center*1	2001.04.18	JACO*2
	Mitsubishi Electric Documentex Co., Ltd. / Main office, Tokyo Factory, Itami Factory	2001.11.16	JQA*2
	Ryosan Industrial Corporation / Main office factory	2001.12.28	JQA
	Kodensha Co., Ltd.	2002.02.01	Japan Testing Center for Construction Materials
	Mitsubishi Electric Logistics Corporation	2002.03.08	JQA
Thailand	Mitsubishi Electric Thai Auto-Parts Co., Ltd.	2001.07.11	CERTIFICATE NO.85720

*1) Higashihama Recycle Center is the general name for Hyper-Cycle Systems Co., Ltd., and Green-Cycle Systems Co., Ltd.
*2) JACO: Japan Audit and Certification Organization for Environment and Quality JQA: Japan Quality Assurance Organization

Certification for Companies Other than Plan-drafting Companies

Country	Company Name	Certification Date	Certifying Authority
Japan	Tachibana Eletech Co., Ltd.	2001.06.29	JQA
	Kanaden Corporation*3	2001.10.26	Tomatsu Evaluation and Certification Organization
	Ryoden Trading Co., Ltd.	2001.12.19	JACO
Thailand	Kang Yong Electric Public Co., Ltd.	2001.09.21	B.V.Q.I.*4
Indonesia	P.T. Lippo Melco Auto-Parts	2001.10.03	Kema-Registered Quality, Inc.
China	XD-Mitsubishi Electric Switchgear Co., Ltd.	2001.07.20	Det Norske Veritas

*3) Certification received for all domestic branches and business offices.
*4) BVQI: Bureau Veritas Quality International

Major Awards Received in Fiscal 2001

Domestic

Company Name	Award	Awarding Organization	In recognition of
Mitsubishi Electric METECS Co., Ltd.	Factory Energy Management Excellence Award (Electrical Dept.), Agency of Natural Resources and Energy Director's Prize	The Energy Conservation Center	Evaluation revealed reduction in energy units required achieved through continuous energy conservation activities
Mitsubishi Electric Kumamoto Semiconductor Corporation	Factory Energy Management Excellence Award (Heating Dept.), Kyushu Bureau of Economy, Trade and Industry Chief's Prize	The Energy Conservation Center	Promotion of energy management and rationalized use
Mitsubishi Electric Osram Ltd.	Energy Conservation Award (Energy-saving Equipment and Systems Award) The Energy Conservation Center Chairman's Prize	The Energy Conservation Center	Spreading of energy conservation measures such as lowering electricity consumption by installing "Lupica Ball Mini" fluorescent light bulbs, improving lighting fixture attachments through miniaturization
Mitsubishi Electric Nagano Semiconductor Corporation	Gold-class Commendation from Nagano Eco-Circle	Nagano City	Active promotion of environmental management activities such as acquiring ISO 14001 certification
Toyo Takasago Dry Battery Co., Ltd.	Gold-class Commendation for Eco-Office System from Yaita City	Yaita City	Continuous years of environmental management activities in business offices
Mitsubishi Electric Kumamoto Semiconductor Corporation and its group members*5	Commendation for the Promotion of Recycling, Council for Promotion of Recycling Chairman's Award	Council for Promotion of Recycling	Promotion of recycling and achieving "zero emissions" and other contributions
Mitsubishi Electric Kumamoto Semiconductor Corporation Nansei Electric Company	Higo Water Resources Protection Award	Kumamoto Prefecture	Effective use of groundwater and water quality pollution prevention
Sowa Technica, Inc.	Nakatsugawa City Environmental Promotion Committee Chairman's Award	Nakatsugawa City	Meritorious deeds and contributions to environmental preservation

Overseas

Company Name	Award	Awarding Organization	In recognition of
Mitsubishi Electric (Guangzhou) Compressor Co., Ltd.	Special Recognition Award for Advanced Industry	Bureau of Environmental Protection, Guangzhou Economic Technology Development Division	Total emission of industrial wastes below targeted standards

*5) Mitsubishi Electric Semiconductor Corporation, Otsu Electronics Co., Ltd., Nansei Electric Co., Ltd., Mitsuya Electronics Co., Ltd., Kanebo Kikuchi Electronics Co., Ltd., Nodashi Electronics Co., Ltd., and Kumamoto Bousei Industries Co., Ltd.

Examples of Affiliated Companies' Environmental Activities

M Shift from Wooden Packaging Materials to Cardboard

Ryoden Kasei Co., Ltd.

Ryoden Kasei Co., Ltd., a company that manufactures and sells electrical insulation materials, attained ISO 14001 certification in December 1999. In January of the following year, they began switching from the utilization of wood in packaging processes to that of cardboard in an effort to promote the recycling of waste packaging materials. In fiscal 2001, 80% of all products shipped were packaged in cardboard, which resulted in a remarkable 30t reduction in packaging material weight. Plans are to turn to 100% cardboard packaging in the future.

E Fluorescent Light Bulb with Low Negative Environmental Impact

OSRAM-MELCO Ltd.

The "Lupica Ball Mini" bulb-shaped fluorescent lamp has an impressive energy efficiency rating and a high recyclable resource percentile. It is now available in the market. Electricity consumption for the bulb's rated life expectancy (6,000hr) is 72kWh. Compared to our company standard, the energy savings for a 60W incandescent bulb is 1:4.5, and the rated lifetime is six times as long. Using the Lupica Ball Mini also results in reducing the waste from lights to one-sixth the average fixture, and the bulb shape has been reduced by 17% compared to our other fluorescent lamps, the smallest in the industry. As a result of these achievements, Mitsubishi Electric Osram Ltd., as the sales company, received the Energy Conservation Center Chairman's Prize from The Energy Conservation Center.

Lupica Ball Mini light bulb

E Improving Office Lighting

Mitsubishi Electric Automation Inc.

Mitsubishi Electric Automation Inc. is an affiliated company in the United States. It completed a negative environmental impact reduction project applied to its office space in September 2001. Electricity consumption in the office fell by 33% compared to previous usage, and lighting luminance was increased 25%. The main improvement was a design switch from a 34W 3-bulb fixture to a long-life 40W 2-bulb setup. The effective reduction in negative environmental impact is an electricity savings equal to 24,000 liters of oil per year and a waste reduction of 66% compared to the previous bulb.

E Increased Productivity Saves Energy

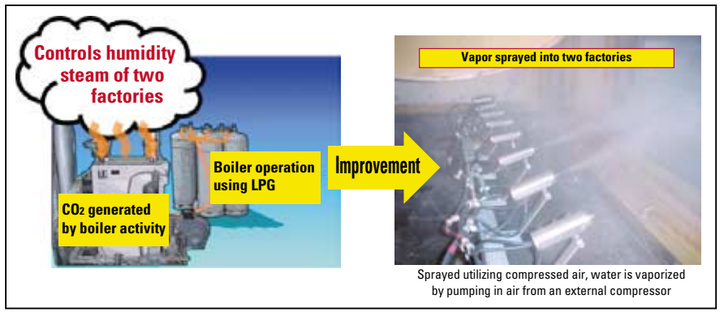
Kanebo Kikuchi Electronics Co., Ltd.

A member of the Mitsubishi Electric Kumamoto Semiconductor (MKS) Group, this company manufactures and sells semiconductor integrated circuits (ICs). As a part of its original energy conservation activities, the company is promoting savings in two ways: energy consumption related to IC productivity, and that which is not related to production numbers. Regarding that related to productivity, attempts are being made to shut down facilities and turn off lights in areas that are not being used. In the area of activities not related to productivity, the company has introduced a dual-flow humidifier system. Energy savings and reductions in air-conditioning expenses were achieved by switching from a boiler humidification system to one that utilizes a two-flow system of air and demineralized water. The system is comparably inexpensive to operate, so cost can be recovered in the short-term. It is being applied to other companies in the MKS group.

T Development of Substitute Insulating Varnish for Styrene

Ryoden Kasei Co., Ltd.

Ryoden Kasei Co., Ltd. manufactures electricity insulation materials and has developed a substitute insulating varnish called "V565-00" that contains no styrene, and can thus be utilized to reduce the amount of styrene emitted by its customer's companies as well as its own. In fiscal 2001, Ryoden Kasei reduced its styrene usage amount by 35t, equaling approximately 30% of in-house use. The company also introduced an environmental assessment program to target environmentally harmful substances from initial stages and promote the development of Eco-products.



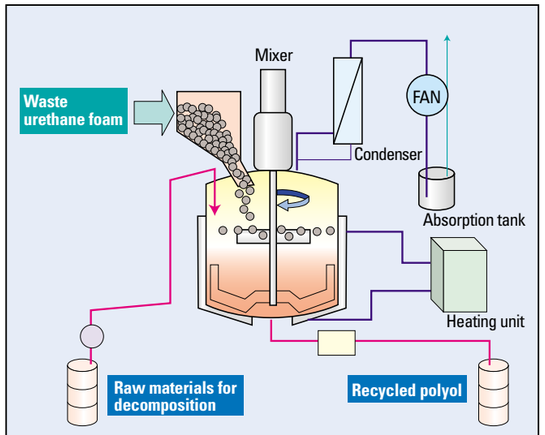
Installation example of dual-flow humidifier system from Kanebo Kikuchi Electronics Co., Ltd.

Environment-related Business

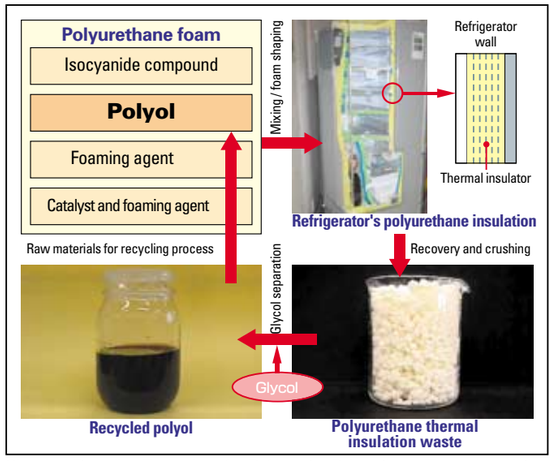
Based on know-how utilized for reducing negative environmental impact previously fostered by the company as well as a variety of newly developed technologies, Mitsubishi Electric is constantly working to promote environmentally conscious businesses.

M Recycling Technology for Polyurethane Foam

Due to its excellent thermal insulation and mechanical strength properties, polyurethane foam is widely used as an insulating material in refrigerators, commonly making up about 10% of a product's overall weight. However, since polyurethane foam is a thermosetting resin which is both insoluble and infusible, a chemical-based recycling process is required. The Advanced Technology R&D Center has developed a basic technology to be utilized in the recycling of waste materials containing polyurethane. The new technology utilizes a special reduction glycol that chemically dissolves the polyurethane waste, allowing polyol, the raw material in polyurethane, to be recycled. It has been confirmed that polyurethane foam containing recycled polyol at a weight ratio of 30% has the same thermal insulation and mechanical strength characteristics as parts manufactured using new materials. The recycling technology was made possible through successful collaboration with the New Energy and Industrial Technology Development Organization (NEDO) during fiscal 2000-2001.



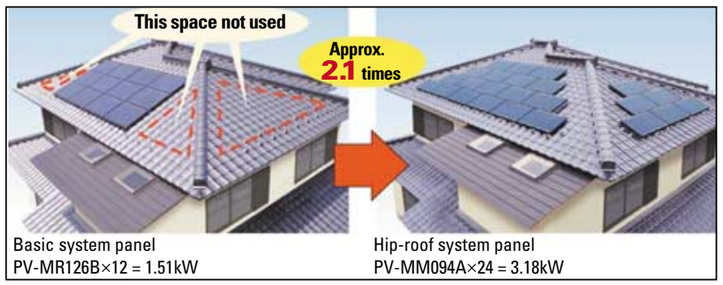
Facilities Model



Chemical Recycling Technology for Refrigerator Polyurethane Thermal Insulation Materials

E Photovoltaic Power-Generation System for Hip Roofs

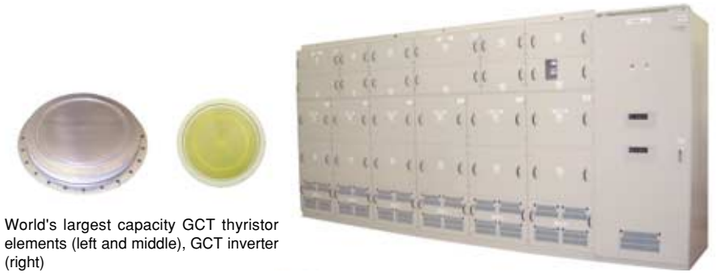
The Nakatsugawa Works began selling photovoltaic power-generation systems for hip roofs in October 2001. A special feature of the new system is an amazing reduction in the amount of installation space required for the solar battery panel and adaptation of unique layout patterns. A total of 822 different setup patterns are available to choose from, making it possible to maximize the small-area characteristics of hip-type roofing. Available for the system are the PV-MM094A solar battery panel, PV-TF041 operation component and PV-CWX4B voltage transforming unit and integrated junction box. Utilizing a longitudinal rack mounting layout, a savings of approximately 30% is achieved, while power generation is increased 2.1 times that of the standard model. If a 281kW system is installed, the CO_2 emission reduction effect is approximately 582kg-C/year (carbon-equivalent value) per unit. The system received the Energy Conservation Grand Prix Award from The New Energy Foundation.



Panel Installation Example

E Development of Large-Capacity GCT Inverter

The Energy & Industrial Systems Center (Nagasaki) has developed the MELVEC-3000C, a variable-speed GTC inverter*1 for large-capacity alternating-current motors. Though small, the inverter has a rated capacity of 12MVA and is capable of operating at variable speeds under alternating currents of several 1,000 – 10,000kW. It is equipped with a newly developed next-generation 6kV/6kA GCT thyristor that provides a remarkable reduction in power loss due to the ON/OFF switching of semiconductor power devices. This highly efficient variable-speed inverter was developed for the steel industry and other fields where large-capacity alternating-current motors of more than several 1,000kW are required. It is designed to respond to customers' needs and provide energy savings in every field of application. The inverter received the Superior Energy-Conserving Machinery Award and The Minister of Economy, Trade and Industry Award from The Japan Machinery Federation.

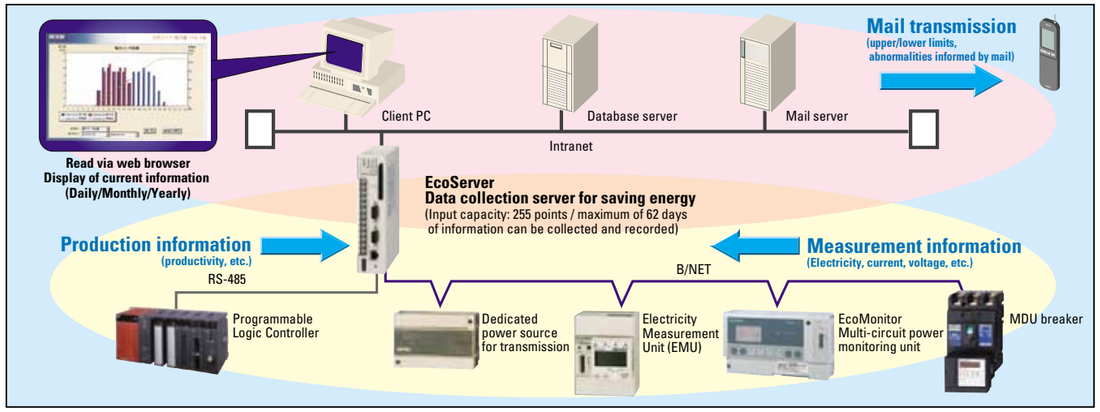


World's largest capacity GCT thyristor elements (left and middle), GCT inverter (right)

*1) GCT: Gate commutated turn-off thyristor
Inverter: Variable-speed, variable-frequency alternating current power source control device

E EcoServer – Monitoring via the Web

The Fukuyama Works has applied various IT technologies to develop EcoServer, an energy conservation support system marketed commercially. Data collection is performed by the MDU breaker, which has a built-in measurement function, the EcoMonitor, which utilizes individual current sensors, and the Electricity Measurement Unit. Based on the energy data collected and the number of production units assigned to the programmable logic controller, EcoServer analyzes the situation and then provides easy-to-understand graphics so that energy conservation activities can be viewed at a remote location via a web-based system. The graphics can be indicated in time series or sections, so an environmental manager can monitor energy use at anytime over an Intranet. EcoServer is installed in the administrative building of the Fukuyama Works, thus providing visible management of energy consumption. Electricity use was reduced by 24% in fiscal 2001.



EcoServer Monitoring System

T Ozone Gas Generator

The utilization of ozone or a combination of ozone and another substance is one means of greatly reducing the amounts of environmentally harmful chemicals applied in the manufacture (e.g., cleaning, resist separation, CVD*2, surface oxides) of liquid-crystal and semiconductor devices. The Energy & Industrial Systems Center (Kobe) manufactures ozone gas-generating systems like the Mitsubishi Clean Ozonizer for the liquid-crystal and semiconductor fields. The performance of existing models has been drastically improved with the introduction of a series headed by the OP-500C in fiscal 2001. The new model is now available in the market and has the following specifications: ozone generation volume, 500g/hr; and ozone concentration, 210g/m^3.

【Features of New Series】

① Highest ozone concentration increased 24%, from 170→210g/m^3.

② Series models range from 30→750g/hr (ozone generating capacity).

③ Required footprint reduced by 55%;*3 from 0.94→0.42m^2.

④ Electricity consumption reduced 17%*3, from 12→10kW.

⑤ Built-in power source compliant to high-power ratios of 99% or more, high harmonic wave-less systems and overseas voltages (180-250V).

*2) CVD: Chemical vapor deposition
*3) Compared to Mitsubishi Electric's previous 500g/hr model.

OP-500C Ozone Gas Generator

Environmental Communication Activities

Communications are a vital activity in the Mitsubishi Electric effort to contribute to a truly sustainable society. We are committed to better communications and the dissemination of information through a variety of means such as the Environmental Sustainability Report, the corporate website and other publicly available media.

Publication of Annual Environmental Sustainability Report

The company's first environmental report was published in 1998 and we have continued to update it annually, providing issues in English and Japanese. In recent years, we have also began providing environmental information (including the annual report) on the corporate website.

Environmental Sustainability Report 2001

Corporate website

Environmental Report Briefing

Beginning in the year 2000, in parallel with the publishing of the Environmental Sustainability Report, Mitsubishi Electric has held a briefing for members of the press, representatives from non-governmental organizations, etc. The "Environmental Sustainability Report 2001 Briefing" was held on June 29, 2001. During the session, we outlined the report and presented examples of the group's environmental activities. We found the session very significant in that we were able to cover a wide range of questions in a manner more personal than a report can describe, and because of that, we received many constructive suggestions for future activities. Participants have spoken highly of the briefing, so we'd like to continue holding it as an annual event in the future.

Briefing on the environmental report

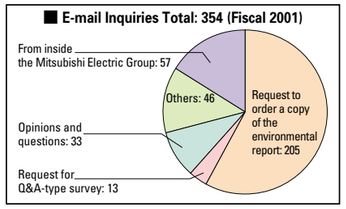
Participation in Eco-Products 2001

Since 1999, the company has participated in an exhibition called "Eco-Products" (sponsored by the Japan Environmental Management Association for Industry (JEMAI) and Nihon Keizai Shimbun, Inc.), that is held for the purpose of advertising and promoting environment-conscious products. The purpose of the exhibition is to raise awareness of the environment in both the consumer and manufacturer. As a manufacturer, we present how we are addressing environmental issues in our activities. Eco-Products 2001 was held December 13-15, 2001. There we presented DFE,*1 which is addressed by all of the companies in the Mitsubishi Electric Group, our green procurement policy, the progress of our product information disclosure initiative and the activities of the Higashihama Recycle Center.
We also released the evaluation results of the eco-efficiency measured by Factor X*2 on 14 of our products.This is a new environmental index that expresses the amount of product improvement in terms of eco-efficiency, thus making it possible to calculate a product's degree of contribution to society.

Mitsubishi Electric's booth at Eco-Products 2001

Collecting Opinions through E-mailbox

An E-mailbox has been created for the purpose of collecting opinions and inquiries from people both inside and outside of the Mitsubishi Electric Group (E-mail address: eqd.eco@hq.melco.co.jp). In fiscal 2001, we received 354 communications, and 60% of them were requests to order a copy of the environmental report. Other communications included requests that we conduct a Q&A-type survey and questions about the company's products.



Reporting to Shareholders

We have reported environment-related activities in the corporate business report since fiscal 1993. In fiscal 2001, we included "The Mitsubishi Electric Group - Committed to Environmental Conservation" on the special features pages of the "Together" business report.

Article in fiscal 2001 "Together" Business Report (Only in Japanese)

Publishing Environmental Advertisements

The company utilizes a wide variety of media including magazines and newspapers to present its stance on environmental issues and communicate its activities. In a corporate advertisement series that began running on February 14, 2002, in Nihon Keizai Newspaper, we featured some of the company's latest technologies that we believe will contribute to improving future social infrastructure as well as environment and energy conservation technologies on other occasions (8 ads in total). We also introduced "Factor X"*2, an index that indicates a product's eco-efficiency, in the April 2002 issue of the "Nikkei Ecology" magazine.

Advertisement in Nihon Keizai Newspaper

Article in "Nikkei Ecology" magazine

*1) DFE: Design for the Environment
*2) Factor X: Please refer to page 16 of this report.

Promoting Regional Activities

We are committed to interactions with communities through various activities initiated by our regional offices.

Shizuoka Environmental / Social Welfare / Technology Fair

The Shizuoka Works participated in the 3-day Shizuoka Environmental/Social Welfare/Technology Fair starting on September 13, 2001. The basic theme of the event was harmony among environment, welfare and technology. In essence, it was a forum for obtaining various suggestions regarding ways to improve environmental friendliness in daily life and discuss future social structures based on universal design and environmental conservation.
The Shizuoka Works has participated in the fair for four consecutive years, beginning in 1998. Last year it displayed refrigerators and air-conditioners as actual examples of Eco-products.

Participation in Recycling Fair

The Kitaitami Administration Center participated in the Itami Recycling Fair, held on October 27, 2001. Various panels were displayed showing the recycling processes for semiconductor wafer cases and the company's efforts to promote recycling and reuse of resources from wastes. The fair was held in the city of Itami, and was very popular, having some 3,000 visitors.

Promoting Sagami River Cleaning Activities

The Sagami Administration Center has been involved in a volunteer initiative called "Sagami River Cleaning Operations" since 1997. Activities include cleaning the riverbanks, thereby raising awareness of the environment in the people in the Sagami River area (vicinity of Takada Bridge in Sagamihara). Cleaning operations were conducted three times in 2001, and every time more than 30 employees and their family members participated. The total number of employees and family members that have participated in the five-year period is now more than 500. In February 2002, the efforts to conserve water and greenery were recognized by local authorities and the center was awarded a citation from the Kanagawa Prefectural Engineering Office for the Sagami River Area.

Employees and family members participating in clean-up operations

Supporting Energy Conservation Education

During fiscal 2001, members of the Fukuoka Factory visited classes at Genyo Elementary School for three days and explained about the company's activities towards saving energy. Genyo has been designated "a model school for promoting energy conservation education" by the Ministry of Economy, Trade and Industry, Ministry of Education, Culture, Sports, Science and Technology, Ministry of the Environment and other authorities, and a request was filed for Mitsubishi Electric's cooperation.
The company's activities were explained to the pupil, including energy consumption at the Fukuoka Factory, energy conservation measures implemented, examples of our latest products with improved energy efficiency and products' relationships with power devices. We had to exercise resourcefulness many times in preparing "easy-to-understand" presentation materials. Even so, we were occasionally pressed after receiving unexpected, simple, but difficult-to- answer questions. Future opportunities to provide educational support like this would be most welcome.

Participating in elementary school curriculum

Donating Used Drums

Rather than disposing of their used drums, PTV Integrated Manufacturing Systems, S.A. de C., one of our affiliated companies in Mexico, repaints them, turns them into garbage cans and donates them to local elementary schools.

C O L U M N

Environmentally Consious Even in Factory Cafeterias

Using Compost System to Reduce Waste

The Fukuyama Works introduced a bio-decomposition garbage disposal system in June 2001 and successfully reduced the amount of raw waste at the site from 30t/day to zero. A similar disposal system was introduced in the Fukuoka area in December 2001. Compost-type disposal systems have also been introduced at our Nagoya, Kobe, Nakatsugawa, and Kamakura sites.

Bio-decomposition garbage disposal system

Introduction of Wash-Free Rice

We have introduced the use of "wash-free rice" to nine business sites and one affiliated company. It is to be used for preparing meals that are served in factory cafeterias. As the name implies, the rice can be cooked without needing to wash it first, thus saving time and reducing the amount of wastewater ridden with rice bran, thereby improving water quality. The rice tastes good, so plans are to begin using it at other business sites in the future.
(Note: Rice bran—left over after rice is washed—is used as organic fertilizer.)

Effort to Improve the Environmental Sustainability Report

Mitsubishi Electric has asked people active in the environmental field to evaluate its environmental report and share their opinions on the company's approach to environmental issues. A roundtable-style discussion was held on February 13, 2002. In the following, some of the experts in attendance provide their view.

[Participants]
Dr. Itaru Yasui, Professor, Institute of Industrial Sciense, University of Tokyo
Mr. Peter D. Pedersen, Chief Executive, E-Square Inc.
Ms. Mizue Tsukushi, President & CEO, The Good Bankers Co., Ltd.
Mr. Yutaka Waragai, President, Workshop Mu Co., Ltd.
Ms. Yuko Sakita, Secretary-General, Genki na Gomi Nakamanokai

Clear Vision for Society

In general, our report met with positive reactions. Specific comments included: "Well bound as an environmental report,""Easy to read," and "Easy to understand, thanks to a good explanation of environmental activities using MET." In particular, Ms. Tsukushi commented, "I find the report was compiled in a sincere manner. It seems to have been prepared with a sense of assurance, particularly when it comes to the figures used." Many favorable comments such as this were heard; however, others indicated feelings somewhat different.

Professor Yasui: "I think the report has become something like answers prepared by a 'straight-A'student. I think that it's time for Mitsubishi Electric to exhibit its own style in space arrangement."

Ms. Sakita: "Mitsubishi Electric is very actively involved in environmental activities and has good foresight, but the report shows a bit too much modesty. In other words, the position of being proactive, which should be naturally communicated to consumers, is something I can't quite see."

Mr. Pedersen: "Now that the corporate influence (on environment) is increasing, it is very important for a company not to simply explain what they are doing, but also to present a clear vision as to how it is interacting with society."

It may be true that unique visions and philosophies can, and do actually, emerge at the individual and departmental level. But for a company such as ours — a company with numerous business groups and a vast product lineup (from home appliances to space development) — we cannot help but come across as a straight-A student, or perhaps "being a bit too modest," as indicated by the comments received. For the 2002 version, we have attempted to make the report enjoyable to read, while paying close attention to the continuity of the information provided therein.


Dr. Itaru Yasui


Mr. Peter D. Pedersen


Ms. Mizue Tsukushi


Mr. Yutaka Waragai


Ms. Hiroko Tsuruta

Selecting the Best Medium

A number of views were expressed during the discussion, particularly regarding "whom the report was prepared for."

Mr. Waragai, an environmental planner, explained, "An environmental report is a communications tool, and the target group must be clearly identified." Environmental reports are now published by various organizations, and publication should no longer be seen simply as a once-a-year ritual. What is needed now is to exercise resourcefulness to its fullest possible degree, and make the company and its activities better understood by all those who read it. In other words, the report must be made "read-worthy."

Ms. Tsukushi, an "Eco-fund" pioneer, provided a clear answer as to who environmentally conscious companies should be communicating with. "For most overseas companies, stakeholders are the major target. It may be a good idea to target institutional investors specifically (when publishing an environmental report)."

Mr. Pedersen, who specializes in environment-related business, commented, "One requirement is to choose either document or electronic-based media, and this depends on the target group." Basic data and information bound for consumers may be best transmitted via a website, but printed materials are the best communications tool for stakeholders.

Ms. Sakita, who is engaged in advocacy-type environmental activities, does not believe that websites are a good vehicle for information exchange for those who do not have easy access to electronically prepared messages. She noted, "It may be a good idea to prepare a simplified version of the report for general consumers."

Transparency of Evaluation Standards

The discussion also touched upon one of the core issues for an environmentally conscious society, that is, "Based on what standards should environmental activities and products be evaluated?"

Professor Yasui, being an expert in production technology, commented: "A whole picture that contains energy and materials balances must be presented in a report." He also noted, "I would suggest that a comparison be made as to the degree of social contribution made by an energy-saving production technology, this being done utilizing a benchmark year, as defined in the Kyoto Protocol, and the current year."

Mr. Waragai expressed a favorable view about the report in saying, "It was very interesting that Mitsubishi Electric evaluated its 3rd Environmental Plan using its own yardstick." However, he also indicated, "The explanation regarding the standards used was not quite sufficient."

Mr. Pedersen said, "I would like to see criteria that enable the products to be evaluated making best use of the MET concept. I think it is a very unique frame of reference."

Based on the discussion, the company has proposed the use of "Factor X," an eco-efficiency index of our own making that we are currently introducing to the industry. Using Factor X, we believe that it is possible to quantitatively evaluate the eco-efficiency of a product, and have used it to demonstrate a product's contribution to reducing negative environmental impact in this year's environmental report.

Evaluation Survey Request

Your reaction to and opinion of the Environmental Sustainability Report 2002 are highly valued. We would be most grateful if you could please take a moment of your time to fill in the Evaluation Survey. Please use the accompanying form. You can either fax, E-mail or post your responses to us.

The Evaluation Survey should be sent to:

Fax: +81-3-3218-2465
E-mail: edq.eco@hq.melco.co.jp
Or post it to:
Corporate Environmental Management Planning Department
Mitsubishi Electric Corporation
Mitsubishi Electric Building
2-2-3, Marunouchi, Chiyoda-ku,
Tokyo 100-8310, Japan

Notice to our customers in Japan

Environmental-conscious Products

The Law Concerning the Promotion of Procurement of Environmentally Friendly Goods and Services by the State and Other Entities (Law on Promoting Green Purchasing) was enacted in April 2001. Please refer to the website listed below for the Mitsubishi Electric products that comply with the Law on Promoting Green Purchasing. You can find the MET-Profile there as well.

Collection and Recycling of Small Secondary Batteries

Mitsubishi Electric has established a collection & recycling system for small secondary batteries (nickel-cadmium, nickel-hydrogen, lithium-ion, small capsule-type lead-acid) through the Used Small Secondary Battery Collection System of the Small Secondary Battery Resource Recycling Promotion Center* (Battery Association of Japan). Please refer to the following website or write to the following address for further details.

Website: www.MitsubishiElectric.co.jp/eco (only in Japanese)
E-mail: eqd.eco@hq.melco.co.jp

*Organization established by the Battery Association of Japan on April 1, 2001, to promote the recycling of used secondary batteries.

Collection and Recycling of Used Products

We are in the process of establishing a collection and recycling system for some of our products in order to build a recycling-oriented society. The websites shown below cite details about the targeted products and collection procedures.

Used air-conditioners, refrigerators, washing machines and televisions

Website: www.MitsubishiElectric.co.jp/recycle/home (only in Japanese)
(Fill-in form for sending comments/inquiries is available on website.)

Used information technology equipment (personal computers, etc.)

Inquiries : Information System Devices Recycling Center
Tel : 03-5487-4639 (09:00-17:30 except on Saturdays, Sundays, and public holidays)
Website : www.diarcs.com/ (only in Japanese)
E-mail : infor@diarcs.com
From outside of Japan, Please call +81-3-5487-4639

Products Containing PCB

The PCB Waste Disposal Special Measures Law, which calls for the proper management of PCB wastes, was enacted on July 15, 2001. Manufacturers that use PCB in their products or store PCB wastes must provide a list of all their electrical products containing PCB to the prefectural governor. Member companies of the Mitsubishi Electric Group do not currently manufacture any products that utilize PCB; however, there are some products previously manufactured that contain PCB. The websites shown below cite Mitsubishi Electric products manufactured using PCB insulating oil.

Energy and industrial electrical machinery

Website : www.MitsubishiElectric.co.jp/eco (only in Japanese)

Lighting fixtures

Website : www.MitsubishiElectric.co.jp/group/mlf/pcb/ (only in Japanese)

Note: Website pages are updated as required. If you have a problem accessing one of the pages, please send an E-mail to inform us of the problem. Send to: eqd.eco@hq.melco.co.jp

Editor's Postscript

Plain expressions, graphs and photos as well as a larger letter font have been used, as in last year's report, for easier reading and better understanding. As suggested in the roundtable discussion, information will be provided as printed documents and website information at the same time. For example, the Green Procurement Law Product List and MET-Profile product environmental information are now listed on the website (Only in Japanese). Accordingly, we will continue to report the latest information in a timely manner.

Please note that we have not included comments from any external organizations for the numerical data cited in this environmental report. Mitsubishi Electric holds itself fully responsible for all figures and numerical data reported.

All of the information utilized was collected from our business sites and affiliated companies at the end of March in preparation for releasing the Japanese version of the environmental report by the end of June, thus synchronizing our business management and environmental management cycles.

Fiscal year 2002 is a milestone year in our medium- to long-term commitment to environmental improvement. We will combine efforts made in the past with a new environmental plan for the future in our next report, to be published in June 2003.

MITSUBISHI ELECTRIC CORPORATION

http://Global.MitsubishiElectric.com/eco

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