

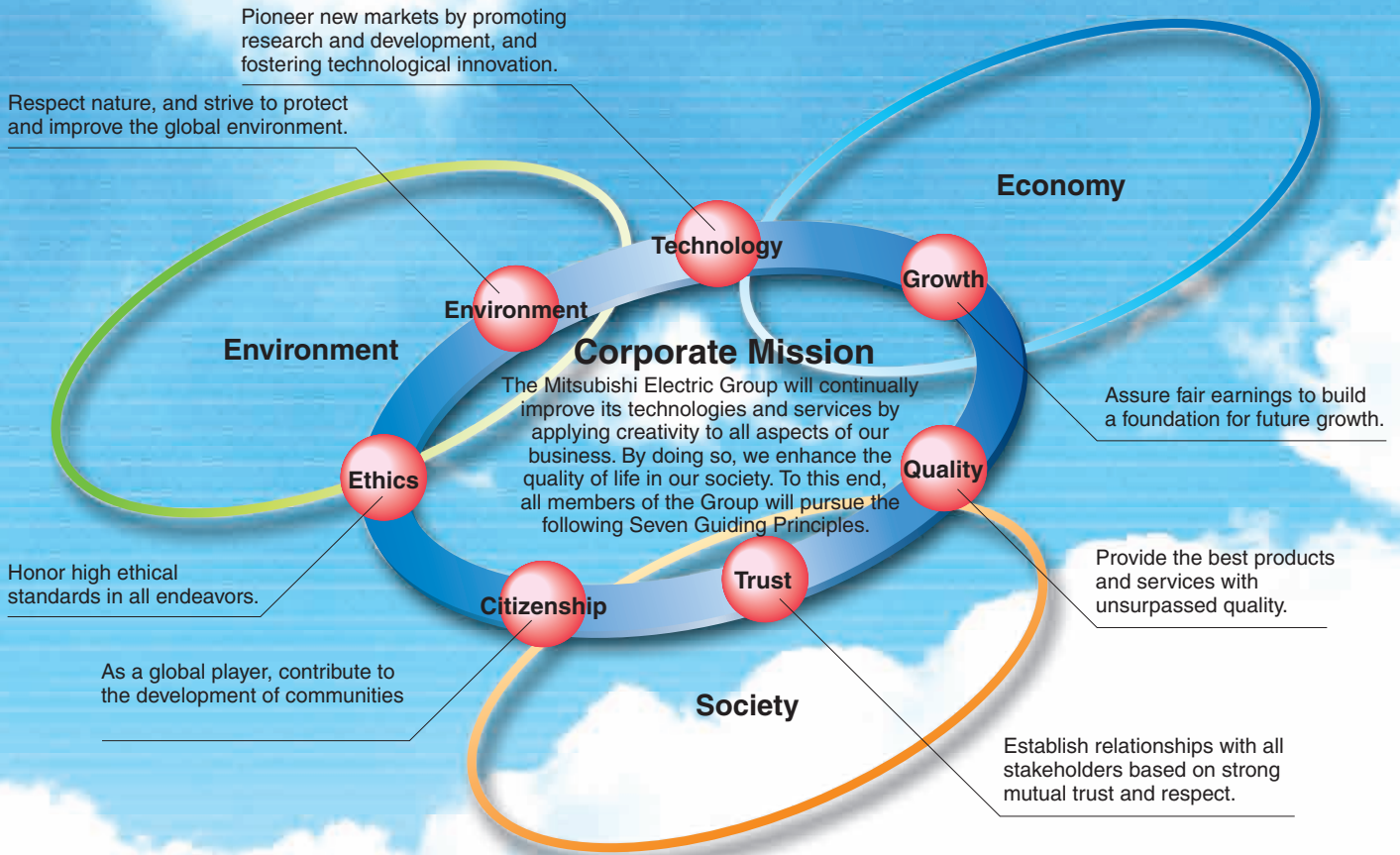
Mitsubishi Electric Group
**Environmental
Sustainability Report**

2005

Changes for the Better



Corporate Mission & Guiding Principles



Report Coverage

- Target period: April 1, 2004 – March 31, 2005
- Target companies: Mitsubishi Electric Corp. and 86 affiliates (62 in Japan, 24 overseas)
- Companies shown in blue are covered by the environmental accounting system.

In Japan

Inaryo Technica Co.,Ltd.	Choryo Media Inc.*1	Mitsubishi Electric System & Service Co.,Ltd.	Melco Air-Tech Co.,Ltd.
Uemori Denki Co.,Ltd.	Turyo Technica Co.,Ltd.	Mitsubishi Electric Lighting Corp.	Melco Techno-Rex Co.,Ltd.
Osram Melco Ltd.	Debi Seikou Co.,Ltd.	Mitsubishi Electric Documentex Ltd.	Melco Mechatronic System Engineering Corporation
Kita Kodensya Co.,Ltd.	Toyo Engineering Co.,Ltd.	Mitsubishi Electric TOKKI Systems Corporation	Rakuryo Technica Co.,Ltd.
Koshin Electric Co.,Ltd.	Toyo Electric Co.,Ltd.	Mitsubishi Electric Building Techno-Service Co.,Ltd.	Ryoei Technica Co.,Ltd.
The Kodensha Co.,Ltd.	TOKAN Co.,Ltd.	Mitsubishi Electric Home Appliance Co.,Ltd.	Ryosai Technica Co.,Ltd.
Koryo Electric Co.,Ltd.	Nagasaki Ryoden Technica Co.,Ltd.	Mitsubishi Electric Micro-Computer Application Software Co.,Ltd.	Ryosan Industry Co.,Ltd.
Sanryo Technica Co.,Ltd.	Nakayama Kikai Co.,Ltd.	Mitsubishi Electric Mechatronics Software Corp.	Ryoshin Kosan Co.,Ltd.
Sanwa Electric Co.,Ltd.	Nihon Kentetsu Co.,Ltd.	Mitsubishi Electric Metecs Co.,Ltd.	Ryoden Asahi Technica Co.,Ltd.
SPC Electronics Corp.	Hyper Cycle Systems Co.,Ltd.	Mitsubishi Electric Life Service Corporation	Ryoden Kasei Co.,Ltd.
Seiryu Technica Co.,Ltd.	BCC Co.,Ltd.	Mitsubishi Electric Logistics Corp.	Ryoden Kouki Engineering Co.,Ltd.
Seturyo Technica Co., Ltd.	Himeryo Technica Co.,Ltd.	Mitsubishi Precision Co.,Ltd.	Ryoden Syonan Electronics Corporation
Soryo Densi Kagaku Co.,Ltd.	Fukuryo Semiconductor Engineering Co.,Ltd.	Miyoshi Electronics Corp.	Ryohoku Electronics Co.,Ltd.
Sowa Technica Ink.	Mitsubishi Space Software Co.,Ltd.	Meiryu Technica Co.,Ltd.	Waryo Technica Co.,Ltd.
Tada Electric Co., Ltd.	Mitsubishi Electric Engineering Co.,Ltd.	Melco Display Technology Inc.	
Churyo Technica Co.,Ltd.	Mitsubishi Electric Control Software Corp.		

*1: Name changed to Choryo Inc. on April 1, 2005.

Overseas

Electric Powersteering Components Europe s.r.o.	Mitsubishi Electric Automotive Czech s.r.o.	Mitsubishi Soyee Mobile Communication Equipment Co., Ltd.
Laguna Auto-Parts Manufacturing Corporation	Mitsubishi Electric Automotive Europe B.V.	Mitsubishi Electric (Guangzhou) Compressor Co., Ltd.
Melco de Mexico S.A. de C.V.	Mitsubishi Electric Automotive India Pvt. Ltd.	Mitsubishi Electric (Dalian) Industrial Products Co., Ltd.
Meltonic Co.,Ltd.*2	Mitsubishi Electric Consumer Products (Thailand) Co., Ltd.	Shanghai Mitsubishi Electric & Shangling Air-Conditioner and Electric Appliance Co., Ltd.
Mitsubishi Digital Electronics America, Inc.	Mitsubishi Electric Power Products, Inc.	XD Mitsubishi Electric Swichgear Co., Ltd.
Mitsubishi Electric (Malaysia) Sdn. Bhd.	Mitsubishi Electric Thai Auto-Parts Co., Ltd.	China Ryoden Co., Ltd.
Mitsubishi Electric Air Conditioning Systems Europe Ltd.	Mitsubishi Elevator Asia Co., Ltd.	
Mitsubishi Electric Automation, Inc.	Oriental Electric Industry Co., Ltd.*3	
Mitsubishi Electric Automotive America, Inc.	Siam Compressor Industry Co., Ltd.	

*2: Sold on March 1, 2005

*3: Name changed to Mitsubishi Electric Automation Thailand Co., Ltd. on April 1, 2005.

Mitsubishi Electric Group Environmental Sustainability Report 2005

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Editorial Policy

This is the eighth year that we have published this annual report. We have gradually increased its coverage of corporate social responsibility. In the fiscal 2005 report, we expanded our provision of information on the social aspect by adding pages that include topics such as quality assurance, customer satisfaction, and information security. These additions reflect our policy of conveying to a broad range of readers in easy-to-understand terms the CSR efforts that Mitsubishi Electric Group is routinely practicing at the global level. We also made various improvements to improve the ease of reading, such as font size, word volume, and layout. In this report we also created special feature pages, to convey to a broad range of readers the message that we are fulfilling our corporate social responsibility by practicing environmental management (i.e., our contributions through products and activities). In short, the three editorial policies we used in preparation of this report are an emphasis on CSR, readability, and a global perspective.

References

- “Environmental Report Guideline” (2003 Edition)
— Ministry of the Environment
- “Business Owner Environmental Performance Indicator Guideline” (2002 Edition)
— Ministry of the Environment
- “Environmental Reporting Guidelines Emphasizing Stakeholders 2001”
— Ministry of Economy, Trade and Industry
- “Sustainability Reporting Guideline 2002”
— Global Reporting Initiative

Through our diverse business activities and products — from appliances in the home to satellites in space — we work hard to respond to the needs and expectations of our stakeholders.

Tamotsu Nomakuchi
President & CEO

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Since the day of our founding, we have conducted business with an awareness of our corporate social responsibility.

**Mitsubishi Electric's
Basic CSR Policy**

Since the day this company was formed it has conducted business with an awareness of its contribution to society. Today we have made our Corporate Mission and Seven Guiding Principles the basis of corporate social responsibility for the entire Mitsubishi Electric Group. The original starting point is the “Keiei no Youtei” (Keys to Management) written at the time of the company’s founding in 1921. Among other things, it mentioned “contribute to society,” “improve product quality,” and “customer satisfaction.” Still upholding these values, our current mission and principles call for each Group employee to strive to fulfill our Corporate Mission of “improving Mitsubishi Electric’s technology and services by applying creativity to all aspects of our business,” and “to enhance the quality of life,” as well as act on the basis of the Seven Guiding Principles (Trust, Quality, Technology, Citizenship, Ethics, Environment, and Growth).

A Commitment to Action Based on Our Basic CSR Policy.

Recent Initiatives

Corporate social responsibility covers a very broad range of activities, and Mitsubishi Electric is actively carrying out a variety of initiatives under our Basic CSR Policy. Our response to the Kyoto Protocol, which entered into force in February 2005, is one example of our recent efforts in the environmental area. Mitsubishi Electric has been taking a variety of actions to address climate change for some time. To fulfill our responsibility as a corporation with many production facilities, we set a voluntary target of reducing emissions intensity based on net sales by 25% in 2010 compared to 1990. We are implementing a concrete action plan including introduction of energy-efficient equipment, and working to strengthen it further. In response to the European Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (the RoHS Directive), we declared that we would eliminate six chemical substances to be regulated by the end of 2005, and are moving ahead to replace them.

In terms of regulatory compliance, in February this year we established our “Corporate Information Security Policies,” in order to strengthen our management of confidential corporate information, including the protection of personal information. Since long ago we have been careful with the management of customer and other information, but recently we have made new efforts to strengthen our information management systems, such as by investing in equipment for entry and exit control of facilities, re-examining our information security strategies, encouraging internal audit of information control and other efforts.

Meanwhile, from the perspective of corporate citizenship, through our “Socio-Roots Fund,” a matching-gift program in which the company matches employee donations, we have contributed funds to help recovery efforts after a major earthquake in the Chuetsu region of Niigata Prefecture in 2004. The Mitsubishi Electric Group has also donated funds for recovery operations after the Sumatran earthquake and the devastating tsunami in the Indian Ocean in December 2004.

Initiatives like these should be a basic part of corporate management. I believe it is important to show initiative and a steady commitment, and that we, including our overseas affiliates, act globally.

We are contributing to society in a variety of areas through our products and businesses, from the home to space.

Contributing through Products and Business

Besides such initiatives, I believe that contributing to society—by reducing the human impact on the environment using the extensive variety of Mitsubishi Electric’ technologies and products—is an important part of the mission of a general electronics manufacturer active around the world in diverse business categories. Part of this is what we call “Uni & Eco,” which we have applied in our products, starting from our home appliances. This concept is a fusion of the “universal design” concept, which is all about making products easy for anyone to use, and “ecology,” which is all about considering the global environment, energy conservation, and minimizing resource consumption. We are using it as a basis for product evaluation in terms of the product life-cycle process—from the design stage, through use by the customer, until the product is disposed at the end of its life. The know-how we have gained from the home appliance recycling business that we pioneered in Japan is now bearing fruit in our design-for-recycling technology, which we call “hyper-cycle technology.”

I also believe that an important part of our mission is to contribute to society’s security and peace of mind. The MISTY encoding technology developed by Mitsubishi Electric has become an international standard for third-generation cell phones, and is already being put to use to create information security systems for Japan’s central and local governments. Our COCO-DATES “Correct Coordinates and Date Stamp (Time and Location Verification Service)” based on GPS satellites and meteorological information will be useful for “traceability” of agricultural and other products, and can contribute to food security, which is becoming public concern in recent years.

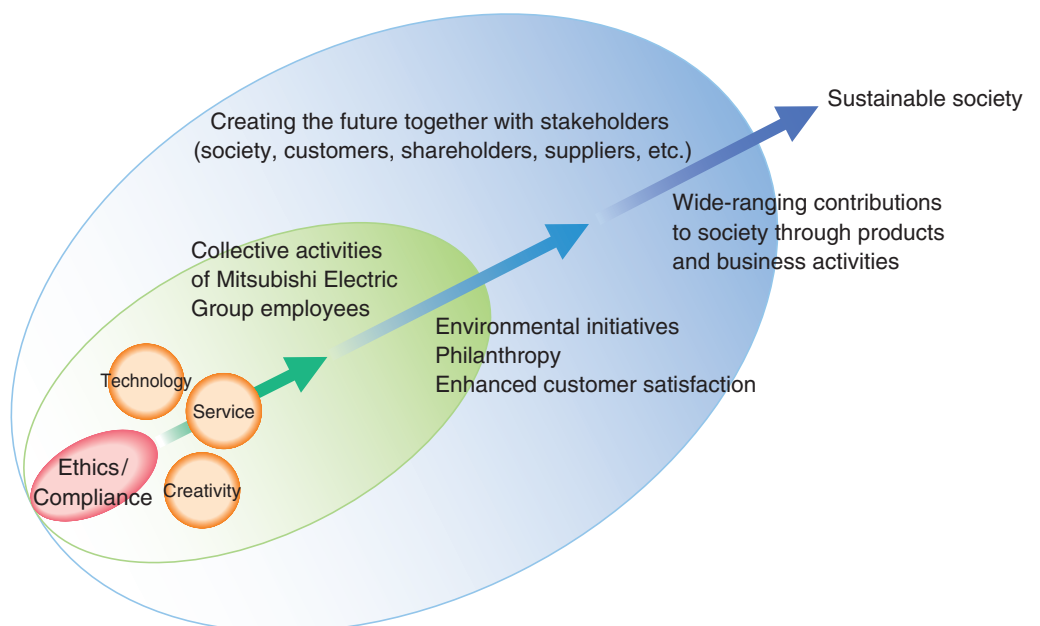
Mitsubishi Electric products are being used around the world in ways that the customer often might not notice—products like the Intelligent Power Module, which boosts the energy efficiency of a variety of products by allowing precise power control; and products like our electric power steering motor, which can boost the fuel efficiency of cars by 3 to 5% compared to conventional hydraulic steering.

Besides these examples, as with the remote-sensing satellite that measures the state of the Earth’s greenhouse gases from space as a tool to help prevent climate change, we will continue to make the most of our technological competencies in an extensive range of categories, and put them to the service of society.

We at the Mitsubishi Electric Group will continually strive to answer the expectations of all our stakeholders as we expand our perspective ever wider and deeper.



The Greenhouse gas Observing SATellite (GOSAT) is designed to observe the global distribution of greenhouse gas concentrations from space. Mitsubishi Electric was the prime manufacturer of this satellite.



Tackling the Challenge of Sustainable Development

Using New Ideas to Reduce Environmental Impacts

When Mitsubishi Electric announced the Poki Poki Motor to the world, I was involved in production technology development. The motor is based on the innovative concept of winding copper coils in high density around an open stator core and then bending it into a round shape. By modifying the manufacturing process, we were able to boost productivity (through automation) and simultaneously increase energy efficiency by over 3%, although many thought that it had been impossible to raise motor efficiency further. I realized that if the Poki Poki Motor were introduced throughout Japan, we could save the equivalent of the annual electrical consumption of 3 million homes. I was fascinated by the idea that improvements in manufacturing productivity could also be compatible with the environment and decided to get involved in product development. Today the Poki Poki Motor is being used in air conditioners, elevators, and many other applications and helping to reduce pressure on the environment.



Kenichi Azuma
Executive Officer, Vice President,
Productivity & Environmental Programs

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Searching for Clues on the Front Line—The Factory

When a company conducts business, it has a constant impact on the global environment. The key issue is how to raise efficiency. It is important to search for ways to reduce environmental impacts by improving design and productivity. If product designers themselves walk around inside the factory, they will see the actual manufacturing conditions with their own eyes, and be motivated to design products that avoid the inefficient use of materials. Then it will be possible to reduce the generation of waste. If we also consider any repeated heating and cooling processes in manufacturing as a waste of energy, we will come up with many new ideas.

Breakthrough and Innovation through Technology

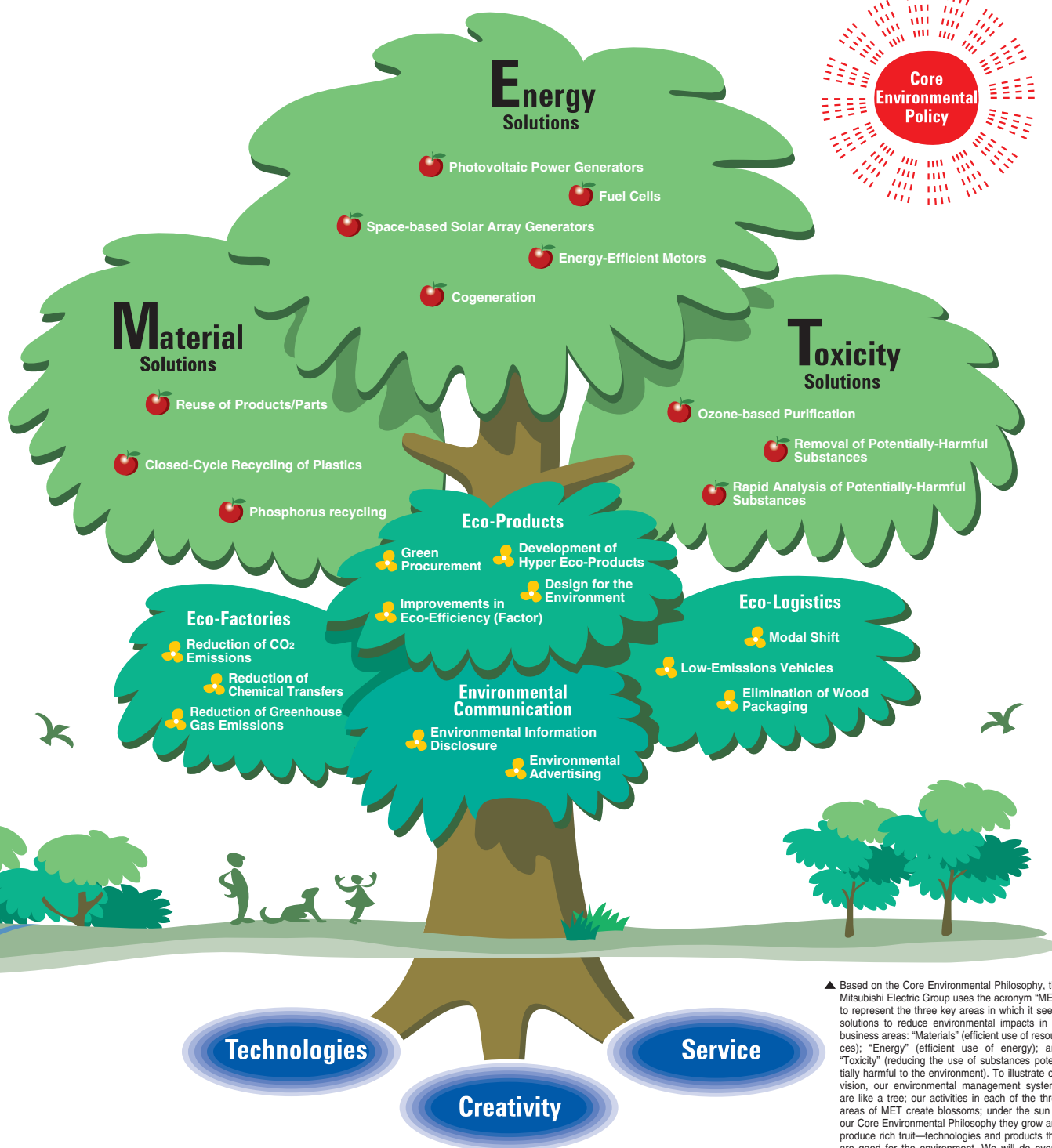
What Mitsubishi Electric can do as a general electrical equipment manufacturer is challenge ourselves to innovate with our products and operations, always using new ideas and the technologies we have developed through manufacturing to reduce negative environmental impacts, as we simultaneously aim for the best possible product performance. Aware of our responsibilities as a global corporation, our aim is to make excellent products and work with all our stakeholders to create a sustainable society.



▲ At Eco-Products 2004

Core Environmental Policy

The Mitsubishi Electric Group promotes sustainable development and is committed to protecting and restoring the global environment through technology, through all its business activities, and through the actions of its employees.



▲ Based on the Core Environmental Philosophy, the Mitsubishi Electric Group uses the acronym "MET" to represent the three key areas in which it seeks solutions to reduce environmental impacts in all business areas: "Materials" (efficient use of resources); "Energy" (efficient use of energy); and "Toxicity" (reducing the use of substances potentially harmful to the environment). To illustrate our vision, our environmental management systems are like a tree; our activities in each of the three areas of MET create blossoms; under the sun of our Core Environmental Philosophy they grow and produce rich fruit—technologies and products that are good for the environment. We will do everything possible to make that tree grow and flourish.

Environmental Code of Conduct

- 1 We assess the environmental impacts of our products and business activities, and strive to reduce these impacts by developing and introducing environmentally-sound technologies and processes.
- 2 We work through our business activities to help create a society with sound material cycles, by supporting efforts to better understand environmental issues, and by making use of technologies and information.
- 3 We establish environmental management systems at all of our business sites and operate them according to voluntary standards. We seek continuous improvement in our environmental management by conducting environmental audits and other efforts.
- 4 We educate, train and motivate employees to be good environmental stewards, and support and encourage activities that promote environmental protection.
- 5 We support communication and cooperation regarding environmental protection worldwide.

**Special Report:
CSR in Action!**

To help build a more dynamic, more prosperous society, the Mitsubishi Electric Group will constantly innovate and improve for a better future for everyone. A journalist reports here on the efforts of Group employees who are driven by this conviction.

Standing beside test-water recycling equipment, MDI's President Naoki Nishida (left), manager of the production management department, Bai Jie (right), and Shi Zuo Ping. Behind them is the production line for electrical discharge machines.

MDI Mitsubishi Electric (Dalian) Industrial Products Co., Ltd.

The Energy that Drives Eco-Factories

Japan-China relations are in the midst of change today. In order to overcome various issues and create a new relationship, it is important for people to get to know each other's culture and interact with sincerity. The same could be said in the case of a corporation. Here we report, from the perspective of corporate social responsibility (CSR), on two factories Mitsubishi Electric has established in China.



MGC Mitsubishi Electric (Guangzhou) Compressor Co., Ltd.



MGC's President Osamu Iwabuchi (center) with members of the Business Planning Committee. Second from the left is Committee Chair He Jin Hua. In the foreground is a cutaway model of a compressor being produced by MGC.



Our Goal: To Be the World's Best Company

"It goes without saying that we must comply with laws and regulations, but when it comes to environmental management, it is not enough just to try to limit emissions. This has to be a management-wide effort. In that context what I am most concerned about is, first of all, is the product good for the environment? That is, is it efficient? China has problems with an unstable power supply, so from the perspective of CSR, it is a significant thing that we are offering energy-efficient products, and manufacturing things efficiently," says Osamu Iwabuchi, President of Mitsubishi Electric (Guangzhou) Compressor Co., Ltd. The next issues, he says, are pollution prevention and control of factory emissions. MGC has a business planning committee consisting of talented local staff, led by He Jin Hua, and they are doing activities to reduce environmental impacts at the factory. One example is the upgrading of wastewater treatment facilities by converting from chemical to biochemical treatment, resulting in better treatment efficacy. The team has many plans for the future, such as installing a water recycling system and re-using treated water, and taking steps to prevent leaks in the under-floor piping.

Iwabuchi says that one other important factor is communication. "Whoever the employee is, in order to have things go smoothly, it is important to deal openly and communicate clearly what it is I'm aiming for and how I want to do it. By communication I mean not just talking, but communicating eye to eye, heart to heart." Iwabuchi, who trained as an engineer, believes that it is principles or ideas that are the prime motivator of people. He also provides information regularly to all employees about the business conditions, and every Friday evening stands at the gate of the factory to express his thanks to every person. He puts his words into real action. This is how when compressor prices dropped a few years ago, despite opposition he explained the situation to employees, and as a result they were able to work together to overcome the adverse circumstances.

Eco-Factory in Dalian

Dalian is a port town known as the "Pearl of the North Sea." Located in this economic and technology development zone is Mitsubishi Electric (Dalian) Industrial Products Co., Ltd. (MDI), which manufactures items such as circuit breakers, inverters, and electrical discharge machines. Each factory is managed to operate under the same standards as plants in Japan, and at the same time, must comply with China's steadily-developing legal requirements. President Nishida has a few things to say about policies for reducing environmental impacts. "Somebody once said that the most effective thing we could do is to avoid producing inferior products. I feel the same, and I think that it is important to make products with the best quality without wasting anything in the process. For practical purposes, companies have the tendency to deal separately with quality and the environment, but in reality these two are inseparable. So whenever we have the opportunity, we choose equipment for our facilities that are environmentally superior."

Indeed, the inverter factory completed in 2004 contains many energy-saving strategies that make use of Mitsubishi Electric products. Besides installing Lossnay as an energy-efficient ventilation, dynamic inverter controls, and energy-efficient lighting, the factory also installed an "EcoMonitor" that makes it possible to measure the up-to-the-minute electrical power consumption at the level of each process in the factory, in order to identify losses. The factory is preparing to establish a system to use diagnostic data. In fiscal 2005, the same strategies will be applied at a plant that will make electrical discharge machines. The market need for energy-efficiency enhancement devices is great in China, which currently faces shortages of electricity. In the future, MDI may serve as a model of an energy-efficient factory.

Dalian is also facing problems with the shortage of water resources. Aware of this, MDI is working to develop water-recycling systems for the water used at the testing shop for electrical discharge machines. Behind these efforts are the dedicated efforts of the local staff and managers who are always seeking ways to improve things.



▲ MDI is working to use lead-free soldering in circuit boards. Lead-free soldering takes considerable skill. Here a skilled worker gives instructions to a junior worker.



▲ Manager of the production management department, Bai Jie is promoting RoHS strategies as an expert of environmental management issues. Of ethnic Mongolian origin, she also speaks Japanese.

▼ MGC's newly-installed water treatment facilities.

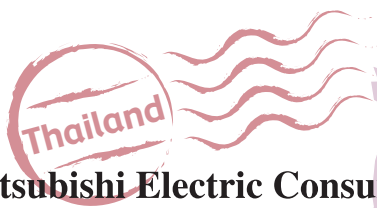


▲ Workers concentrate on the MDI production line. The youthful energy of these women enlivens the workplace.



▲ MGC's facilities in the Guangzhou Economic and Technological Development Zone. Compressors that run on the Poki Poki Motor are also manufactured here.

MCP | Mitsubishi Electric Consumer Products (Thailand) Co., Ltd.



“Global Standard” for Air Conditioners: Made in Thailand

“Kirigamine” is the name of a popular home air conditioner in the Japanese market made by Mitsubishi Electric. And it is Mitsubishi Electric Consumer Products in Thailand (MCP) that manufactures the models for Asia and Europe. It would be no exaggeration to say that the products made at this plant are connected with the entire world if one includes reshipments from consignees. Because of this there are many models being produced, but the design has been standardized to match the Japanese domestic model specifications, creating a “global standard” air conditioner that is expanding into markets globally. “If we can standardize a product, we can reduce the environmental impacts. For example, by using

fewer materials, and boosting production efficiency,” says Katsuyuki Aoki, Manager of the Overseas Technology Group at Shizuoka Works, the parent factory. In Japan, air conditioners using inverters are common, but in other Asian countries there is still strong preference for single-speed equipment. In Europe as well, inverters are growing in popularity. Because of this, most of the basic parts are being standardized, although there are some differences, for example in the insulation material of indoor units. What kinds of changes were necessary to achieve this?

“In Japan, we use a solid conductor cable that can be fixed in place just by pushing, but overseas it is more common to see stranded conductor cable which needs to be secured by screws, so we made some improvements to the base design. Also, by using a simple snap-fitting design for the protective net on the air vent in the indoor unit, required to meet European safety regulations, we

ensured that there was no obstacle to standardization. In addition, we have also been applying designs we’ve been doing in Japan to overseas models, such as including symbols to guide dismantling in order to facilitate recycling.”

Our Approach to Manufacturing Selected in a Country that Values Quality

Mitsubishi Electric is also working to develop a model combined with high-performance compressors that utilize the energy-efficient Poki Poki Motor, which is being manufactured overseas. Countries like Thailand and those in Europe are using a ranking system as an official indicator of energy efficiency, and Mitsubishi Electric’s air conditioners rank in the top category (Class 5 in Thailand, Class A in Europe). Thailand has many affluent consumers with large homes where each family member has his own living space, and they are increasingly paying attention to the performance of air conditioners. To maintain the top market share in a country like this, it is essential to offer excellent performance in energy efficiency and quietness.

In October 2005, an Eco Products Fair will be held in the capital Bangkok. The Mitsubishi Electric Group will have an exhibit there, and plans to announce various energy-efficient technologies at that time.

“In the future, it will be necessary to create the foundations for manufacturing that is on par with or even better than in Japan, in terms of quality, environment, human resources, cost, production systems. As an Eco-Factory naturally we expect the best in terms of the factory’s energy efficiency, but I would also like to make this an even stronger company in Thailand by increasing the local procurement of parts and contributions to the local community,” says company president Masayasu Masuda.



▲ MCP management staff team. President Masayasu Masuda is second from right. Factory General Manager Junichi Yokoyama is third from left.

▼ Katsuyuki Aoki, who also serves as deputy manager of the Room Air Conditioner Department.

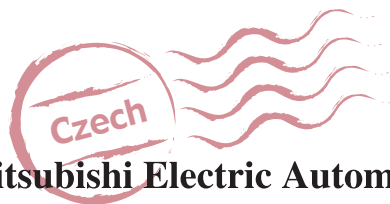


▼ MCP was the venue for the “Green Factory” stories in a series of advertisements in Asia focusing on environmental corporations.



MEAC

Mitsubishi Electric Automotive Czech s.r.o.



Our Goal: Business that also Considers the Environment

Mitsubishi Electric Automotive Czech (MEAC) started manufacturing electronic key devices for cars in 2001. As European demand for automotive parts grows, MEAC is taking advantage of its central location between Eastern and Western Europe to provide a speedy supply system and service with attention to detail. The company obtained its ISO 14001 certification in September 2003, and continues working to ensure that its management considers the environment at the same time as boosting productivity. "The Czech Republic was originally blessed with abundant natural surroundings, but as a result of the rapid growth of the use of fossil fuels after the Second World War, it went through a history of industrial pollution. But some of our environmental standards especially in the area of air protection, are even stricter than many other countries in the European Union," says Production Assistant Manager Dalimil Bartoň.

It was in this context, that MEAC in August 2004 installed equipment to break



▲ President Masazumi Kawachi (second from left) and Production Assistant Manager Dalimil Bartoň (far left) standing in front of VOC decomposition equipment

down the volatile organic compounds arising from the silicon coating process of engine control units. It captures the VOCs, breaks them down into harmless carbon dioxide and water and finally emits them into atmosphere. By using catalysts this equipment can decompose about 98% of the VOCs. It was installed not just to comply with regulations, but as an act of corporate social responsibility.

▼ MEAC plant



MEU

Mitsubishi Electric Europe B.V.



The Importance of Communication

Companies with business in Europe cannot avoid dealing with the WEEE Directive (European Directive on Waste Electrical and Electronic Equipment, making producers responsible for the recovery and recycling of used electrical and electronic equipment) entering into force in August 2005, and responses to the RoHS Directive (European Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment—for 6 substances including lead and cadmium) entering into force in July 2006.

Hans-Joerg Hinkel of Mitsubishi Electric Europe (MEU) has been travelling all over Europe and keeping close contact with Japan to coordinate Mitsubishi Electric's compliance with the regulations. He says, "It's important to sort out the correct information from the confusion and hedge our risks with the proper judgment. Although

the European Union is one unified market, there are differences in the implementation of the directives, especially for WEEE, country by country. For the Japanese to correctly understand the actual situation, I consider it very important to communicate with the key persons in Japan and in each of our branches in Europe."

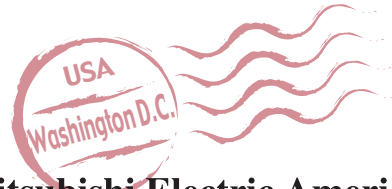
In Europe it is not uncommon for policies to be adopted when they are still lacking in details, in an effort to move quickly, and the details are settled later, after taking into consideration the actual problems that occur during implementation. In Japan, on the other hand, it is more common to conduct detailed planning right from the start. Although this approach might slow the conceptual stage, the implementation usually is quick and smooth. This fundamental difference in thinking is often the reason for confusion when addressing new policies, especially on the Japanese side, so communication becomes an important factor to instill a common understanding.



▲ "Environmental issues require flexible responses from companies but at the same time they present them with new business opportunities. This truly is exciting work," says Hans-Joerg Hinkel, Manager of Corporate Strategy Planning.

MEAF

Mitsubishi Electric America Foundation



A Better Life for Children with Disabilities

The Mitsubishi Electric America Foundation (MEAF) was founded in 1991 with funds from Mitsubishi Electric and its U.S. affiliates. The mission of the foundation is to help young people with disabilities to maximize their potential and participation in society. To date, the foundation has donated over \$7 million to organizations around the country that assist people with disabilities.

In the belief that personal involvement has more impact than simply giving money, MEAF encourages volunteer activities by employees of Mitsubishi Electric U.S. companies—including expatriates and company executives. Each company has its own philanthropy committee, which organizes volunteer projects and fundraising events to benefit the local community.

"Over the past 14 years, we have supported children and youth with disabilities, through programs in education,

career preparation, community integration, and recreation. As a result of MEAF initiatives and employee volunteer activities, I think we've been able to significantly improve the lives of thousands of

young people with disabilities and their families," says MEAF Executive Director Rayna Aylward.

<http://www.meaf.org>



▲ Expatriate employees take part in a MEAF volunteer project



◀ Rayna Aylward, Executive Director, MEAF



▲ Employee volunteers clean up the grounds of a hospital for children with disabilities

MEAA

Mitsubishi Electric Automotive America, Inc.



Recycling Starts with a Revolution in Awareness

Until 1999, Mitsubishi Electric Automotive America (MEAA), which manufactures automotive electrical components in the states of Ohio and Kentucky, recycled mainly scrap steel and cardboard. But one of the managers set his mind on doing more than this, and over five years succeeded in raising the overall recycling rate of the factories from 51% to 79%. This is a high figure, if one considers that the average recycling rate in U.S. companies is less than 50%. The company today is aggressively recycling scrap steel, cardboard, wood, plastic, circuit boards, paper, and absorbent materials. By selling these items as valuable resources, they were able to make a profit of \$30,000 per year from this activity.

It is worth noting that they were able to decrease the amount of waste going to

the landfill by 20%, even though the factory floor space increased by 26% over the five-year period. This is one good example of how thinking about the environment has also contributed on the economic level.

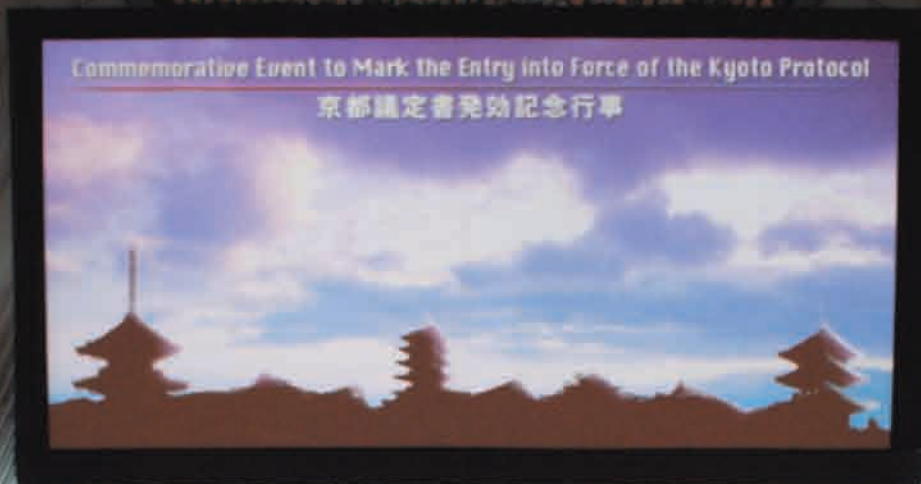
"It would be impossible to recycle without the employee cooperation. The toughest thing was creating an awareness revolution among employees," says ISO Manager Scott Stephenson. It is a lot easier to simply dispose of unnecessary items as garbage rather than to recycle them. "But we got employees to realize that recycling also leads to economic profit, and I think we achieved good results by having them challenge themselves to find ways to save money through recycling."



▲ MEAA Environmental Recycling Team
Scott Stephenson, Corporate QS/ISO Manager (front left)

Doing Whatever it Takes to Cut CO₂ Emissions

On February 16, 2005, the Kyoto Protocol entered into force, seven years after it was adopted by signatory countries. This is an historic step for humanity, the start of a new effort to tackle global warming. Japan will need to take significant measures to fulfill its commitments under the Protocol. Here we ask key people at Mitsubishi Electric how the company will fulfill its own responsibilities.



◀ Kanji Ohta, Corporate Environmental Sustainability Group, the navigator for Mitsubishi Electric's environmental and energy strategies. Photo taken at the Kyoto International Conference Hall, before the ceremony to commemorate the Kyoto Protocol's entry into force. (February 16, 2005)

Cutting Greenhouse Gas Emissions: No Time to Waste!

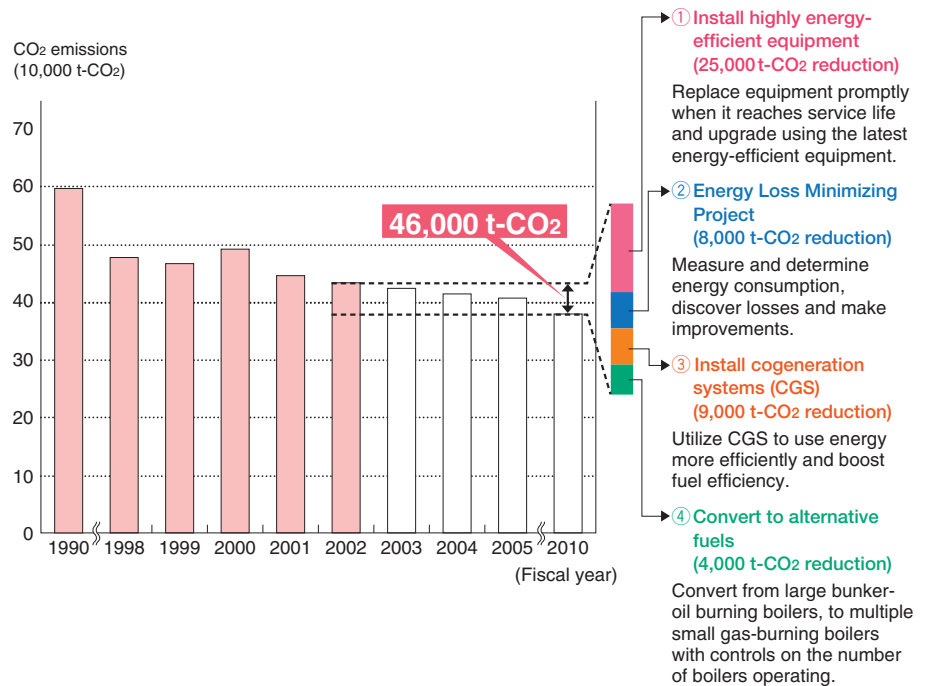
What is the Kyoto Protocol? For Japan it is a promise it has to keep, as it bears the name of the historic Japanese city that hosted the conference that led to the Protocol's adoption. The main point of the Protocol is the reduction of greenhouse gas (GHG) emissions. Japan has committed itself to a 6% reduction (compared to 1990 levels) during the first commitment period (2008–2012). These reductions are important, for if global warming continues to follow current trends, the Earth will become unlivable for humanity as islands and coastal areas are submerged, we suffer food crises due to abnormal weather, and tropical diseases spread.

Despite its importance, a 6% reduction is not an easy number to achieve. Since 1990, Japan's GHG emissions have not declined even once, and in fact they have increased by 8% today. Japan's government has created the Action Program to Meet the Kyoto Protocol Targets and is implementing actions based on it, but as anyone would expect, GHG emissions reductions are a major topic for corporations as well. Strategies to reduce emissions of CFCs, HCFCs and HFCs are also needed, but the main strategies involve energy conservation. This is because if we can reduce the amount of electricity consumed, we can also reduce the amount of CO₂ emitted in connection with the combustion of fossil fuels.

The Challenge: Reduce Energy Consumption by 25% (Per Unit of Sales)

What is Mitsubishi Electric doing in the midst of all this? Kanji Ohta of the Corporate Environmental Sustainability Group can answer this question. "Mitsubishi Electric set its own voluntary environmental targets in 1997. Our target is to reduce the CO₂ emissions intensity from energy consumption during manufacturing in fiscal 2010 by 25% compared to fiscal 1990. The indicator we use for emissions intensity is carbon-equivalent energy consumption per unit of net sales (a related measure, energy intensity, is measured in terms of electricity consumed per unit of net sales). We are maintaining this target, which we established in 1997. However, since we divested ourselves of a semiconductor division in fiscal 2003, we had to revise our 1990 base year figures to re-

■ Mitsubishi Electric's CO₂ Emissions Reduction Plan (after removing the impact of the semiconductor division that was divested)



move that division from the calculations. Semiconductor production uses a huge amount of energy, so if we didn't separate out that component it would appear as if we had reduced our energy consumption without even trying to be energy efficient. Also, it would have been impossible to evaluate our actual energy conservation efforts." (See page 32.)

Aiming to reduce 46,000 Tons of CO₂

He says that after removing the impacts of the semiconductor division that was divested, it became clear that the company would have to reduce its CO₂ emissions by 46,000 tons per year by fiscal 2010 compared to fiscal 2002 in order to achieve its voluntary environmental targets (assuming sales and production volumes were about the same levels as in fiscal 2003). A reduction of 46,000 tons of CO₂ means about 10% of the fiscal 2002 emissions. Having worked now for five years towards the targets, Mitsubishi has taken all the easy steps, and the company still has to reduce emissions by a further 10%.

To deal with this, Mitsubishi Electric decided to use four strategies company-wide. It intends to achieve the following emissions reductions: ① 25,000 t-CO₂ by

installing highly energy efficient equipment, ② 8,000 t-CO₂ by energy-loss minimization (EM) activities, ③ 9,000 t-CO₂ by installing cogeneration systems (CGS), and ④ 4,000 t-CO₂ by converting to alternative fuels.

Among these strategies, the EM activities are worth special mention. These activities are to carefully measure energy consumption at the level of each process in the factory, identify losses and make improvements by using energy-efficiency enhancement devices made by Mitsubishi Electric like the "EcoMonitor." It would seem logical for a company to use its own products to become more energy-efficient.

Monitoring Data from Production Line Reveals Clues

Our EM Project could actually be considered an EcoMonitor project, as the role of this product is huge. The EcoMonitor is a small box-like device that could fit into the palm of one's hand. Installed in the electrical distribution panel, for example, it is an excellent device to measure electrical consumption in minutes or seconds for each system, which could be a piece of equipment or a production line.

"Of course, the main point of our EM Project is not only measuring, but also analyzing the data that has been collected. As a part of our team's efforts, we looked at energy conservation in the production line for mounting devices on printed circuit boards, which consumes a huge amount of electricity. We installed an EcoMonitor, and when we took some measurements we found we couldn't explain why the energy consumption was so high in some places," says Yuko Kaneshima of Mitsubishi Electric's Fukuyama Works.

"When we asked the workers at that station for the reason, we couldn't get any answers—they said they didn't have enough people, or that some trouble had occurred. They were quite defensive." At this point, the team leader dispelled the

workers' concerns by making it clear that the intention was not to put the blame on anyone for low energy efficiency. After that, everyone cooperated in the search for energy losses.

An Added Benefit of the EM Project: Higher Productivity

One example of boosting productivity came from measuring the actual time-per-task of lines that had low production volume. After monitoring, we found that some tasks rated at 30 seconds actually took 40 seconds to complete. By accurately breaking down the time for each

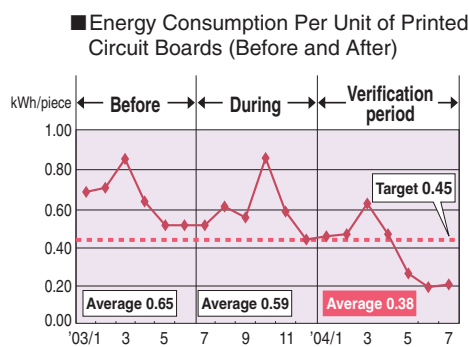
task, the team discovered reasons for losses. For example the equipment was idled when a worker could not keep up the pace of work. By conscientiously tracking work in the Production Plan and Performance Record, an essential component for analysis of electrical consumption data, we were able to simultaneously reduce procedural losses.

As a result, the team reduced the energy intensity of the production of circuit boards by 41%, which led to reduction of annual electrical consumption of 70MWh (29.5t-CO₂ equivalent). Kaneshima and her team were also awarded the Director's Award of Chugoku Bureau of Economy, Trade and Industry at the FY2004 National Competition on Energy Efficiency Projects organized by the Energy Conservation Center (Japan).

"Since this project has to be conducted while the factory is actually operating, it's difficult to make progress if we're just doing it to conserve energy. But after people realized that productivity would also increase, everyone was very willing to cooperate. Nevertheless, even if there was not a big boost in productivity, we were able to make people think about energy conservation. For example, in the case of the reflow furnace, in the past if there was some trouble with the component mounting process, the workers would leave the furnace turned on because it takes time to restart once it's been turned off. But through our project, once people realized that they would save energy by turning it off, they started to turn it off if trouble occurred. Because everyone is a pro at manufacturing, they have a keen awareness about efficiency. They became more enthusiastic in thinking about how to eliminate losses."



▲ More thorough recording of production results and reporting of deficiencies.



▲ Monthly energy intensity target was achieved after improvements (average: 0.38). This made it possible to produce each unit with only about 1/6th the energy required before the project.



▲ "We were able to get people to think about energy intensity in terms of productivity," says Yuko Kaneshima. By introducing color-coded indicators on the fixed cassettes containing chip devices [foreground in photo] we were able to improve procedures and make them easier for anyone to identify, reducing time losses.

Moving Toward the Post-Kyoto Regime

Kanji Ohta of Mitsubishi Electric has some thoughts on the future. "A large effort is certainly needed to reduce emissions, but considering the fact that the world has to limit GHG emissions to half the 1990 level by about 2030, we don't have the luxury of maintaining the current pace." In the future the only way to look at this needed paradigm shift will be to see it as a big business opportunity, and then use it to change the way things are. Developing the technologies and providing the solutions for this purpose will be essential for a manufacturer to survive, and at the same time they are a corporate duty to society.

It takes teamwork to create a refrigerator. These four members, covering key aspects of design, recycling, and production technologies, got together in the showroom of the Shizuoka Works to tell the story.



Our Goal: Good for Both— The global environment and the quality of life.

“Uni & Eco” is a new concept of Mitsubishi Electric. “Uni” stands for “universal design” and “Eco” for “ecology.” As environmental protection became a bigger issue in society, Mitsubishi Electric started promoting the idea of a good “Eco-Life” with its home appliances. What exactly is “Uni & Eco,” which claims to be “Good for the planet. Good for the people.”? Here we have a look at these concepts in the context of the refrigerator, a typical home appliance.

The Feel: “Uni” (Products Easy to Use, for Everyone.)

How does the concept of “Uni,” or “universal design,” differ from simply being “easy-to-use”? Sayuri Fukano, of our Industrial Design Center, has a few words to say about this:

“Generally ‘easy-to-use’ refers to the ease for the main user group. For example, in the case of a refrigerator, this would mean having it designed to be easy to put things in and get them out—for a housewife of the average height. But “Uni” would mean designing it to be easy for anyone to use, regardless of their physical characteristics. To make this possible, you have to look several things, for example: ① Is it pleasing to use? ② Is it easy to figure out how to use? ③ Are the indicators easy to read? ④ Does it minimize

strain on the body? And ⑤ Does it consider safety and convenience?” Team member Kotaro Nagumo adds, “This is the Mitsubishi Electric model that best demonstrates the ‘Uni’ concept. It has all the handles lined up vertically, and the doors open from the center. You can open the doors by pulling from any height, and you can close them with only the slightest push. To avoid having doors stay partly open, we designed it with an auto-closer. For home appliances, the goal is a simple design that includes many features.”

In the past, the main style of Mitsubishi Electric’s large refrigerators used drawers, but the model with center-opening doors adopted a completely different design. At waist level, there are compartments for every temperature zone—including ice, vegetables, and freezer—ensuring that things are easily accessible, and this design even offers more actual storage space. With the door and casing, the model uses a double layered structure,



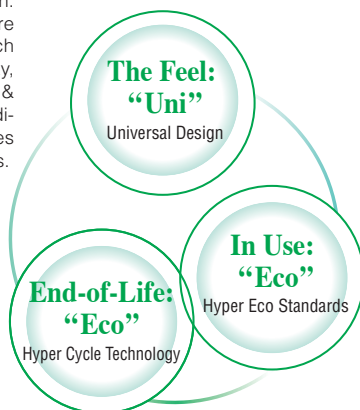
▲ Sayuri Fukano and Kotaro Nagumo of the Industrial Design Center use a wheelchair to demonstrate a refrigerator’s universal design features.



◀ Yoshihiko Kojima (left) of the Shizuoka Works refrigerator production department, and Shinobu Ogasawara of the Recycling Promotion Group at the Head Office. They succeeded in making all refrigerator models CFC-free. The models use isobutene R600a, a non-CFC refrigerant with an ozone-depletion coefficient of zero, and a very low global warming coefficient.

■ Mitsubishi Electric's "Uni & Eco" Concept

In harmony with the Earth. These three concepts are integrated into the search for a sustainable society, and applied in our "Uni & Eco" refrigerators, air conditioners, washing machines and other home appliances.



More information on "Uni & Eco":
http://www.MitsubishiElectric.co.jp/ud_eco/



▲ Auto-closer demonstrates the "Uni & Eco" concept. If the door is not closed completely, the door will automatically close. This design also helps conserve energy by preventing cold air leakage and waste of electricity when the user forgets to close the door.

which prevents cold-air loss and also makes the refrigerator more energy efficient.

In Use: "Eco" (Good Sense and Design for the Environment)

"One big design issue was placing the compartments for each temperature zone in the middle section. But a new design involves new costs for creating the production molds, so there's no point in going ahead unless you bring this product to market before other companies. We wanted to be first in the world with the auto-closer, so the development phase was a race against time," says Yoshihiko Kojima, who was in charge of design. So, what about the "Eco" part of this? "There are a lot of factors that contribute to the "Eco" factor—resource conservation, improved packaging, use of alternative refrigerants, for example—but whatever you say, if you're talking about a refrigerator, it

has to have an energy-efficient design. Thanks to improved insulation materials and a new type of defrost controls we have reduced electrical consumption significantly compared to products of 10 years ago. The next issue is how much can recycled materials be used. We cannot use recycled plastics in any section that comes into contact with food, but we use them for structural parts in the back and for attaching the control circuit board, etc. Meanwhile, we do recover plastics of vegetable compartments of refrigerators taken back and re-use them for parts in new air conditioners."

End-of-Life: "Eco" (Hyper-Cycle Technology)

The Mitsubishi Electric Group established a recycling plant before Japan's Home Appliance Recycling Law went into effect, and had it up and running in May 1999. Shinobu Ogasawara of the Recy-

cling Promotion Group says, "In general, recycled plastic consists of leftovers from the production process being turned back into raw materials. The technologies and infrastructure for the recycling of end-of-life home appliances are not yet adequate, and we see these as urgent issues to address." Home appliances contain a lot of metals and plastics, but besides the things that are easy to recycle, there are a lot of other things, like additives and impurities, and insulation that cannot be reused without being melted down. There is a big need for technologies for the automatic separation of materials that can be recycled from products that have gone through mechanical crushing, and Mitsubishi Electric calls these "Hyper Cycle" technologies.

During fiscal 2005, Mitsubishi Electric will be starting operation of a newly-completed plant that can automatically separate polypropylene from mixed shredded plastic. This is another sign of steady progress along the "Uni & Eco" road.



The Shift from “Waste Disposal” to “Production of Recycled Materials”

Hyper Cycle Systems Co., Ltd. in the city of Ichikawa (Chiba Prefecture) was established by Mitsubishi Electric in 1998. It was the first recycling factory in the home appliance industry in Japan. Today, four years after the nation’s Home Appliance Recycling Law went into effect, this is a growth industry, and the company, a pioneer in its field, is going through a transformation. How do the people working at the front lines see things, and where is the management headed next? Here we visit the factory to see the current state of home appliance recycling.

7 Years of Evolution

Atsuko-Alice Uda is a talented worker already in her sixth year at this center. When she first came to this factory in November 1999, Japan’s Home Appliance Recycling Law had not yet entered into effect. Looking back on those early days, she says, “Even managers were still trying to figure things out, and the dismantling line wasn’t yet organized. We just did our best. We were even still trying to figure out what tools we needed. The only way was to learn as we went along.”

Today, Hyper Cycle Systems has 95 workers on the “dismantling line,” taking apart home appliances. At the busiest time, during the summer, there are 200 workers here. When Uda first arrived there were only 11 workers at this site. In the course of just a few years the factory has changed dramatically.

Used appliances that arrive at the center are covered in grime from years of use. Clouds of dust would rise not only from the automatic crushing process, but also from the manual dismantling line. Since early on, the company tried various approaches to keep the dust down, but they were hardly adequate.



In the past few years, however, the work environment has improved dramatically, with the installation of efficient dust-collection systems. Examples can be seen on the dismantling line for televisions at the company’s branch factory in Kyoto completed in August 2004, the dismantling lines for air conditioners and refrigerators, completed in the spring of 2005, and the newest, a dismantling line for washing machines. The effect of reducing the amount of particles in the air was dramatic. In parts of the Kyoto factory, workers no longer need to wear masks. By mid-2005, the company’s largest plant—at the headquarters in Ichikawa—plans to go without masks in the main work area of each line.

The Goal: Closed-Loop Recycling

Takashi Hishi, president and CEO of Hyper Cycle Systems, has a few things to say about all this. "We had been making changes to the line since we started operating, but at a certain point we had done as much as we could. Ultimately, the only way to significantly reduce the suspended dust in the work area was to rebuild the actual work lines."

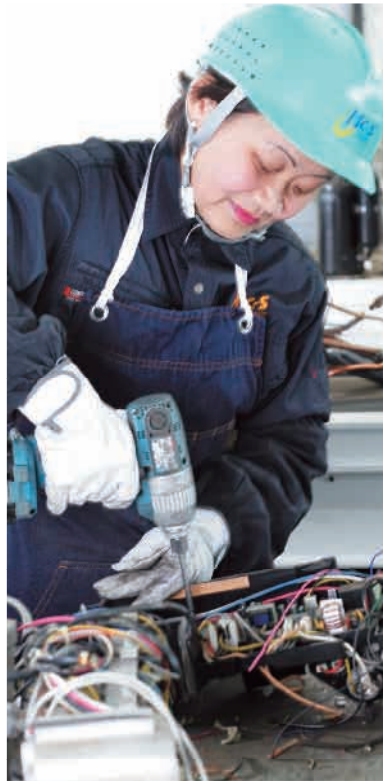
"The basic guiding principles for this company, soon in its seventh year, are compliance, safety, and environment," says Hishi. "What we are trying to create here is a new type of factory—factory that produces recycled materials. Since the beginning, I have aimed for the same standards as any factory that manufactures products, whether we're talking about equipment and facilities or environment, or whatever."

He says that the business done here is not "waste treatment" but the "production of recycled materials." Hyper Cycle Systems is working on closed-loop recycling together with Mitsubishi Electric. Information about dismantling and separation gleaned from the dismantling/recycling process is fed back to the design departments, which then make changes to designs so that they are easier to dismantle, with recycling in mind, and the materials used in production are easier to recover. The goal is closed-loop recycling.

Quality Itself is the Fruit of Efforts

Because this is "factory that produces recycled materials," every effort is made to enhance product quality, the same as with any manufacturing plant. Any serious effort at recycling has to do so at an appropriate cost. The company has no intention to do business unless it can do so at a profit. If the aim is for real recycling, it's not acceptable to have poor quality. A growing number of customers agree with these ideas. More than anything else, this is giving Hyper Cycle Systems encouragement. "A basic principle of environmental management is to achieve your goals at the lowest possible environmental cost, and this means simultaneously minimizing of the release of pollutants and maximizing the recovery of resources. That is the purpose of this company."

This conviction of Hishi is what is driving the company, which continues



■ Home Appliance Recycling (FY2004)

	Air conditioners	Televisions	Refrigerators Freezers	Washing machines
Units received at designated collection points	236,000	283,000	334,000	178,000
Units processed	235,000	283,000	335,000	177,000
Gross weight of refrigerants recovered (recovered weight of CFCs, etc.) (kg)	127,362	—	36,350	—
Gross weight of insulation materials recovered (recovered weight of insulation, CFCs, etc.) (kg)	—	—	72,430	—
Weight processed (t)	10,094	7,486	18,729	5,384
Weight reused in products (t)	8,458	6,456	12,378	3,807
Ratio reused in products (%)	84	86	66	71
Legal minimum (%)	60	55	50	50

(Percentages are rounded for ratio reused in products.)

■ Material Recycling from Used Computers (Home and Office) (FY2004)

	Desktops	Notebooks	CRT Displays	LCD Displays
Collected (kg)	44,553	3,520	201,321	3,234
Collected units	3,401	749	8,908	539
Weight recycled (kg)	44,553	3,520	201,321	3,234
Weight re-used (kg)	34,032	1,992	160,601	2,436
Ratio of reuse and material recycling (%)	76	57	80	75

(Percentages are rounded for ratio of reuse and material recycling.)

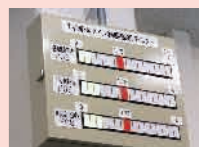
Home appliance recycling by Mitsubishi Electric
<http://global.mitsubishielectric.com/company/enviro/index.html>
 Click on "Practice" and then "Recycling."

▲ Atsuko-Alice Uda dismantling an air conditioner.
 "She's strong and works quickly," say others at the plant.



▲ Takashi Hishi, president and CEO, Hyper Cycle Systems, Co., Ltd.

The Kyoto branch factory of Hyper Cycle Systems Co., Ltd. started operations in February 2002. The plant uses multiple strategies to eliminate dust, among them the use of equipment such as a dust-level monitor developed by the Production Technology Center of Mitsubishi Electric, and dust removal equipment.



▲ Dust sensor checks dust levels in real time and displays on a monitor.



▲ A scene from the television dismantling line.

every effort to improve its technologies and the quality of the "products" it produces. And the fruit of that effort is revealed in the numbers: improved recycled resource ratios.




These efforts for more sophisticated recycling and to achieve zero emissions are changing the mentality of the people involved—everyone from the manufacturing plant to the recycling site. "Bulky garbage items that people normally consider to be disposable are really like treasure. At work I'm dismantling things and separating parts, but even after I return home

I find myself doing the same thing," laughs Uda. For her and the others at the leading edge of this industry, each one of those used home appliances can no longer be considered as waste. Hyper Cycle Systems and the people who work at the front lines are making steady progress toward a recycling society—in other words, a sustainable society.





Hyper Cycle Systems, Co., Ltd.
<http://www.h-rc.co.jp>

4th Environmental Plan: Progress Report




The 4th Environmental Plan contains targets to be achieved over three years starting fiscal 2003. Fiscal 2004 is thus the middle year of the Environmental Plan. Here we report on our achievements to date.

 Well done  Almost there  More effort needed

Eco-Factories Initiatives at the Manufacturing Level

	Target for FY2005	Achievements to End of FY2004	Evaluation	See Page
Effective use of resources	<ul style="list-style-type: none"> Promote “zero emissions” Control final disposal volume to below 1% of total waste emissions. 	<ul style="list-style-type: none"> Have achieved zero emissions three years in a row. (Final disposal has decreased from 0.75% to 0.37% of total waste volume.)*1 Affiliated companies in Japan are at 4.3%. 		P31
	<ul style="list-style-type: none"> Reduce volume of waste generated Reduce total volume per net sales by 6% from FY2002. 	Total waste generation up 9.8% from FY2003, up 8% per net sales. Further improvement needed.*2		P31
Energy conservation	<ul style="list-style-type: none"> Reduce CO₂ emissions (carbon-equivalent energy consumption per net sales). Reduce emissions by 25% from FY1990 by FY2010. Reduce emissions by 20% from FY1990 by FY2005. <p>(Mitsubishi Electric: Improve by over 1.5% per year. Affiliated companies (Japan): Improve by over 1.0% per year.)</p>	<ul style="list-style-type: none"> Carbon-equivalent emissions intensity was down 36% from FY1990, but 2 percentage points higher than in FY2003.*1 New voluntary standards have been set by deducting the impacts of changes in the Electronic Devices Business Unit. Efforts are now under way implementing four strategies to achieve emissions reductions targets. 		P13–15 P32
Reduction in chemical substance emissions	<ul style="list-style-type: none"> Reduce chemical substance emissions. Reduce total emissions by more than 18% from FY2002. Disclose information on production facilities. Reduce emissions of ozone-depleting substances and greenhouse gases. [CFC alternatives (HCFC*3 and HFC*4)] Limit atmospheric emissions from factories to maximum 0.2% of total volume handled on-site. [Sulfur hexafluoride (SF₆)] Limit atmospheric emissions from factories to maximum 3.0% of total volume handled on-site. 	<ul style="list-style-type: none"> Reduced total emissions by 1.0% from FY2003, 18.8% from FY2002.*2 Total HCFC and HFC emissions were 0.2% of amount handled. Target achieved.*1 Total SF₆ emissions down 43.7% from FY2003. Percentage compared to purchase volume decreased from FY2003 to 10.9%, but 3% target not achieved.*1 		P33

Eco-Logistics Initiatives at the Transport/Logistics Level

	Target for FY2005	Achievements to End of FY2004	Evaluation	See Page
Reduction in the negative environmental impacts of transportation	<ul style="list-style-type: none"> Reduce CO₂ emissions Reduce by 20% from FY2002. 	Distribution sector emissions were 98,000 t-CO ₂ , same level as in FY2002.*2		P34
Reduction in the negative environmental impacts of packaging	<ul style="list-style-type: none"> Eliminate use of wood in packaging of major products. 	Usage volume was 11,900 t, a 30% decrease from FY2001.*2		P34
	<ul style="list-style-type: none"> Reduce the volume of packaging materials used. Reduce by 10% from FY2001. 	Packaging material volume was 48,000 t, a 2% decrease from FY2001.*2		P34



Eco-Products Initiatives at the Procurement/Product Use/Recycling Level

	Target for FY2005	Achievements to End of FY2004	Evaluation	See Page
Promotion of Green Procurement	<ul style="list-style-type: none"> Continue promoting green procurement in partnership with suppliers. 	<ul style="list-style-type: none"> Expanding green procurement by greater application of Green Procurement Support System. By sharing information company-wide on chemical substance content in general-purpose electrical and electronic devices and components (about 20,000 items), we are further reducing environmental impacts of items we procure.*2 		P24
Reducing the negative environmental impacts of products	<ul style="list-style-type: none"> Raise ratio of Eco-Products to at least 70% of production value. 	Among the 158 product groups (ranging from mass-produced home appliances to energy/electrical systems), items in 93 product groups (production value was 990.5 billion yen) fell within the scope of the targeted products. Among these product groups, about 60% were accredited as Eco-Products.*2		P25–27 P30
	<ul style="list-style-type: none"> Create advanced environmentally efficient products (Hyper Eco-Products). 	Created a total of 32 Hyper Eco-Products in a wide range of business areas, including energy and electric systems, industrial automation systems, information and communication systems, and home appliances.*1		P25–27 P30
	<ul style="list-style-type: none"> Continue promoting the 3Rs (reduce, recycle, reuse) for products (for all aspects, including product packaging). 	Currently promoting “close-loop recycling” by using recycled plastics (recovered from used home appliances) in new home appliances. For example, we are already recycling cross-flow fans from air conditioners into the same parts, and have developed technologies to use washing machines drums as structural parts of new washing machines. Such applications will be expanded in the future.*1		P16–19 P26, 34
	<ul style="list-style-type: none"> Improve energy efficiency of products. 	Currently targeting home appliance product categories for which energy-efficient designs of each unit affect the energy efficiency of society overall. For air conditioners we have already been able to reduce electrical consumption by the equivalent of 1,256GWh per year compared to 10 years ago.		P29
	<ul style="list-style-type: none"> Eliminate the use of HCFC*3 as a foaming agent by the end of FY2004, eliminate the use of HCFC as a refrigerant by the end of FY2010. 	Continuing the switch from HCFC refrigerants to HFCs*4 for major models (efforts started in the FY2001 season*5). For refrigerators for the Japanese market, before the end of FY2004 we completed the conversion from HFCs to isobutane (CFC-free) refrigerants.*1		P30
Addressing extended producers responsibility	<ul style="list-style-type: none"> Create recycling systems that comply with the European WEEE Directive. 	We are in the process of creating a system to comply with the WEEE Directive at optimal cost, making use of our experience with home appliance recycling in Japan.*2		P11 P18–19
	<ul style="list-style-type: none"> Eliminate the use in Mitsubishi Electric products of six substances suspected of being environmental hazards (lead, mercury, cadmium, hexavalent chromium, two types of regulated brominated fire retardants*6) by December 31, 2005. 	We are taking steps to eliminate the stated substances from our products before the deadline, and also taking preventive actions to deal with guarantees and quality concerns.*2		P24

Management, Environmental Business, Communications Other initiatives

	Target for FY2005	Achievements to End of FY2004	Evaluation	See Page
	<ul style="list-style-type: none"> Strengthen the basis for globally-integrated environmental management. 	<ul style="list-style-type: none"> We held regular meetings of environmental committees in every company region (Europe, Americas, Asia, China). To train successors of current practitioners at factories, we conducted “next-generation environmental key-person trainings,” and graduated 25 people in the first term of trainings. Working to maintain and enhance compliance and performance, by having experienced personnel with strong administrative skills conducting environmental audits 		P22–23
	<ul style="list-style-type: none"> Promote environmental awareness and enhance capabilities. 	<ul style="list-style-type: none"> We publish the in-house “Eco News” regularly, in an effort to raise environmental awareness of all employees. Have created educational programs for each field of work (engineering, administration, sales, management, overseas employees). 		P35
	<ul style="list-style-type: none"> Contribute through environmental business activities. 	Started promoting energy-efficiency solutions projects to fulfill Kyoto Protocol commitments. “Uni & Eco” projects are an application of our “green” concept to the home appliance product group, as a step toward sustainable society, and as a new environmental business model.		P13–17 P30
	<ul style="list-style-type: none"> Communications with stakeholders 	<ul style="list-style-type: none"> In our Environmental Sustainability Report 2004 we expanded the target readership and added more reporting on facts of social activities. Another environmental brochure for children was also published. Continued to expand environmental communications, with exhibit at Eco Products 2004 Exhibition, an exhibit during our Mitsubishi Electric Group’s “Environment Week,” and reporting of environmental activities of Group companies in Japan and worldwide. 		P35

*1 Mitsubishi Electric only *2 Mitsubishi Electric Group *3 Hydrochlorofluorocarbons *4 Hydrofluorocarbons
 *5 The annual business cycle in the air conditioner industry starts in October. The FY2001 season was from October 2000 through September 2001.
 *6 Polybrominated biphenyls and polybrominated diphenyl ethers



Institutional Arrangements to Achieve Objectives

We are strengthening the infrastructure for Mitsubishi Electric's environmental management in Japan and overseas—human resources, management functions, and group-wide communication.

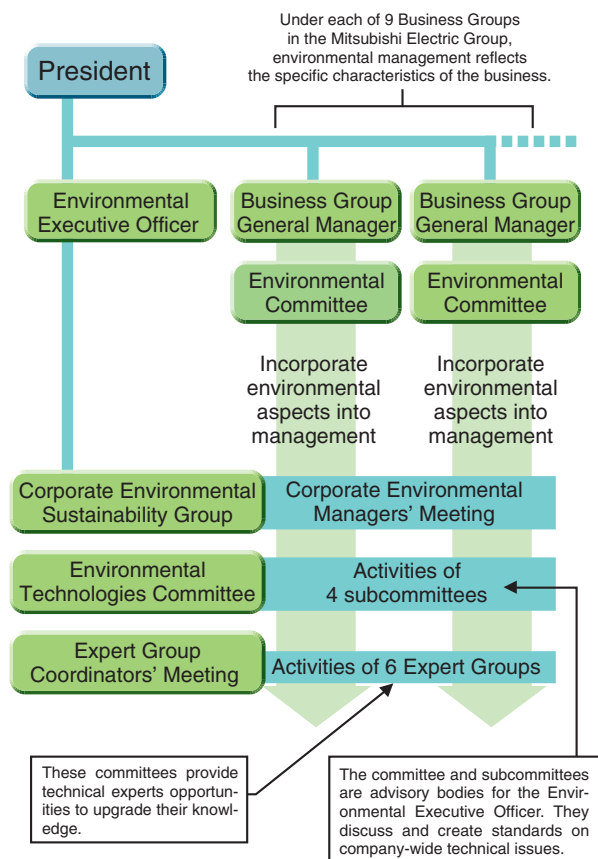
Three Challenges to Achieve Targets

As Mitsubishi Electric sees its contributions on environmental concerns as a management issue, it is implementing a Medium-Term Plan that incorporates both the environment and management. The 4th Environmental Plan, which started in April 2003, includes four objectives (improve eco-efficiency; enhance risk management; integrate environmental aspects further into corporate management; and contribute to business performance and brand value). It also identifies three core challenges that are critical for achievement of the objectives:

- ① Strengthen the global foundations for environmental management of the Group.
- ② Use environmental best practices to fully incorporate environmental consideration into production facilities, products, and logistics.
- ③ Promote stakeholder involvement and create new environment-related businesses.

In order successfully tackle these three basic challenges, we are undertaking various initiatives until the end of the target fiscal year of 2005, such as creating Regional Environmental Committees in our five corporate regions overseas, holding Environmental Management Advisor Conferences, implementing four strategies to reduce CO₂ emissions, and applying our "Uni & Eco" strategy.

● Organization Chart for Environmental Management



Two Layers of Environmental Management

Based on the measures needed to address the basic challenges and achieve objectives set by the Corporate Environmental Managers Meeting, each Business Group develops an implementation plan and has the responsibility to carry it out.

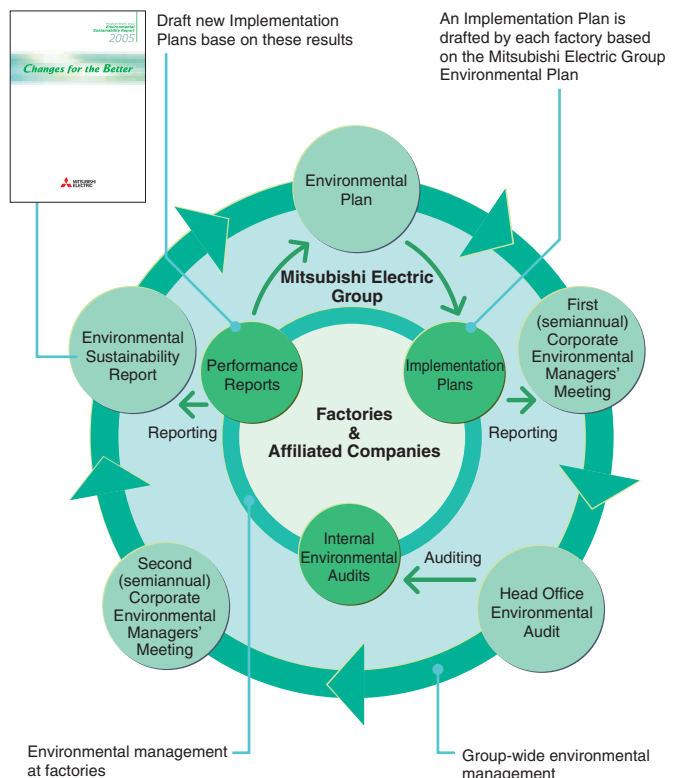
The environmental management of the Mitsubishi Electric Group consists of two layers: the management of the overall Group, and the management of production facilities (including affiliated companies). These two layers (like inner and outer rings of a circle) promote the environmental activities of the entire Group. Each has its own management cycle but stays linked with the other, as it goes through its own PDCA (plan, do, check, act) cycle.

Strengthening the Global Foundations for Environmental Management

In order to strengthen the foundations for environmental management at a global level, in fiscal 2004 the Mitsubishi Electric Group started Regional Environmental Committees in five regions. The objectives of these committees are to develop a common understanding of the Mitsubishi Electric Group's environmental policies; to improve the level of environmental management (i.e., compliance, institutional arrangements, operations) through mutual examination of activities; and to promote communication.

During fiscal 2004, we held these meetings in Europe (Czech Republic, September), Asia (Thailand, October), China (Shanghai, November) and the Americas (United States, March, 2005).

● Environmental Management Cycle



Ongoing Efforts to Reduce Environmental Risk

We are continuing activities such as early identification of risks through environmental assessments, as well as installation of fail-safe equipment, etc. We are making efforts to assess, verify and rectify (if problems are found) regulatory compliance and environmental performance, through rigorous auditing by auditors.

Preventing Pollution Incidents, Conducting Clean-Ups

Dealing with Soil and Groundwater Contamination

Between 1998 and 2000, voluntary groundwater studies and environmental assessments based on company regulations identified soil or groundwater contamination on 12 Mitsubishi Electric Group sites. We are conducting clean-up operations in compliance with guidance from the relevant local authorities, in areas where any contamination was confirmed.

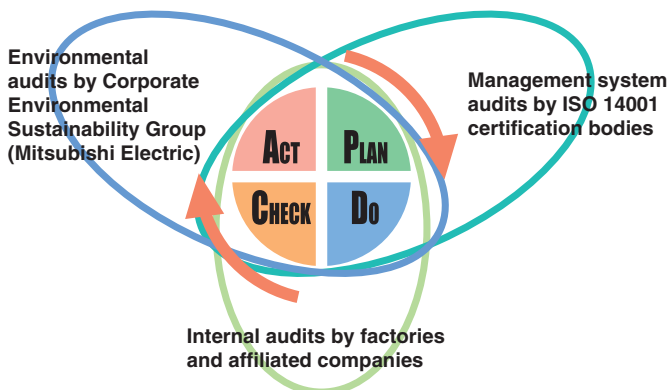
Subsequently, contamination was discovered at two more locations—one on the grounds of an affiliate company in Tokyo where contamination was discovered during a study relating to construction on the property, and the other at an affiliate in Gunma Prefecture where contamination was discovered in a study at a former factory site. We notified each local authority, held explanatory meetings locally, and clean-up measures are being taken. At an affiliate company in Aichi Prefecture where soil contamination was discovered on a site being leased for construction of a new factory, notice was given to authorities in accordance with local ordinances, and clean-up measures are now being taken. We will continue to conduct environmental assessments, and if contamination is discovered, will promptly notify the local authorities and take the appropriate measures, including clean-up operations.

Measures to Prevent Discharge of Pollutants

In fiscal 2004, there were seven incidents involving the discharge of pollutants at Mitsubishi Electric production facilities (one case of discharge to sewers exceeding BOD*1 limits, two cases of wastewater exceeding acidity limits, two cases of leakage of surfactants, and two cases of leakage of surface treatment solutions). In two of these incidents the discharge exceeded thresholds that require notification to the authorities (the BOD incident, and one of acidity incidents). For all of these incidents, including those that did not cross the notification thresholds, we reported to the local authorities. We also took steps to recover the discharged substances, and monitored for trouble, etc. In all facilities concerned, we conducted emergency inspections to prevent leaks, took corrective actions, and took steps to prevent any recurrence. We will strengthen routine inspections and make an effort to prevent future incidents.

*1: Biological oxygen demand (BOD) is one indicator of water pollution.

● Three Types of Audits to Support Environmental Management



Independent Auditing System by the Corporate Environmental Sustainability Group

The Mitsubishi Electric Group is using three levels of auditing to promote environmental management. The first is compliance audits of our environmental management systems, done by ISO 14001 certification bodies. The second is independent internal audits by factories and affiliate companies to verify regulatory compliance and ISO compliance. The third is environmental audits conducted by Mitsubishi Electric's Corporate Environmental Sustainability Group, targeting production facilities in 24 regions in Japan, as well as all Japanese affiliates. The latter are conducted once every two years at our own production facilities, and annually at affiliate companies.

The criteria for these audits include the relevant governmental regulations and our own 4th Environment Plan. We inspect for regulatory compliance, identify environmental risks, identify and verify environmental performance, and also conduct checks and rectify problems by going through the PDCA cycle. The person in the position of Environmental Executive Officer reports the results of the audits to the company president.

Expertise and Communication are the Keys

The public has a high level of concern about environmental accidents and legal violations by corporations, and any incident that occurs could have major implications for a company's future. My group's mission is to report the up-to-date situation about environmental management to the corporate management, in order to prevent accidents. Ultimately, I prefer it when I can report that the audits have found no problems. We are proud to have a group of auditors who are very competent and pay good attention



Takatoshi Saito
Implementation Group,
Corporate Environmental
Sustainability Group

to detail. In the course of auditing processes, we often get calls from our affiliate companies expressing concerns or seeking advice. Our work is to deal with issues so that both the auditors and the audited parties end up satisfied with the process. If they can't count on us there's no point in us being here. We're happy if people feel they can contact us about any matter, big or small.



Determining Total Environmental Costs and Benefits

We report the Mitsubishi Electric Group's environmental accounting information to stakeholders and are actively encouraging the use of environmental accounting internally at each production facility and affiliated company.

Aggressive Investments and Their Economic Benefits for Customers

We are reporting to stakeholders the environmental accounting results of Mitsubishi Electric Corp. and Mitsubishi Electric Group, based on environmental reporting guidelines issued by Japan's Ministry of the Environment. In fiscal 2004, the Mitsubishi Electric Group reduced environmental impacts by investing aggressively, at a level of 4.45 billion yen (an increase of 1.64 billion over the previous year). Examples of investments include installation of equipment to support lead-free soldering processes at multiple production facilities and affiliated companies including those overseas; capital investments, particularly to improve workplace environments (for example, dust-control measures in home appliance recycling plants); and eco-logistics activities (for example, replacement of vehicles to reduce vehicle emissions). Expenditures for environmental activities amounted to 10.83 billion yen (an increase of 80 million yen over the previous fiscal year).

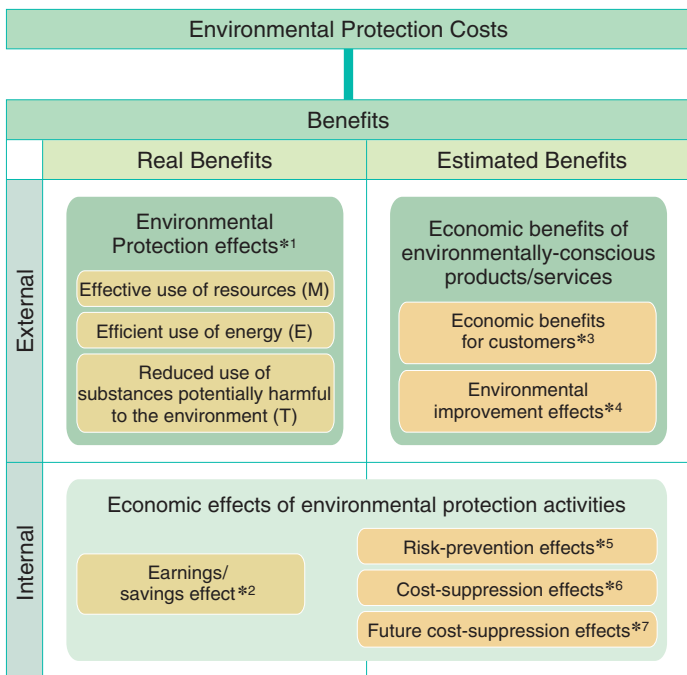
We generated estimated economic benefits of 113.47 billion yen in reduced electrical costs for customers, thanks to various efforts to consider energy efficiency and global warming prevention (e.g., in products such as the total heat exchanging ventilation equipment [Lossnay], household and commercial air conditioners, refrigerators, and energy-efficient elevator and escalators, etc.). Meanwhile, the actual economic benefits associated with environmental protection activities amounted to 5.31 billion yen.

Orientation for the Use of Environmental Accounting

After Mitsubishi Electric first introduced environmental accounting, besides the "real benefits" generated (such as the profits from the sale of valuable resources arising from recycling), starting in fiscal 2003 we added "estimated benefits," in order to evaluate the environmental benefits of products and business activities. The estimated benefits we report are the "economic benefits of environmentally-conscious products/services," such as the electricity costs saved by customers who purchase our environmentally-conscious products. At the same time, we are continuing to consider ways to determine monetary values of overall benefits of environmental protection activities, including risk-prevention effects,*5 cost-suppression effects,*6 and future cost-suppression effects.*7 It is worth noting that the Mitsubishi Electric Group determines the environmental protection costs and benefits for each production facility and affiliated company, and is making use of this information for internal management purposes such as for increasing motivation for environmental protection.

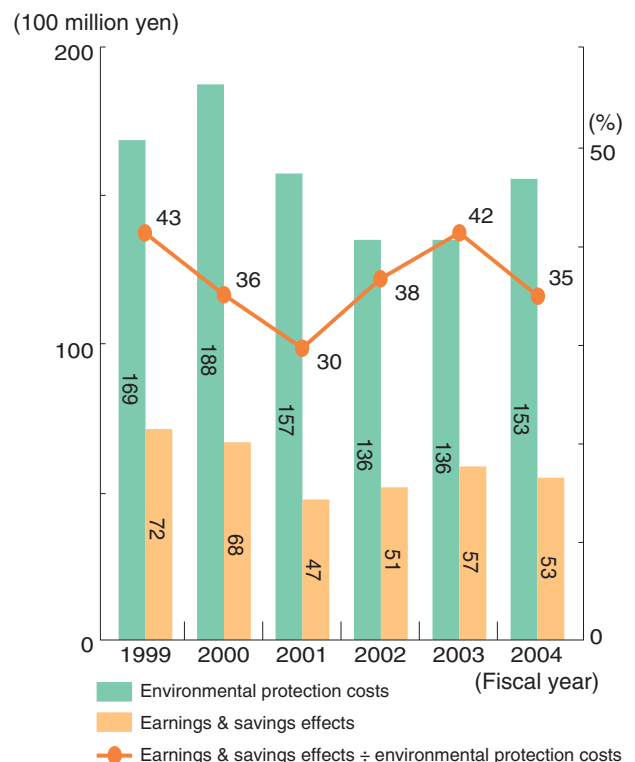
<http://www.MitsubishiElectric.co.jp/corporate/eco/>
Please click on "Vision" and then "accounting standards."

● Outline of Environmental Accounting (Mitsubishi Electric Group)



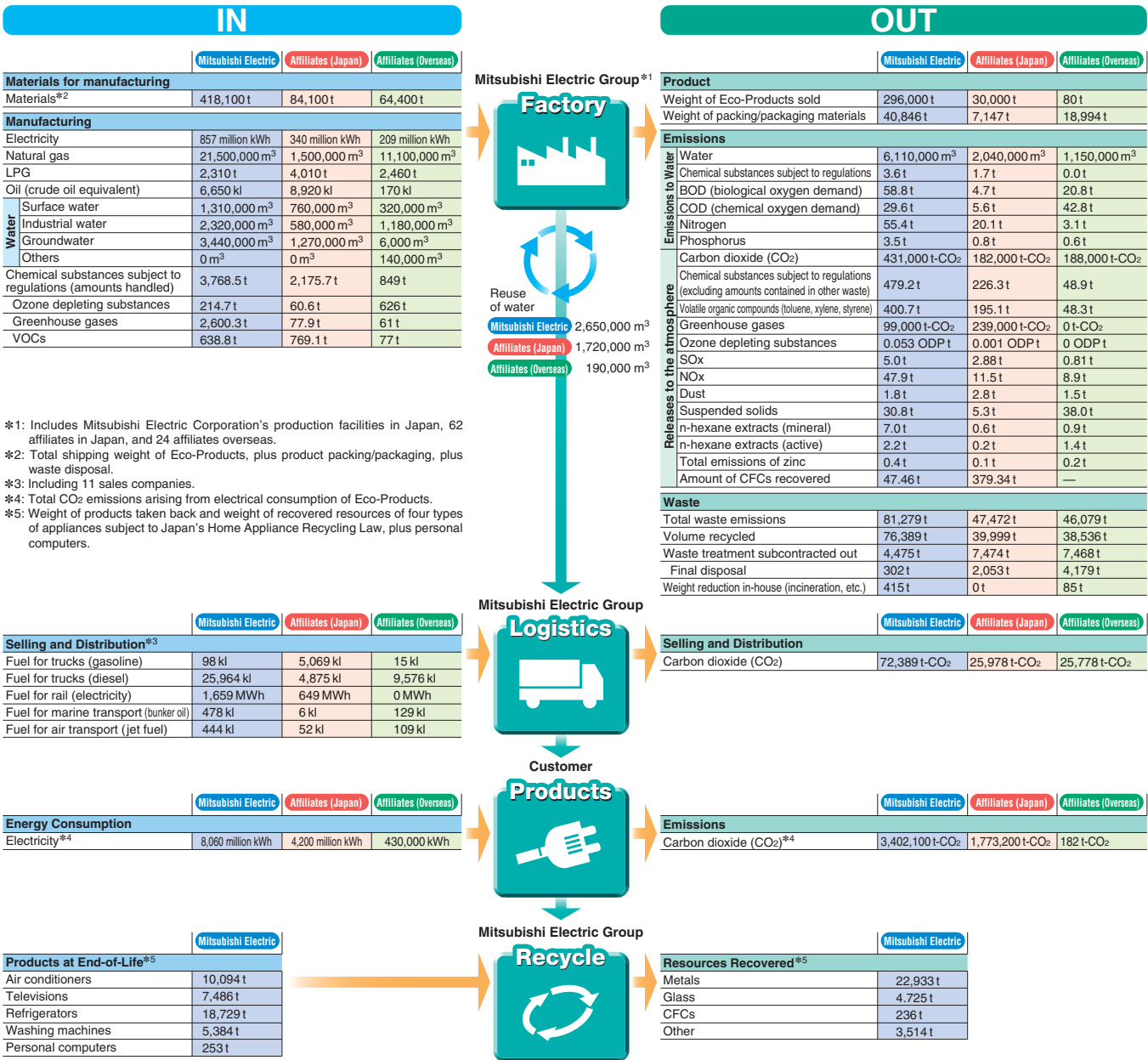
*1: Environmental impacts (material amounts) reduced by the Mitsubishi Electric Group.
 *2: Earnings from sale of recovered resources, savings from energy and resource conservation, etc.
 *3: Estimated savings by customers on electricity costs, arising from energy savings by environmentally-conscious products and services (e.g., energy solutions), etc.
 *4: Monetary equivalent of environmental improvement effects (reduction in CO₂ emissions, chemical emissions, etc.) arising from environmentally-conscious products and services.
 *5: Effects of avoiding possible future losses through soil contamination, pollution-related accidents, etc., of products and services.
 *6: Estimated effects of indirect cost reductions through education, information disclosure and other activities.
 *7: Estimated effects of suppressing possible future environmental taxes and other costs.

● Costs and Economic Benefits of Environmental Protection Activities (FY1999–2004) (Economic benefits here do not include estimated benefits.)



Environmental Impacts through the Product Life Cycle

One basic principle of environmental management is that an effort should be made to determine the environmental impacts at every stage of a product or service—materials procurement, transportation, product use, collection and recycling—and try to reduce the environmental impacts all along the way.



Products

Design for the Environment Contributes to the Economy—An Example

Of the products the Mitsubishi Electric Group shipped in 2004, the market-based electrical consumption of the 93 product groups that comply with the Group's Design for Environment criteria amounts to about 12,000 GWh per year (calculated by Mitsubishi Electric). About 90% of this is consumed by home appliances, which characterized by a long usage life and large number of units sold each year. For air conditioners, we are promoting energy efficiency based on the fact that these products account for one-quarter of household electrical consumption in Japan.*6 If we counts all air conditioners shipped in Japan in fiscal 2004, a savings of 1,256 GWh per year is possible compared to products of ten years ago.*7 This is equivalent to the annual electrical consumption of 330,000 typical households.*8 Because large benefits accrue if we can improve energy efficiency per unit in the home appliance category, we are paying special attention to energy-efficient designs in this category, and see this as a contribution to society.

*6: From "Summary of Electrical Consumption in Fiscal 2004," published by the Agency for Natural Resources and Energy (Japan) (in Japanese).
 *7: Calculated from the total annual electrical consumption of air conditioners shipped in 1994 divided by number of units shipped (a), and the same calculation for products shipped in 2004 (b). The energy-conservation effect in fiscal 2004 is thus the difference of (a) minus (b), multiplied by the number of units shipped in fiscal 2004.
 *8: Based on 310 kWh per month, as estimated by a public electrical utility for models used in typical households.

■ Electrical Consumption, by Business Area (Mitsubishi Electric)

■ Estimated Reduction in Annual Electrical Consumption Due to Design for Environment in FY2004



Promoting Green Procurement and Reducing Environmental Impacts of Products

Mitsubishi Electric is reducing the environmental impacts of products by further improving its green procurement system—including an expanded number of categories investigated, and faster confirmation of information from suppliers.

Using Green Procurement to Reduce the Use of Substances Potentially Harmful to the Environment

If manufacturers are to offer customers products and services that are better for the environment, they must procure materials that have lower environmental impacts. The Mitsubishi Electric Group counts green procurement as an important element of its Environmental Plan. In September 2000, we adopted the Mitsubishi Electric Group Green Procurement Standards Guide and have been promoting environmentally-conscious procurement activities.

In order to gather the information needed to implement green procurement, we are utilizing our Green Procurement Support System. Starting in fiscal 2004, we have been entering a variety of data into the system, including data from an "Evaluation of Environmental Initiatives of Suppliers," an "Evaluation of Chemical Substances Contained in Materials Purchased for Manufacturing Purposes," and an "Evaluation of Results of Environmental Initiatives Including Suppliers' Efforts [Trading Companies, Manufacturers, etc.] to Obtain ISO 14001 Certification." Using this system, we are now evaluating our suppliers from the environmental perspective as part of our procurement activities.

In addition, we made efforts to boost the efficiency of green procurement tasks, by introducing a new Green Procurement Search System for Chemical Content in Products, which allows users to search based on various criteria for information relating to chemical contained in materials purchased for manufacturing purposes (e.g., manufacturer name, product identification numbers, chemical names, compliance with the European Union's RoHS Directive, etc.).

In an effort to enhance our green procurement, we have created a database using the above system for use within the Mitsubishi Electric Group, and users can now access information on about 20,000 items including purchasing materials and devices.

Better Information Management on Chemical Content—Another Step Closer to Eliminating Regulated Chemicals

The European Union's RoHS Directive on chemicals contained in products will soon enter into force, in response to concerns about soil and groundwater contamination from lead and other substances in products disposed in landfills. It is worth noting that, in contrast to the European approach of regulating the use of substances, Japan's approach (under the Waste Management Law) is to encourage proper control and treatment in order to prevent the discharge of lead and other substances at the waste disposal stage.

Mitsubishi Electric plans to completely eliminate lead and other substances targeted by the RoHS Directive before it enters into effect on December 31, 2005, and will be offering environmentally-compatible products that can be accepted even in Europe.

For these reasons, we are taking various steps, such as obtaining information about the chemical content of the parts and materials we use, obtaining declarations guaranteeing certain substances are not being used, and conducting verification through analysis (using Single-Drop Extraction Analysis Technology).

By the end of March 2005, well before the RoHS deadline, we had eliminated the use of lead and converted to lead-free solder in the circuit boards of home appliances. To ensure quality we have been sending our technical personnel around the country to hold explanation sessions with our production facilities, affiliated companies, and business partners. We have also taken steps to distinguish between leaded and lead-free printed circuit boards and components by adopting unique markings that indicate "lead-free solder," in an effort to provide information that will help ensure proper handling and resource recovery at the time of disposal or recycling.

● RoHS and WEEE Directives

RoHS Directive

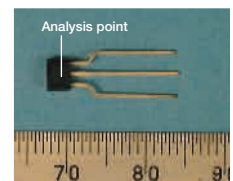
The European Union's "Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment." Six targeted substances include lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).

WEEE Directive

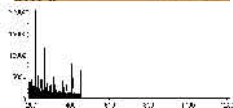
The European Union's "Directive on Waste Electrical and Electronic Equipment."

● Determining Chemical Content with the Single-Drop Extraction Analysis Method

By using this rapid-analysis technology developed by Mitsubishi Electric, it is now possible to detect substances such as hexavalent chromium and brominated fire retardants much more quickly than was previously possible. We developed the method in 2003, starting using it in 2004, and are now analyzing content information and testing the validity of alternative substances.



	Single-Drop Extraction Analysis Method	Conventional Method
Hexavalent chromium	35 to 60 minutes	15 hours
PBB, PBDE	35 to 60 minutes	50 hours

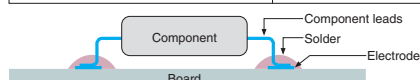


The new method has reduced the analysis time to 1/15th for hexavalent chromium, and 1/50th for PBB and PBDE.

▲ Sample analytical results of Single-Drop Extraction Analysis Method

● "Lead-free solder" markings for components and printed circuit boards, Mitsubishi Electric standards

Items to be lead-free	Location	Marking
Solder only		<i>Pb Solder</i>
Solder, component leads, electrodes	+	<i>Pb Joints</i>
Solder, component leads, electrodes, inside of component	+ +	<i>Pb PCA</i>



Making Products with Better Eco-Efficiency

We are creating Eco-Products that fully consider Materials, Energy, and Toxicity (MET)—the key concepts of our Core Environmental Philosophy—in the product life cycle. And we are challenging ourselves to create Hyper Eco-Products using even higher standards.

Eco-Products Created from the MET Approach

The Mitsubishi Electric Group has been using Design for the Environment since 1991. We verify the compliance with Design for Environment criteria using “3R Product Assessments” (“3R” for Reduce, Reuse, Recycle) consisting of 14 major and 51 intermediate evaluation categories determined from the MET approach, and evaluate them quantitatively using life-cycle assessments (LCA) (see page 28) and Factor X (see page 29).

After completing company procedures, we certify as “Eco-Products” those products that we determine through this process to be environmentally efficient and environmentally effective.

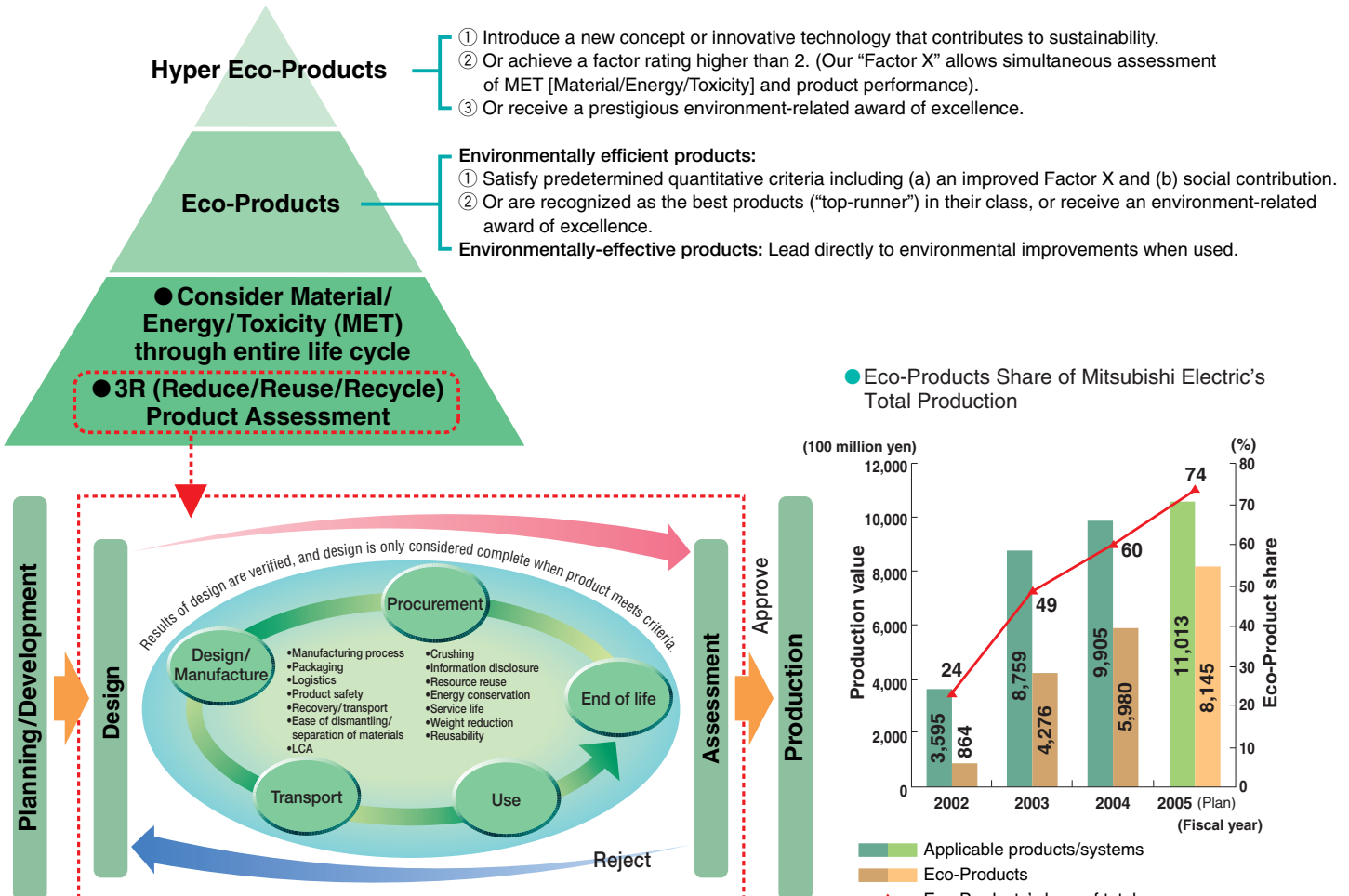
In our 4th Environmental Plan we set a target of having Eco-Products account for at least 70% of our production volume by the end of fiscal 2005. In fiscal 2004 we achieved a ratio of 60% of Eco-Products in the 93 applicable product groups.

Creating “Hyper Eco-Products”

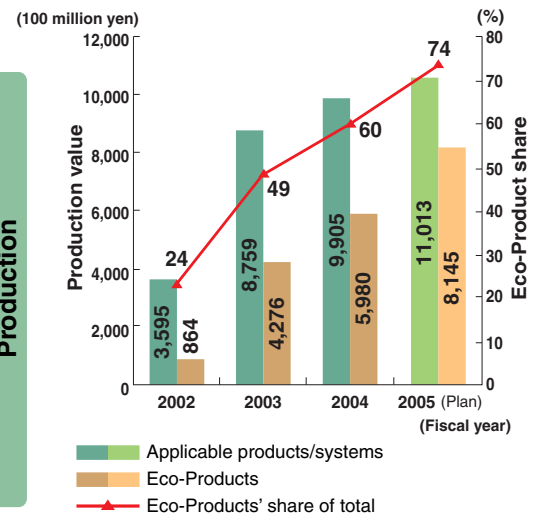
Mitsubishi Electric defines its “Eco-Products” as “products that offer enhanced usability and functionality and throughout the life cycle have lower environmental impacts”—in short, products with higher “eco-efficiency.” “Hyper Eco-Products” are products that have higher eco-efficiency than Eco-Products, and that in addition to the products’ core functions also offer environmental benefits when used.

In fiscal 2003, we established criteria for Hyper Eco-Products, and in fiscal 2004 certified Hyper Eco-Products in 32 product groups in a wide range of business areas—including energy and electric systems, industrial automation systems, information and communication systems, and home appliances. In the future we will aim to expand the selection of products that fulfill the Hyper Eco-Products criteria, with a focus on “Uni & Eco” products (see pages 16–17).

● The Design for Environment Concept



● Eco-Products Share of Mitsubishi Electric's Total Production





Evaluation and Design Methods for Life-Cycle Thinking

Mitsubishi Electric is promoting Design for Environment by paying attention to the effects of product improvements over the entire product life cycle—using methods such as life cycle assessments (LCA) and designs that optimize total costs, etc.

LCA Methods Support Design for Environment

Life-cycle assessments are a methodology to quantitatively and comprehensively evaluate the environmental impacts of a product through its entire life cycle—including resource extraction, design, manufacturing, transport, use, and disposal. This methodology is essential for the design of Eco-Products. The LCA approach is one of the initiatives we are implementing to evaluate items for product assessments in the 4th Environmental Plan of the Mitsubishi Electric Group. In order to steadily promote Design for Environment and support the designers, we have standardized the implementation steps for LCA. A special feature is that we implemented LCA using our own database that integrates key data on devices manufactured by Mitsubishi Electric with data relating to recycling and processing accumulated by Hyper Cycle Systems, Co. (see pages 18–19), and public data such as that published by the LCA Project of Japan's Ministry of Economy, Trade and Industry (METI). We have created a database of 796 items in total, and are currently making use of it Group-wide by intranet.

Design Methods to Optimize Total Cost

In order to promote product recycling, it is important to know the dismantling costs—in the same way it is important to know the costs at the time of manufacture. If a product is built too sturdily it will take longer to dismantle, and if it is painted too elaborately, it might be more difficult to recycle and end up as garbage. A design that someone thought was attractive may actually become a hindrance when it comes time for recycling. Being easy to make, and also easy to dismantle are important criteria for Design for Environment.

With this in mind, we have developed unique tools to support product design with consideration given to easy dismantling and recycling. Representing data accumulated by Hyper Cycle Systems, Co., these tools create graphs visually by computer simulation of the total cost (including profits from sale of recovered valuable materials, disposal costs for waste, and personnel costs) and dismantling time. This visual approach enables us to discover problem points, promote trade-off designs, and to optimize the total costs.

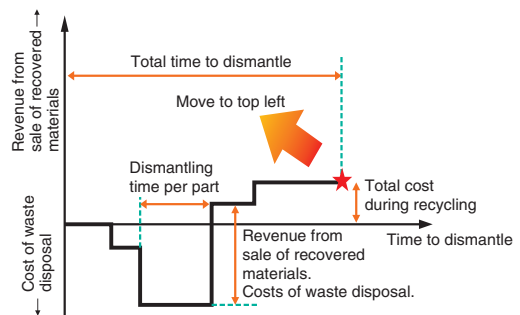
Building a Reliable Database, Providing Information

The key to life-cycle assessments is the robustness and accuracy of the database, which is the basis for assessments. In 1999 when I first got involved in the research, there was little information in Japan that we could use, so the key issue was to improve the situation. We collected data from all types of literature. And then, we added accurate data from factories on Mitsubishi Electric semiconductors and motors—which are key devices in industry. Thanks to improvements in both data quality and volume in the database, the LCA approach has spread to all of our production facilities. LCA is becoming increasingly important during the development and design phase of a product, just as performance and quality have always been important. We will continue our efforts to release highly reliable assessment results.



Etsuko Hirose
Advanced Technology R&D Center, Material Technologies Department, Packaging Materials Group

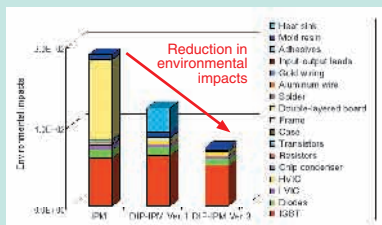
● Calculation of Total Cost at Recycling Time



Repeat the analysis to move the asterisk ★ (the dismantling completion point) up and to the left—by keeping down labor costs by reducing dismantling time, efficiently recovering valuable materials, etc.

■ An LCA Example: The Intelligent Power Module

A life-cycle assessment clearly reveals changes in environmental impact. In the Intelligent Power Module, a semiconductor that contributes to energy savings in home appliances, automobiles, and trains, etc., materials use, power loss, and environmental impacts were all reduced, by reducing size and eliminating the heat sink.



Our Challenge to Achieve Factor 4

To help realize sustainable society, we develop and offer Eco-Products that incorporate the Factor X approach into product design.

Special Indicators to Evaluate MET (Material/Energy/Toxicity) of Products

If we are to realize a sustainable society, we need new lifestyles based on products that offer higher value-added and better eco-efficiency.

In December 2001, Mitsubishi Electric was the first in its industry in Japan to apply the concept of Factor X, as an indicator of the eco-efficiency of products. The conventional approach to calculate the factor value emphasized the size of contribution of environmental impact factors, and treated improvements in product performance as a constant value (i.e., its numerator in the equation was 1). In fiscal 2004, however, we started to include improvements in product performance in the calculation. We evaluate the factor by multiplying the environmental impact factor (which compares the environmental impact index of old and new products as a vector sum of the three components under MET) by a performance factor (which is the arithmetic average of performance indicators of old and new products). Since improvements in the product's functions (i.e., convenience) go into the numerator and reductions in environmental impacts go into the denominator, a product's eco-efficiency can be raised by making the denominator smaller.

A feature of this evaluation method is that in order to dramatically increase a factor rating, it is necessary to have a balanced approach to improving each of the components of MET (i.e., the total value will not become much larger only by improving energy efficiency).

Driving Force that Creates Eco-Products

When consumers see a product's factor rating, they can intuitively appreciate how much a company has been working on technological development, or how far they have come in creating products with the environment in mind. Mitsubishi Electric is openly providing this information, as one of the "Type 2 environmental labels" on its website.*1 Factor X is a future-oriented, "optimistic" index that fairly evaluates design and technologies, and functions as an incentive to designers and technical personnel. It also helps to clarify future targets to be achieved, and can be a driving force for the creation of Eco-Products.

In order to increase the value in the market of the factor evaluation methods, Mitsubishi Electric participates in the Environmental Efficiency Forum*2 in Japan, and works to promote further developments in and awareness about indicators. Mitsubishi Electric will continue to work towards its target of Factor 4, as another step towards sustainable society.

*1: <http://global.mitsubishielectric.com/company/environ/index.html>
Click on "practice" and then "Eco-Products"

*2: Secretariat is hosted by the Japan Environmental Management Association for Industry.

Basic Concepts to Calculate Factor Rating

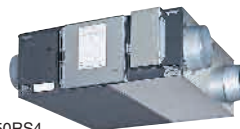
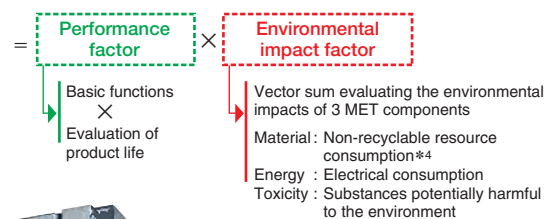
- The calculation of Factor X is based on a comparison between a new product and a baseline product (in principle, we use Mitsubishi Electric products and a base year of 1990).
- Evaluations of the performance factor (improvement in product performance) and the environmental impact factor (reduction in negative environmental impact) are multiplied together to produce the rating.
- Performance index: This is rated as "basic functions (product functions, performance, quality, etc.) multiplied by product life."*3
- Environmental impact index: This is rated using sub-indices for Material, Energy, and Toxicity ("MET," where M is the amount of non-recyclable resources consumed,*4 E is the amount of electrical consumption, and T is the amount of substances potentially harmful to the environment), from which the environmental impact is calculated for the new product (using a value of 1 for the baseline product), and the final environmental impact index is represented by the length of a vector that combines the three sub-criteria.

*3: The performance index is established separately for each product.

*4: Sub-index for the amount non-recyclable resource consumed = "virgin resource consumption" + "non-recyclable resource consumption" (i.e., the volume disposed of without being recycled) = ["weight of product" - "weight of recycled materials and parts in the product"] + ["weight of product" - "weight of recyclable resources in the product"]

Factor Calculation

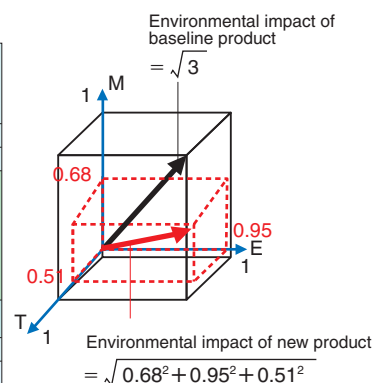
$$\text{Factor} = \frac{\text{Degree of performance improvement (lifestyle value)}}{\text{Degree of environmental impact reduction}} \times 1$$



Example: Commercial-use ceiling concealed Lossnay (energy-efficient ventilation system)

Factor 1.91 = Performance factor 1.400 × Environmental impact factor 1.363 ▶ LGH-50RS4

	Environmental impact			Product value	
	M: Effective use of resources	E: Efficient use of energy	T: Content of substances potentially harmful to the environment		
Baseline product	1990 model LGH-50R6	1	1	1	1.732
New product	2004 model LGH-50RS4	0.68	0.95	0.51	1.270
Improvements	Fewer parts Fewer screws Thinner metal plates	Higher motor efficiency Annual electrical consumption: Reduced from 570 kWh/year to 540 kWh/year	Lead-free motor and circuit board Lead content in solder 3.333 g to 0 g Hexavalent chromium 0.014 g to 0.103 g	<ul style="list-style-type: none"> Heat exchange efficiency 58 to 64.5% (1.11 times) External static sound pressure 3 to 6.1 mmAq (2.03 times) Effective air exchange rate 90 to 95% (1.06 times) 	
(A) Environmental impact factor = $(1 \div \text{new product's environmental impact}) \div (1 \div \text{baseline product's environmental impact})$					1.363
(B) Performance factor = (new product's added value) ÷ (baseline product's added value)					1.400
Factor = (A) × (B)					1.909





Contributing to the Environment and Society through a Range of Business Activities

We are contributing to the environment and society through our Eco Solutions Business, which utilizes satellite and information technologies and develops Eco-Products and Hyper Eco-Products for a range of uses—from households, to infrastructure, to industry.

Hyper Eco-Products & Eco-Products

● Hyper Eco-Products ● Eco-Products

Room Air Conditioner MSZ-Z40RS



Factor 2.15
Performance F1.093 ×
Environmental F1.967

- Compressor using the Poki Poki Motor increased energy efficiency by 136%. MOVE-EYE increased energy efficiency by about 30%.
- Uses lead-free solder to attach electronic components to circuit board.
- Our unique replacement technology now makes it possible to reuse existing pipes, reducing waste.
- Service panel of the outdoor unit is made of plastic recycled in-house from vegetable compartments of used refrigerators.
- Fan of indoor unit is made of plastic recycled in-house from used air conditioners.
- Simple, easy-to-dismantle body design allows for easy recycling and cleaning.

Refrigerator MR-G50NF

Factor 2.31 *1
Performance F1.000 ×
Environmental F2.314

Refrigerator MR-A41NF

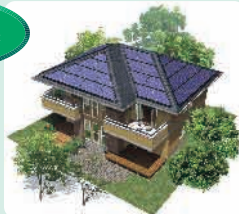
Factor 2.24 *1
Performance F1.000 ×
Environmental F2.238

- Auto-closer function prevents door from being left open, avoiding waste of electricity.
- Conversion of the entire product line-up to CFC-free (isobutene) models was completed by March 2005.
- Uses lead-free solder to attach electronic components to circuit board.
- Base protector is made of plastic recycled in-house from vegetable compartments from used refrigerators collected in the take-back program.

MBM Series Photovoltaic Power Generation System

Factor 1.37
Performance F1.295 ×
Environmental F1.057

- By combining five types of module shapes, rooftop installations can handle more cells.
- With 94.5% energy conversion efficiency, can make use of power generated without energy loss.
- Completely lead-free connections, including conducting wires and electrode covers.



Mobile Phone "mova"® D506i

Factor 3.58 *1
Performance F1.000 ×
Environmental F3.581



- (Comparison with 1991 models)
- By integrating the switch circuit board into one piece and using sheet metal in parts, reduced resource consumption by 62%.
 - By energy efficient design, reduced energy consumption by 72% (60% in operation, 96% on standby).
 - By using lead-free solder, reduced lead content by 90%.

*"mova" is a registered trademark of NTT DoCoMo, Inc.



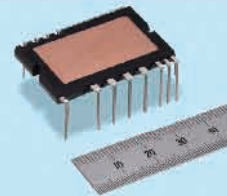
Factor 3.96
Performance F2.500 ×
Environmental F1.582

Electrical Power Monitoring Unit "EcoMonitorPro" EMU2-HM1-B

- Reduces both virgin resource consumption and amount of non-recyclable resources by 45%.
- Reduces operating power consumption by 51%, standby power consumption by 82%.
- Reduces lead content in solder by 12.5%.

DIP-IPM

(Dual-In-Line Package Intelligent Power Module)



Factor 2.13
Performance F1.500 ×
Environmental F1.421

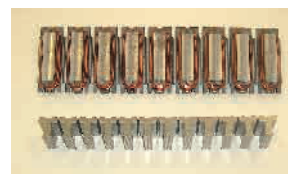
- New insulation package technology with high heat dissipation allows about 60% super-miniaturization compared to previous designs.
- Uses completely lead-free solder for chip connections and terminal plating inside product.

*1: Calculated as Performance Factor 1.

[Solutions Business]

Poki Poki Motor® *2

Motors account for about 50% of electrical consumption in Japan. The Poki Poki Motor is based on a production technology that was developed in 1995 to boost both performance and manufacturing productivity. This motor is produced by unique method developed by Mitsubishi Electric of winding the coils around the stator core and then bending it into a round shape, allowing for high-speed winding during production. The higher coil density makes these motors more efficient and compact. These motors are being used in many products today, from air conditioners and other home appliances to elevators.

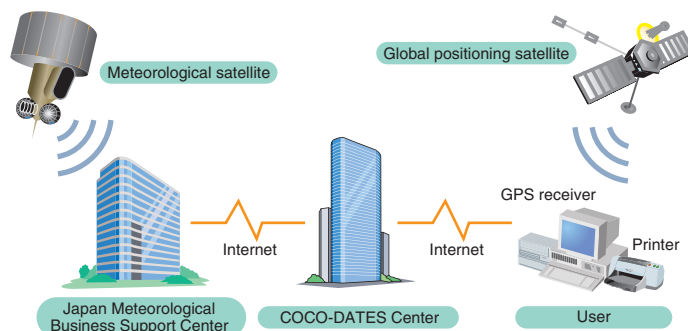


COCO-DATES

COCO-DATES stands for "correct coordinates and date stamp," and is a new service that provides location and time information verification using information from a global positioning system (GPS) and weather satellites. It uses GPS to identify the location of images taken by special cameras that have been registered. The time is determined by a weather satellite (one that encodes cloud images). Various applications under consideration include tracking industrial waste to ensure proper disposal, "traceability" for food products, management of factory operations, evidence of security inspection routes, photographic evidence for newspapers, and documentation evidence.

Example: Industrial Waste Disposal

By appending a voucher to the COCO-DATES code (site of emission/disposal, time, photo, weight, route information), a waste emitter can verify by Internet whether or not its waste has been properly handled.



*2: "Poki Poki Motor" is a registered trademark of Mitsubishi Electric Corporation. Japan/overseas: 85 patents pending. Overseas: 20 patents obtained, 12 patents pending.

High Employee Awareness Helps to Eliminate Waste

We are committed to reduce total waste emissions by strengthening the 3Rs and by creative efforts at the factory level.

Zero Emissions Achieved for Past 3 Years

To create a society based on sound material cycles, the Mitsubishi Electric Group has since fiscal 2002 made a sustained effort to keep the amount of waste sent to the landfill below 1% of total waste emissions (our working definition of zero emissions). Mitsubishi Electric Corporation has achieved zero emissions three years in a row. For affiliated companies, after investigating the waste management situation, we started intensive efforts at waste separation and provided information on effective use of waste materials. In fiscal 2004 the ratio of waste going to the landfill improved to 4.3%.

Total emissions of the Mitsubishi Electric Group in fiscal 2004 were 128,000 tons, an increase of 9.8% over fiscal 2003. In terms of waste per unit of sales, the ratio worsened by 8%. We will make further efforts to improve the situation, including company-wide expansion of a pay-per-waste-category system that has proven results for waste reduction in the Kobe area, as well as sharing of waste-related information in model areas.

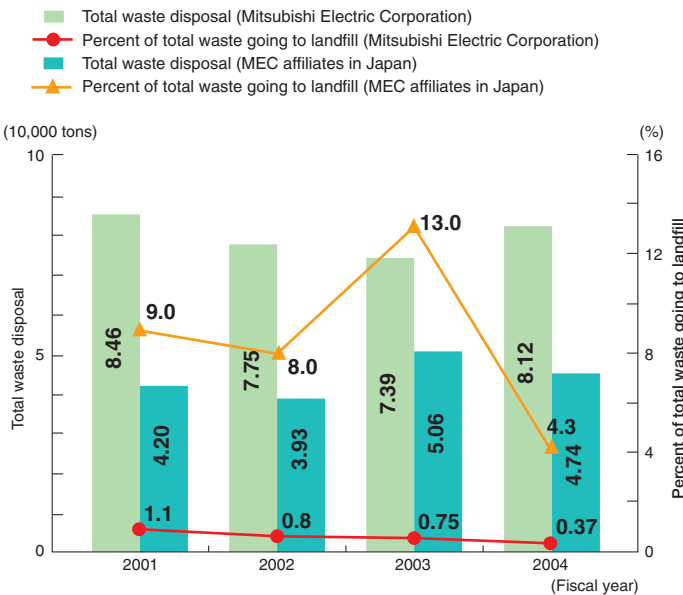
Achieved: A Factory with 100% of Waste Recycled into Resources

The Fukuyama Works obtained ISO 14001 certification in 1997, and after working towards 100% recycling of resources, and starting in April 2004 has achieved its target for all waste, including general waste (i.e., industrial waste as well as office-related general waste).

There are two points worth noting in this factory's success. The first is the direct link between the product design process and production technologies that promotes reducing, reusing, and recycling. The factory succeeded in improving the yield rate (i.e., reducing waste) by using thinner resins in products and reusing molding materials, as well as by making parts smaller and making improvements to die assemblies.

The second is awareness-raising activities, with the participation of all employees. The factory worked to suppress the generation of general waste, and at the same time conducted routine checks to ensure that waste was being properly separated into recyclable categories. A display showing the properly waste separation (bottom left photo), was a major factor in the success of raising awareness about the 3Rs.

Total Waste Disposal



Waste Separation Display for Recycling

Employees at the Fukuyama Works set up displays and containers to facilitate recycling.



Pay-per-waste-category System Led to Waste Reduction Success



Yuji Ohuchi
Production Systems
Department,
Kobe Works

After separating waste to analyze and measure, we discovered that more than 40% of it consisted of resources such as paper and PET bottles. To reduce the amount of waste, we re-allocated our waste management budget to all departments, although it was previously budgeted in one "basket" in my department for the entire factory. We also introduced a system whereby each department pays for its own waste handling costs from its own budget. When every department was urged to cut costs, everyone was forced to think about what they could do to avoid throwing out waste. Then each department started its own efforts—for example, one created a more detailed list of categories for waste separation, one had the manager checking on garbage disposal, and another worked to avoid excess packaging—and as a result waste disposal was cut in half. I was chastised because we could not recover the budget that we had distributed to each department. But what made me the happiest was that everyone's attitude toward waste has changed.



New Targets, Four Strategies for 2010

Under our 4th Environmental Plan, we are aiming to reduce CO₂ emissions by 1.5% per year. We have also decided on tough new targets and strategies to achieve them.

Higher Voluntary Targets

Under its 4th Environmental Plan, the Mitsubishi Electric Group has established voluntary action targets to reduce CO₂ emissions from energy use during manufacturing (measured as "emissions intensity," based on carbon-equivalent energy consumption per unit of net sales) by at least 25% by fiscal 2010 compared to fiscal 1990 levels. In order to reduce its emissions by 1.5% per year per unit of net sales, each factory is tackling emissions reductions according to a plan.

In fiscal 2004, Mitsubishi Electric Corporation's CO₂ emissions amounted to 430,000 t-CO₂ (an increase of 3% over fiscal 2003). Emissions increased due to the large impact of higher energy consumption for air conditioning increased due to hot weather, and for manufacturing due to favorable business conditions in the Industrial Automation Systems division. The emissions intensity was 36% lower than in fiscal 1990 (a 2 point increase compared to fiscal 2003).

CO₂ emissions and emissions intensity based on net sales were both down considerably in fiscal 2003. This is due in particular to having divested a part of our Electronic Devices Business Unit (Renesas Technology Corp.). To exclude its effects, we recalculated the fiscal 1990 base year value of emissions per net sales for our voluntary targets, by removing the equivalent of Renesas' emissions from the actual figures for fiscal 1990. By fiscal 2010, we will reduce our CO₂ emissions by an additional 46,000 tons from fiscal 2002 levels, which is a relatively high target, in order to fulfill our corporate responsibilities (see pages 13–15).

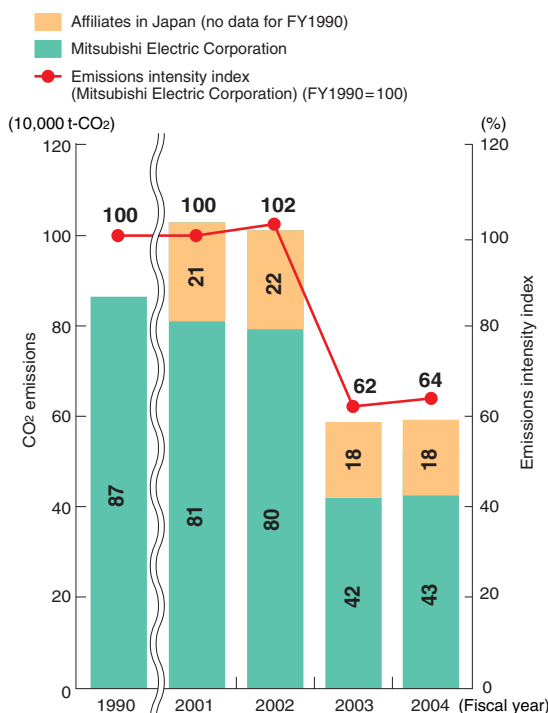
Results of Our Four Strategies in FY2004

In order to reduce our CO₂ emissions by 46,000 tons during the seven years leading up to fiscal 2010, we launched four strategies in fiscal 2004: installing highly energy-efficient equipment, conducting energy-loss minimization (EM) activities, installing cogeneration systems (CGS), and shifting to alternative fuels (see page 14).

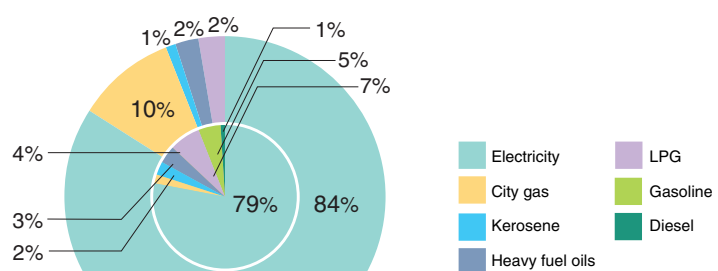
As shown in the graph below, during fiscal 2004 we reduced emissions by a total of 6,184 t-CO₂, and invested a total of 1,532 billion yen (including government assistance of about 15 million yen) for the four strategies.

For installation of highly energy-efficient equipment we exceeded our target of a 3,600 t-CO₂ reduction by 114%. This we accomplished by replacing air conditioners, by controlled operation by installing multiple small boilers, and by the installation of exterior air exchangers, high-efficiency lighting equipment, and transformers. Regarding the EM activities, our successes have been limited to just a few factories, as the activities began in the middle of the year. As for the cogeneration strategy, the advantages of cogeneration declined after the strategy had been decided, due to a drop in electricity process, so we are now reconsidering the situation. Regarding the conversion to alternative fuels, emissions have dropped considerably thanks to our having converted boilers from heavy fuel oil to natural gas.

CO₂ Emissions and Emissions Intensity



Breakdown of Energy Use



Outside: Mitsubishi Electric Corporation 430,000 t-CO₂
 Inside: Affiliates in Japan 180,000 t-CO₂

Results of 4 Energy Conservation Strategies (FY2004)

Strategy	Reduction Target for FY2010 (t-CO ₂)	Reduction in FY2004 (t-CO ₂)	Investment in FY2004 (million yen)
1. Install highly energy-efficient equipment	25,000	4,091	1,439
2. Energy-loss minimizing project	8,000	214	41
3. Cogeneration	9,000	7	4
4. Convert to alternative fuels	4,000	1,872	48
Total	46,000	6,184	1,532

Controlling Chemical Substance Use and Emissions to the Environment

We are taking steps to properly control and reduce our largest category of releases—volatile organic compounds (VOCs).

Reducing VOC Emissions by Cutting Wastage, Using Alternatives, Using Removal Equipment, etc.

The Mitsubishi Electric Group has been conducting voluntary controls of chemical substances since 1997. We have entered information on the parts and materials procured into our chemical substance management system, and have prioritized which substances to reduce based on calculated substance usage and releases. We are now taking action to reduce releases, with the aim of an 18% reduction in fiscal 2005 compared to fiscal 2002.

To achieve our reduction targets, we are focusing on VOCs (toluene, xylene, styrene), the largest category of gases emitted by Mitsubishi Electric and taking a number of steps: (1) reducing wastage caused by over-purchasing, excess use, etc., (2) changing processes to reduce the frequency of use, (3) using alternative substances that are low in low-VOC content, and (4) introducing equipment to remove VOCs.

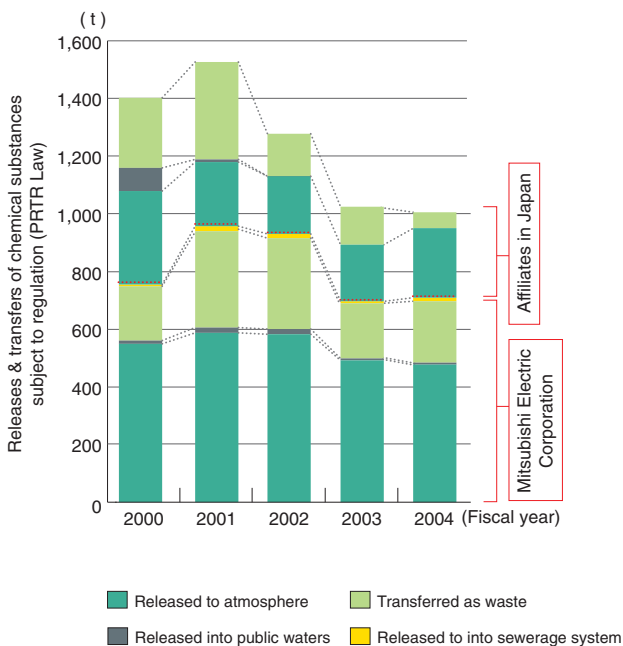
Releases and Transfers Down 1.0% from FY2003

In fiscal 2004 the Mitsubishi Electric Group used 5,944 tons (110 types) of chemical substances (Mitsubishi Electric Corp. used 96 types).

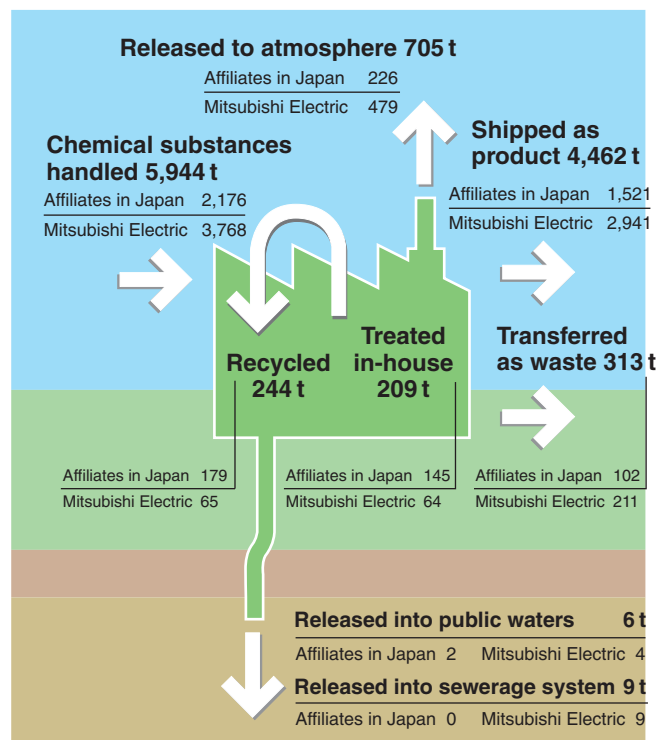
Releases and transfers amounted to 1,033 tons, a 1% decrease from fiscal 2003. The decrease was 18% in 2003, indicating that the rate of decrease has slowed. One reason for this is that there was no major factor to cause a reduction, such as selling-off a business unit. Besides this, decreases in chemical releases and transfers from ongoing efforts—such as opting for shifting to utilize lower-VOC coating paints and reducing the surface area of sheet metal to be coated—were not enough to offset increases due to higher production of factory automation equipment and electrical automotive equipment.

In the future, in order to steadily reduce our releases and transfers, we must introduce new strategies that will not affect productivity, and for that we aim to install VOC removal equipment. In this regard, Mitsubishi Electric is now independently working to develop VOC removal equipment that works through plasma decomposition.

● Releases and Transfers



● Material Balance of Chemical Substances Subject to Regulation



● There were no releases to soil.



Creating an Eco-Friendly Logistics System

We are reducing CO₂ emissions by promoting “eco-logistics” (economy and ecology logistics), considering the reduce/reuse/recycle in packaging, and expanding our efforts to promote modal shifting.

Reducing CO₂ Emissions by Modal Shifting

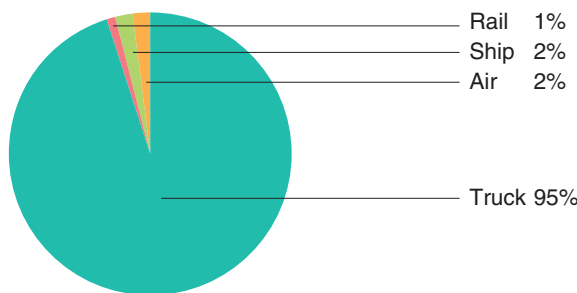
Products manufactured in the Kansai region and shipped to the Tokyo region account for Mitsubishi Electric's heaviest transport volume in Japan. We are in the process of switching from 10-ton trucks to 12-foot rail containers for this segment, and estimate that we can reduce CO₂ emissions here by 83%.

As for imports from overseas, marine shipments from Shanghai in China to Kitakyushu in Japan, we are using special flat racks that can carry three JR Cargo 12-foot containers. From there the containers are separated for rail transport, and carried to distribution centers in western Japan. In the past we were shipping from China in 40-foot containers to Tokyo, where the containers were off-loaded and carried by truck to Mitsubishi Electric Home Appliance Co. in Saitama Prefecture. Today we are reducing CO₂ emissions by this shift to rail transport. At the same time, we have been able to rapidly realize a new “integrated global logistics system” for cargo between Japan and the rest of the world.

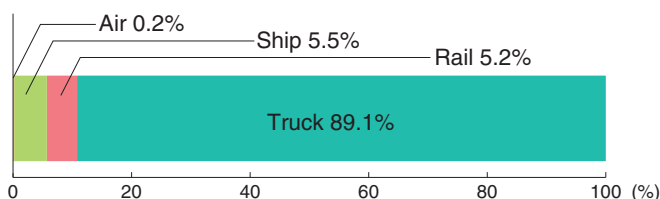
The CO₂ emissions from logistics activities of the Mitsubishi Electric Group in fiscal 2004 amounted to 98,000 tons. We are aggressively working to reduce these emissions through our modal shift to rail and marine transport.

Rail and marine transport attributable to modal shifting in fiscal 2004 amounted to 10.7% of total transport volume, an increase of 10% compared to the share in fiscal 2002.

● CO₂ Emissions from Logistics (FY2004)
(Mitsubishi Electric Group: 98,000 t-CO₂)



● Share of Transport, by Mode (FY2004)



Expanding Activities to Reduce Wood Usage

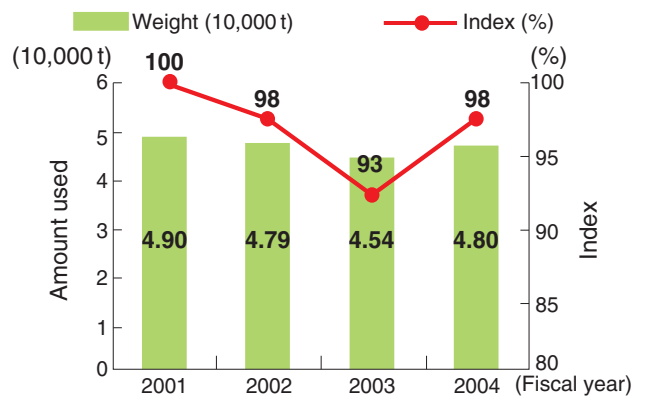
In fiscal 2004, we used 48,000 tons of packaging, a 2% decrease from fiscal 2001 (used volume in fiscal 2004 rose by 5 points from fiscal 2003). Because product shipments increased, we will be reviewing our arrangements in fiscal 2005 and making further efforts to decrease the amount used.

The use of wood in fiscal 2004 amounted to 11,900 tons, a decrease of 5,000 tons (30%) compared to fiscal 2001. We made progress with non-wood alternatives for packaging of our main products, with a few exceptions, and are making a concentrated effort to find non-wood alternatives for those remaining products.

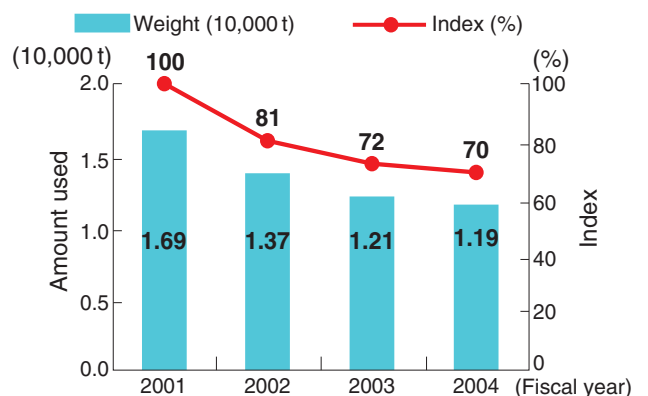
Wooden containers and packaging are still being used due to common business customs for both exports and domestic shipments, but for these products, we are working with customers to develop plans to shift away from wood. We are moving ahead with plans to achieve the complete elimination of wood for shipping our major products in Japan and overseas during fiscal 2005.

We are also working to replace wooden pallets (the second largest item for wood consumption after product packing) with pallets made of plastic and steel.

● Packaging Materials Used



● Wood Used for Packing/Packaging



Communication – Going Wider and Deeper

We are continuing our activities to expand mutual understanding with our stakeholders—from various perspectives, including environmental efforts and our relationship with society.

Raising Interest in the Environment

In December 2004, we presented an exhibit at the Eco-Products 2004 Exhibition in Japan. The theme of our booth was “Mitsubishi Electric Group Eco-Products—Products that Expand Your World.” We announced the launch of our new business model “Uni & Eco” in home appliances aiming at realizing sustainable society, introduced our energy-saving strategies and solutions to combat global warming, and displayed our Eco-Products for the home and the broader market. Visitors showed interest in many of our unique environmental technology advances, such as VOC treatment equipment and micro-bubble cleaning technology.

Reaching More People through Reports and Other Publications

In our Environmental Sustainability Report 2004, we explained the priority we give to our Corporate Philosophy and initiatives on the social and environmental dimension, and presented our vision



▲ Eco-Products 2004 Exhibition Students listening to an explanation about “Uni & Eco” refrigerators.



▲ Environmental advertising series: “Energy Efficiency,” about devices for energy conservation; “Recycle,” about air conditioner recycling; and “Green Factory,” about manufacturing lead-free products.

as a corporation aware of its corporate social responsibility. Using the words of designers and engineers involved in actual product development, we included special feature pages describing the creation of Eco-Products. Many readers sent us valuable comments, and we are making use this feedback to improve our activities. Examples: “You’re doing well with the environmental aspects, but you need to improve your economic and social dimensions (for example by increasing the amount of objective data).” “The messages from employees on the features pages, with the insiders’ perspective on product development, were very interesting.” “The report should explain things with a more global perspective.”

Besides that report, each production facility and affiliated company also issues an environmental report, in order to promote communication with local communities.

Advertising Promotes Environmental Initiatives

From January through March 2005, we ran an Asia-wide advertising campaign under the theme of “Comfort meets Ecology.” The ad campaign takes the approach that we are thinking about the environment together with our customers, while offering examples of how Mitsubishi Electric’s environmental technologies are making a difference every day in ways people might not have noticed. In the future, we plan to run similar series of ads introducing other devices and systems, and hope that people around the world will support our environmental initiatives.

Information on Our Global Website

This website uses Flash animation technology to help people understand our stance about contributing to society through products, business and technology, by illustrating the life-cycle concept to help understand environmental consideration.

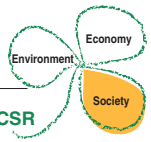


<http://global.mitsubishielectric.com/company/environ/>



“Electricity powers the world today, and cannot be separated from the environment. I think Mitsubishi Electric can contribute to sustainable society through energy—in technology, R&D, products and business. I think it’s important to spread this kind of message to the world. We will continue to make use of the latest web technology to spread information in a timely and effective way about Mitsubishi Electric’s environmental activities.”

Kevin Hamilton,
Overseas Advertising Group, Communications Department



For Our Stakeholders

As a company with committees, we are working for ever more dynamic management and transparency. We make an effort to respond to the expectations of our stakeholders, including but not limited to customers, shareholders, suppliers, and employees, etc.

Separation of the Executive Function from the Supervisory Function

Under the governance structure of Mitsubishi Electric, we have adopted the Company with Committees system and separated the roles of President (who serves as the Chief Executive Officer), and the Chairman of the Board, and have strengthened management supervisory function of the Board of Directors.

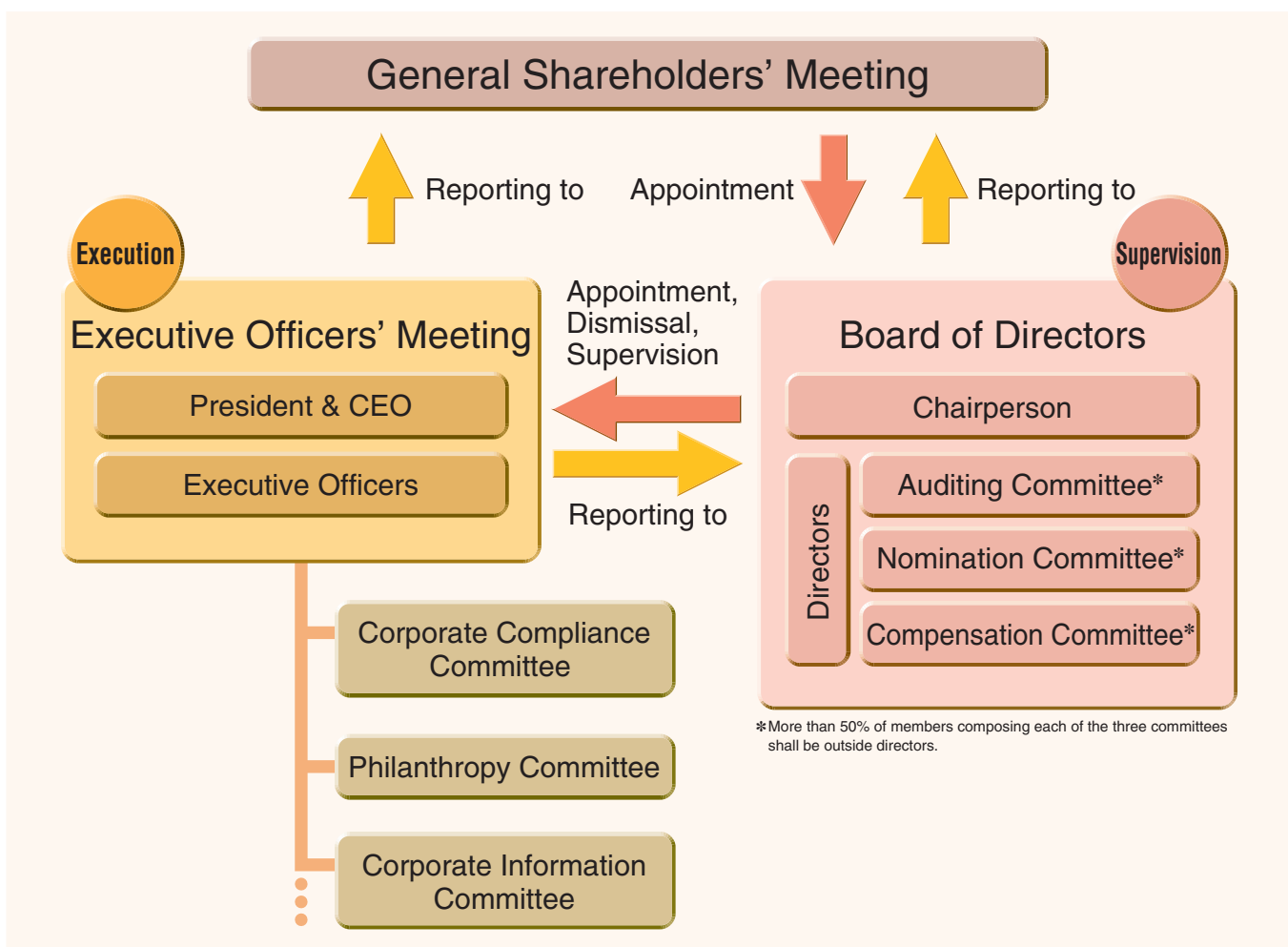
In addition, by limiting the number of board members who also serve as executive officers, we are running the company now in such a way that the majority of members of the Board of Directors do not serve simultaneously as executive officers. Persons who are to serve in both roles are selected based on their actual function as executive officers. In particular, in addition to the President/CEO, we are limiting number the executive officers to a few persons whose functions relate closely to the issues discussed by the Board of Directors (i.e., related to human resources, accounting, etc.).

Ensuring Synergies and Effectiveness of Committees

The Auditing Committee will work to increase the sharing of information with the internal audit organization and external auditing bodies (financial auditors), with the aim of strengthening the synergies and effectiveness of the management auditing function. In order to ensure greater effectiveness of management supervision, neither the Chairman of the Board nor the President/CEO will sit on the Nomination Committee (which decides on candidates for the board) or the Compensation Committee (which decides on compensation policies and actual compensation for board and executive members).

Also, we are conducting deliberations regarding corporate ethics, social contributions, and corporate information, by establishing committees including the Corporate Compliance Committee, the Philanthropy Committee, and the Corporate Information Committee.

Corporate Governance Structure of Mitsubishi Electric



Complying with Laws and Regulations, Establishing a Keen Sense of Ethics

Mitsubishi Electric is taking two approaches to promote full legal compliance: good institutional design of the organization system and good employee awareness. Our approach with all confidential corporate and personal information has the goal of ensuring secure management of such information.

Statement of Six Principles, Institutional Design for Compliance

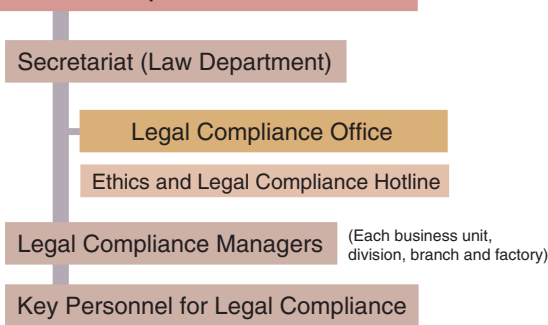
The Mitsubishi Electric Group has issued its Corporate Ethics and Legal Compliance Statement, which consists of six basic principles: Compliance with the Law, Respect for Human Rights, Contribution to Society, Collaboration and Harmony with the Community, Consideration of Environmental Issues, and Awareness of Personal Integrity. Besides providing all personnel with cards carrying this statement, we also aim to foster and spread legal compliance in various other ways, such as by displaying posters and distributing booklets with the same messages.

In 1991, we created a systematic legal compliance structure in the Group by establishing the Corporate Compliance Committee, which is responsible for promoting legal compliance activities and creating codes of conduct. The current structure reflects the revisions based on lessons from violations of Japan's Antimonopoly Law in 1995.

In addition, when necessary, personnel from the relevant divisions are called together to deal in a timely manner with risk management issues.

● Corporate Ethics and Legal Compliance Structure

Corporate Compliance Committee



Promoting Full Legal Compliance Everywhere



We are making an effort to ensure that each affiliated company outside of Japan—in the Americas, Europe, and Asia—establishes its own corporate code of ethics that reflects the local laws and regulations, culture and customs, and through compliance committees and other means is promoting full implementation of that code. The Mitsubishi Electric Corporate Ethics and Compliance Statement is at the core of those efforts.

Institutional Arrangements and Management Systems to Protect Personal Information

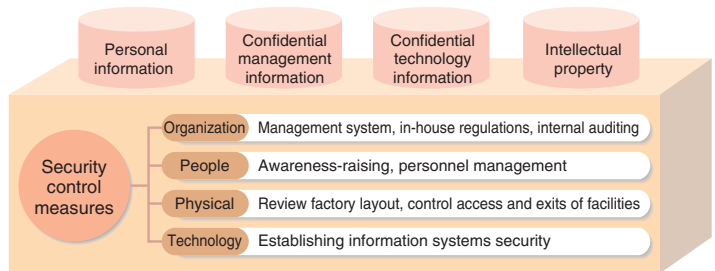
In 2003, Mitsubishi Electric conducted a major revision of the "Company Regulations on Protection of Personal Information" (entered into effect in 2001), and during fiscal 2004 established an organizational structure to implement the regulations.

The Chief Officer for Protection of Personal Information (the Executive Officer for General Affairs) administers the overall management of the company, the Manager for Protection of Personal Information (General Manager of the General Affairs Department of Head Office) and his Secretariat are to plan and implement policies. The General Manager of the Information Systems Technical Center is responsible for promoting information systems security.

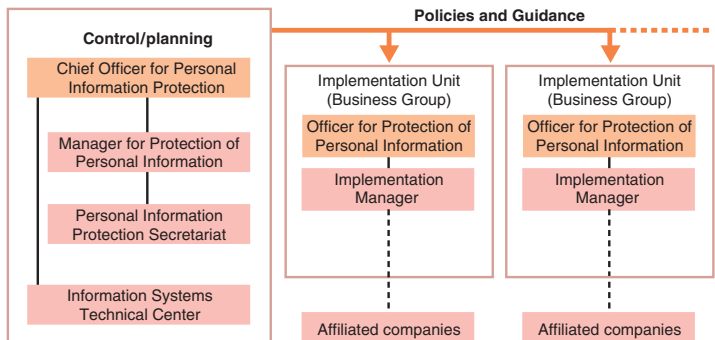
At the Business Groups, which actually use and manage personal information, it is the protection officer (the Group President of each Business Group) and the implementation managers (factory General Managers) who are responsible for information control, and they develop policies in cooperation with the Secretariat. In addition, Mitsubishi Electric makes its policies known to affiliated companies in Japan in an effort to achieve common awareness throughout the Group.

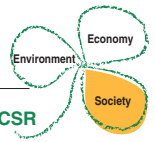
The proper management of confidential corporate information is not only a responsibility under Japan's Law on the Protection of Personal Information, which recently entered into force, and under Japan's amended unfair competition prevention law, but is also strongly expected to be a part of corporate social responsibility. It is in this context that Mitsubishi Electric decided to apply information security measures—which until now have been applied from the organizational, personal, physical and technical perspective—to cover confidential corporate information as a whole, including confidential business and technical information, and intellectual property, etc. It is for these reasons that on February 16, 2005, the company declared its Statement on the Management of Confidential Corporate Information.

● Management of Confidential Corporate Information and Security



● System for Protection of Personal Information





Our Goal: To Be the Most Competitive Everywhere We Operate

Mitsubishi Electric creates a corporate culture where employees can work as professionals and achieve challenging goals. We promote positive action to help women realize their full potential, and aim to be a company that people value highly as a place to work.

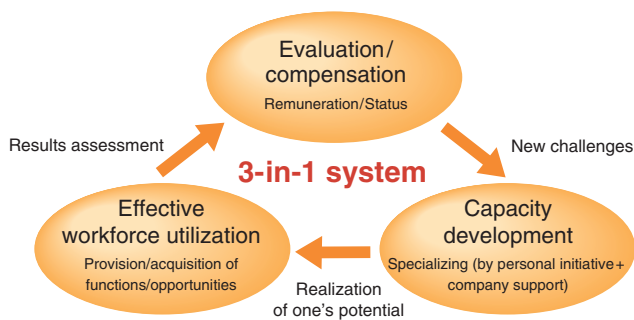
New Personnel System Emphasizes Work Performance and Optimal Utilization of the Workforce

Under our new compensation system, revised in March 2004, we place an emphasis on creating an environment where each employee is aware of the organization's objectives and his or her own role, an organization where employees can enhance their own value, and can challenge themselves to achieve high targets. In order for this system to function effectively, it is important that three key components work synergistically: evaluation/compensation, skills development, and effective workforce utilization. Also, in order to ensure that the roles and achievements of each employee can be directly reflected in their compensation and recognition, it is important to offer opportunities for job transfers and advancement depending on each person's own capabilities. In this respect, we have made changes to better support our compensation system, including the Career Challenge Program,*1 the Grievance Resolution System,*2 and the Survey Program.*3

For employees interested in starting a new life after leaving the company, we have established a multi-track personnel system that supports various work styles for people fifty and over.

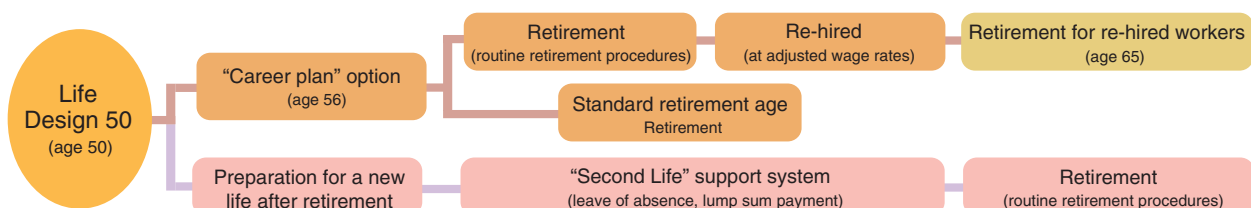
- *1: A system that aims to generate potential transfer opportunities and to reflect employee wishes. A job transfer program based on declaration made by participants, it helps to make career plans of participants more realistic and concrete.
- *2: A system that facilitates efforts to resolve the concerns or grievances of individuals in a fair and transparent way, in order to ensure that personnel are satisfied with their compensation and evaluations.
- *3: A program to confirm that the personnel compensation system is being implemented properly, and to reflect any changes necessary to improve the personnel system. It is based on surveys of all employees.

● New Integrated Personnel System



● Multi-Track Personnel System Branches from the Core Career Track (for unionized workers)

(Employees in their fifties can now choose one of three types of work styles.)



Promoting Positive Action and Employment for Persons with Disabilities

To grow as a global corporation, it is important to foster a corporate environment that accepts diversity, regardless of gender, nationality or age.

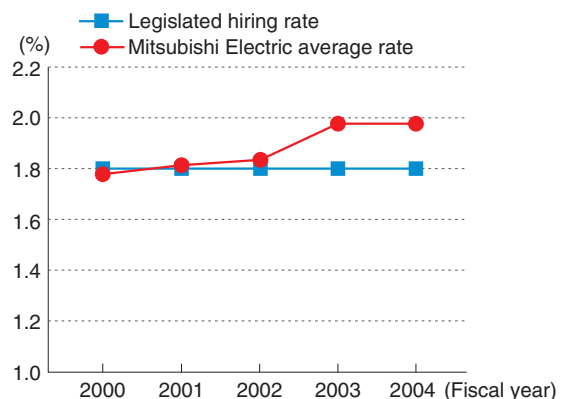
As a part of this effort, we have a proactive approach to help women realize their full potential at work. We offer a series of training programs, and work to create an environment where they can fully demonstrate their capabilities. For example, we support employees who desire to have both a career and a family by offering childcare leave*4 and shorter working hours for parents who are caring for their children*5. Our conditions are more generous than the legally required standards.

Japan is expecting shortages in the future workforce due to the country's declining birthrates. In this context, from the perspective of utilizing valuable human resources, it is important for an organization to make the greatest possible use of the capabilities of its employees, whether they are male or female. It is worth noting that many Mitsubishi Electric products reflect female tastes due to the fact that women are important users and influencers of purchase decisions, and we recognize the importance of designing products and develop new markets with the woman's perspective in mind.

Meanwhile, we are also working to encourage employment for persons with disabilities, and are proactive in creating work environments that make it easy for them to work. Persons with disabilities account for 1.96% of our workforce (2004), which is above the legally stipulated rate of 1.8 percent.

- *4: Childcare leave: Maximum leave is until the end of September after the child reaches the age of one.
- *5: Shorter working hours for parents providing childcare: Maximum is until child reaches end of first grade of primary school.

● Employment of Disabled Persons



“Our Workplace: Healthy! Comfortable! Safe!”

Under this slogan, we are promoting the creation of a workplace environment where each and every employee can work in safety and comfort. We provide a broad range of programs and support for employees, who aim to reach challenging goals, and are promoting human rights awareness, as well as corporate ethics, compliance, and environmental education.

“Zero Danger!” by Eliminating Potential Risks

Mitsubishi Electric aims to create a new culture of safety by shifting from the goal of “zero accidents” to “zero danger.” We address employee safety and health in four categories: “safety management,” “health management,” “construction and work safety management,” and “traffic safety management.” Also, we are promoting activities to eliminate the potential causes of danger by our risk management and improvement of our safety and hygiene management system based on Mitsubishi Electric’s own Labor Safety and Health Management System.

In addition, we have created our own independent standards that surpass legislated requirements, in order to provide a good working environment. Our approach includes every aspect—the air, visual, and sound environments as well as the facilities where people work, etc. Also, we work to create comfortable workspaces that consider the older workers and people with disabilities. We have also been creating separate smoking areas in an effort to prevent exposure to second-hand smoke.

Care for Mental and Physical Health Based on Improved Targets

The Mitsubishi Electric Group Health Plan 21 serves about 100,000 employees and includes a range of activities. Under the slogan of “Change your Lifestyle Habits, Extend Your Healthy Years,” these activities offer tools to maintain and improve health, by encouraging employees to set ten-year health improvement goals in five areas: maintaining proper body weight, creating an active lifestyle, stopping smoking, maintaining proper dental care, and improving stress management skills.

To promote not only physical health but also good mental health maintenance, we also work to take care of mental concerns such as day-to-day work and family issues, by providing counselors at the head office as well as each factory. In addition, we offer seminars on mental health and other topics for managers, as well as personal improvement techniques for employees (for example, on ways to manage stress).

Creating an Environment for Personal Competency Development

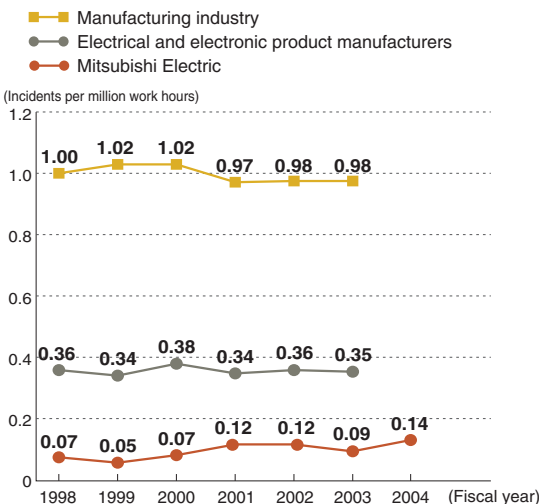
Personal awareness is the foundation of competency development. Whether one wishes to be better able to handle current and future duties, or to develop one’s career, competency development requires a person’s self-motivation and enthusiasm. At Mitsubishi Electric, we are systematic in offering a variety of trainings and educational programs, and work to create the environment where employees can take the initiative to develop their abilities. We provide venues for group trainings at centers in the cities of Kamakura, Mita and Kobe, and are also creating the infrastructure for learning-on-demand through an extensive e-learning program.

Human Rights Awareness, Corporate Ethics, Compliance, and Environmental Education

Mitsubishi Electric fosters and puts into practice the spirit of respect for human rights. This we do through various initiatives, including in-house human rights awareness trainings and the hiring of persons with disabilities, as well as human rights awareness-raising activities outside the company. We are serious about addressing issues of sexual harassment, personal information, and privacy, etc.

We provide trainings for new employees on corporate ethics and compliance soon after they enter the company, in order to raise awareness of the importance of conducting themselves in ways that comply with social standards and the demands of corporate social responsibility, and to make them aware of the linkage of these standards to their own duties in the company. We also aim for a high level of awareness by distributing the “Code of Conduct for Corporate Ethics and Compliance” in booklet form.

● Frequency of Labor Accidents (requiring absence from work)



Timely Response is the Key



Mayumi Kaneko
Counselor

“I come to this room on the ninth floor of the head office one day a week to offer counseling services. The most common concerns are about work, the workplace, and personal relations at work. In most cases, this starts out with a person coming to talk alone, but in some cases to address concerns properly, we end up with the boss and colleagues also joining the discussions. I also give advice, particularly to managers, if it appears that there is some problem with their co-workers and subordinates. We try to notice problems and address them before they become more serious.”



Product Quality, the Top Priority

Mitsubishi Electric is implementing its "Changes for the Better"* concept, which looks at things from the customer perspective, and is expanding quality assurance and quality improvement initiatives throughout the company. Our goal is high customer satisfaction, and we aim to offer a level of service that will impress our customers.

* "Changes for the Better" is the Mitsubishi Electric Group's corporate statement. It means that we continually innovate for the better.

We will act with the determination for each and every person to innovate, with a global perspective. <http://global.mitsubishielectric.com/changes/changes.html>

Mitsubishi Electric's Basic Philosophy: "Service Through Quality"

In 1952, Mitsubishi Electric made "Service Through Quality" its corporate motto, and six years later expanded this to make product quality the top priority by writing the "Memorandum on Product Quality" into the company regulations. To this day, this spirit has been maintained through four basic philosophies.

Mitsubishi Electric's four basic philosophies about product quality are as follows: "Product quality is our top priority. It comes before price and on-time delivery." "Whatever the sacrifice, our commitment to good quality does not waver." "Products must be safe to use, have a long usage life, and have consistent performance." "Every manager and employee involved in manufacturing a product shares equal responsibility for the product quality."

Under this basic philosophy, we are enhancing quality assurance and quality improvement by setting company-wide regulations relating to quality assurance, and by respecting laws and standards relating to product quality. For every product, each factory inside and outside Japan takes responsibility for guaranteeing and takes concrete actions to improve quality.

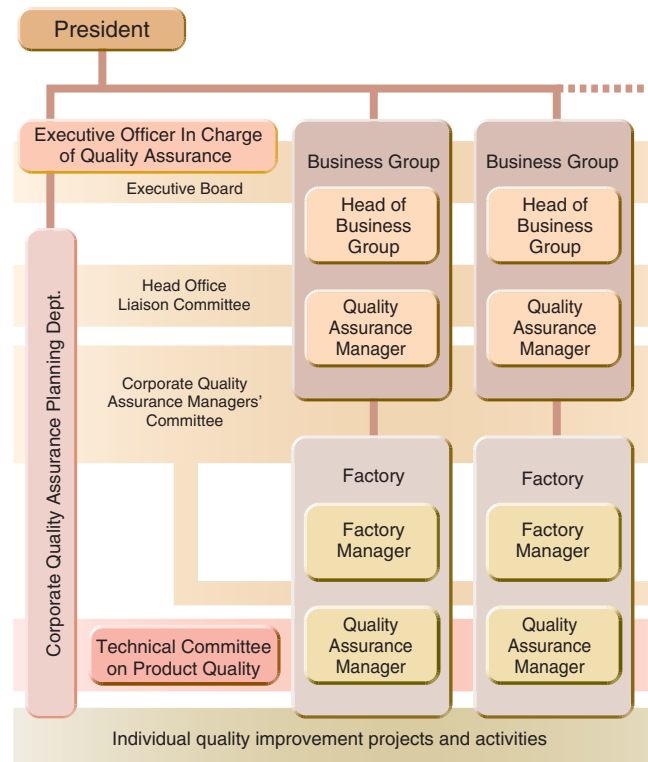
Quality Built In from the Design Stage

We have created a company-wide system of quality assurance and quality improvement activities, and are implementing them consistently. We implement timely responses and strategies for risk management, and share their results simultaneously throughout the company, using them as feedback into risk-prevention activities. In addition, we are spreading information company-wide on product quality, improvements and strategies, from the design and manufacturing stages until after the product is shipped to the customer. In terms of quality improvement activities, we are conducting concrete activities at the company-wide level, such as by building in quality at the development and design stage, improving the quality of procured products, and improving quality at the manufacturing stage.

Customer Response Center Operates 365 Days a Year

For our Living Environment & Digital Media Equipment business group, we have created a customer satisfaction system that is integrated with each company in the Mitsubishi Electric Group. For home appliances, we have created a Customer Response Center and Service Center that operate 365 days a year, 24 hours a day. We also operate an on-line Technical Support Center, a telephone-based call system that is open seven days a week to provide advice on technical issues. For installation of air conditioners we have created a technical support service with our Air Conditioning "One-Call" System at our "Air Conditioner Support Center." We have introduced an integrated computer-based call system that facilitates accurate responses to inquiries, effective in-house sharing of information, and rapid feedback to the relevant departments.

Quality Assurance and Improvement System



"I think this Customer Response Center will become increasingly important in the future."

Hiromi Takeda, Customer Service Group, Mitsubishi Electric Life-Network Co., Ltd.

"I obtained my qualifications as a consumer lifestyle advisor, and entered the company with the hopes of doing customer liaison. I feel the responsibility and pride of being a communications channel between the customer and the company, by dealing with customer complaints and feedback. In recent years, there has been a growing trend for consumers to contact the manufacturer directly instead of going to the retail shop for advice, and the number of inquiries is growing. Besides giving advice before a purchase, answering questions about product use, and addressing concerns before a customer sends a product in for repair, we also receive complaints. To fulfill our corporate social responsibility, I aim to convey real sincerity when dealing with our customers."



A Long-Term Commitment to People-to-People Involvement and Support

In philanthropic activities in Japan and overseas, Mitsubishi Electric is committed to five areas—social welfare, local communities, global environmental protection, science and technology, and sports and culture. We emphasize continuity and systematic approaches to these activities.

Global Activities through Our Foundations

Mitsubishi Electric has established the Philanthropy Committee and through close cooperation with foundations in the United States and Thailand as well as the SOCIO-ROOTS Fund is working to contribute to society as an entire corporate group. The Mitsubishi Electric America Foundation (MEAF) was established in 1991, to provide support for persons with physical disabilities in the United States. In 2000, the foundation's support for the AFB*¹ Internship Program received high recognition when Mitsubishi Electric became the first Japanese corporation ever to receive the well-respected Helen Keller Achievement Award. In Thailand, the Mitsubishi Electric Thai Foundation provides scholarships to university students and runs a lunch support program for elementary schools. At all overseas operations including those in Europe, Mitsubishi Electric is involved in a range of activities, including support for people with disabilities, care for hospitalized children, and the sharing of Japanese culture.

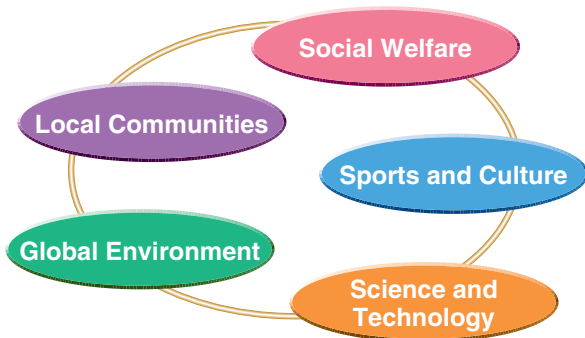
In response to the Sumatran earthquake and Indian Ocean tsunami disaster in 2004, the Mitsubishi Electric Group supported relief efforts through donations such as to the Royal Thai Foundation.

Matching Gift Program Also Targets Disaster Relief

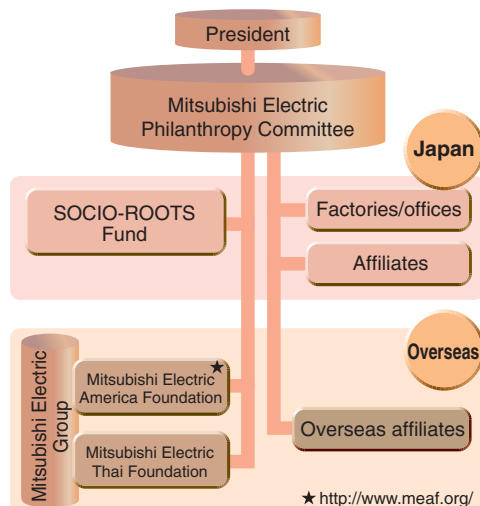
The SOCIO-ROOTS Fund started in 1992, and is a matching gift program through which the company matches donations from employees. The Fund accepts donations from employees at factories and branches in Japan year-round, and over the 13 years since it was established accepted 863 donations amounting to over 400 million yen (about U.S.\$360 million). In the past the funds were given to social welfare facilities and their supporting organizations, but in recent years the criteria have been widened to include disaster-related causes. In fiscal 2004, 51 million yen (about U.S.\$ 0.46 million) were donated to social welfare facilities as well as relief efforts to a major earthquake in the Chuetsu region of Niigata Prefecture in Japan. Because individuals donating more than 50,000 yen can designate how those funds are to be used, they have the opportunity to express their volunteer spirit in a way that suits them.

*1: American Foundation for the Blind

Five Key Areas of Philanthropy



Institutional Arrangements for Philanthropic Activities



★ <http://www.meaf.org/>



▲ Mitsubishi Electric co-sponsors a musical competition that opens doors for aspiring classical musicians in Spain. Winners were presented with awards and gave a concert at the Palau de la Musica Catalana, an historic concert hall in Barcelona.

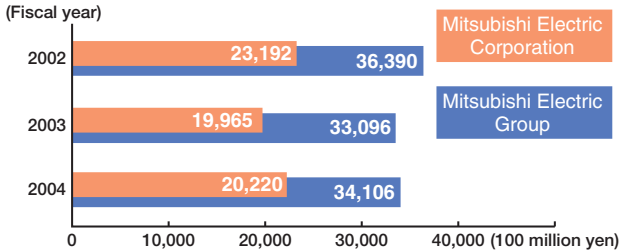


▲ Helen Keller Achievement Award Ceremony. This award is given to individuals and organizations that have helped to improve the quality of life for people who are blind or visually impaired and for all people who are disabled.

▲ MEAF supports Easter Seals, whose activities include helping students with disabilities to attend regular schools.

Corporate Profile and Business Overview

Sales

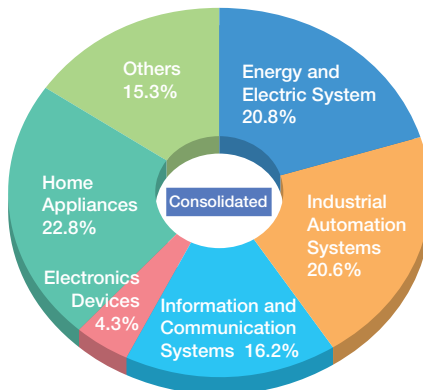
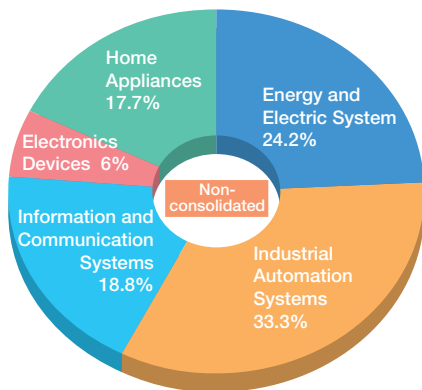


Company Profile

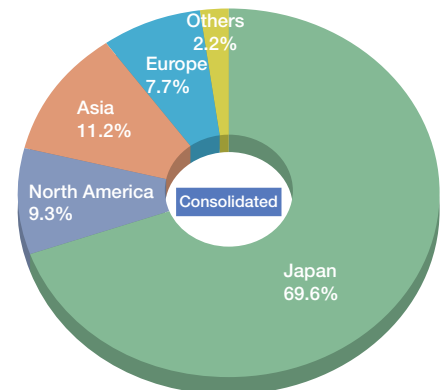
(March 31, 2005)

Name: Mitsubishi Electric Corporation
Head Office: Mitsubishi Denki Building, 2-2-3 Marunouchi, Chiyoda-ku, Tokyo 100-8310, Japan
Established: January 15, 1921
Paid-in Capital: 175.8 billion yen
Employees: 97,661 (consolidated) 27,319 (non-consolidated)
Sales: 3.4106 trillion yen (consolidated)
 2.0220 trillion yen (non-consolidated)

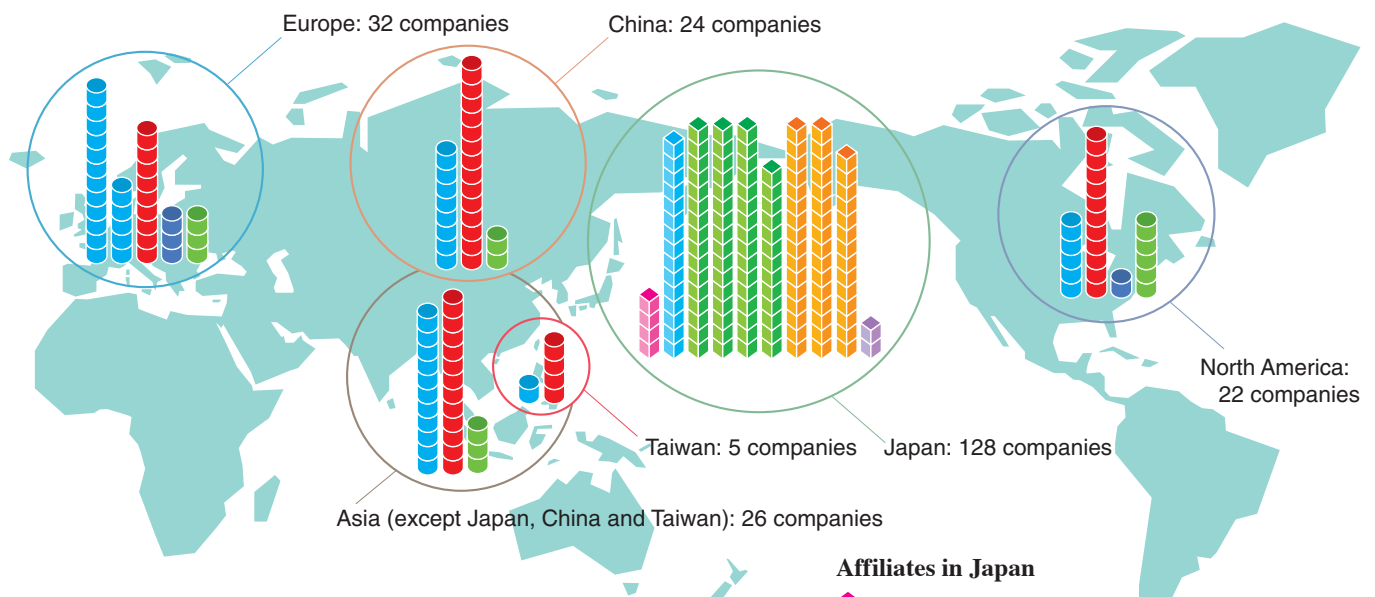
Sales by Division



Sales by Region



Number of Affiliated Companies by Region



Overseas Affiliates

- Sales company
- Manufacturing company
- Research Center
- Other

Affiliates in Japan

- Telecommunications service companies
- Engineering service companies
- Manufacturing companies
- Trading companies, etc.
- Marketing companies

*Affiliates counted include companies in which Mitsubishi Electric Corporation holds 20% or more of equity (March 31, 2005)

Energy and Electric Systems



Standard Elevator, Minus the Machine Room "AXIEZ"

The first complete model redesign in four years. Incorporates efficient use of space, comfort, and universal design features. Standard model uses a variable-speed elevator system, reducing wait and riding times and alleviating user stress.

- Turbine generators ● Water-wheel generators ● Nuclear-power equipment ● Electric motors ● Transformers ● Power electronics equipment ● Circuit breakers ● Gas insulated switchgears ● Supervisory control and protection systems ● Transportation equipment ● Elevators and escalators ● Others

Industrial Automation Systems



MELSEC Series— Programmable logic controllers

The MELSEC Series of programmable logic controllers (PLCs) plays a supporting role in the control of production facilities and information management. Owing to its range of functions, strong performance, broad model lineup, and high reliability, the MELSEC Series is especially integral to the construction of cutting-edge production facilities and is Japan's top brand name in this field.

- Programmable logic controllers ● Inverters ● AC servos ● Factory automation systems ● Induction motors ● Hoists ● Molded-case circuit breakers ● No-fuse breakers ● Earth leakage circuit breakers ● Distribution transformers ● Electric meters ● Industrial sewing machines ● Computerized numerical controllers ● Electrical-discharge equipment ● Laser processing equipment ● Industrial robots ● Clutches ● Car audio products ● Car navigation systems ● Electrical automotive equipment ● Car electronics equipment ● Others

Information and Communication Systems

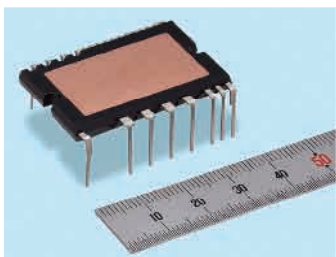


Mobile Phones

Mitsubishi Electric offers value-added, innovative new uses and styles compatible with G3 (third-generation) services, terrestrial digital broadcasting and other mobile phone advances.

- Wireless communications equipment ● Mobile handsets ● Wire communication equipment ● Satellite communication equipment ● Satellites ● Radar equipment ● Antennas ● Guided projectiles ● Fire control systems ● Waveguides ● Rocket electronics equipment ● Aircraft electronics ● Medical electronic equipment ● Broadcasting equipment ● Data transmission equipment ● Mainframe computers ● Servers ● Office computers ● Personal and mobile computers ● Peripheral devices ● Others

Electronic Devices



DIP-IPM* Super-Small Package, Version 4 Series

High heat-dissipation insulating sheet reduces package size by 60% (15A/600V), helping to reduce the size of inverters in home appliances. Completely lead-free design is good for the environment.

*Dual-In-Line Package Intelligent Power Module

- Power devices, power modules ● RF elements ● Optical elements ● Optical devices ● Display monitors ● Cathode-ray tubes ● LCD displays ● Printed circuit boards ● Others

Home Appliances



Air Conditioning Systems

"Replace" model air conditioner allows quick installation to replace old units. Mitsubishi Electric leads the industry with the "Lossnay" and other models that can replace room air without changing room temperature. Future product development theme will be "environment, health, communication."

- Color televisions ● Projection televisions ● Video projectors ● VCRs ● DVDs ● Room air-conditioners ● Package air conditioners ● Refrigerators ● Electric fans ● Washing machines ● Ventilators ● Photovoltaic power generating systems ● Electric water heaters ● Fluorescent lamps ● Lighting fixtures ● Clean heaters ● Compressors ● Freezers ● Humidifiers ● Dehumidifiers ● Air purifiers ● Air-conditioning systems ● Commercial refrigeration units ● Showcases ● Vacuum cleaners ● Microwave ovens ● Others



www.Global.MitsubishiElectric.com

For further information, please contact

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Tel: +81-3-3218-9024 Fax: +81-3-3218-2465
E-mail: eqd.eco@hq.melco.co.jp

Please note our new address, effective November 7, 2005 (telephone and fax will not change).

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Mitsubishi Electric Group
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