Sustainability Report 2003
Corporate Profile

Matsushita Electric Industrial Co., Ltd.
Address: 1006 Kadoma, Kadoma City,
Osaka 571-8501, Japan
Phone: +81-6-6908-1121
(main representative)
Incorporation: December 15, 1935
Establishment: March 7, 1918
Representative: President Kunio Nakamura
Capital: ¥258.7 billion
Net Sales: ¥7,401.7 billion
Number of Employees: 288,324
Stock Exchange Listings:
Tokyo, Osaka, Nagoya,
Fukuoka, Sapporo,
New York, Pacific,
Euronext (Amsterdam),
Euronext (Paris),
Frankfurt, and Dusseldorf

URL Matsushita Website: matsushita.co.jp/ (Japanese only)
www.panasonic.co.jp/global/ (English)

■ Business Segments of Matsushita Electric Group

Global & Group Headquarters
Head Office / Sales Divisions / Overseas Division / R&D Divisions

Semiconductors
System LSI for cellular phone
Micro package

Components & Devices / Production Systems
Display Devices
- Matsushita Battery Industrial Co., Ltd.
- Matsushita Electronic Components Co., Ltd.
- Matsushita Industrial Equipment Co., Ltd.

Batteries
Motor Company

Electronic Components
Panasonic Factory Solutions Co., Ltd.

Electric Motors

FA Equipment

Digital Networks
AVC Networks
- Panasonic AVC Networks Company

Fixed-line Communications
Panasonic Communications Co., Ltd.

Mobile Communications
Panasonic Mobile Communications Co., Ltd.

Automotive Electronics
Panasonic Automotive Systems Company

Systems
Panasonic System Solutions Company

Home Appliances & Environmental Systems
Home Appliances
- Matsushita Home Appliances Company

Household Equipment
Packaged Air-Conditioner Company

Health Systems
Matsushita Refrigeration Company, etc.

Lighting
Lighting Company

Environmental Systems
Matsushita Ecology Systems Co., Ltd.

Services & Solutions
Corporate eNet Business Division
Matsushita Logistics Co., Ltd.
Matsushita Leasing & Credit Co., Ltd.
Matsushita Technical Service Co., Ltd., etc.

Matsushita Kotobuki Electronics Industries, Ltd.

Victor Company of Japan, Ltd.

Organizational changes due to business restructuring:
*1 New companies established on January 1, 2003 after the restructuring of the following five companies, which became wholly-owned subsidiaries in October 2002: Matsushita Communication Industrial Co., Ltd.; Kyushu Matsushita Electric Co., Ltd.; Matsushita Seiko Co., Ltd.; Matsushita Kotobuki Electronics Industries, Ltd.; and Matsushita Graphic Communication Systems, Inc.

*2 A division company established on April 1, 2003 after the consolidation of two division companies, the Home Appliance & Housing Electronics Company and the Air-Conditioner Company.

■ Brand

Global Brand
Panasonic
Used as the global brand for all product categories

Region/Product-Specific Brand
National
In 1925, the founder, Konosuke Matsushita, chose “National” as the trademark focusing on the word’s meaning, i.e. “of or relating to the people of a nation.” Used for home appliances in the Japanese market

Product-Specific Brand
Technics
Used for hi-fi audio products, electronic musical instruments

Region-Specific Brand
Quasar
Used in North America for CTVs, VCRs, microwave ovens

Some consolidated subsidiaries such as Victor Company of Japan, Ltd. use other brand names.
Editorial Policy

- This report is published to provide a faithful and readable account of the activities undertaken by the Matsushita Electric Group toward the establishment of a sustainable society.
- The report covers a wide range of business activities from the three perspectives: “Environmental Sustainability,” “Economic Performance,” and “Social Responsibility.”
- “Highlights 2002” is a newly added special feature. It introduces specific projects carried out at Matsushita from diverse perspectives of outside writers based on their field reports.
- The “Global Highlights” segment presents activities carried out by the Matsushita Electric Group companies around the world, with emphasis on local cultures and customs.
- A sustainability analysis was conducted by The Natural Step, an environmental NPO. The results of this analysis are shown in the Third Party Comments section.

[Reference Guidelines]
This report:
- Complies with the Environmental Reporting Guidelines (FY 2000 version), as set forth by the Ministry of the Environment (Japan).
- Uses the Global Reporting Initiative (GRI)’s Sustainability Reporting Guidelines as a reference (See p. 90 for GRI Content Index).

[Information available on Websites]
- Environmental Activities
  http://matsushita.co.jp/environment/en/
- IR Information
  http://matsushita.co.jp/ir/en/
- Corporate Citizenship
  http://matsushita.co.jp/ccd/index_eng.html

[Scope of the Report]
- Reporting period: FY’02 (April 1, 2002 – March 31, 2003)
  In this report, the fiscal year ended March 31, 2003 is indicated by FY’02. The performance data are from FY’02. Some of the FY’03 activities are also included.
- Organizations covered: Matsushita Electric Industrial Co., Ltd., ten main subsidiaries, and other subsidiaries inside and outside Japan (p. 1)
- Scope of data: Financial data are consolidated Group data. Environmental performance data are the consolidated Group data from all sites that have established the environmental management system (pp. 83-84).
  (The scope of environmental data is different from that of financial data because it does not include small divisions that have not yet acquired the ISO 14001 certification.)

[Special Feature Articles]
- Highlights 2002 mark
  Special feature articles are on pp. 7-26.
- Facts and Figures mark
  Detailed performance data are available on pp. 82-90.
- URL mark
  Please visit our websites for further information.

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In March, 2003, Japan had the honor of hosting the third meeting of the World Water Forum. During this event, some 25,000 individuals from more than 180 countries gathered to discuss solutions to the looming global water crises. Japan is blessed with abundant precipitation that has supported its rice-based diet over the millennia. Coming from Japan’s Shiga Prefecture, which encircles Lake Biwa, the largest lake in Japan, I grew up with a keen awareness of how crucially our lifestyles depend on water.

At the same time, Earth is called the “Water Planet.” Yet only 0.01% of Earth’s water is readily available for human use. Even today an estimated 1.2 billion people have no access to safe drinking water. Securing enough of this precious resource for human beings is a critical theme as we seek a way to maintain a sustainable coexistence between a rapidly growing world population and the desire of civilization to enrich human life.

Water use and conservation, of course, are not the only challenge. Environmental problems, such as global warming caused by energy consumption and deforestation, are becoming chronic and ever more serious. Coexistence with the global environment is now an urgent concern shared by all mankind. Moreover, from my standpoint as an executive of a global-scale business, I myself am fully aware that Matsushita’s own survival demands serious efforts to protect the environment.

Aiming for Coexistence with the Global Environment

Achieving Steady Efforts and Tangible Results, and Moving On to Further Challenges

In October 2001, Matsushita adopted its Environmental Vision and Green Plan 2010, a global action plan laying out 10-year goals to be accomplished by 2010. In so doing, we made a promise to society to meet those goals. Below is a brief report on our progress in the fiscal year ended March 31, 2003.

1. Fully Implemented Lead-free Soldering Worldwide

Fundamentally, the substance we call “solder,” which has a history of some 5,000 years, is used to join electronic components, and during this long history, it has always been assumed that lead was an essential ingredient. However, Matsushita has overturned this long-held belief by eliminating lead from solder.

Our efforts led to the 1998 launch of the first product – a portable Mini Disc player – that utilized printed circuit boards made with lead-free solder. Matsushita then set a goal of using lead-free solder in all products around the globe by the end of March 2003, which has occupied a good proportion of our energies since then. I am happy to say that as of now, the Matsushita Electric Group has successfully switched to lead-free solder in all Panasonic/National brand products produced around the world thanks to our partners who helped make this possible. All the Matsushita Electric Group employees share a deep sense of pride in this exceptional achievement. As a Group, we remain committed to expanding the scope of clean manufacturing and minimizing the use of hazardous substances.

2. Developing Energy-Saving Products: Aiming to Be the World’s Best

Electrical products consume energy when working to serve their users. It is therefore our responsibility as a manufacturer to adopt any and all reasonable means to reduce the amount of energy consumed. In many product categories, we have developed world-leading energy-saving products. In Japan, for instance, four products, including our CFC/HFC-free refrigerators, have won the Grand Prize for Energy Conservation from Japan’s Energy Conservation Center. Meanwhile, in the U.S., our products’ superior energy-conserving performance and market popularity have helped us to earn the U.S. Government’s Energy Star Partner of the Year Award for the fifth consecutive year.

3. Recycling Home Appliances to Ensure Sustainable Use of Resources

The 20th century linear model of mass production and mass consumption has resulted in the problem of end-of-life electrical products becoming unwanted waste.
Our recycling plant, the Matsushita Eco Technology Center, operates under the “from products to products” concept to extract resources from end-of-life products and reuse them in new products. Our pioneering recycling system for TVs, refrigerators, air conditioners, and washing machines has now been running for two years, recovering 1.2 million end-of-life products and recycling them into new products. We are especially pleased that the plant has received so many visitors, including elementary and junior high school students, who have been able to see our systems and efforts for themselves.

Offering “ideas for life”

On January 1, 2003, Matsushita implemented a Group-wide business and structural reorganization and launched a new corporate structure based on 14 business domains. I myself consider this to be our “second founding.” The resolute philosophy that underpins our business operations manifests itself in our contribution to society. To make this a reality, I have presented our mission in the form of two visions: achieving a ubiquitous network society and assuring coexistence with the global environment.

Each person lives in a web of relationships with other people. People-to-people interaction and communication, it seems to me, are one way we enhance the richness of our lives. Ubiquitous network technology gives us the potential to communicate with anyone, anywhere, anytime, and to make our use of time and energy more efficient and rewarding. Moreover, by giving rise to a new value called “creative time,” I believe that this technology can benefit us by helping to build a diverse society where each person's individuality is respected.

Looking forward in the 21st century from a global environment perspective, our enjoyment of ever more affluent lifestyles has led to an increasing consumption of resources and energy. Matsushita is dedicated to an alternative kind of development in which we will strive for a “New Prosperity.” This New Prosperity adds to the value of our lives, while driving the use of resources and energy to an absolute minimum in order to achieve a harmonious coexistence between human society and the global environment.

All of our endeavors are for the benefit of our customers. The brand slogan ‘Panasonic ideas for life’ represents the commitment of all the employees, from R&D and manufacturing to marketing and services, to supplying products and services based on valuable ideas which can enrich people's lives and advance the society.

Increasing Transparency and Fulfilling Social Responsibility

Society entrusts Matsushita with resources for its business operations. Our Management Philosophy, which has long underpinned our business, is to make a substantial contribution to society as a public entity by putting these resources to effective and responsible use. We will continue faithfully to put our Management Philosophy into practice, communicate our vision, actions and results more openly and in an easily understandable form.

Above all, environmental concerns, which mirror corporate ethics, are in fact corporate-level management challenges. Increasing transparency with respect to environmental issues heightens corporate ethical behavior, ultimately resulting in greater transparency of corporate activities overall. I believe that when our employees take pride in their own work with vigor and enthusiasm and when we conduct our business fairly and ethically, this will demonstrate our ability as a corporation to develop prosperously and sustainably in the future.

Matsushita has restyled its previous Environmental Sustainability Report into this Sustainability Report to convey these ideas and actions, and we hereby publicly present our corporate activities. In closing, I would like to take this opportunity to thank you for your interest in Matsushita and your continued understanding and support.

Panasonic ideas for life

Matsushita’s vision

- Achievement of a ubiquitous network society
- Coexistence with the global environment
- Contribution to the enrichment of people’s lives and lifestyles
- Services & Solutions
  - Digital Network
  - Home Appliances & Environmental Systems
  - Components & Devices
  - Production Systems

Kunio Nakamura
President
Matsushita aims for a harmonious coexistence between people and the global environment, while seeking a sustainable “New Prosperity.” In order to achieve this goal, we offer products and services that improve the quality of life while minimizing environmental impact.

Improving the quality of life

Minimizing environmental impact

“New Prosperity” indicators: “Environmental Efficiency” and “Factor X”

Matsushita has defined two New Prosperity indicators: “environmental efficiency” and “Factor X.” These indicators assess products and services over their entire life cycles. They represent our corporate vision and one of our basic policies for product development. At the same time, they serve as a set of uniform indices to help people around the world choose products and services.

“Factor X” = \[ \text{Environmental efficiency improvement factor} = \frac{\text{Improvement in “quality of life”}}{\text{Reduction on “environmental impact”}} \]

“Quality of life” is a measure for assessing product longevity and product function. “Environmental impact” measures effects in terms of global warming, resources, and chemical substances. Together these define “environmental efficiency.”

- **Global warming**
  \[ \text{GHG* efficiency} = \frac{\text{Product life} \times \text{Product function}}{\text{GHG emissions over the entire life cycle}} \]

- **Resources**
  \[ \text{Resource efficiency} = \frac{\text{Product life} \times \text{Product function}}{\text{Non-circulating resources over the entire life cycle}} \]

- **Chemical substances**
  No use of hazardous chemicals (Lead, cadmium, mercury, hexavalent chromium, specified brominated flame retardants, and PVC resin)

* GHG: greenhouse gas
“Factor X” compares the environmental efficiency of new and old products and expresses improvement as a simple number. To maximize “Factor X,” it is necessary to minimize greenhouse gas emissions and the amount of non-circulating resources over the entire product life cycle. For example, halving greenhouse gas emissions will lead to a Factor 2 improvement, and if we additionally double a product’s life, the result will be Factor 4 improvement.

Presently, the 20% of the world’s population living in developed countries consume 80% of the earth’s resources and energy. In light of the rapidly growing world population, Matsushita believes that Factor 4 is required for today’s products and will expand its efforts in meeting this requirement.

URL: matsushita.co.jp/environment/factor_x/ (Japanese only)
On March 31, 2003, Matsushita finally eliminated lead-based solder from all Panasonic and National brand products produced around the world. This was the world’s first achievement, affecting more than 12,000 products*. Soldering is a basic technique, and many other technologies depend on it. Re-doing such a basic piece of the process was like plunging a scalpel into the backbone of Matsushita’s manufacturing process.

“Our motto is ‘Being super honest’: once we made up our minds, we followed through. We never gave up and got the job done all the way to the other side of the world.”

Shoshi Kabashima
Advanced Skill Development Center, Corporate Manufacturing Innovation Division
Solder is not a new material; it’s been in use for 5,000 years. And all this time it has contained lead. The dawn of lead-free solder was a revolutionary event.

Matsushita’s lead-free solder project was launched on June 12, 2000, exactly 1,022 days before their self-imposed deadline for reaching their goal. Team members began by checking all their products, since no single person really knew about the whole range of products produced at their worldwide manufacturing bases. Shoshi Kabashima at the Advanced Skill Development Center recalls that although the team sorted products into different categories, each product embodied unique technologies. This fact presented them a high hurdle to clear.

Classifying 12,000 products*1 into only six groups

Eventually, after a lot of hard work, they were able to classify their products into “Six groups in three series” according to how they were soldered. Essentially the project team divided the soldering processes into “flow” and “reflow.” “Flow” means dipping a board into a bath filled with molten solder. “Reflow” means first printing a board with a paste containing powdered solder and then heating it to melt the solder onto the board.

Although the product classifications now seem to be fairly obvious, actually they are the result of a mass of individual steady efforts.

Next, the team selected the best new materials for each product group. Quality assurance was the most time-consuming task. Many home electronics products are used for a decade or more, so Matsushita needed to carry out intensive quality assurance testing to make sure that the new solder didn’t disappoint. For roughly two years, the team scrutinized different combinations of materials, types of plating, temperatures and time conditions and so on. This was an exhausting process but they did make a very interesting discovery. As Yoshinori Wada at the Production Core Engineering Laboratory put it, “We found alternative solders that were even stronger than traditional ones. Traditional solder is not necessarily the best.”

In November 2000, the project team finally undertook to choose solders to recommend. There were three finalists: tin-copper, tin-silver-copper, and tin-silver-bismuth-indium. However, this wasn’t the end of the story. Just as the project team was preparing to implement these on the production line, they faced a new obstacle.

Classifying 12,000 products into only six groups

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<thead>
<tr>
<th>Six product groups in three series, by soldering process and form</th>
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<td><strong>Three series</strong></td>
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<tr>
<td>Combined flow/ reflow process</td>
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<td>Flow process</td>
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<td>Reflow process</td>
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*1: Some purchased units and OEM products built for others excluded (see p.64)
The next obstacle to overcome was getting the patent rights. The University of Iowa in the U.S. was asserting its claim to the proposed tin-silver-copper solder. This claim was only valid in the U.S. and so Senju Metal Industry Co., Ltd. and Matsushita together acquired patent rights for Japan. This led to a heated patent dispute. After six months, a cross-licensing agreement was made to let each party use their technology in each other’s territory. By then, it was already the middle of 2001. Time was running out.

By FY’01, lead-free solder had been adopted in only about 400 products. When the introduction progress was going slowly in China, Matsushita set up a Lead-free Soldering Techno-School in Shanghai to offer technical instructions.

There was still another big problem to be solved. Matsushita doesn’t do all of its soldering in-house, so its suppliers would have to introduce the same lead-free technology. To help make this happen, Matsushita would sign contracts with these business partners, offering them the rights to use its technology and know-how. Many rebelled, because the contracts would cover even products supplied to other customers. Project members shuttled back and forth to about 60 partner companies to explain how this was a new business opportunity. Some of those suppliers are now thanking Matsushita, since they’ve won new offers thanks to the lead-free solder.

The project affected over 250 bases, including partner firms. In the end, the use of lead-free solder spread to Brazil, the opposite end of the Earth from Japan.

This success wouldn’t have been achieved without the entire company working together under a united commitment. Matsushita squeezed everything it had into its 1,022-day battle to make the introduction of lead-free soldering a solid reality.

(Related article: p.64)

A globe-trotting “solder expert”

Yasuji Kawashima took the initiative in introducing lead-free solder at manufacturing bases throughout the world. He has traveled to 14 nations and done everything by himself without an interpreter. As he describes it, “You have to show them by doing it yourself. First I demonstrate, then I have the local staff try it. If they make mistakes, I show them how to do it correctly. That’s the fastest way.” He adds that verbal instructions are never enough to give confidence.

Local employees worry most of all that they are going to damage the machinery. Kawashima tells them, “If there’s any damage, I’ll take all the responsibility.” With 27 years of experience, this “solder expert” can take care of any equipment problem. In fact, he has been known to work all night with local staff members to fix damaged machinery if any. Local employees are capable of fixing it next time without assistance.
Inquiries flood in about advanced environmental technology

“I’d like a quote for 10 tons of lead-free solder.” “Kindly send me your solder profile.” Toshiaki Onishi received a barrage of questions like this after an advanced technologies exposition held for European cellular phone manufacturers. Today, the device business accounts for about 20% of Matsushita’s total sales. This is a good example of the growing sensitivity to environmental-related technologies at the front line of industrial marketing and sales.

European environmental regulations have grown stricter in recent years. According to Onishi, “No company will survive unless it gains environmental awareness. In trade shows, our presentations highlight our environmentally conscious operations.” Matsushita’s mission is to respond rapidly to the world’s environmental and other demands.
Treasure Hunting

Highlights 2002

New Treasures from Old
Matsushita Eco Technology Center (METEC)

METEC’s R&D lab dismantles products in development to test their recyclability.

President,
Matsushita Eco Technology Center Co., Ltd. (METEC)

Nobutaka Tsutsumi

“METEC owes its success to the efforts of its employees and the support of the local community. I believe that, in the future, waste will be regarded not as garbage but as a valuable ‘urban resource.’”
What do you see in the photo above? Just another factory? This is actually an 'unfactory,' or, more accurately, a Matsushita recycling plant. True, it looks exactly like a state-of-the-art production facility: nothing like a typical recycling plant. METEC is redefining the concept of the recycling plant.

METEC's ambitious goal is to achieve a “from products to products” cycle, aiming at creating a sustainable economy. The slogan is “Treasure Hunting.” The plant is developing new recycling technologies that increase the resources recovered, and feeding back the expertise they gain to product development.

President Nobutaka Tsutsumi says, “We want people to see what we do. That helps them understand what recycling is all about.” Tsutsumi continues, “We built a viewing corridor overlooking all the lines. We make constant improvements to make visits even more interesting. In one display, we stacked up 190 beer cans to show how much aluminum can be recovered from just one air conditioner.” METEC’s openness inspires confidence among local citizens, and employees feel proud of working in such a highly regarded place. METEC is gaining a good reputation for its progressive facilities and draws visitors from Western countries and elsewhere. The Chinese newspaper People’s Daily has given it extensive coverage.

In FY’02, METEC recycled around 640,000 home appliances, in other words, about 1,700 units per day. At METEC, resources recovered from end-of-life appliances are used to make new models in the same product category. This is a place where you can see the dream of a sustainable society coming true.

(Related article: p.69)
The 40,000-Hour Endurance Test

As Shinsuke Takeguchi of the FC Development Office sees it, 40,000 hours would mean a life of about 10 years, running 10 hours a day, 365 days a year. Takeguchi has been working intensively with fuel cells since 1999. Ten years is about the normal life of a home appliance, but have we reached that practical phase with fuel cell cogeneration systems?

“My happiest moment is when my work turns out just as I hoped.”

Shinsuke Takeguchi
FC Development Office, Living Environment Development Center

1. The mark “FC” standing for the fuel cell is attached to the system unit.
2. Engineers use this fuel cell stack endurance tester.
3. The stack of silver rectangles is the heart of the fuel cell. Hydrogen and oxygen are fed in through large pipes.
Takeguchi has just installed another battery stack in the endurance tester. The stack is the main part of the fuel cell, where hydrogen and oxygen react with each other. A long line of machines is testing stacks and the system as a whole. Takeguchi says, “We’ve come up with some great stacks in the past year. New development takes place in three stages. In the first stage, we assure the required output. Now, we’re in the second stage, which aims at reaching a sufficient level of endurance, and that’s what we’re testing now. The final stage is to bring the cost down.” Takeguchi takes pride in working in the development of fuel cells, an ideal energy source.

The principle behind fuel cells is very simple. Fuel cells use the reaction between hydrogen and oxygen to produce water and electricity; this is electrolysis in reverse. The technology has lots of benefits. For example, it works efficiently and can decentralize power generation. Various fuels can be used depending on how the hydrogen is harvested. Fuel cells are regarded as essential technology for achieving an energy recycling-oriented society.

Matsushita President Kunio Nakamura endorses fuel cell technology, saying, “I’d really like to make this successful as Matsushita’s mission.” A fuel cell system for home use, now under development, is set to be launched at the end of FY’04. Fully aware of the fact that the technology is likely to be the foundation of the world’s future energy infrastructure, Matsushita’s rivals are also stepping up development efforts in a bid to ensure their survival in the market, which has triggered more intense competition. Because most development-related information is confidential, the laboratory is filled with tension. The lab is also very cautious about providing photos, fearing that even one look at the appearance of stacks can reveal know-how.

Verification tests are now taking place at ordinary residences. From the outside, the system looks rather like the outdoor unit of an air conditioner. It won’t be long before you’ll have one at your home.

(Related article: p.46)
Commenting on the new fluorescent lamp rental business, Masatoshi Miyaki says, “I like this because it’s so unusual for Matsushita.” Begun in April 2002, the Light and Trust Service has been a sensation in the mass media, and the number of inquiries far exceeded expectations. He says, “I knew it was going to be a smash hit. We already have contracts with 80 corporate customers.” Contracts are now being drawn up with another 260 firms.

Under the Japanese Waste Management and Public Cleansing Law, factories and offices are obliged to bear the responsibility for correctly disposing of their end-of-life lamps. Violators are penalized. Users have to be particularly sure to dispose of fluorescent lamps properly because they contain small amounts of mercury.

Miyaki explains, “This is the advantage of the service: The Light and Trust Service Company owns the lamps, so the user does not have to worry about discarding them or keeping a manifest. The service company takes all the responsibility for collecting end-of-life lamps for recycling. Customers can cut their costs by 15 to 20% and no longer...”
Although Matsushita is known as a manufacturer, not all of its businesses sell objects. Their “Light and Trust Service” sells light instead of lamps. Masatoshi Miyaki, at the Corporate Electrical Supplies Sales Division, devised this business prioritizing customers’ needs. Miyaki is an unconventional thinker who tackled the setting up of an “un-Matsushita-like” business.

The system has more advantages. According to Miyaki: “This gives Matsushita the benefit of building long-term relationships with customers. Providing a “software” service, namely light, helps us gain customers’ confidence and trust. As a result, we can enjoy a synergy effect that boosts our “hardware” sales of environmental equipment. It’s a win-win relationship in the best sense of the word.”

This is a business model that will gain momentum as environmental regulations become stricter. Miyaki adds, “I myself believe that we are heading down the right path in concert with the trend of ‘have-not management,’ which outsources necessary functions. Environment is one of the key factors for Matsushita. We would like to develop a new sustainable business model that will strike a chord with our stakeholders, thereby encouraging our society to raise its environmental consciousness.”

(Related article: p.46)
In the past, 400 boards were packed into one cardboard box. Now, 13,200 are supplied at one time in “bare packaging.”

Screws are sold in bulk. Scoops are used to take the amount needed and the quantity is calculated by weight.

Copper coils are also sold in “bare packaging.”

Cardboard is used in place of non-recyclable foam trays to deliver the transformer cores used in power supply units. Having suppliers place their products in these trays reduces packaging processes. Best of all, the trays can be used again and again and finally recycled.
New products carrying the Panasonic or National logo are the “face” of Matsushita, but factory shipments contain more than just products. They also include waste. Matsushita has committed itself to achieving zero emissions of waste. They want to ensure honest management with respect to waste, that is, the downside of manufacturing operations.

On August 2, 2000, Matsushita’s Corporate Environmental Affairs Division issued a notice to Environmental Officers at Matsushita’s manufacturing sites in Japan. The notice stated that their ultimate environmental goal is to cut waste landfilled as close as possible to zero by the end of FY’02, that is, to achieve at least a recycling rate of 96%. The recycling rate for Matsushita overall in FY’99 was 94%. Improving another 4% out of the remainder was a tough hurdle to clear, like wringing water out of an almost dry towel. But Matsushita delivered on its promise, boosting its recycling rate to 95.9% in FY’00, 97.6% in FY’01 and finally 98.2% in FY’02. It was the radical reform promoted on shop floors that helped Matsushita fulfill its commitment.

Yoshio Nishigaki at the Cooking Systems Division is proud that his workplace is “paying its own way.” Nishigaki led a waste reduction project at the microwave oven production site. Actually the plant really is “paying its own way,” since it’s slashed its waste processing costs from 33 million yen in FY’98 to 7.4 million yen in FY’02. The effort not only addressed how to sort out waste but also how to keep sources of waste from getting inside the plant in the first place.

First, the team collected the waste from all the production lines. Their analysis revealed that logistics and packaging accounted for 70% of all waste. Now they knew what to focus on. The project members put waste on display just as it was for half a year. Nishigaki adds, “We put it where customers could see it. That pricked the employees’ pride and gave them a sense of urgency. We encouraged our suppliers to take a look at the displayed waste and called for their cooperation in eliminating it.”

This idea has started to bear fruit. In the past, paper phenol circuit boards arrived in cardboard boxes containing 400 boards each. Now they come in units of 13,200 boards in “bare packaging.” Nishigaki notes, “Some people thought that bare boards would be prone to cracks and other defects. Ironically, the opposite was true: we achieved zero defects.” A cardboard box full of boards weighed approximately 10 kg. Staff members were able to carry these heavy boxes by hand but did not always handle the boxes carefully enough: they sometimes dropped them. A container of 13,200 boards, however, weighs a third of a ton and is far too heavy to carry by hand. Only a mechanical lift can pick it up, so the boards are handled carefully. As Nishigaki puts it, “What is needed is the confidence to take up the challenge.”

Matsushita has continued to put a whole series of other measures into effect and as a result achieved its target 98% recycling rate a year ahead of schedule. Nishigaki concludes, “There’s no waste in the natural world. ‘Waste’ is just a word we give to the things people don’t want.”

(Related article: p.61)

Warehouse built next to plant

Under the old delivery system, suppliers once delivered materials to a separate warehouse for storage, then supplied the plant with the necessary quantities of materials when needed. Nishigaki was inspired to build a new warehouse (Nara Consignment Inventory System) right next to the factory. This has improved efficiency and created a “win-win” relationship because Matsushita can respond precisely to fluctuations in production, and suppliers can deliver materials in bulk. Logistical reforms intended to achieve zero emissions are evolving into larger-scale steps that also boost business efficiency.
Hiroshi Wada at the Manufacturing Engineering Group admits he was surprised when defects started to disappear. “Achievement of zero defects was a result that far surpassed our original target. I thought at best we would cut defects by half.” Three years ago, the Acoustic Products Business Unit switched to a cell production method in which small groups of operators complete products. Achieving zero defects was not the intention of the change, but a kind of miracle occurred. “The introduction of the cell production method aimed at flexible production to respond adequately to customers’ needs,” says Wada, “but once we started we surpassed our targets and got to zero defects.”

He believes what truly undermined the conventional wisdom was the concept of “building upon individual motivation.” When the cell production system was introduced, management simply asked for volunteers to work in it. Unlike a top-down order, this approach motivated operators.

Chihiro Nakanishi and Keiko Higashide joined the list of participants from the Manufacturing Engineering Group.
Unlike a production line with 15 people working side by side, only three people work in a cell. For one thing, this means each operator owns a third of the responsibility for building one speaker. The new system did not make the actual work easier. When machinery problems occur, the team members now deal with it personally. As Higashide puts it, “Previously, machine adjustments were considered a man’s job. I wasn’t happy about this. Now I can do anything I want but I also have to take responsibility. Still, it’s nice to work on these things until I’m completely satisfied with the result.” She clearly enjoys the added responsibility. Nakanishi, who has always enjoyed tinkering with machines, adds, “When something goes wrong and I don’t know what it is, I like to poke around for answers.” When operators are motivated, they naturally begin to think these things out for themselves. This is the incentive that makes zero defects possible. Presently there are teams that have had an amazing zero defect record for six months, or 180,000 units produced defect-free. These cell operators held an internal forum to present their efforts to other employees, who responded favorably. Even Matsushita President Nakamura himself emailed them to say how impressed he was.

The plant includes a listening post. Some operator says, “The first time I heard music over speakers we’d built I was utterly moved. Before, they were just things to me, but when I listened to music on them, I realized for the first time that they were speakers.” Their job is to produce speakers, but what they’re really doing is to create sound, more specifically the “sound of excitement.” The unit has taken the necessary steps to improve in its management quality, but these efforts are still under development. They have created a basis for a new awareness of human needs in the workplace. The next step for the future is to implement a form of management that will build added value on this foundation. That is the task of the directors and managers of the business unit.

“Building upon individual motivation,” which releases amazing energy and enthusiasm, is playing an important role in shifting the corporate paradigm.

Under the Catch My Finger Project, which is the Japanese way for seeking project supporters, Kumi Tanimoto proposed her “Transform” Project to change the work environment from the customer’s perspective, she enlisted nine partners. She says, “I was happy to find out that our company has such valuable human resources, who voluntarily participated in my project though it wouldn’t add to their benefits.” This corporate culture of freedom, in which employees’ ideas and initiatives transform the workplace, helps to develop human resources.

Employees suggested installing this listening post, where they can appreciate their own work by listening to music over the speakers they build.

An open-minded culture is not built overnight. It evolves as the concept of “building upon individual motivation” gradually takes hold.

“Catch My Finger Project”

Under the Catch My Finger Project, which is the Japanese way for seeking project supporters, Kumi Tanimoto proposed her “Transform” Project to change the work environment from the customer’s perspective, she enlisted nine partners. She says, “I was happy to find out that our company has such valuable human resources, who voluntarily participated in my project though it wouldn’t add to their benefits.” This corporate culture of freedom, in which employees’ ideas and initiatives transform the workplace, helps to develop human resources.

From left to right: Kumi Tanimoto (Planning Group) Tetsuya Mouri (AV Multimedia Products Engineering Group) Hideki Kusatani (Manufacturing Engineering Group)
“The activists are invading!” A few years ago, any visit by environmental NGO members might have been viewed that way. However, the situation was quite different on October 1, 2002. This was the day when five Japanese major NGOs marched into Matsushita Refrigeration Company’s Kusatsu Site.
“The latest insulating materials are this thin! Amazing!”
Such were the comments overheard at an Environmental Stakeholders Meeting to which Matsushita had invited NGOs to discuss new partnerships on the theme of natural fluid (HC) refrigerators, which do not use CFC/HFC refrigerants. Their representatives learned about Matsushita’s environmental initiatives through a factory tour and then sat down to a roundtable conference with development and production staff.

Too often in the past NGOs and companies in the industry worked against each other. Corporations have had the image of destroyers of the environment for their profit and NGOs have regarded it as their mission to condemn them. Actually, the subject of HC refrigerators was one of these confrontations.

HC refrigerators, a technology using HC refrigerant developed in Europe in 1992, contain no CFCs or HFC refrigerants and so do not damage the ozone layer or promote global warming. Greenpeace Japan implemented a large-scale promotion with the goal of making this technology available in Japan. In December 1999, Greenpeace activists stood outside the entrance to Matsushita’s Head Office, handing out fliers condemning Matsushita’s stance. Although the two parties seemed to be irreconcilable enemies, they in fact shared the hope of “supplying society with good products.” As a result of repeated dialogues, together they learned about the technical difficulties that were hampering the start of an HC refrigerator in Japan and what’s more, about the lack of relevant safety standards. Matsushita encouraged other manufacturers in the industry to get involved and finally succeeded, thanks to the assistance of the Japan Electrical Manufacturers’ Association (JEMA).

At the roundtable meeting, NGO members asked tough questions: “What are your plans for developing CFC/HFC-free air conditioners?” “How safe are HC refrigerators during the recycling stage?” Their opinions were important not only to Matsushita but also to society as a whole. Some have suggested fostering closer links with NGOs by regarding such groups as representatives of citizens that are seeking social well-being. Matsushita believes NGOs and corporations can establish constructive partnerships that contribute to society because each has a different approach to serving the interests of society and its citizens.

Extracts of Matsushita’s answers at the roundtable meeting

- Regarding natural fluid air conditioners, at this time HFC refrigerants present the least environmental impact across their life cycle when safety and other various conditions are taken into account. Matsushita will continue R&D efforts.
- Matsushita would like to put a fully operational recycling system in place by the time recycling of the natural fluid (HC) refrigerators is in full swing. Industry groups are now working on the formulation of guidelines.
The Same Old Excuse: Eco Products Don’t Sell?

The Third Environmental Stakeholders Meeting

"Matsushita’s refrigerator catalog contains hardly any of the information we’d like to see, and absolutely nothing about the environmental costs of transportation and packaging." Representatives from Matsushita sat in uncomfortable silence while Kikuko Tatsumi and Kimie Tsunoda of the Nippon Association of Consumer Specialists (NACS) listed the findings of their survey. The group’s survey of environmental information provided in Matsushita catalogs and packaging opened a debate.

The NACS representatives noted that while the catalog claimed that Matsushita refrigerators consumed markedly less energy, it did not explain why. As the debate unfolded, one fact became apparent: although Matsushita has a wealth of information on safety and environmental impact, it was not being successfully conveyed to consumers or Matsushita failed to convey that information to consumers.

One issue after another spilled out as the discussion grew more heated. Finally, no time was left and still the meeting yielded no concrete solutions. The participants became aware of several things, however. For one, Matsushita catalogs had put their focus on product performance without any thought of mentioning the environment. Matsushita became aware of the need to make consumers understand that Matsushita has focused on reducing environmental impact during usage because they have an accurate understanding of the life of refrigerators.
Conventional wisdom says that environmentally friendly products do not sell because they are more expensive. However, times are changing. Now manufacturers need to change. Matsushita invited the NACS consumer group to join an Environmental Stakeholders Meeting held on April 2, 2003 to discuss environmental information required on their products.

Tatsumi and Tsunoda did have some encouraging news. “Matsushita has been improving their environmental advertising over the past 10 years. But because it prioritized raising public awareness of Matsushita’s brand image, it did not do much for sales. In the last few years, however, consumer consciousness has been on the rise. We think an environmental message would be effective now. Matsushita should take a bolder approach and say, ‘Why aren’t you buying Green?’”

When the meeting came to an end, Yuko Kida of the Corporate Environmental Affairs Division commented, “Communication is really a tricky thing. If we just say ‘This is how it is,’ it doesn’t mean the consumer will get the message. We need to put ourselves in their shoes. We have to share the consumer’s problems. That’s what’s essential for finding fundamental solutions.” Matsushita hopes that you will watch them closely as they tap into the strengths of consumers and experts to sustain their trial-and-error efforts. We are entering an era when eco-friendly products do sell because they are eco-friendly. Matsushita believes the time is coming when only eco-friendly products will sell.

(Related article: p. 70)
Matsushita’s Love the Earth Citizens’ Campaign is a novel project, different from most corporate activities. For one thing, it is a corporate effort that actively encourages a citizen’s action. Questions arise from the public: “What is a citizen’s action led by a corporation like Matsushita?” “What exactly are they trying to do?” “Why are they promoting this type of action?”

Original “eco-bags” with designs created by employees and their families

“I’d be happy to see our Love the Earth Citizens’ Campaign spread out into society and get more companies involved in helping employees and their families ‘reform their lifestyles.’”

Love the Earth Citizens’ Campaign Promotion Committee, Corporate Environmental Affairs Division

Sawako Kaneshiro

A program for tracking household energy consumption by the “Environmental Household Budget Ledger” marks its sixth year.

Highlights 2002
Citizen Action Transcends Corporate Walls
Love the Earth Citizens’ Campaign

Earth
“Matsushita has a philosophy: develop people before making products,” says Sawako Kaneshiro at the Matsushita’s Love the Earth Citizens’ Campaign Promotion Committee. “That’s the basis for this campaign.”

The Love the Earth Citizens’ Campaign traces its origin to an Environment Conference held in October 1997. Executive Officers have stated that creating Green products in the true sense of the word requires a Green mindset. President (now Chairman) Yoichi Morishita agreed, saying, “Members of the company are also members of families and society, and as such I would hope they will be citizens that are conscious of the need to protect the environment.” An on-the-spot decision was made to kick off the campaign.

In February 1998, the campaign was launched with the goal of “raising environmental awareness and transforming lifestyles.” Kaneshiro notes that the “Love the Earth Citizens’ Campaign involves not only Matsushita’s employees but also their families. Supported by the labor union, this is an unprecedentedly unique program that’s different from conventional in-house projects.”

Major accomplishments include holding the environmental symposium, enhancing the Environmental Household Budget Ledger, the “eco-bag” campaign, and implementing other environmental preservation programs for local communities in collaboration with the labor union.

In FY’02, the committees created an LE personnel database. They began a survey of 10,000 employees to gauge their level of environmental awareness. The results are being used to identify potential leaders and recruit them for regional environmental training and volunteer activities. As Kaneshiro says, “We want to find people capable of leading environmental programs and then create a network of environmental experts.”

Networking is one other theme the Love the Earth Citizens’ Campaign addresses. “It is exciting that even our competitors have offered to collaborate with us,” says Kaneshiro. They have conferred with several companies to trade know-how on how to raise environmental awareness. Networks that are linked by an interest in the environment are expanding across corporate borders. “Everyone loves our planet,” says Kaneshiro. “Efforts to ‘love the Earth’ can be shared not only by the Matsushita Electric Group employees but also by people around the world as well. Our ultimate aim is to break through all corporate walls and spread our networks regionally and globally.”

The novelty of the program has led to more requests for lectures and interviews than Kaneshiro can keep up with. By turning that novelty into strength, her efforts are expanding the field of her activities.

(Related article: p. 81)
Each nation in the world is the same in one respect:
each desires to live in peace and prosperity.
Still, each nation has its unique natural environment, history, culture,
form of government, and economic development pattern.
Matsushita is a global company doing business in 170 nations and regions around the world.
Our basic principle on international business is that
we should recognize the differences among nations and regions
and help each one to develop prosperously.

Matsushita’s View of International Business

1. We will operate our business in such a way that we are
welcomed by the host country and we will carry out our
business activities honoring local customs.

2. We will promote business in accordance with the host
country’s policies. Also, we will make continuous efforts to
have the host country understand the management
philosophy of our company.

3. We will manufacture products and provide services that are
competitive in international markets in terms of quality,
performance, and cost, so that we can provide customers
with added value.

4. We will promote the global transfer and exchange of
technology under a worldwide research and development
system.

5. We will practice autonomous and responsible management,
build up a strong management structure and generate our
own capital for the expansion of our business.

6. We will manage our overseas companies with local
employees, and will make every effort to develop the skills
of our local employees for their advancement.
Starting about 45 years ago with its first American facility, a small New York City sales office, Matsushita Electric Corporation of America (MECA) now manufactures and sells various electronics products and components under the Panasonic brand name in 15 countries throughout the Americas region. This brief overview of our activities demonstrates our sense of social responsibility, mainly at MECA, the regional headquarters of our North American operation, as well as environmental activities at three manufacturing companies located in the Americas.

Executive’s Message

I think about the potential fragility of our environment each time I take a trip on an airplane. In just a few moments after take-off, a jet aircraft transports us to an environment of subzero temperatures that is completely uninhabitable. One can only marvel at how a thin, transparent atmosphere can make such a difference and be reminded that we must understand and maintain the delicate balance of nature.

We are committed to playing a responsible leadership role in making our company and our products environmentally sustainable — to bring environmental concerns to bear on our products throughout their life cycle.

Dr. Paul Liao, Vice President and Chief Technology Officer, MECA

Corporate Profile and Economic Performance

Matsushita Electric Corporation of America
(MECA)
Location: One Panasonic Way, Secaucus, NJ 07094 U.S.A.
Foundation: September 17, 1959
Management: Hideaki Iwatani, Chairman & CEO
Area of operations: USA, Canada and Mexico
Sales: $8.6 billion (consolidated North American operations)
Employees: Approximately 21,000 (consolidated North American operations)
Major products: Consumer electronics, system devices, electronic components and materials, professional audio and video equipment

Corporate Profile
MECA was established in New York in 1959 and moved its headquarters to Secaucus, New Jersey in 1975. Originally started with $4 million in annual sales, MECA has grown to $8.6 billion in sales and continues to expand. The company offers a wide range of products from consumer electronics, telecommunication and IT, to professional and industrial equipment and components for various customers, including major electronics dealers and companies listed in the Fortune 500. MECA not only sells electronics products in the region but also manufactures TVs, telephones and other electronics. It also conducts advanced R&D activities at approximately 150 business locations in North America.

Matsushita Electric Corporation of America (MECA)
www.panasonic.com

Social Responsibility

Diversity
Several months throughout the year are devoted to celebrating the rich cultural heritage that can be found in the United States. MECA employees, working with the company’s Equal Employment Opportunity Department, develop a wide range of programs covering women’s history, African-American history and culture, Hispanic heritage and other areas. These informative programs have included guest speakers, art displays, food tasting and performances and demonstrations.

Organized by MECA employees, fellow employees taste traditional Hispanic foods in the company cafeteria, as part of Hispanic Heritage Month.

Human by Design/Accessibility
Matsushita believes that everyone should be able to enjoy the benefits of our products. To achieve this goal, we endeavor to improve the accessibility, especially telecommunications products that can aid people with disabilities. The Consumer Electronics Association’s Best of Innovations Award program for 2003 recognized Panasonic’s KX-TG2258S digital cordless telephone in its new Accessibility category. The phone includes several innovative features such as Talking Caller ID and voice enhancer technology that assist people who are hearing or visually impaired.
Global Highlights

Americas

Matsushita Electric Corporation of America

**Beach Sweep**
Sponsored by Clean Ocean Action and MECA, the bi-annual Beach Sweep promotes a cleaner ocean environment. Employee volunteers from MECA have participated for several years, collecting and analyzing trash and debris that have washed ashore. Other similar local projects have included the Hackensack River (NJ) clean-up.

**America Recycles Day**
Each November 15, recycling becomes more than just an important, everyday practice of employees at MECA headquarters; it’s the theme of a fair held in honor of the EPA’s America Recycles Day. The fair features a recycling pledge contest and offers valuable information about recyclable materials and using recycled content materials in new products.

**Environmental Responsibility**

The Matsushita Electric Group works to improve the environment by recycling products and conserving energy.

**Product recycling**

1. Collection events
   MECA sponsors collection events.  
2. Recycling
   Contractors use appropriate techniques.  
3. CRTs
   Glass is sorted into leaded and non-leaded material.  
4. Glass manufacturing
   The material is reused for glass.  
5. New CRT glass
   The glass contains 10% recycled material.  
6. New TVs
   The CRT glass is incorporated into a new TV.  
7. TVs are used again.

**Electronics Recycling**

By working closely with government agencies and recycling companies, Panasonic has helped develop a model for recycling electronics products. Obsolete or unwanted televisions and other electronics products from households are accepted at collection events and programs held at various locations throughout the U.S. Those collected products are sent to our partner recyclers and processed properly. Creation of sustainable recycling systems for advanced products such as TVs requires developing applications and markets for the materials they contain. In FY’02 Panasonic achieved 10% post-consumer recycled content CRT glass in the funnels section of our CRTs manufactured at our Troy, OH facility. We are the first TV manufacturer in the U.S. to reach this goal.

**eCycling Project**

Since October 2001, Panasonic has participated in the EPA Region III eCycling Project, a pioneering program which encourages consumers, municipalities, retailers and electronics manufacturers to share in the overall responsibility of properly managing the disposal, reuse and recycling of obsolete or unwanted consumer electronic products. Forty-five collection events in 35 counties and cities took place in the year 2002.

**EPA Plug-In To eCycling Campaign**

Panasonic joined the EPA and a number of other companies to announce the Plug-In To eCycling program at the Consumer Electronics Show in Las Vegas in January 2003. Plug-In To eCycling, a national expansion of the above mentioned eCycling Project, is designed both to promote awareness of the need to recycle electronic products and provide opportunities to do so. Panasonic will help sponsor approximately 150 collection events, as well as promote Plug-In To eCycling.

On behalf of the environment
www.panasonic.com/environment/

URL

EPA Plug-In To eCycling Campaign
www.epa.gov/epaanswer/osw/conserve/plugin/
● Energy-efficient Products
Panasonic continually strives to raise awareness of the importance of energy efficiency and conservation by offering a wide range of Energy Star qualified products for consumer, business and industrial use. More than 455 Panasonic product models including audio and video products, cordless telephones, imaging and IT products, room air conditioners, ventilation fans, and compact fluorescent lamps meet or exceed Energy Star performance levels. Additionally, Panasonic's public outreach efforts have helped to instill a sense of the importance of energy conservation and raise awareness of energy efficiency.

DVD player
DVD-CV51
Energy Star logo

● Toxic Release Inventory (TRI)
The U.S. government requires industries to collect data each year on the release and transfer of harmful substances specified by the Toxic Release Inventory (TRI) and to report the results to the EPA. MECA collects such data for the Matsushita Electric Group in America and uses its unique Facility Profiles to track and manage environmental performance.

● Environmental Performance Data

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<td>Water consumption</td>
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● Awards

● WasteWise/Partner of the Year
In a ceremony held in October 2002 in Washington, D.C., the U.S. EPA honored Panasonic as a Partner of the Year in its WasteWise program. WasteWise, launched by the EPA in 1994, is a voluntary partnership program that provides guidance and recognition to the nearly 1,300 participating organizations working to find practical methods to reduce municipal solid waste. Panasonic was honored for its efforts in the WasteWise program’s Electronics Challenge category.

Sharon Streicher, Vice President for Facilities Management at MECA, receives Partner of the Year Trophy.

● Energy Star Partner of the Year
For the fifth straight year, Panasonic has been awarded the prestigious Energy Star Partner of the Year Award presented by the U.S. EPA and the U.S. Department of Energy. The 2003 award was presented at a ceremony in Washington, D.C. in April. The award recognizes Panasonic’s record of selling numerous energy-saving products and the fact that it has all types of audio and video products meeting Energy Star criteria. Panasonic is the sole consumer electronics manufacturer to receive the Energy Star Partner of the Year Award each of the past five years.

EPA Administrator Christine Todd Whitman (left) presents trophy to Robert Greenberg, Vice President of MECA.

● EPA eCycling Project
In November 2002, the U.S. EPA honored Panasonic for its contributions to the EPA’s eCycling Project.

Press conference and award ceremony sponsored by Pennsylvania-based recycler Envirocycle, Inc.
TOPICS in the Americas

Matsushita Ultra-Tech. Battery Corporation of America

MUTEC is striving to make the most advanced, environmentally friendly battery and production process. In FY’02, MUTEC changed the cleaning agent from naphtha to a biodegradable one, and anticipates conversion from a solvent-based carbon coating to a water-based coating process. While large amounts of industrial waste are disposed of in controlled landfills in the U.S., MUTEC has established many innovative ways to recycle its waste streams. Battery process waste is recycled into steel, while manganese dioxide and carbon graphite dust are used as filler for bricks and concrete. Though not always economically justifiable, top management realized the value of using resources effectively, enabling MUTEC to achieve an 80% recycling rate in FY’02. In FY’03, MUTEC is working to reduce its usage of xylene and advance the recycling of polyethylene packaging.

Matsushita Display Devices Corporation of America

MDDA works continually to improve its environmental performance. Energy conservation at the factory is MDDA’s most significant achievement. While maintaining production volume, the facility has been able to reduce its total electricity usage by 5% through precision control of its oven startup sequence and temperature. The company is also trying to reuse as much of its material as possible. Defective CRTs from the production process are separated into their component subassemblies (panel, funnel, and mask-frame assembly), and reused wherever possible. Non-reusable parts are further separated into leaded (funnel) glass and non-leaded (panel) glass and metal (mask-frame assemblies) and sent to recyclers for raw material reuse. MDDA also makes efficient use of its water resources. By installing a new high efficiency RO system to make de-ionized water, it reduced the discharge of water by 70%. In 2003, MDDA will target further waste and energy reduction. Through the implementation of new technology, MDDA will lower the waste effluent from toluene strippers, and through the use of energy-efficient lighting and the initiation of a steam trap replacement program, it plans to lower plant energy usage.

Panasonic da Amazonia S.A.

PAM is committed to improving the quality of life in the community through reducing the environmental impact of its operations. Since 1999, the company has made a significant improvement in its logistics function. By sharing shipping containers with a neighboring manufacturer, it raised the loading ratio by nearly 20% in three years and reduced the use of containers by 300 units each year, while the company increased production during the period. In 2002, PAM started shifting from shipping products via truck to more environmentally friendly water transportation. Currently, more than 30% of its containers are shipped via water to the major markets of Brazil, such as Rio de Janeiro and Sao Paulo. During Environmental Awareness Week, the company investigated the water quality of the Amazon River and discussed what it can do to maintain the precious environment of the Amazon.
Europe, particularly in the western part, saw an increasing number of production bases in the 1980s. In the late 1990s, seeking to further step up production in response to a growing demand, the Matsushita Electric Group expanded its production bases to Eastern European countries where infrastructures improved. Since the dawn of a common EU currency in 1999, the EU nations have begun to function as a single market and the number of member nations is set to grow. Our report focuses on two companies developing and manufacturing TVs for the transforming markets of Europe.

Executive’s Message

These days, environmentally conscious management is a must. In order for companies to survive, it is imperative that we achieve a competitive advantage in R&D, production, and costs to respond to social demands. Today, one of the focuses of social demands is the environment. The market judges our business ability by assessing how actively we develop environmentally conscious products and how quickly and steadily we bring them to market. Moreover, it is not enough to make the product itself eco-friendly. We also need to keep our factories running cleanly and be conscientious in our day-to-day production. I believe that if each employee looks after the factory, then the productivity will benefit and concerns for the environment will ensue.

As the first Japanese company operating in the city of Plzen, indeed in the entire Czech Republic, PAVCCZ is grateful for everything the citizens and government have done for us. We hope to do business in a way that shows our gratitude. The Czech Republic is well known for its beer and Bohemian glass; what an honor it would be for Panasonic TVs to be the next great product from this country. Environmental standards are very strict in Europe, and as the Czech Republic prepares to join the EU in 2004, it is enacting environmental laws and regulations to implement EU-level environmental standards. PAVCCZ will of course obey these laws and standards. What’s more, I believe it’s important to look to the future and ensure that the environment is an ongoing concern in our business practices.
Contribution to Local Communities

Hit by massive flooding in August 2002, the Czech Republic sustained significant and unprecedented damage. Pilsen, the home of PAVCCZ, was among the towns hurt by the flood, which caused our plant to shut down temporarily. PAVCCZ responded to the human side of the disaster by donating TVs to the city for the benefit of citizens forced from their homes, especially seniors who live alone in municipal housing.

Every year, PAVCCZ donates TVs and makes monetary contributions to homes for children as well as provides the University of West Bohemia with products and subsidies to support research activities.
TOPICS in Europe

In February 2003, the EU issued the WEEE and RoHS Directives affecting waste electrical and electronic equipment and restricting the use of hazardous substances in products. Following are examples of the ways in which the Matsushita Electric Group in Europe is responding to these directives and to the global warming problem.

- **Digital MFPs get Blue Angel Mark**
  The WORKiO series digital multifunction products have earned the Blue Angel mark, which is a German environmental test mark. The mark indicates exceptional energy conservation, recyclability, reduction of hazardous substances, and product durability.

- **Electricity, Water, and Gas Usage Monitoring**
  The scale of production has steadily increased at PAVCCZ since its founding, so finding a way to save energy in the factory is crucial. The plant initially installed a monitoring system to keep track of its electricity usage. In December 2002, it followed up its actions by adding water and gas monitoring capabilities throughout the company. This system consists of meters in the plant and office areas to allow the responsible manager to track usage of electricity, water, and gas easily and in nearly real time. By keeping tabs of this information on a desktop computer, he can detect and respond to problems immediately. The results provide administrative managers with evidence of problems, which helps staff in each work area to be perceptive and encourages sustained energy conservation efforts. Through this system, PAVCCZ staff not only get familiar with usage totals but also have a way of investigating and responding promptly in the event of a problem, for example, if a crack of pipe causes gas or water leakage.

- **Using Exhaust Heat from Soldering Systems**
  As the Czech Republic sits at a latitude of 50° north, warm air is a precious commodity in winter. At PAVCCZ, cold, fresh air comes into the plant and is warmed using the waste heat from the soldering machines, which act as the heater for the plant. This is one method in which we save energy in a manner appropriate to the region.

- **Reduction of CO₂ Emissions from Transportation**
  Panasonic Logistics Company U.K. Ltd. is working with Safeway supermarkets to cut costs while reducing CO₂ emissions. Trucks loaded with food and wine in one direction carry TVs on the return journey rather than run empty. This arrangement saves roughly 200 tons of CO₂ emissions annually.

- **CRT Recycling**
  Matsushita Display Devices (Germany) G.m.b.H (MDDG), which manufactures CRTs, is building a system within and outside of the company to keep end-of-life products in circulation, thereby reusing materials more efficiently and contributing to the achievement of WEEE Directive recycling targets.

- **Reduction of CO₂ Emissions from Transportation**
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Wilfried Oppermann, Head Environmental Team, Matsushita Electric Europe (Headquarters) Ltd. (ME)

“We will challenge ourselves further to achieve the Green Plan 2010 and be a leading sustainable company.”
Matsushita started the Asian operation outside of Japan in the early 1960s. PT. National Gobel (NABEL), a joint venture of Gobel and Matsushita, is our first affiliate to be established in Indonesia. As one of our major manufacturing plants in Asia, it currently produces and sells a wide range of products, including audio and visual equipment and home electronics. This section offers a glimpse of initiatives pursued at this Asian base.

Executive’s Message

Our company naturally complies with existing environmental regulations, but we are going further that and starting to deal with possible new regulations still under discussion. In FY’02, we set up a waste recycling center within our plant. Reusing and recycling resources are a first step toward reducing the amount of waste released from the factory and achieving the ultimate goal of zero waste emissions.

It is our mission to provide customers with high-quality products. Here at NABEL, because we seek to provide a high-level environmental performance, as is the case with product quality, we give greater consideration to the environment in our manufacturing process and product design.

Shigeru Inoue, Executive Director, NABEL

Social Responsibility

● Volunteer Mosques Repair Project

Some 87% of Indonesia’s population follow the teachings of Islam. NABEL employees and local residents took part in a 2001 volunteer work to repair nine area mosques that had begun to deteriorate. NABEL contributed funds to encourage the participation of the volunteer work.

Employee volunteers help repair a mosque.

● Planting and Cleaning

NABEL has planted new vegetation on its factory grounds since FY’77, including 114 mango and other trees put in by FY’02. It additionally cleans the filters for local rainfall purification wells to assure that local citizens have clean groundwater.

Well filter cleaning

The former Managing Director also helps plant trees.
Hosting Factory Tours
NABEL welcomes local elementary and middle school students to factory tours. These tours not only introduce NABEL's production process to students, but also give them a chance to see our environmental technology such as wastewater treatment facilities and eco-friendly products. These demonstrations of our various environmental activities encourage students to understand the importance of these efforts.

Mutual Exchange of Know-how through Internal Environmental Audit
NABEL established its environmental management system in 1998 and has earned its ISO 14001 certification. Presently the Matsushita Electric Group in Indonesia performs internal environmental audits on each other to enhance environmental activities and help the improvement of environmental performance. Participating companies hold meetings where they exchange the information learned in the audit process to improve environmental performance, which accelerates mutual promotion of environmental management.

Waste Recycling Center
NABEL has established an on-site waste recycling center as it targets zero emissions. By precisely sorting factory waste, the center assures that more of it is used again, thus boosting our recycling rate. This rate reached 74% in FY'02. In addition to sorting waste, NABEL tries to prevent waste generation. One successful measure at the design stage in our TV manufacturing division reduced the parts count by 40%. This initiative will continue in FY’03, aiming at further waste reductions.

Eliminating Cadmium
Matsushita is advancing an initiative to eliminate the use of chemical substances, thereby creating truly eco-friendly products. NABEL has begun full-fledged efforts of its own. For one, it is asking suppliers not to include cadmium in their parts and materials, and packaging. So far 92 suppliers have agreed. Currently NABEL is asking suppliers to survey how much cadmium is included in their parts’ materials and to submit certificates as evidence of non-inclusion. Moreover, from April 2003 onwards, NABEL has measured cadmium content in the purchased component materials in each package.

Lead-free Solder Implemented
NABEL completed the switchover to lead-free solder in all products in March 2003. To achieve this goal, we implemented 11 lead-free solder flow systems for TV sets and sought out the cooperation of partner firms who process a wide range of small components for NABEL.

Using Low-emission Vehicles
NABEL measures emissions of pollutants (NOx, SOx) from supplier vehicles in order to decrease the air pollution in Jakarta. We plan to introduce low-emission vehicles to assure our own logistics are clean. Even our forklifts have reduced their usage of conventional diesel fuel by using 5 to 10% of biodiesel fuel derived from palm oil. This has resulted in significant reduction in CO2 emissions.
Global Highlights
Asia and Oceania

TOPICS in Asia and Oceania

- Indo National Ltd. Awarded for Excellence in Environmental Management
  The Andhra Pradesh Pollution Control Board in India conferred an award for excellence in environmental management on Indo National Ltd. on June 5, 2002, also known as the World Environment Day. This award recognizes the effectiveness of a wide range of ongoing environmental initiatives undertaken by Indo National, including its earning of the ISO 14001 certification in 1998 and its government awards in 1994 and 1995 for planting on its factory grounds.

- PT. Matsushita Gobel Battery Industry Honored for Safe Labor Practices
  PT. Matsushita Gobel Battery Industry received a great honor in January 2003 when Indonesia’s Ministry of Manpower and Transmigration designated it as a safe, accident-free enterprise. The award followed 4.37 million working hours from September 2001 to November 2002 in accordance with the government policy of protecting workers from accident and injury.

- Asia-Oceania Regional Environmental Conferences
  Matsushita’s Environmental Officers in each country in Asia and Oceania meet in Regional Environmental Conferences to promote global environmental management. Both management and Environmental Officers of each group company attend these meetings, where they evaluate the targets of environmental initiatives and the efforts that are being made.

Environmental Performance Data

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
<th>FY’02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention of global warming</td>
<td>Power consumption (1000kWh)</td>
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</tr>
<tr>
<td></td>
<td>City gas consumption (kW)</td>
<td>481</td>
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<tr>
<td></td>
<td>LPG consumption (kW)</td>
<td>0</td>
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<td></td>
<td>Heavy oil consumption (kW)</td>
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<td></td>
<td>Kerosene consumption (kW)</td>
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<td></td>
<td>Energy consumption (crude oil equivalent) (kW)</td>
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<td>Energy consumption (CO₂ emissions equivalent) (t-CO₂)</td>
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<td>Chemical substance management</td>
<td>Use (t)</td>
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<tr>
<td></td>
<td>Release/transfer (t)</td>
<td>7.3</td>
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<tr>
<td></td>
<td>Generation (t)</td>
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<td>Recycling (t)</td>
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<td>Final disposal (t)</td>
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<td>Recycling rate (%)</td>
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Legal Compliance Data

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<tr>
<td></td>
<td>SOx (mg/m³)</td>
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<tr>
<td></td>
<td>Soot and dust (mg/m³)</td>
<td>—</td>
<td>98</td>
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<tr>
<td>Water</td>
<td>COD (mg/l)</td>
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<tr>
<td></td>
<td>Phosphorus (mg/l)</td>
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<tr>
<td></td>
<td>Organic (mg/l)</td>
<td>80</td>
<td>77</td>
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<tr>
<td>Noise</td>
<td>Noise (dB)</td>
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<td>65</td>
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<tr>
<td>Odor</td>
<td>Methyl sulfide (ppm)</td>
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<td>0.007</td>
</tr>
<tr>
<td></td>
<td>Methyl mercaptan (ppm)</td>
<td>0.002</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Styrene (ppm)</td>
<td>0.1</td>
<td>0.05</td>
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Award for excellence in environmental management Award certificate

Andhra Pradesh Chief Minister N. Chandrababu Naidu presents award to Indo National Joint Managing Director Shozo Soematsu and Chief General Manager-Operations T.V. Subba Rao.

Kazuo Ishimoto (left), Managing Director of PT. Matsushita Gobel Battery Industry, receives safe labor citation from Indonesian President Sukarnoputri Megawati.

Philippines environmental conference

Singapore environmental conference
The history of Matsushita operations in China began in the late 1970s, when China’s Vice Chairman Deng Xiaoping visited Japan and met with Matsushita Electric Founder Konosuke Matsushita. A manufacturing company for color TV CRTs was established in 1987, and since then, we have developed our operations primarily through joint ventures. In the mid-1990s, we opened several more manufacturing companies as the Chinese government stepped up its policies of reform and liberalization. Currently, Matsushita oversees 43 manufacturing bases around China with production and sales reaching 430 billion yen in FY’02.

Following is a description of Hangzhou City, which is located near Shanghai, and with a population of 6.2 million, serves as the hub of Zhejiang Province. Matsushita started operations there in 1992 with the launch of Hangzhou Matsushita Home Appliance Co., Ltd. and now runs 6 companies in the Hangzhou area.
Social Responsibility

Employment
The common employment practice in China is to offer permanent jobs to professional personnel in areas of management, engineering development, or production while periodically offering temporary contracts according to business conditions, so that most of the labor is temporary, particularly in production. Primarily, temporary employees at the Matsushita Electric Group companies in China are interns from career training schools and must be at least 16 years old, as prescribed by China’s Labor Law. Benefits extended to temporary employees include meals and lodging, coverage of health insurance expenses, and periodic physical exams.

Education and Training
Matsushita’s human resource development standards require education and training of employees, and as a result, the Group works toward this goal. We provide a variety of courses and on-site training on specific subjects such as work regulations, safety and firefighting, ISO 9000-based quality control systems, ISO 14001-based environmental management systems, and labor health and safety.

Occupational Health and Safety
Employees safety is crucial to any company engaged in manufacturing. Our companies appoint a health and safety committee led by management executives. The committee promotes various programs such as safety patrols and training to ensure the safety of workplaces. HMM is the first company in China to earn the OHSAS 18001 certification for its occupational health and safety management system. Additionally, in recognition of its day-to-day efforts, it earned the designation as a company of excellence in 2002 in Ankangbei, a nationwide safety contest.

Environmental Responsibility

Introducing Lead-Free Solder
The Hangzhou Matsushita Group companies have all begun using lead-free solder in the printed circuit boards of their products. Lead-free soldering machines are being installed for boards manufactured in-house and suppliers are being asked for their cooperation regarding boards purchased from outside sources.

Reusing Packages for Shipments between China and Japan
HMM builds air conditioner and washing machine motors for sale in China and supply to production bases in Japan. Previously, shipments to Japan went in corrugated cardboard boxes on wooden pallets, materials that were simply discarded as waste at the point of entry or at customer sites. HMM initiated an experiment for reusing the amount of packaging used between the two countries in order to minimize such waste, to cut costs and improve the quality of logistics. In place of the conventional packaging, HMM now uses steel mesh containers and anti-static plastic trays, which preserve product quality during transportation and can be folded up for maximum compactness and efficiency for the return trip.

Environmental Performance Data

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
<th>HMM</th>
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<tbody>
<tr>
<td>Prevention of global warming</td>
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<td>City gas consumption (kL)</td>
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<td>LPG gas consumption (kL)</td>
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<td>Heavy oil consumption (kL)</td>
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<td></td>
<td>Kerosene consumption (kL)</td>
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<td>Energy consumption (crude oil equivalent) (kL)</td>
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<td>Energy consumption (CO2 emissions equivalent) (CO2)</td>
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<td>Chemical substance management</td>
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<td>Waste reduction</td>
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<td>Recycling</td>
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<td>Final disposal</td>
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<td>Water consumption</td>
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<td>NOx emissions</td>
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<td>(Water pollutants)</td>
<td>COD lead</td>
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Environmental Performance Data (continued)

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<tbody>
<tr>
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<td>Systems using lithium bromide</td>
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<td></td>
<td>Measured NOx density (mg/Nm3/DA)</td>
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<tr>
<td></td>
<td>NOx emissions (kg/h)</td>
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<tr>
<td>Varnishers</td>
<td>Measured xylene density (mg/Nm3/DA)</td>
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<td></td>
<td>Xylene emissions (kg/h)</td>
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<td>Stator coil work sites</td>
<td>Measured xylene density (mg/Nm3/DA)</td>
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</tr>
<tr>
<td></td>
<td>Xylene emissions (kg/h)</td>
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</tr>
<tr>
<td>Water</td>
<td>COD</td>
<td>6.4</td>
</tr>
<tr>
<td></td>
<td>BOD</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>SS</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>COD</td>
<td>59</td>
</tr>
</tbody>
</table>
TOPICS in China and Northeast Asia

● China Regional Environmental Conference
The 6th China Regional Environmental Conference took place in Xiamen, China in July 2002. The secretariat for environmental protection at Matsushita Electric (China) Co., Ltd. promoted the event, which drew 86 participants from 35 companies. Designed to bolster environmental initiatives in China, presentation themes included case studies of dealing with critical issues and introducing lead-free solder as well as efforts made to recycle home appliances in Japan.

Environmental Conference in Xiamen, China

● Lead-free Soldering Techno-School in Shanghai
Matsushita has given its Lead-free Soldering Techno-School course as a means of speeding up the adoption of lead-free solder. This event has now taken place three times in Shanghai, attracting the participation of 54 individuals from 27 companies. These participants acquired and shared the knowledge needed to introduce lead-free solder through seminars on technology and instructions on practical techniques and quality assessment methods.

Hands-on experience at Techno-School

● China Material Test Center
In April 2003, the China Material Test Center was established to facilitate the active use of Chinese-made parts and materials as the marketplace becomes global. To assess each part or material, the center carries out performance and raw material tests and also checks for the inclusion of chemical substances with an environmental impact. This function assures that global procurement is environmentally benign.

Materials analysis of plastic components

Selected as a Hangzhou Green Enterprise
From 1997 to 1999, the Hangzhou Matsushita Group companies undertook the development of environmental management systems, obtained the ISO 14001 certification, and made continuous improvements. The city of Hangzhou has recognized the efforts of Hangzhou Matsushita Motor Co., Ltd. (HMM) to control air and water quality, raise employee awareness, and recycle waste, and therefore has selected the firm as one of the 100 green enterprises.

Fang Xiao Ling in charge of environmental management at HMM, and the notice board for instructing employees about using resources effectively

Pelletizing and reusing waste PBT plastic

“As China develops, the burden on the environment quickly grows. We conduct our business in anticipation of stricter regulations.”

Hideo Tabata, Secretariat for Environmental Protection, Quality Control Department, Matsushita Electric (China) Co., Ltd.
Economic Performance

The purpose of Matsushita’s raison d’être is to contribute to the progress and development of society and the well-being of people through our business activities, thereby enhancing the quality of life throughout the world.

In 1932, the founder, Konosuke Matsushita, was resolved to “aim at sustaining and enhancing happiness of human beings through material and spiritual abundance.” Since then, all of the Matsushita Electric Group employees have consistently sought to accomplish this mission in promoting business activities.

In order for Matsushita to continue serving the lives of people around the world, all our management and business activities must continue to evolve, based on our invariable Management Philosophy.

Basic Management Objective
Recognizing our responsibilities as industrialists, we will devote ourselves to the progress and development of society and the well-being of people through our business activities, thereby enhancing the quality of life throughout the world.

Company Creed
Progress and development can be realized only through the combined efforts and cooperation of each employee of our company. United in spirit, we pledge to perform our corporate duties with dedication, diligence and integrity.

Seven Principles
Contribution to Society
Fairness and Honesty
Cooperation and Team Spirit
Untiring Effort for Improvement
Courtesy and Humility
Adaptability
Gratitude

Code of Conduct
At the heart of Matsushita’s corporate ethics and compliance efforts is the practice of its Management Philosophy. In 1998, the Code of Conduct was fully revised, emphasizing that everyone in the Matsushita Electric Group of companies, at all levels, including executive officers and ordinary employees—individually and collectively—should work towards the same goal, practicing the Matsushita style of participative management.

**Matsushita Electric Group The Code of Conduct**

In 1992, a Code of Conduct was set forth as specific items to be observed and as criteria for practicing our corporate philosophy. It makes clear how the Management Philosophy is to be applied in actual business situation. In 1998, an overall revision was made in response to increasing globalization and changes in social values. Taking into account different laws and regulations by country and region, global standards that are common in essence have been adopted for the approximately 120,000 employees in Japan and 100,000 employees outside of Japan.

### Creation of the Code of Conduct

- **Issued:** January 1992
- **Revised:** January 1998

**Purpose of the Revision**
1. To further increase the effectiveness of the Management Philosophy
2. To introduce new value standards
   - (Enhancement of the value of information through IT, conservation of the global environment, global standardization of freedom, fairness, and disclosure, consideration for human rights)

**Application**
- All Matsushita Electric Group employees, including the members of the Board of Directors
- Approximately 120,000 employees in Japan
- Approximately 100,000 employees outside of Japan (translated into 10 languages)

### Five Aspects of Our Business Ethics

1. **Legal compliance**
   - Do your actions comply with the laws and regulations?
2. **Management philosophy**
   - Are your actions in accordance with our Management Philosophy and company policies?
3. **Common sense**
   - Are your actions acceptable to society?
4. **Consumers**
   - How are your actions perceived by consumers?
5. **Conscience**
   - Are you sure that your actions are appropriate?

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**The Code of Conduct**

**Observing the Code of Conduct**

(Our Basic Business Philosophy is the Foundation, Value Creation and Contribution to Society, Close Ties to Society, Global Perspective and Conduct, and Observing the Code of Conduct)

**Chapter 1: Promoting Business Operations**

1. Research and Development (Research and Development for a Better Future)
2. Purchasing (Fair and Equal Footing with Suppliers)
3. Production (Realizing Competitive Manufacturing)
4. Sales (Trust and Confidence from Customers, Sales Activities Based on Social Ethics)
5. Advertising (Fairness in Expression, Being Creative)
6. Product Safety (Priority on Safety)
7. Control of Information (Proper Control of Information)
8. Complying with the Law and Observing Corporate Ethical Principles (Fair Actions, Observing Corporate Ethical Principles)

**Chapter 2: Our Relationship with Society**

1. Harmony with the Global Environment
   - (Development of Technology for the Global Environmental Preservation)
2. Information Disclosure and Corporate Communications (Information Disclosure, Dialogue with Society)
3. Social and Cultural Activities (Harmony with the Local Community)

**Chapter 3: Employee Relations**

(Respect for Humanity and Individuality, Respect for Human Rights and Eradication of Discrimination, Respect for Privacy)

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**System and Promotion**

- **Establishment of the Corporate Business Ethics Committee**
  
  For corporate ethics and compliance implementation, the establishment of a Group-wide system is now under way. In December 2000, an executive officer responsible for Corporate Ethics was appointed and a section was established to manage affairs. In January 2001, the Corporate Business Ethics Committee, chaired by the President, was established.

- **In-company Hotline**
  
  Although, in principle, a problem at a workplace should be discussed with or reported to the supervisors, an In-company Hotline has been set up to offer consultation beyond organizational borders. Using a toll-free number or e-mail, employees may directly contact the hotline for consultation.

**In-company Hotline**

- Women's Hotline
- Fair Trade Hotline
- Corporate Business Ethics Hotline

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**Information Security Management**

Matsushita handles a wide range of information, including customer information, personal information, and asset information. Since the establishment of the Basic Regulations for Information Security Management in May 2000, an information security management system has been set up, extended to include affiliated companies, for the proper control of important information.

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**URL**

panasonic.co.jp/global/profile/conduct/
Economic Performance
Corporate Governance and Finance

Management System
In FY’03, with the view of establishing autonomous management at each business domain of Matsushita, a reform took place expediting optimum management operation under the Group-wide management system.

Framework of Management Reform
1. Matsushita has implemented an “Executive Officer System” tailored to the domain-based management in order to integrate the comprehensive strength of all Group companies. Moreover, a “Group Managing Directors & Officers Meeting” has been introduced as an organization for consulting on corporate strategy issues.

2. With the aim of establishing corporate governance best suited to the diversified scope of its business fields, Matsushita will further strengthen its corporate auditor system by having management personnel, who are wellversed in day-to-day operations at operational fronts, participate in decision-making on corporate strategies and mutual supervisory functions.

3. The remuneration system for Members of the Board of Directors and Executive Officers has been revised. The new system based on the same criteria, specifically CCM and cash flows, is intended to accomplish the goal of increasing corporate value in the interest of shareholders.

Reform of the Board of Directors
By delegating authority to Executive Officers, the Board of Directors will concentrate its functions on corporate strategies and supervision, thereby clarifying the supervisory functions of the Board of Directors and the business executive functions of the Executive Officers. As participation of those at the operational fronts in the Board of Directors is necessary, supervisory functions and executive functions will not be completely isolated. Also, the Board of Directors itself will be reduced in number to promote swift decision-making.

Executive Officer System
The Board of Directors will elect and appoint Executive Officers who are to assume responsibility for the execution of business throughout the entire Matsushita Electric Group. Members of the Board of Directors and Executive Officers are equal, in terms of rank and status, and their business results are evaluated based on the same criteria and are accordingly reflected in their compensation.

Advisory Board
Since FY’98, an Advisory Board consisting of three selectees from outside the company and Matsushita’s top management has been established for achieving management that is open to society.

Matsushita Electric Group Management System

Overview of the Advisory Board
Members: Three advisors from outside the company, Members of the Board of Matsushita
Meetings: Three times a year
Themes in the Past:
- “Issues for Matsushita as Viewed from Outside the Company”
- “New Business Strategies in a Network Society”
- “Efforts toward the Sustainable Society”

Mid-Term Management Plan “Value Creation 21”
In FY’01, with “deconstruction” and “creation” as keywords, Matsushita launched its “Value Creation 21” plan. This plan entails transformation of the company’s business and profit structures from a 20th century-type business model characterized by mass production and mass sales of standard products into a “Super Manufacturing Company” for the 21st century. The plan also aims at constructing new business models that bring about synergy effects among devices, sets, and service businesses.

In FY’02, the management focus shifted to “creation.” The management system reform took place to restructure businesses and organizations, and to enhance its effectiveness. By realigning Group companies into 14 business domains, overlapping of businesses was eliminated and the concentration of development resources became possible. In addition, at each domain company, autonomous management has been promoted with emphasis on consolidated cash flows on a global basis. Evaluation of each domain company was narrowed down to two standards, capital cost management (CCM) and cash flows (CF), to create a system that enables the Head Office to carry out fair and sound evaluation and follow-up. Through a system of complete empowerment and capital governance, we are aiming at accomplishment of the “Value Creation 21” plan in FY’03.
Along with business globalization, the importance of risk management is increasing throughout the world. In November 2002, the Overseas Risk Management System was established to respond 24 hours full time globally. With “Human Safety” and “Company’s Credibility” built on the fundamental principles of our Management Philosophy of “Customer-Comes-First,” we are committed to responding promptly as expected by the society and customers. In concrete terms, “Risk Management” is incorporated into business plans and undertaken by top executives in the daily business activities.
Induction Fluorescent Lamp

In the field of bulb-type fluorescent lights, we have developed and marketed a long-life lamp based on a new lighting principle. Fluorescent lamps emit light when fluorescent material is stimulated by ultraviolet rays. With our new lamp, AC current runs through an inside coil and induces an electric field to generate ultraviolet rays, thus emitting light. Without an electrode that can be easily degraded, lamp life is extended to approximately 30,000 hours (rated value), 5 times that of conventional bulb-type fluorescent lights and 30 times that of white lamps. When lit for 10 hours a day, it can be used for approximately 8 years, saving replacement.

Research and Development Contributing to Environmental Conservation

- **Induction Fluorescent Lamp**
  - In the field of bulb-type fluorescent lights, we have developed and marketed a long-life lamp based on a new lighting principle. Fluorescent lamps emit light when fluorescent material is stimulated by ultraviolet rays. With our new lamp, AC current runs through an inside coil and induces an electric field to generate ultraviolet rays, thus emitting light. Without an electrode that can be easily degraded, lamp life is extended to approximately 30,000 hours (rated value), 5 times that of conventional bulb-type fluorescent lights and 30 times that of white lamps. When lit for 10 hours a day, it can be used for approximately 8 years, saving replacement.

- **Optimization of Energy Consumption During Operation**
  - As a NEDO project, we have developed a system for optimizing energy consumption of electric equipment during operation. With a human detection sensor and control system that enables fluctuating operations, TVs, air conditioners, and electric bidets with showers control their power or temperature settings automatically. Energy savings of approximately 28% in TVs, 21% in air conditioners, and 26% in electric bidets with showers are expected.

- **Ultralow-power LSI**
  - LSI stands for large-scale integrated circuit, an important component of electronic equipment. Matsushita has undertaken the development of an ultralow-power LSI as a NEDO project. With the semiconductor wrapped by an insulating layer, this LSI operates at several mW, less than one-tenth of power required in current devices. As it works even with a faint energy, such as body heat, for example, its application is expected in a wide range of equipment, including information terminals.

- **Earth Observing Satellite ADEOS-II**
  - Earth Observing Satellite ADEOS-II launched by the National Space Development Agency of Japan (NASDA) in December 2002 is equipped with the Atmospheric Remote Sensing Instrument ILAS-II, developed by Matsushita on commission from the Ministry of the Environment. ILAS-II is an infrared spectrometer that accurately monitors the vertical profile of ozone and related trace gas concentrations at an altitude of 10 to 60 km. This technology is expected to contribute to the monitoring of the ozone layer and to understanding the mechanism of its depletion, enabling forecasting with improved accuracy.

- **Automotive Air Conditioning System Using CO₂ as a Refrigerant**
  - In view of preventing global warming, we have been seeking ways of switching refrigerants for automotive air-conditioning from CFC substitutes (HFCs) to CO₂. Recently, we have succeeded in developing a high-performance internal heat exchange cycle and heat exchanger, including an evaporator and gas cooler, which employ microchannel heat transfer tubes using CO₂ as a refrigerant. With this new air conditioning system, annual energy consumption has been reduced by approximately 5% compared with a system using CFC substitutes as a refrigerant.
One of the newest growth areas at Matsushita is in the field of the Environment Solution Business, whose objective is to contribute to environmental conservation by integrating our technological resources and engineering capabilities.

Outline of Environment Solution Business

Our Environment Solution Business consists mainly of Energy Solutions, Eco Solutions, and Environmental Service Solutions. We offer a variety of energy solutions for offices, factories and homes, including the home-use fuel cell cogeneration system. Environmental regulations concerning water, air, and soil purification and waste recycling have also prompted us to expand into new businesses. For example, we are working on kitchen waste recycling to meet different needs from households to plants, supporting the zero-emission targets of the entire community.

Nickel Metal-Hydride (Ni-MH) Rechargeable Batteries for Eco-Cars

Panasonic EV Energy Co., Ltd. conducts research and development of nickel metal-hydride (Ni-MH) rechargeable batteries for use as a power source of HEVs and EVs. Our Ni-MH rechargeable batteries have been adopted in the world’s first HEV “Toyota PRIUS” and are being supplied to automobile manufacturers around the world. Moreover, attracting attention as the next-generation clean energy, our fuel cells have been adopted as key components in a fuel-cell hybrid vehicle. In December 2002, Toyota’s FCHV, equipped with this fuel cell, began the first-ever limited marketing of this type of vehicle in Japan and the U.S.

Electric Hybrid Bicycles Eco-Cycle System

National Bicycle Industrial Co., Ltd. took part in the “Rent-a-Cycle & Mono-Ride” demonstration carried out by Kitakyushu City (Fukuoka Prefecture, Japan) from August 2002 to January 2003. This was implemented as part of the Transportation Demand Management Demonstration Project of the Ministry of Land, Infrastructure, and Transport. Approximately 200 citizens participated in this social experiment aimed at alleviation of traffic congestion and reduced emissions of exhaust gas and CO₂ by introducing a switch from automobiles to a combination of electric hybrid bicycle and monorail.

Making use of original technology, Matsushita develops a lightweight easy-to-ride electric hybrid bicycle that enables long-distance traveling, thereby proposing an Eco-Cycle System to create a more comfortable town.

Areas of Matsushita’s Environment Solution Business
In 1991, Matsushita formulated the Environmental Management Basic Policy, and subsequently established its Environmental Statement. The Statement illustrates our belief in the law of nature that genuine progress and prosperity cannot be achieved without the co-prosperity of all beings on earth. The Statement also reflects our view that social responsibilities must be met with the awareness that humankind has the obligation to use nature at its fullest in a caring and fair manner. Based on this Statement, we must carry out environmental sustainability management in all divisions, working towards the fulfillment of our “Environmental Vision” and “Green Plan 2010,” both of which were drawn up in 2001.

**Basic Business Philosophy**

- Basic Management Objective
- Company Creed
- Seven Principles

**Code of Conduct**

**Environmental Statement**

Fully aware that humankind has a special responsibility to respect and preserve the delicate balance of nature, we at Matsushita acknowledge our obligation to maintain and nurture the ecology of this planet. Accordingly, we pledge ourselves to the prudent, sustainable use of the earth’s resources and the protection of the natural environment while we strive to fulfill our corporate mission of contributing to enhanced prosperity for all.

**Environmental Vision**

**Green Plan 2010**
Environmental Vision

In October 2001, we announced the Environmental Vision, which was formulated with a view toward contributing to the realization of a sustainable society. We expanded our environmental activities to cover seven areas throughout a product’s life cycle and set up specific targets in the action plan. The Vision was drawn up using the scenario planning method*. It gives a concrete and qualitative portrayal of a sustainable society and lifestyle in 2025 and from this image of the future, identifies the proper role that Matsushita should fulfill. We will revise our Environmental Vision and action plan as needed, while devoting full effort to pursuing further activities.

URL
Environmental Sustainability Report 2001
matsushita.co.jp/environment/2001e/

New challenges for “Green” Products
- Make all Matsushita products “Green”*
*Environmentally friendly products and services made with environment-conscious materials through efficient use of energy and resources

Environment and energy business initiatives
- Make endeavors to develop sustainable energy such as fuel cells

Environmental communication
- Use various means to communicate Matsushita’s environmental activities worldwide
- Take up future challenges by collaborating with internal members and external parties

New challenges for Clean Factories
- Strive to achieve Zero Emissions* (Minimize CO2 emissions and waste generation)
- Strive to develop environment-conscious production methods and systems

Strengthening of product recycling
- Expand product categories for recycling

“Green” marketing and distribution
- Make commitment to conserve energy and resources

Environmental management and human resources development
- Establish organizational structure to facilitate speedy and autonomous decision-making procedure
- Establish indicators and evaluation systems for environmental management
- Cultivate environmental awareness in employees

The Matsushita Electric Group contributes to “Coexistence with the Global Environment” through Environmental Technology and Ecological Thinking (ET²!).

A method to understand the future business environment through the creation of multiple scenarios

Scenarios for Society and Lifestyle in 2025
- Vertical Axis: People’s Environmental Awareness
  - A Frontier Society Led by Environmentally Advanced Companies
  - A Happy Society in Harmony with the Environment
  - A Superficially Environment-oriented Society
- Horizontal Axis: Green Economic System
  - Progress
  - Regress
- Pursuit of Materialism and Self-centered Lifestyle
### Green Plan 2010

(Base year: FY’00, global targets formulated in October 2001)

<table>
<thead>
<tr>
<th>Item</th>
<th>FY’05 Target</th>
<th>FY’10 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New challenges for Green Products</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention of global warming</td>
<td>Increase energy use index(^\d) by 30%</td>
<td>Increase by 50%</td>
</tr>
<tr>
<td>Chemical substances</td>
<td>Discontinue use in products shipped in April 2005 and after</td>
<td>Discontinue by March 2006</td>
</tr>
<tr>
<td></td>
<td>Lead, cadmium, hexavalent chromium, and mercury</td>
<td>Polyvinyl chloride resin</td>
</tr>
<tr>
<td></td>
<td>Discontinue immediately</td>
<td>Specified brominated flame retardants (PBB, PBDE)</td>
</tr>
<tr>
<td>3Rs (Reduce, Reuse, Recycle)</td>
<td>Increase resource use index(^\d) by 50%</td>
<td>Increase by 70%</td>
</tr>
<tr>
<td>Product development</td>
<td>Increase development of Green Products to more than 70%</td>
<td>Increase to 90% or more</td>
</tr>
<tr>
<td><strong>New challenges for Clean Factories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention of global warming</td>
<td>Reduce CO(_2) emissions per unit of production by 5%</td>
<td>Reduce by 10%</td>
</tr>
<tr>
<td></td>
<td>Maintain CO(_2) emissions at the same level as FY’90 (Japan)</td>
<td>Reduce by 7% (Japan)</td>
</tr>
<tr>
<td>Chemical substances</td>
<td>Reduce the amounts of use, release and transfer by 40%</td>
<td>Reduce by 60%</td>
</tr>
<tr>
<td>Waste and by-products with value</td>
<td>Reduce emissions per unit of sales by 10%</td>
<td>Reduce by 20%</td>
</tr>
<tr>
<td>Water</td>
<td>Reduce consumption per unit of sales by 5%</td>
<td>Reduce by 10%</td>
</tr>
<tr>
<td></td>
<td>Promote effective use of water resources</td>
<td></td>
</tr>
<tr>
<td>Production methods and systems</td>
<td>Establish new production methods and systems to enhance the efficient use of energy and resources</td>
<td></td>
</tr>
<tr>
<td><strong>Strengthening of product recycling</strong></td>
<td>Establish a system to expand product categories for recycling</td>
<td>Establish recycling systems for all household electric appliances</td>
</tr>
<tr>
<td></td>
<td>Improve recycling rate</td>
<td></td>
</tr>
<tr>
<td><strong>Environment and energy business initiatives</strong></td>
<td>Launch full-fledged marketing campaign for home-use fuel cells cogeneration system</td>
<td>Make the system fully diffused</td>
</tr>
<tr>
<td></td>
<td>Strength energy management business</td>
<td>Expand the business</td>
</tr>
<tr>
<td><strong>Green marketing and distribution</strong></td>
<td>Conserve resources by making use of the Internet in marketing activities</td>
<td></td>
</tr>
<tr>
<td>Conservation of resources</td>
<td>Promote modal shift and increase rail freight to 20,000 containers (Japan)</td>
<td>Increase rail freight to 30,000 containers</td>
</tr>
<tr>
<td><strong>Environmental communication</strong></td>
<td>Develop the Environmental Report into a Sustainability Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Publish the Site Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Promote communication with a wide range of stakeholders</td>
<td></td>
</tr>
<tr>
<td><strong>Green investment/contribution to local communities</strong></td>
<td>Continue forest preservation activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increase greenery in factory sites and on rooftops</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Promote green investment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Establish Green Fund</td>
<td></td>
</tr>
<tr>
<td><strong>Corporate citizenship</strong></td>
<td>Expand Love the Earth (LE) Citizens’ Campaign to outside of the company</td>
<td>Build an inter-company network for LE activities</td>
</tr>
<tr>
<td></td>
<td>Increase LE families to more than 50% of all employee households</td>
<td>Increase to more than 80%</td>
</tr>
<tr>
<td><strong>Partnership</strong></td>
<td>Strengthen partnership and form networks with environmental NPOs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Actively cooperate toward and contribute to environmental activities of international organizations, governments, and municipalities</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental sustainability management and human resources</strong></td>
<td>Strengthen the environmental promotion system of Group companies throughout the world</td>
<td></td>
</tr>
<tr>
<td><strong>Organizational structure</strong></td>
<td>Strengthen decision-making functions in each global region</td>
<td></td>
</tr>
<tr>
<td>Development of human resources</td>
<td>Prepare environmental training curriculums for each corporate level and division</td>
<td></td>
</tr>
<tr>
<td><strong>Management evaluation system</strong></td>
<td>Establish a comprehensive environmental accounting system</td>
<td>Incorporate the results of environmental accounting in the performance evaluation</td>
</tr>
<tr>
<td></td>
<td>Reflect the reductions in environmental impact of products and operations in the performance evaluation</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) For the definition of indexes, see p. 64.  
\(^2\) Revised in April 2003.
<table>
<thead>
<tr>
<th>FY’02 Target</th>
<th>FY’02 Performance</th>
<th>FY’03 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the introduction of lead-free solder in all products</td>
<td>Achieved 100% in Panasonic and National products (p. 64)</td>
<td>Increase energy use index(^{41}) by more than 12% (\Rightarrow) Promote the Hazardous Substance Non-use Project</td>
</tr>
<tr>
<td>Investigate the amount of prohibited substance use and consider the use of substitutes</td>
<td>Strengthened the systems for promoting substitutes and submitting non-use warranty of substances listed for prohibition (p. 62)</td>
<td></td>
</tr>
<tr>
<td>Increase resource use index(^{41}) by more than 20%</td>
<td>Achieved the target with 402 models (p. 64)</td>
<td>Increase resource use index(^{41}) by 30% or more Grasp the material balance of 15 major products</td>
</tr>
<tr>
<td>Grasp the material balance of major products</td>
<td>Grasped the material balance of 10 major products (p. 57)</td>
<td></td>
</tr>
<tr>
<td>Increase the development of Green Products to more than 28%</td>
<td>Increased to 41% (583 models) - Target achieved (p. 64)</td>
<td>Increase the development of Green Products to more than 42% of the total</td>
</tr>
<tr>
<td>Reduce CO(_2) emissions per unit of production by 2%</td>
<td>Increased by 2.3% (5.6% increase in Japan, 2.9% reduction outside Japan)</td>
<td>Reduce CO(_2) emissions per unit of production by 3%</td>
</tr>
<tr>
<td>Control CO(_2) emissions to 3% from the FY’90 level (Japan)</td>
<td>Maintained the FY’90 level - Target achieved (p. 59)</td>
<td>Control CO(_2) emissions by 2% increase from the FY’90 level (Japan)</td>
</tr>
<tr>
<td>Reduce by 22% outside Japan and 39% in Japan (from the FY’98 level!)</td>
<td>Amounts of use: Reduced by 65% in Japan and by 46% outside Japan (p. 60)</td>
<td>Reduce emissions (including by-products with value) per unit of sales by 6%</td>
</tr>
<tr>
<td></td>
<td>Release and transfer: Reduced by 43% in Japan and increased by 16% outside Japan</td>
<td>Continue zero waste emissions (Japan)</td>
</tr>
<tr>
<td>Reduce by 4%</td>
<td>Increased by 3.5% (14% reduction in Japan, 22% increase outside Japan)</td>
<td></td>
</tr>
<tr>
<td>Achieve zero waste emissions (Japan)</td>
<td>Achieved a recycling rate of 98.2% - Target achieved (p. 61)</td>
<td></td>
</tr>
<tr>
<td>Reduce by 2%</td>
<td>Reduced by 3.4% (2.3% increase in Japan, 2% reduction outside Japan)</td>
<td>Reduce consumption per unit of sales by 3%</td>
</tr>
<tr>
<td>Investigate the current status of effective use of water resources</td>
<td>Completed status survey (80% of water consumed in the device divisions) (p. 61)</td>
<td>Formulate a water consumption reduction plan at devices divisions</td>
</tr>
<tr>
<td>Investigate the environmental impact of the introduction of cell production system</td>
<td>Confirmed 50 to 70% energy-saving effect</td>
<td>Establish an energy-saving manufacturing management system</td>
</tr>
<tr>
<td>Tackle issues relating to expansion of product categories for recycling</td>
<td>Studied measures to meet EU Recycling Directive (about 80 product categories) (p. 69)</td>
<td>Establish basic policies to deal with EU Recycling Directive</td>
</tr>
<tr>
<td>Enhance activities for reduction and reuse</td>
<td>Promoted Green Products on our websites (p. 70)</td>
<td>Step up the development of home-use fuel cells cogeneration systems for practical use</td>
</tr>
<tr>
<td>Develop a system to determine the environmental impact of product transportation</td>
<td>Identified environmental impact using the environmental performance data collection/calculation system (p. 63)</td>
<td>Expand energy management systems for home and business use</td>
</tr>
<tr>
<td>Promote the environmental business creation conference and energy management business project</td>
<td>Implemented as planned. Promoted actively through exhibitions, etc. (p. 46)</td>
<td></td>
</tr>
<tr>
<td>Hold in-house Environmental Business Forum</td>
<td>Promoted actively through exhibitions, etc. (p. 46)</td>
<td></td>
</tr>
<tr>
<td>Enhance the promotion of Green Products by making use of the Internet</td>
<td>Promoted Green Products on our websites (p. 70)</td>
<td>Step up the development of home-use fuel cells cogeneration systems for practical use</td>
</tr>
<tr>
<td>Develop a system to determine the environmental impact of product transportation</td>
<td>Identified environmental impact using the environmental performance data collection/calculation system (p. 63)</td>
<td>Promote the use of rail transport, increasing freight to 15,000 containers</td>
</tr>
<tr>
<td>Promote activities to enhance the credibility of Environmental Sustainability Report and plan for its early publication Hold stakeholder meetings</td>
<td>Enriched the disclosed contents such as by adding Environmental Data from Manufacturing Stis and published the Report in June Held stakeholder meetings (twice) (p. 70)</td>
<td>Develop the Report into a Sustainability Report and increase disclosure of information Enrich the environmental pages of domain companies’ websites</td>
</tr>
<tr>
<td>Introduce in-house CO(_2) emissions trading system (e.g. introduction of low-emission vehicles)</td>
<td>Established an in-house CO(_2) emissions trading system (p. 60)</td>
<td>Hold stakeholder meetings</td>
</tr>
<tr>
<td>Expand green purchasing</td>
<td>Promoted the introduction of low-emission vehicles as company vehicles (p. 63)</td>
<td>Conduct trials of in-house CO(_2) emissions trading</td>
</tr>
<tr>
<td>Expand the model activities of Love the Earth Citizens’ Campaign</td>
<td>Promoted shopping bag reduction campaign through Eco-bag Model Families 26,000 households (an increase of 5,000 households compared to 2001) (p. 81)</td>
<td>Conduct effective publicity through events such as Symposium for Love the Earth Citizens’ Campaign 2003 Increase LE families to 30,000 households</td>
</tr>
<tr>
<td>Increase LE families to 30,000 households</td>
<td>Recommended “Sensible Replacement” as a measure to prevent global warming at a household level</td>
<td>Lead the electronics industry to promote the energy conservation campaign</td>
</tr>
<tr>
<td>Propose household energy-saving measures to the government at the Conference on “Wa-no-Kuni-Kurashi”</td>
<td>Promoted the introduction of low-emission vehicles as company vehicles (p. 63)</td>
<td></td>
</tr>
<tr>
<td>Carry out Green Plan 2010</td>
<td>Promoted Green Products on our websites (p. 70)</td>
<td>Promote environmental sustainability management through the Corporate, Domain, and Regional Environment Conferences and the Environmental Working Committee</td>
</tr>
<tr>
<td>Strengthen environmental management systems</td>
<td>Promoted Green Products on our websites (p. 70)</td>
<td>Operate the environmental information system globally</td>
</tr>
<tr>
<td>Prepare and carry out Matsushita’s original environmental training curriculums</td>
<td>Developed environmental education materials for employees Launched e-learning system, an on-line environmental education (p. 54)</td>
<td>Provide the on-line environmental education of e-learning system to all employees</td>
</tr>
<tr>
<td>Evaluate the progress of the Green Plan 2010 as part of the performance of business divisions on a global basis</td>
<td>Evaluated progress of the Green Plan 2010 as part of performance of business divisions on a global basis (p. 51)</td>
<td>Increase understanding of the effects of environmental accounting Reflect the result in performance evaluation on a business domain level</td>
</tr>
</tbody>
</table>

\(\Rightarrow\) : More than 80% of targets accomplished  \(\times\) : Less than 80% of targets accomplished
The strongest point of Matsushita’s environmental sustainability management is the fact that the President himself chairs the Environment Conference. In line with the new business structure established in FY’03, the existing Environment Conference was renamed the Corporate Environment Conference. At the operation level, the “Domain Environment Conference” was created for each domain company, and the “Regional Environment Conference” for each region worldwide. These changes were aimed at delineating the roles of the corporate-level strategic decision-making functions and regional and domain-level executive functions with respect to environmental sustainability management.

**Promotion of Environmental Sustainability Management**

The most important aspect in promoting environmental sustainability management is to faithfully practice the Plan-Do-Check-Action cycle. Our Environmental Activity Policy is formulated yearly based on the Corporate Management Policy announced every January, and on the decisions taken at the Corporate Environment Conference. By way of the Environment Activity Policy Meeting, this policy is clarified with the Environmental Officers of each domain company and each functional division, as well as with all employees. In FY’03, the announcement was relayed via in-house satellite broadcasting to 70 sites, an event in which 1,500 employees participated.

According to this policy, domain companies map out their own activity plans in line with the nature of their businesses and implement concrete actions. Each domain company evaluates its achievements according to the Group-wide Performance Evaluation Criteria of Environmental Sustainability Management, which are based on the Green Plan 2010. In keeping with the results of performance evaluations, and global environmental trends, and stakeholders’ feedback, all aspects of environmental sustainability management are assessed for purposes of further improvement.

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**PDCA Cycle of Environmental Sustainability Management**

1. **Plan**
   - Annual Corporate Management Policy
   - Corporate Environment Conference

2. **Do**
   - Committees and Projects
   - Domain Environment Conference
   - Regional Environment Conference
   - Environment Working Committee

3. **Check**
   - Performance Evaluation
   - Environmental Performance
   - Environmental Accounting
   - Evaluation by Stakeholders

4. **Action**
   - Corporate Environment Conference
   - Environment Working Committee

---

**Performance Evaluation Criteria of Environmental Sustainability Management (FY’03)**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP development rate *1</td>
<td>42%</td>
</tr>
<tr>
<td>Development of Super GP or GP</td>
<td>1 model</td>
</tr>
<tr>
<td>energy-saving rate *2</td>
<td>Devices segment 7.0%</td>
</tr>
<tr>
<td></td>
<td>Sets segment 3.5%</td>
</tr>
<tr>
<td>Chemical substances</td>
<td>45% reduction *3</td>
</tr>
<tr>
<td>Use of reduction-ranked substances</td>
<td>45% reduction *3</td>
</tr>
<tr>
<td>Release and transfer of proper management-ranked substances</td>
<td></td>
</tr>
<tr>
<td>Reduction rate of emissions</td>
<td>2%</td>
</tr>
<tr>
<td>Consumption per unit of sales</td>
<td>3% reduction *4</td>
</tr>
</tbody>
</table>

*1 See p. 64. *2 See p. 59. *3 Compared to FY’98 level (Japan). *4 Compared to FY’02 level.
Promotion System

The Corporate Environment Conference, chaired by the President, is the most overarching organ that deliberates and determines plans and policies concerning environmental sustainability management. Based on the decisions made at this conference, the Corporate Environmental Affairs Division formulates environmental strategies, supports their implementation, and carries out verification of results. At domain companies and functional divisions, Environmental Officers appointed by company presidents and directors of functional divisions are responsible for promoting the strategies. Also, for Group-wide themes, committees and projects are set up to assist in their promotion.

Global Promotion System

To respond to the increasing number of environmental laws and regulations in the world, and to carry out the same high level of environmental sustainability management worldwide, the roles of the Regional Environment Conference held in each region were clearly defined. Starting in April 2003, the Conferences integrated regional environmental efforts toward raising the overall level of environmental activities and staying ahead as an environmentally leading company.

Global Environment Conference held in Japan in October 2002
Environmental Sustainability

To support Group-wide environmental sustainability management, an environmental management system was established at each site and acquisition of ISO 14001 certification was promoted. In November 1995, the Kadoma Site of Panasonic AVC Networks Company became the first to obtain ISO 14001 certification. In FY’96, Matsushita announced its policy to acquire ISO 14001 certification in all of its manufacturing sites worldwide, and by the end of March 1999, this goal was accomplished. Presently, we are promoting certification of non-manufacturing sites and affiliated companies that have newly commenced environmental activities. For new manufacturing sites, the target set for the acquisition is within 3 years. As for recertification audits conducted every 3 years, 91% of our manufacturing sites have already completed the process, indicating that environmental management systems have solidly taken root at these sites.

### Compliance with Laws and Regulations

Information on newly enforced laws and regulations is collected through regional headquarters. At each site, applicable laws and regulations are reviewed taking into account the nature of business and regional characteristics based on the ISO 14001. For daily operations, voluntary standards are established. They are usually more stringent than those required by laws and ordinances, and in case of violation, remedial measures are taken immediately. In Japan during FY’02, there were 6 cases that exceeded the values stipulated in laws, regulations or agreements, which were all related to water quality. All cases were reported to the government and remedial measures were implemented.

### Development of Environmental Information Systems

For proper operation of environmental management systems, quick and accurate collection, calculation, and analysis of environment data are essential. To this end, environmental information systems are being developed and trial operations are being carried out. In the near future, the systems will facilitate collection and analysis of global environmental performance data.

#### Outline of Environmental Information Systems

- **Environmental Performance**
  - System for collecting and controlling environmental performance data from all sites in the world
- **Chemical Substance Management**
  - Chemical substance management system used in plants
- **Green Procurement**
  - System for collecting and controlling chemical substance data on purchased parts and materials
- **Electronic Manifest System**
  - Waste control system utilizing GPS

#### Environmental Information Database

<table>
<thead>
<tr>
<th>FY</th>
<th>Number of certified sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of FY’00</td>
<td>280</td>
</tr>
<tr>
<td>End of FY’01</td>
<td>257</td>
</tr>
<tr>
<td>End of FY’02</td>
<td>245 (99% of the manufacturing sites established more than 3 years ago)</td>
</tr>
</tbody>
</table>

**Acquisition of ISO 14001 Certification Status**

- **Acquisition**
  - 99% of the manufacturing sites established more than 3 years ago

**Figures in parentheses indicate the number of sites completing recertification audits**

- Japan: 76 (72)
- China and Northeast Asia: 41 (39)
- Asia and Oceania: 57 (50)
- Europe: 16 (14)
- Americas: 30 (25)
- Other countries: 1 (1)
Environmental Sustainability

Environmental Education and Awareness-raising

The foundation of environmental sustainability management is the “people” who support the business. Only when employees in all functions and at all levels develop an environmentally conscious mindset, can eco-friendly products and services be produced. In FY’02, Matsushita established an e-learning system, which is an on-line environmental education infrastructure that enables all employees to learn anytime, anywhere. The in-house forum was a new endeavor that brought together Matsushita employees from all over the world. The forum left a strong impression on its many participants.

Environmental Education System

The environmental education system is divided into general education designed for all employees, and professional education designed for specific duties or operations. General education includes the gaining of the basic environmental knowledge required of a corporate employee, and also the understanding of Matsushita’s principles, policies, and activities. All employees with overseas assignments are required to attend environmental training before departure. In FY’02, six training sessions were held, attended by 159 employees.

- Emergency Training
  At every site, operational procedures are thoroughly enforced and emergency training is carried out covering the operations that have a great environmental impact.

Training in retrieving spilled oil at Panasonic Communications Co., Ltd.

Environmental Education Using e-learning System

In March 2003, the “e-learning system” using the Internet was launched to provide a thorough and efficient environmental education to every employee in Japan. The system was tested at two operation sites, with the participation of about 500 employees. It is scheduled to go into full operation in FY’03.

■ Overview
Date: October 23 (Wed.)-25 (Fri.), 2002
Place: Matsushita Gymnasium (Osaka, Japan)
Contents: (1) Exhibition (4 zones)
  - Future World 2025 Zone
  - Inspiration Zone
  - Business Tomorrow Zone
  - Green Suppliers Zone
(2) Seminar
  - Panel discussion by top management
  - 4 lectures given by environmentally progressive companies outside Matsushita
  - 2 lectures on environmentally progressive activities at Matsushita

Hosted in-house “Sustainable Business Forum 2002”

In October 2002, a forum titled “Create Environmental Businesses in Every Business Domain” was held for employees, with about 1,800 attending. Using the keyword “sustainable development,” the forum provided a wide range of information designed to raise environmental awareness, including examples of progressive environmental businesses undertaken by companies within and outside Matsushita, seminars, and exhibits of about 130.

Lecture on “Sustainable Businesses and New Consumers” by British guest speaker, Dr. Norman Myers

Representatives from engineering and sales divisions discussing environmental businesses
Environmental accounting consists of "environmental conservation costs" and "environmental benefits." In the "environmental conservation costs," capital investments and expenses are calculated separately for the fiscal year. Until FY'00, only the "in-house economic benefits (in monetary terms)" and the "environmental conservation benefits (in physical terms)" were calculated as "environmental benefits." From FY'01, the "environmental conservation benefits (in monetary terms)" has also been calculated, in order to better understand the benefits of environmental sustainability management, which include benefits for the global environment as well as in-house economic benefits seen in easily understandable monetary values. In FY'01, the benefits from reduction in CO2 emissions were calculated in monetary terms. Additionally, in FY'02, the benefits from reduction in the release of chemical substances and reduction in water consumption were also calculated.

Of the "environmental conservation costs," the environment-related R&D costs are included in customer economic benefits because they contribute to a reduction in electricity costs when the products are actually used.

Environmental Accounting covers the same scope as the environmental performance data.

### FY’02 Environmental Accounting
In FY’02, the environmental conservation costs totaled 48.9 billion yen, which included 11.5 billion yen for capital investments and 37.4 billion yen for expenses. (In FY’01, the total was 54.6 billion yen, with 18.2 billion yen for capital investments and 36.4 billion yen for expenses.) With the Group-wide decrease in overall capital investments, Matsushita’s environment-related capital investments also decreased, which accounted for 4.6% of the total capital investments. Environment-related R&D costs accounted for 3.1% of the total R&D costs.

In terms of the environmental benefits, the in-house economic benefits were 16.4 billion yen; the environmental conservation benefits (in monetary terms) totaled 4.7 billion yen; and the customer economic benefits (Japan) amounted to 36.9 billion yen. Including contribution to the society, the environmental benefits outweighed the environmental conservation costs of 48.9 billion yen.

### Scope of Environmental Accounting
Accounting period: April 2002 - March 2003
Companies covered: Matsushita Electric Industrial Co., Ltd., ten main subsidiaries, and other subsidiaries inside and outside Japan (p. 1)

Environmental Accounting covers the same scope as the environmental performance data.

### Principle of Environmental Accounting
Environmental accounting is a tool that serves as the base for environmental sustainability management. In addition to the environmental conservation costs and the in-house economic benefits, Matsushita has calculated in monetary terms the environmental conservation benefits, and the electricity savings achieved as a result of using energy-saving products.
Environmental Conservation Costs
Capital investments and expenses for environmental activities (million yen)

<table>
<thead>
<tr>
<th>Category</th>
<th>Capital Investments</th>
<th>Expenses</th>
<th>Total</th>
<th>Major Areas Addressed</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs within business areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollution prevention</td>
<td>2,040</td>
<td>5,152</td>
<td>7,192</td>
<td>Pollution prevention (air, water, and soil contamination, noise, vibration, offensive odor, land subsidence, etc.)</td>
<td>53, 67-68</td>
</tr>
<tr>
<td>Global environment conservation</td>
<td>3,626</td>
<td>1,523</td>
<td>5,149</td>
<td>Global warming prevention, energy conservation, ozone layer protection, etc.</td>
<td>59-60</td>
</tr>
<tr>
<td>Resource recycling</td>
<td>381</td>
<td>5,591</td>
<td>5,972</td>
<td>Reduction, recycling, and proper treatment of wastes; reduction of water consumption</td>
<td>61</td>
</tr>
<tr>
<td>Subtotal</td>
<td>6,047</td>
<td>12,266</td>
<td>18,313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upstream / downstream costs</td>
<td>628</td>
<td>679</td>
<td>1,307</td>
<td>Collection, recycling, and proper treatment of end-of-life products, and commissioning of the recycling to external organizations</td>
<td>69</td>
</tr>
<tr>
<td>Administration costs</td>
<td>727</td>
<td>8,778</td>
<td>9,505</td>
<td>Development and implementation of the environmental management system, information disclosure, environmental advertisement, employee education, etc.</td>
<td>53-54, 70-71</td>
</tr>
<tr>
<td>R&amp;D costs</td>
<td>*4</td>
<td>12,718</td>
<td>16,668</td>
<td>Development of environment-oriented elemental technology and installation of facilities for its production</td>
<td>45, 64-66</td>
</tr>
<tr>
<td>Technology development</td>
<td>3,950</td>
<td>12,718</td>
<td>16,668</td>
<td></td>
<td>63,66</td>
</tr>
<tr>
<td>Packaging / distribution development</td>
<td>15</td>
<td>301</td>
<td>316</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>3,965</td>
<td>13,019</td>
<td>16,984</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social activity costs</td>
<td>0</td>
<td>38</td>
<td>38</td>
<td>Donations to support for environmental activities conducted by environmental conservation organizations and local residents</td>
<td>79, 81</td>
</tr>
<tr>
<td>Environment remediation costs</td>
<td>107</td>
<td>2,635</td>
<td>2,742</td>
<td>Studies on and measures against past contamination (groundwater, soil, etc.)</td>
<td>67-68</td>
</tr>
<tr>
<td>Total</td>
<td>11,474</td>
<td>37,415</td>
<td>48,889</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Expenses include labor costs but not the depreciation of capital investments. When the entire amounts of capital investments and labor costs cannot be regarded as environmental conservation costs, differences or appropriate portions (divided proportionally) are calculated. R&D costs are limited to investments and expenses for environment-oriented technology development, and do not include product development costs utilizing such technology.

Environmental Conservation Benefits
Improvement in environmental performance (in physical terms) – direct environmental impact from business activities and indirect environmental impact from products in use – from the previous year

<table>
<thead>
<tr>
<th>Category</th>
<th>Reduced Amount</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental conservation benefits from business activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO2 emissions</td>
<td>22,398 tons</td>
<td>59-60</td>
</tr>
<tr>
<td>Emissions of greenhouse gases (excluding CO2)</td>
<td>(138,348 tons)</td>
<td>60</td>
</tr>
<tr>
<td>NOx emissions (Japan)</td>
<td>674 tons</td>
<td>61</td>
</tr>
<tr>
<td>SOx emissions (Japan)</td>
<td>134 tons</td>
<td>61</td>
</tr>
<tr>
<td>Emissions of controlled chemical substances (Japan)</td>
<td>29.5 tons</td>
<td>60</td>
</tr>
<tr>
<td>Industrial waste for final disposal</td>
<td>11,773 tons</td>
<td>61</td>
</tr>
<tr>
<td>Water use</td>
<td>1.45 million m³</td>
<td>61</td>
</tr>
<tr>
<td>Product's environmental conservation benefits during use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO2 emissions (Japan)</td>
<td>606,000 tons</td>
<td>64-66</td>
</tr>
<tr>
<td>Packaging materials used</td>
<td>2,340 tons</td>
<td>66</td>
</tr>
<tr>
<td>Corrugated cardboard</td>
<td>679</td>
<td></td>
</tr>
<tr>
<td>Expanded polystyrene</td>
<td>381</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4,738</td>
<td></td>
</tr>
<tr>
<td>In-house Economic Benefits “Economic benefits as a by-product of environmental conservation measures” (million yen)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Single Year</th>
<th>Aggregate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost savings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy conservation at operation sites</td>
<td>2,085</td>
<td>6,813</td>
</tr>
<tr>
<td>Reduction of waste treatment expenses</td>
<td>589</td>
<td>1,680</td>
</tr>
<tr>
<td>Reduction of water and sewage costs</td>
<td>139</td>
<td>572</td>
</tr>
<tr>
<td>Reduction of packaging materials and distribution expenses</td>
<td>1,000</td>
<td>2,864</td>
</tr>
<tr>
<td>Gains</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gain on sale of by-products with value, resulting from waste recycled from operation sites</td>
<td>4,130 (single year)</td>
<td></td>
</tr>
<tr>
<td>Gain on sale of by-products with value, resulting from recycling of end-of-life products</td>
<td>291 (single year)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8,243</td>
<td>16,350</td>
</tr>
</tbody>
</table>

Note: 1. CO2 equivalent
2. Estimated amounts of emissions from four major home appliances (TVs, refrigerators, air conditioners, and washing machines) sold in Japan (Lifetime CO2 emissions when using FY'01 models – Lifetime CO2 emissions when using FY'02 models) * Number of units sold in FY'02 in Japan
3. The coefficient used to convert physical terms into monetary terms is set based on the costs necessary for curtailing 1 ton of environmental load in Japan. CO2 = 9,459 yen/ton is derived from the costs necessary for curtailing CO2 emissions in order to achieve the target specified in the Kyoto Protocol (amount of carbon tax estimated by the Ministry of the Environment). The following coefficients are derived from the costs used to curb environmental load in the past: NOx = 66,315 yen/ton, SOx = 50,159 yen/ton, VOC = 50,090 yen/ton, underground water = 36 yen/ton (using research data from Integrated Environmental and Economic Accounting, published by the former Economic Planning Agency).
4. Volatile organic compounds (VOC), major chemical substances discharged
5. Groundwater which does not incur any cost for the supply
6. Figures in parentheses denote negative values.

Environmental Conservation Benefits (in monetary term)**
Economic benefits to business, calculated in terms of improvement in environmental performance (in physical terms) (million yen)

<table>
<thead>
<tr>
<th>Category</th>
<th>Reduced Amount</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Economic Benefits “Economic benefits to customers, calculated in terms of reduction in our products' electricity costs during use, resulting from improved energy efficiency of products” (million yen)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Savings in electricity costs (Japan)</th>
<th>Savings in electricity costs (Japan)</th>
<th>Savings in electricity costs (million yen)</th>
<th>Savings in electricity costs (million yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,603.2 million kWh</td>
<td>36,874 billion yen</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: 1. Estimated amounts of emissions from four major home appliances (TVs, refrigerators, air conditioners, and washing machines) sold in Japan (Lifetime electricity consumption by FY'01 models – Lifetime electricity consumption by FY'02 models) * Number of units sold in FY'02 in Japan
2. Monetary conversion coefficient of electricity price: 23 yen/kWh
Matsushita uses a multitude of resources for parts and materials, and its manufacturing process itself also utilizes various resources from earth, such as energy and water. In environmental sustainability management, it is essential to accurately identify the environmental impact resulting from the entirety of our business activities. Although limited in scope, our studies have covered the product life cycle from an environmental perspective and calculated the environmental impacts. We will continue to assess the effects that our manufacturing activities have on society in order to implement environmental measures with greater effectiveness.

Calculation Model

Region covered: Japan
Manufacturing (Input items)
- Electricity: Amount of electricity purchased from electric utilities
- Oil: Amounts of fuel oil and kerosene used
- Gas: Amounts of city gas and LPG used
- Water: Amounts of municipal water, industrial water, and groundwater used
- Resources: Amounts of raw materials used for the ten major product categories*1, weight of packaging materials, and amounts of chemical substances used

Manufacturing (Output items)
- CO2: Emissions of carbon dioxide associated with the use of electricity, gas, oil, etc.
- NOx: Emissions of nitrogen oxides resulting from the use of gas and oil
- SOx: Emissions of sulfur oxides resulting from the use of oil
- Chemical substances: Release and transfer of chemical substances into the air and water
- Effluent: Amount of effluent discharged into the sewage system
- Waste: Amounts of waste generated and finally disposed

Marketing and Distribution
- Transportation from manufacturing sites to retailers within Japan
- Transportation within Japan of products imported from manufacturing sites outside Japan

Use
- Calculated based on the electricity consumed by each of the ten major product categories*1 shipped in FY’02

Collection and Recycling
- End-of-life products in the four product categories designated by the Law for Recycling of Specified Kinds of Home Appliances (TVs, refrigerators, air conditioners, and washing machines) collected in FY’02

*1 Ten major product categories (TVs, plasma displays, VCRs, DVD recorders, washing machines, microwave ovens, dishwashers, refrigerators, air conditioners, and cellular phones)
Emitted into the air
- CO₂: 1.36 million ton -CO₂
- NOx: 1,416 tons
- SOx: 142 tons
- Chemical substances: 307 tons

Discharged into water
- Effluent: 6 million m³
- Chemical substances: 14 tons

Waste
- Amount generated: 172,000 tons
- Amount for final disposal: 3,000 tons

Manufacturing
147 manufacturing sites in Japan

Marketing and Distribution
14 sites in Japan (for electric home appliances)

Use
Consumers

Energy
- Electricity: 2.12 billion kWh
- Oil: 61,000 kℓ
- Gas: 200 million m³

Water
- Amount of water used: 42 million m³

End-of-life products
Amount collected: 84,000 tons

Collection and Recycling
27 recycling points in Japan

Recycling through various recycling channels
The basis of the Clean Factories (pollution-free factories) initiative is the zero-emission concept, which aims at minimizing all input to and output from manufacturing sites in order to reduce environmental impact and increase management efficiency. Matsushita is making serious efforts to reduce the environmental impact of its activities in order to establish “true zero-emission” factories that are in harmony with local communities and the global environment.

Global Warming Prevention

- **Promotion of the Three-year Energy Conservation Plans**
  Energy conservation activities are an important means for strengthening management as well as for preventing global warming. Matsushita’s energy conservation activities are implemented according to the mid-term plan for reducing CO2 emissions formulated in 1998 in the wake of UNFCCC/COP3. The plan aimed at reducing CO2 emissions from all manufacturing sites in Japan by 7% from the FY’90 level, to be accomplished by 2010. To achieve this goal, site-specific targets were set up and each site has carried out measures according to its Three-year Energy Conservation Plan. Beginning in FY’02, an energy-saving rate\(^\text{\textsuperscript{1}}\) has been set up as an indicator of CO2 emissions reduction. The reduction targets are determined based on the actual CO2 emissions from the previous year. The target for the devices segment is 7%, and 3.5% for the sets segment.

- **FY’02 Performance (Japan)**
  CO2 emissions in FY’02 were 1.36 million tons (CO2 equivalents). This was at the same level as in FY’90 and outperformed the FY’02 target of restraining emissions to 103% of the FY’90 level. This was accomplished despite a great increase in production from FY’01. It shows the effectiveness of the Group-wide implementation of three-year energy conservation plans and the performance evaluation system. The separation of the LCD business from Matsushita for business consolidation with another company was also a factor contributing to this impressive performance in FY’02.

- **CO2 Emissions per Unit of Sales**
  ![Graph showing CO2 emissions per unit of sales](image)

  *Note: Basis for calculating the Matsushita Electric Group’s CO2 emissions*

  - Calculation was based on the Environmental Reporting Guidelines issued by Japan’s Ministry of the Environment. The CO2 emission factor used was taken from the results of the Review of Methods for Calculating the Emissions of Greenhouse Gases conducted by the Ministry of the Environment. The electricity factor in the Review was announced only up until FY’00, which was then revised in August 2002 retroactive to 1990. The data was therefore recalculated accordingly in this report using the new factor. Beginning in FY’01, the factor announced by The Federation of Electric Power Companies Japan was adopted (both factors are based on the average of all power sources at the receiving end).
  - The amount of CO2 reduction resulting from the use of a cogeneration system is based on a comparison with the CO2 emission factor of thermal power generation of the purchased electricity.
  - The CO2 emission factors of electricity for sites outside Japan were calculated based on the composition of fuels used for power generation in those countries.

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\(^{1}\) Energy-saving rate (%)

- Amount of energy saved in the current fiscal year (amount of CO2 emissions reduced)
- Amount of energy used in the previous fiscal year (amount of CO2 emissions)
FY'02 Performance (Global)

Matsushita set global targets to respond to expansion in overseas operations. CO₂ emissions per unit of sales increased by 2% from the FY '00 level, a result which fell short of the reduction target of 2%.

Reduction in the Emissions of Greenhouse Gases

Greenhouse gases other than CO₂ are used by Matsushita, such as HFC as refrigerant for air conditioners and PFC and SF₆ in the production of semiconductors. Particularly in the semiconductor field, which accounts for one-fourth of our greenhouse gas emissions, Matsushita has formulated voluntary action plans and works towards the goal agreed upon at the World Semiconductor Council (WSC). In FY’02, a reduction of approximately 38,000 GWP tons was accomplished as a result of reduction in the use of these gases, use of substitute gases, and installation of pretreatment equipment.

Composition of Greenhouse Emissions

- Sulfur hexafluoride (SF₆), etc. 80,000 tons 2%
- Perfluorocarbons (PFCs) 480,000 tons 12%
- Carbon dioxide (CO₂) outside Japan 1.93 million tons 35%
- Carbon dioxide (CO₂) Japan 1.36 million tons 50%
- Hydrofluorocarbons (HFCs) 40,000 tons 1%
- Total emissions 3.89 million GWP t-CO₂/year

GWP: Global Warming Potential

In-house CO₂ Emissions Trading

Upon studying the implementation of in-house CO₂ emissions trading, Matsushita launched a test implementation of its original method in FY’03 (using only virtual trading rather than actual monetary transactions in FY’03). This method uses Matsushita’s energy-saving indicator, the “energy-saving rate” as its base, and is not easily affected by the mode of business or the volume of production.

Comprehensive Management of Chemical Substances

To develop environmentally conscious products and reduce the risk of environmental pollution, Matsushita set up the “Matsushita Electric Group Chemical Substances Management Rank Guidelines.” Based on hazard assessment, the controlled chemical substances were categorized into three ranks, “Prohibition,” “Reduction,” and “Proper Management.” The reduction plan for chemical substances, known as the “33/50 Reduction Program*2,” is implemented on a global scale.

Matsushita Electric Group Chemical Substances Management Rank Guidelines, Version 2.1 (for Factories)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Definition</th>
<th>Substance Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prohibition</td>
<td>Prohibit use</td>
<td>33</td>
</tr>
<tr>
<td>Reduction</td>
<td>Reduce the amount used</td>
<td>112</td>
</tr>
<tr>
<td>Proper</td>
<td>Manage the amount released/transfered</td>
<td>361</td>
</tr>
<tr>
<td>Total</td>
<td>506 substance groups (1,413 substances)</td>
<td></td>
</tr>
</tbody>
</table>

Use and Release / Transfer of Chemical Substances (by Region)

DATA ➡ p. 85

Release and Transfer of Chemical Substances, Material Balance of Chemical Substances ➡ p. 87

FY’02 Performance (Global)

The results of the 33/50 Reduction Plan at our manufacturing sites within Japan are as follows. Compared to the FY’98 level, the use of reduction-ranked substances was reduced by 65% and the release and transfer of proper management-ranked substances decreased by 58%, both substantially surpassing the 39% targets originally set for each category. In FY’02, in particular, the introduction of lead-free solder had a great effect on the reduction of lead, which was a reduction-ranked substance. The use of isobutane (not a controlled substance) to replace CFCs as a refrigerant for refrigerators contributed greatly to reduction in the use of about 18 tons of HFC-134a, a proper management-ranked substance. In terms of activities undertaken outside of Japan, the Matsushita Display Devices Company of America used equipment to collect toluene, a reduction-ranked substance, and used detoxification technology that incinerates the substance completely, successfully reducing the release and transfer of the substance.

Breakdown of Release and Transfer

- Toluene 3%
- Xylene 3%
- Manganese and its compounds 4%
- Others 15%

Use, and Release and Transfer of Chemical Substances

(tons, FY)

Final target in the 33/50 Reduction Plan

4,830 3,461 2,837 2,057 1,710
39% Reduction FY’02 target
50% Reduction

762 816 680 415 185
39% Reduction FY’02 target
50% Reduction

Reduce ranked substances

Proper management-ranked substances

(Japan)
Environmental Sustainability

Waste Reduction

**FY’02 Performance (Japan)**
To further reduce the amount of industrial waste for final disposal, Matsushita has set up a “zero waste emissions” target in Japan as of the year 2000. It called for “making every effort to reduce the amounts of industrial waste and general waste from business activities to zero by the end of March 2003.” Thanks to measures taken to reuse and recycle wastes, the target was achieved, with the recycling rate reaching 98.2% in FY’02. In terms of individual sites, 76% of the 147 total sites achieved zero waste emissions.

**FY’02 Performance (Global)**
With the increasing establishment of manufacturing sites outside Japan, Matsushita has set up a global target of “controlling waste generation” as the basis of waste reduction. Working towards the target of a 4% reduction using FY’00 as the base year, Matsushita succeeded in achieving a 14% reduction in Japan, but failed to meet the target outside of Japan, with an increase of 22%. In future efforts, Matsushita is planning to set a new target of reducing over 2% of the waste from the previous fiscal year’s mark, irrespective of changes in production.

**Effective Use of Water Resources**
All Matsushita sites are making efforts toward the effective use of water and a reduction in its consumption. Water consumption per unit of sales in FY’02, when compared to FY’00 levels, experienced an increase of 2.3% in Japan, a reduction of 2.0% outside Japan, and a reduction of 3.4% on a global scale, against the intended target of 2%.

**Management Flow for Industrial Waste and By-products with Value (Japan)**

**Waste Reduction**

**Amounts of Waste Generated and for Final Disposal, and the Recycling Rate**

**Achieve Zero Waste Emissions**

**Management Flow for Industrial Waste and By-products with Value (Japan)**

**Water Recycling Efforts**

**Impacts on the Air and Water**

**Environmental Performance Data (by Region)**

**Recycling rate** 98.2%
Matsushita conducts its business with the support of about 5,500 material suppliers. By ensuring that every piece of material we purchase is eco-friendly, we are able to provide customers with environmentally conscious products. Since the establishment of the Green Procurement Standards for materials in FY’99, we have examined the chemical substances contained in parts and materials. In FY’02, we further strengthened these standards and promoted their enforcement.

Green Procurement

In FY’02, Matsushita made efforts toward reshaping its environmental partnership with material suppliers. First, Matsushita requested suppliers to submit the Agreement on Matsushita Electric Group’s Environmental Initiatives. The Green Procurement Standards were revised, requiring the suppliers to acquire ISO 14001 certification and to disclose information on hazardous chemical substances. Our Chemical Substances Management Rank Guidelines were also revised, reviewing the substances in each rank (Guidelines for Products). The prohibition rank was divided into two levels: level 1 identifying substances that require the suppliers to submit a “Non-use Warranty” and “Chemical Substance Content Survey Sheet,” and level 2 for the remaining substances.

**1st Green Suppliers Exhibition**

It is necessary to have the cooperation of material suppliers in order to comply with the EU RoHS (Restricting the Use of Hazardous Substances) Directive and to abolish the use of the six substances announced in the Green Plan 2010. Matsushita’s Corporate Purchasing Division and the Corporate Environmental Affairs Division jointly sponsored the “Green Suppliers Exhibition” in October 2002. Suppliers were asked to display and introduce new materials that could replace the six substances. Seventeen companies, including manufacturers of electrical wires, glass, and chemicals, exhibited their products.

### Green Procurement Standards, ver. 2

Chemical Substances Management Rank Guidelines, ver. 2.1

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matsushita.co.jp/environment/en/suppliers/
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### Performance of the Green Purchase of Office Supplies (Japan)

<table>
<thead>
<tr>
<th>Guideline (Category)</th>
<th>Purchase</th>
<th>Compliance to guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy paper</td>
<td>163 million pieces</td>
<td>98 million pieces (60%)</td>
</tr>
<tr>
<td>Stationery</td>
<td>236 million yen</td>
<td>140 million yen (59%)</td>
</tr>
<tr>
<td>Printing paper / Equipment</td>
<td>Data being gathered</td>
<td></td>
</tr>
<tr>
<td>Company vehicles</td>
<td>See p. 63</td>
<td></td>
</tr>
</tbody>
</table>

Data gathered at the bulk purchasing section

### Recycling of Uniforms

Matsushita has studied the recycling of uniforms since 1998. It became the first company in Japan to use Teijin Fibers Limited’s new material for female uniforms in July 2002. This material can be recycled completely with Teijin’s fiber-to-fiber recycling technology. For male uniforms, “Ecolog” offered by Ecolog Recycling Japan was adopted to enable the recycling of zippers and buttons. To facilitate this, Matsushita has set up an in-house uniform collection and recycling structure.

### Collection and Recycling of Uniforms (Japan)

Sites and offices

 Matsushita Business Services Co., Ltd.
 40 service centers
Return to manufacturers after temporary storage

Manufacturers

(Manufacturing using recycled materials)

- Compared to manufacturing using crude oil as material, this recycling cuts energy consumption by 30% and CO2 emissions by 20% (female uniforms).
- Compared to manufacturing using collected PET bottles as materials, this recycling cuts energy consumption by 73% (male uniforms).
We collect data on CO₂ emissions from product transportation within Japan as well as import to and export from Japan. Total CO₂ emissions in FY’02 reached 440,000 tons. CO₂ emissions resulting from the product transportation within Japan were 98,000 tons, with trucks accounting for 96%.

Matsushita owns about 3,000 vehicles, including vehicles for sales and business activities and trucks for local delivery. In order to switch these vehicles to eco-friendly ones, Matsushita established the “Environmental Policy for Company Vehicles” in December 2002, determining to replace all company vehicles with low-emission vehicles by FY’10.

**CO₂ Emissions from Transportation**

We collect data on CO₂ emissions from product transportation within Japan as well as import to and export from Japan. Total CO₂ emissions in FY’02 reached 440,000 tons. CO₂ emissions resulting from the product transportation within Japan were 98,000 tons, with trucks accounting for 96%.

**Modal Shift**

Modal shift (a shift of transportation modes from trucks to railroads, ships and others that exert less of an environmental impact) is a major tool in the reduction of CO₂ emissions. A shift to rail transportation can cut CO₂ emissions to approximately one-eighth. In FY’02, facilitating the gradual shift in the national trunk line transportation networks, Matsushita set up eleven new railroad routes and one domestic shipping route. As a result, the number of Japan Railway containers (calculated on a 5-ton container basis) used has reached 15,000 and CO₂ emissions are estimated to decrease by approximately 7,400 tons.

**Introduction of Eco-friendly Vehicles**

Matsushita owns about 3,000 vehicles, including vehicles for sales and business activities and trucks for local delivery. In order to switch these vehicles to eco-friendly ones, Matsushita established the “Environmental Policy for Company Vehicles” in December 2002, determining to replace all company vehicles with low-emission vehicles by FY’10.

**Development of Environmental Assessment Index for Transportation**

Matsushita has developed an index of “transportation efficiency” for the environmental assessment of the transportation it uses. The value of transportation is defined by the mass being transported, and the environmental impact is defined by the amount of CO₂ emitted from the use of energy by a particular form of transportation. In setting targets and assessing measures, a “transportation factor,” which compares this transportation efficiency with that of the base year, is used. This index was developed in conjunction with Hitachi, Ltd. and was announced in April 2003.
A product has a life cycle. In the different phases of manufacturing, use, and disposal, the environmental impact resulting from the use of a product is often much greater than the impact from manufacturing the product itself. For this reason, Matsushita is using life cycle assessment as a base to discover when, where, and what kind of environmental impact is being generated.

### Development of Green Products

Matsushita calls products that feature environmentally conscious design “Green Products” (GP), which are divided into two categories. They are the “products for improving environmental efficiency,” which minimize the impact on the environment during the product’s life cycle, and the “products for solving environmental problems,” which are developed with the objective of addressing environmental problems. In pursuit of a superordinate concept for Green Products, Matsushita is developing Super GP (Super Green Products). These products are acknowledged in-house as “sustainability-oriented products,” which not only can dramatically improve environmental efficiency but also can create a dominant trend in facilitating the realization of a sustainable society.

*1 Life cycle means all phases of a product's life, including the gathering of raw materials, manufacturing, transportation, use, recycling, and disposal. The life cycle concept seeks a reduction of environmental impact not just in one phase, but in all phases.

### FY’02 Performance

Matsushita aims at expanding the development of Green Products to almost all products it develops (90% in FY’10). Among the products developed in FY’02, 583 models were accredited as Green Products. The rate of Green Product development was 41%, greatly exceeding the target of 28%. This represents about 40% of the estimated annual sales value of new products developed in FY’02.

---

**Definition of “Environmental Efficiency”**

- **Energy use index**
  \[ \text{Energy use index} = \frac{\text{Product life × Product function}}{\text{CO}_2 \text{ emissions over the entire life cycle}} \]
  *Indicates GHG efficiency*

- **Resource use index**
  \[ \text{Resource use index} = \frac{\text{Product life × Product function}}{\text{Non-circulating resources over the entire life cycle}} \]
  *Indicates the resource efficiency*

**Environmental Assessment Index “Factor X”**

The use of the Energy Use Index and the Resource Use Index to indicate environmental efficiency is an original Matsushita concept announced in October 2001. Based on this concept, Matsushita joined forces with Hitachi, Ltd. to develop the index “Factor X.” Announced in April 2003, this index shows the improvement in environmental efficiency by comparing new products with products developed in the past. Factor X indicates the direction that Matsushita seeks toward environmental conservation and business development through its products and services (p. 5). The index will be used to indicate environmental performance with simple figures, thus delivering easy-to-understand messages.

**Initiatives towards the Abolition of Lead Solder**

Matsushita took initiatives aimed at introducing lead-free solder to all products worldwide by the end of FY’02. Consequently, the introduction of lead-free solder to all Panasonic and National products—approximately 12,000 models (representative models) produced at manufacturing sites and by business partners worldwide—was completed in March 2003. However, there are exceptions to some of the purchased units and OEM products manufactured for other companies. In order to promote the introduction of lead-free solder in these products, Matsushita will make further efforts to step up technological development.
These are refrigerators that use no CFCs as refrigerant or foam insulation material. Employing a newly developed high-performance vacuum insulation material, Matsushita has already attained Japan’s FY’04 energy-saving target by 220%. The product set a “CFC-free” trend.

This air-conditioner has many functions, including air purification using an oxygen supply function and an ultrasonic ion air-cleaning function (pollen removal rate 99%). To upgrade energy efficiency, the high-performance “e-scroll compressor” and “hybrid heat exchanger” were developed, with which Matsushita has already attained Japan’s FY’04 energy-saving target by 121%.

The new video recorder is developed based on the concept of “changing picture recording from tape to disk.” It has the capability to play back the program currently being recorded from the beginning while continuing to record. Matsushita has put much effort into integrating circuits to save energy, while making parts smaller. Chrome-free steel plate is used for chassis and top panels.

Conventional electric power supplies are energy-efficient at their rated operation levels. When a machine is in a standby mode using only weak current, however, electricity supplied in excess is wasted. With our intelligent power devices, a new control function is built into the power device to detect the standby mode, thus drastically cutting down on excessive electricity consumption. As the IPD can be applied to many electric appliances, it can contribute to energy conservation in our entire society.

**Eco Super GP 2002**

**Natural Fluid (HC) Refrigerator**

These are refrigerators that use no CFCs as refrigerant or foam insulation material.

**Air Conditioner**

This air-conditioner has many functions, including air purification using an oxygen supply function and an ultrasonic ion air-cleaning function (pollen removal rate 99%). To upgrade energy efficiency, the high-performance “e-scroll compressor” and “hybrid heat exchanger” were developed, with which Matsushita has already attained Japan’s FY’04 energy-saving target by 121%.

**DVD Video Recorder**

The new video recorder is developed based on the concept of “changing picture recording from tape to disk.” It has the capability to play back the program currently being recorded from the beginning while continuing to record. Matsushita has put much effort into integrating circuits to save energy, while making parts smaller. Chrome-free steel plate is used for chassis and top panels.

**Intelligent Power Device (IPD)**

Conventional electric power supplies are energy-efficient at their rated operation levels. When a machine is in a standby mode using only weak current, however, electricity supplied in excess is wasted. With our intelligent power devices, a new control function is built into the power device to detect the standby mode, thus drastically cutting down on excessive electricity consumption. As the IPD can be applied to many electric appliances, it can contribute to energy conservation in our entire society.
Aiming at “Packaging 3Rs,” Matsushita is promoting resource-saving packaging, re-use of packaging materials, and use of recycled packaging materials. Matsushita is also working with its distribution divisions to increase transportation efficiency by reducing the volume of packaging and is developing new packaging technology.

### New Packaging Material Made of Corn

Matsushita is the first in the world to adopt “biodegradable plastics” for blister packs of dry batteries. Its negative properties, once making it inferior to conventional plastics, have been overcome through various technological improvements in design, processing, printing and adhesion. The material used for this biodegradable plastic is polylactic acid made from cornstarch, thus economizing the use of the petroleum resources usually used for making plastics. When burnt, this plastic will not emit dioxins nor will it affect the atmospheric concentration of CO₂. Furthermore, it can be degraded into water and CO₂ in the soil by the activities of bacteria.

### Topics

- **New Packaging Material Made of Corn**
- **DC Brushless Motor with Built-in Inverter**
- **Induction Fluorescent Lamp**
- **Heat Pump Water Heater Using Natural Refrigerant**
- **Newspaper Thermal CTP “Plate Liner”**

### Use of Major Packaging Materials (FY)

<table>
<thead>
<tr>
<th>Material</th>
<th>2000</th>
<th>2001</th>
<th>2002 Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrugated cardboard (1000 tons)</td>
<td>72</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>Expanded polystyrene (100 tons)</td>
<td>32</td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>

### GHG Factor

<table>
<thead>
<tr>
<th>Product</th>
<th>Factor</th>
<th>Resource Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat pump water heater manufactured in 2000</td>
<td>2.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Incandescent bulb</td>
<td>4.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Silver salt blotter system</td>
<td>2.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Multi-purpose induction motor</td>
<td>2.2</td>
<td>1.3</td>
</tr>
</tbody>
</table>
Environmental Risk Management

Corporate business activities entail a variety of potential environmental risks. We realize that environmental contamination caused by hazardous chemical substances is the most serious of all. This is why we assess the risk of all such chemicals and, based on the assessment, take the necessary steps to eliminate or reduce their use. For those substances that are difficult to replace with substitute materials or to render harmless at the present time, we are exercising thorough preventive control against accidental environmental pollution, in accordance with the Manual for Prevention and Management of Environmental Pollution, which represents our cumulative knowledge in this area.

Conservation of Soil and Groundwater

- Elimination of the Use of Volatile Organic Compounds
  Because of their outstanding properties as detergents, VOCs (volatile organic compounds) have been our choice to clean components. In 1989, however, we decided we must not allow the compounds’ infiltration into groundwater, and in 1991 developed the Manual for Preventing Contamination of Soil and Groundwater. Using the Manual for guidance, we conducted contamination surveys and implemented restorative measures. By the end of March 1996, use of VOCs was totally eliminated.

  DATA
  Use of VOCs as Detergent → p. 88

- Restoration at Manufacturing Sites that Failed to Meet the Standards
  In June 1998, based on voluntary notification from Matsushita, local governments announced incidents of soil and groundwater VOC contamination that had occurred at 20 of Matsushita’s manufacturing sites in Japan. We have since been engaged in cleanup work. Today, the VOC level at the sites where remediation is underway has come down to almost within the limit set by the governmental standards. We will accelerate remediation, while continuing groundwater monitoring even after decontamination is completed.

- Preventive Measures
  Preventing pollution is a vital aspect of risk management. To ensure that pollution is prevented before it occurs, we have prepared a manual that stresses the importance of preventive measures and spells out emergency procedures, highlighted by descriptions of accidents that have occurred or been avoided in the past.

- Examples of Pollution Prevention Measures
  
  Plumbing inside a pit
  Underground plumbing is suspended inside a pit, the surface of which is treated with chemical resistant material. In case of pipe damage, this structure prevents the leaked liquids from infiltrating the soil.

  Installation of a spill prevention dike around chemical storage tanks
  In the event of a chemical spill while the tank is being replenished, the dike serves as a wall to contain the spilled liquids, preventing them from infiltrating the soil.

- Ensuring Inspection and Implementation of Countermeasures during FY’02
  During FY’02, we conducted Group-wide inspection and implementation of measures for the second time since 1998. In accordance with the guidelines established by the Ministry of the Environment of Japan, we checked for substances newly added to the list of substances subject to control under the environmental quality standards, examined the ground beneath the building, which has not been examined thoroughly in the past, and conducted retroactive checks for on-site burial of industrial waste. We have drilled monitoring wells on the site boundaries (562 wells at 143 sites) and continue to perform regular monitoring.

- Activities at Sites outside Japan
  Since 1998, manufacturing sites located outside Japan have been directing their efforts toward inspection and implementation of measures. Some regions, however, lack a fully developed legal system and infrastructure, and this presents an obstacle to progress. We will provide active assistance to the endeavors outside Japan, drawing on the experience in the inspection and checking of measures performed in Japan during FY’02.

### Status of Cleanup at Sites that Failed to Meet the Standards for VOCs*1

<table>
<thead>
<tr>
<th>Site</th>
<th>Location</th>
<th>Status of cleanup</th>
<th>Restoration method*2</th>
<th>Reporting to local governments</th>
<th>Status of VOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ari Site, Semiconductor Company</td>
<td>Ari city, Niigata</td>
<td>Cleanup underway</td>
<td>A, E</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Takasuki Site, Matsushita Electronic Instruments Corp.</td>
<td>Takasuki city, Osaka</td>
<td>Cleanup underway</td>
<td>C</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Kameoka Site, Toyo Denta Co., Ltd.</td>
<td>Kameoka city, Kyoto</td>
<td>Cleanup underway</td>
<td>A</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Kagoshima Matsushita Electronics Co., Ltd.</td>
<td>Chichibu city, Kagoshima</td>
<td>Cleanup underway</td>
<td>A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Moriyagi Site, Matsushita Electric Components Co., Ltd.</td>
<td>Moriyagi city, Osaka</td>
<td>Cleanup underway</td>
<td>A</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Hokkaido Matsushita Electric Co., Ltd.</td>
<td>Chitose city, Hokkaido</td>
<td>Cleanup underway</td>
<td>A</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Wakasa Matsushita Electric Co., Ltd.</td>
<td>Obama city, Fukuoka</td>
<td>Cleanup underway</td>
<td>A</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Tsuya Matsushita Electric Co., Ltd.</td>
<td>Tsuya city, Okayama</td>
<td>Cleanup underway</td>
<td>A</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Moriyagi Site, Matsushita Electric Company, Ltd.</td>
<td>Moriyagi city, Osaka</td>
<td>Cleanup underway</td>
<td>A</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Kikusui Site, Panasonic Communications Co., Ltd.</td>
<td>Tamana-gun, Kumamoto</td>
<td>Cleanup underway</td>
<td>A</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Taimei Site, Panasonic Communications Co., Ltd.</td>
<td>Tamana-gun, Kumamoto</td>
<td>Cleanup underway</td>
<td>A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Oita Site, Panasonic Communications Co., Ltd.</td>
<td>Usa city, Oita</td>
<td>Cleanup underway</td>
<td>A, B</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Miyazaki Matsushita Electric Co., Ltd.</td>
<td>Miyazaki-gun, Miyazaki</td>
<td>Cleanup underway</td>
<td>A</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Nara Site, Matsushita Home Appliances Company</td>
<td>Yamatokoriyama city, Nara</td>
<td>Cleanup underway</td>
<td>A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Kusatsu Site, Matsushita Home Appliances Company</td>
<td>Kusatsu city, Shiga</td>
<td>Cleanup underway</td>
<td>A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Kusatsu Site, Matsushita Refrigeration Company</td>
<td>Kusatsu city, Shiga</td>
<td>Cleanup underway</td>
<td>A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Matsumiya Site, Matsushita Kotobuki Electronics Industries, Ltd.</td>
<td>Onsen-gun, Ehime</td>
<td>Cleanup underway</td>
<td>A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Ozu Site, Matsushita Kotobuki Electronics Industries, Ltd.</td>
<td>Ozu city, Ehime</td>
<td>Cleanup underway</td>
<td>A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Wamkichi Site, Matsushita Kotobuki Electronics Industries, Ltd.</td>
<td>Mima-gun, Tokushima</td>
<td>Cleanup underway</td>
<td>A</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Kagawa Matsushita Kotobuki Electronics Industries, Ltd.</td>
<td>Mtoyo-gun, Kagawa</td>
<td>Cleanup underway</td>
<td>A</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

*1 Trichloroethylene
*2 Major restoration methods
  A: Groundwater pumping
  B: Vacuum gas extraction
  C: Iron powder mixing
  D: Groundwater pumping using a horizontal well
  E: Soil excavation
*3 Ongoing monitoring
*4 After verification by the local government, switch to monitoring.
Recovery and Proper Disposal of PCB-containing Capacitors Buried in the Ground

History and Future Course of Action

In the past, Matsushita manufactured capacitors that employed PCBs (polychlorinated biphenyls) as insulation oil, for use in electronic circuits and fluorescent light ballasts. The toxicity of PCBs, however, became a matter of social concern, which prompted us to discontinue the production of PCB-containing capacitors in 1972, in response to the administrative guidance issued from the then Ministry of International Trade and Industry of Japan.

In 1998, while investigating the incidence of groundwater contamination with VOCs that occurred at some of our plants, we discovered PCB contamination on the premises of Toyonaka and Matsue Plants. With the highest priority to prevent the off-site migration of contamination at both plants, we conducted groundwater containment with steel sheet piling as well as groundwater purification by pumping, and have since been engaged in ongoing monitoring of groundwater in the area.

In April 2002, Toyama Matsushita Electric Co., Ltd. made a public disclosure of the burial of PCB-containing capacitors and initiated corrective measures for the problem. We took this opportunity to urge all sites to conduct surveys. Subsequently, we learned capacitors containing PCBs had been buried at the Toyonaka and Matsue Plants and at the former Tsukamoto Plant site. Moreover, field hearings suggested on-site burial of end-of-life electric appliances containing PCBs, such as light ballasts, at the Takatsuki and Nagaoka Plants. In January 2003, we reported these findings to local governments and made a voluntary public disclosure, vowing to continue implementing the optimum measures. Humbly acknowledging our obligations and moving to fulfill them in good faith, we established the Soil Pollution Countermeasures Committee on February 1, 2003, chaired by Managing Director Otsuru in charge of environmental affairs, as well as the Soil Pollution Countermeasures Taskforce that reports to the Committee (see p. 52). In the future, the Committee will lead Matsushita’s all-out efforts to institute corrective measures, including prevention of off-site migration of contamination, recovery and proper storage of the buried devices, reporting to authorities, and detoxification and cleanup of contaminated soil, in accordance with relevant laws.

URL

Public Disclosure matsushita.co.jp/corp/news/official_data/data_dir/jn030131-2/jn030131-2.html (Japanese only)

Water Cutoff to Prevent Off-site Migration of Contamination and Groundwater Decontamination

<table>
<thead>
<tr>
<th>Plant name</th>
<th>No. of spots suspected of burial</th>
<th>Buried devices</th>
<th>Results of the site survey*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toyonaka Plant, Matsushita Industrial Equipment Co., Ltd.</td>
<td>10 spots</td>
<td>Capacitors containing PCBs</td>
<td>0.0011 mg/L 0.18 mg/L</td>
</tr>
<tr>
<td>Matsue Plant, Matsushita Electric Co., Ltd.</td>
<td>5 spots</td>
<td>Capacitors containing PCBs</td>
<td>0.026 mg/L 1.1 mg/L</td>
</tr>
<tr>
<td>Former plant site at the Tsukamoto District</td>
<td>Under inspection</td>
<td>Capacitors containing PCBs</td>
<td>0.19 mg/L* 0.046 mg/L*</td>
</tr>
<tr>
<td>Takatsuki Plant, Lighting Company</td>
<td>1 spot</td>
<td>Light ballasts employing the above-mentioned capacitors</td>
<td>Not detected</td>
</tr>
<tr>
<td>Nagaoka Seminar Company</td>
<td>3 spots</td>
<td>Light ballasts employing the above-mentioned capacitors</td>
<td>Not detected</td>
</tr>
</tbody>
</table>

Note:
* Environmental standards for soil and groundwater pollution require that contaminants not be detected (0.0005 mg/L or less).
* Data of the former Tsukamoto Plant site were those obtained in a preliminary survey of specific spots.

Toyonaka and Matsue Plants

Thanks to the water cutoff with steel sheet piling and remediation pumping, we have concluded, based on the survey results, that there is no off-site contamination. We will continue the containment efforts through water cutoff and remediation by pumping. We will also excavate buried devices for proper storage, reporting to authorities and proper disposal. We held an explanatory meeting at the Toyonaka Plant in March 2003, in which we outlined our future course of action to community residents.

Takatsuki and Nagaoka Plants

A field hearing suggested that on-site burial of light ballasts had taken place from 1977 to 1984. We believe due consideration was given at the time of burial so that no dispersion, elution or underground seepage would occur. No PCBs were detected in soil or groundwater on the premises of both plants, which pointed to the absence of off-site contamination. However, because our primary concern is safeguarding the surrounding environment, we will continue to monitor groundwater. In the future, we plan to work on recovery of buried devices for proper storage, notification to authorities and proper disposal.

Former Tsukamoto Plant Site

We suspected that defective PCB-containing capacitors were buried before the 1957 relocation of capacitor production to the Toyonaka Plant. Sampling surveys of specific spots found on-site contamination. We are currently making a detailed investigation and a study of the best measures. In the meantime, as an emergency containment measure, we will implement water cutoff with steel sheet piling and remediation pumping that draws groundwater into the containment, so that off-site groundwater in adjacent areas will be drawn into the premises when groundwater is pumped up. Extracted groundwater is decontaminated through the coagulation-sedimentation and activated charcoal adsorption methods, so that it meets relevant environmental quality standards. Treated water is then released into a sewage system.
Recycling of End-of-life Products

Matsushita was designated as an operator of industrial waste hauling and disposal (designated for wide-area recycling and reuse) by the Minister of the Environment of Japan and is undertaking recycling through Matsushita-commissioned hauling and disposal companies. In FY’01 and FY’02, collected units totaled about 2,700 and about 3,000, respectively. The recycling rate was approximately 70% for desktop PCs and approximately 20% for notebook PCs.

Recycling of Personal Computers

Matsushita was designated as an operator of industrial waste hauling and disposal (designated for wide-area recycling and reuse) by the Minister of the Environment of Japan and is undertaking recycling through Matsushita-commissioned hauling and disposal companies. In FY’01 and FY’02, collected units totaled about 2,700 and about 3,000, respectively. The recycling rate was approximately 70% for desktop PCs and approximately 20% for notebook PCs.

Recycling of Rechargeable Batteries

In Japan, Matsushita participates in the End-Of-Life Portable Rechargeable Battery Collection System managed by the Japan Portable Rechargeable Battery Recycling Center (JBRC) of the Battery Association of Japan, and is involved in collection and recycling of portable rechargeable batteries, which include Ni-Cd, nickel hydride and lithium ion batteries, as well as some of the rechargeable sealed lead-acid batteries. In FY’02, a total of 1,094 tons were collected (data released by the Center). To address the future challenge of increasing the amount of portable rechargeable battery collection, we endeavor to educate the general public, while staging a variety of campaigns in concert with manufacturers of battery-carrying devices.
Environmental Communication

To Matsushita, environmental communication is a signpost that facilitates the advance toward a sustainable society, together with stakeholders from different sectors. The feedback that we receive on different occasions has a great influence on our environmental activities. Working together with children, the leaders of the future, has also been a precious experience that reminds us of the fundamental meaning of our activities.

Communication Activities

The building of a sustainable society cannot be carried out by a single company. We must work with people in every sector of society. We believe that environmental communication plays an important role in linking Matsushita with stakeholders from different sectors. In FY’02, we took the challenge of conducting communication activities aimed at meeting the needs of stakeholders from various sectors and cultivating mutual understanding.

Matsushita and Various Stakeholders

<table>
<thead>
<tr>
<th>Media / activities</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Sustainability Report</td>
<td>Approx. 30,000 copies</td>
</tr>
<tr>
<td>Website</td>
<td>Approx. 150,000 accesses</td>
</tr>
<tr>
<td>TV commercials</td>
<td>2</td>
</tr>
<tr>
<td>Newspaper advertisements</td>
<td>7</td>
</tr>
<tr>
<td>Exhibitions</td>
<td>8</td>
</tr>
<tr>
<td>Lectures</td>
<td>20</td>
</tr>
<tr>
<td>News releases</td>
<td>12</td>
</tr>
<tr>
<td>Interviews response</td>
<td>12</td>
</tr>
<tr>
<td>Replies to questionnaires</td>
<td>20</td>
</tr>
<tr>
<td>E-mail inquiries</td>
<td>961</td>
</tr>
</tbody>
</table>

Publication of Sustainability Report

The Sustainability Report is the core medium of Matsushita’s environmental communication. The name has been changed from “Environmental Sustainability Report” to “Sustainability Report” this year because it covers not only environmental activities but also a wide range of topics on social responsibilities that are related to our business activities. The Environmental Sustainability Report 2002, published in June 2002, was reported at the general meeting of shareholders. The Society positively received the report. It received numerous commendations, including the Ministry of the Environment, the 6th Environmental Reporting Award. It was ranked 22nd in the world by “The Global Reporters” of SustainAbility, Ltd.

Environmental Advertisements (TV Commercials, Newspaper Advertisements)

Advertisements are used to communicate our environmental activities to the public through various media such as newspapers and TV. In FY’02, seven newspaper advertisements and two TV commercials were made to convey the eco-conscious features of our products using an easy-to-understand approach.

Participation in Exhibitions

Matsushita introduces its environmental activities by participating in various exhibitions. In FY’02, we focused on presenting our environmentally conscious products in an easy-to-understand manner.

Information Dissemination using Website

Matsushita operates a website to report its environmental activities. The Japanese website is mainly for National products, with online tools that calculate the differences in energy consumption (electricity cost) between our new products and products manufactured in the past.

Publication History of the Sustainability Report, Participation in Exhibitions, Environmental Communication at Local Sites, Major External Awards, Awards by Category ➪ p. 89
Beginning in 1997, Matsushita used the Environmental Characteristic Sticker to indicate environmentally conscious products. It was replaced by the “Environmental Label” in December 2002. The new label will be used as Type II Environmental Labels (self-declaration claims) on our products, catalogs, advertisements and commercials, etc.

In FY’02, we received 961 comments and suggestions. Based on the above findings, we developed the structure of this report. The “Recycling of End-of-life Products,” which attracted great attention, is introduced in Highlights 2002 (p. 11) in an easy-to-understand manner for general readers who are not specialists in the environmental field.

In FY’02, we received 961 comments and suggestions.
A company is entrusted by society with valuable resources for its business, namely “manpower,” “materials,” and “capital.”

A company is a public entity of the society in which it exists. It must utilize these business resources to contribute to the progress of society. Both society and corporate activities are based on “people.”

We will now report how Matsushita’s business activities are related to people from the following three perspectives: our employees, our customers, and the people whom we encounter through corporate citizenship activities.
Relationship with Employees

Organizational Management

To speedily respond to the needs of diverse customers, frontline employees must be able to make autonomous decisions and take actions. Matsushita is in a transition to a “flat & web-like organization” with fewer organizational layers, using IT to create more flexible and speedy coordination among sections. The hiring and allocation of human resources are determined based on ability and skills. In the three years following April 2000, the average age of division heads has decreased by 1.5 years and that of General Managers by 2.6 years. In addition, the number of female employees who are Managers or above has more than doubled.

Human Resources Development

Training for Future Leaders
To pursue global business, it is important to have a systematic way to develop leaders for the future. In addition to providing educational programs according to employees’ ranks and training on-the-job, we offer in-house MBA courses as well as a study tour to best practice companies in different parts of the world.

Corporate Culture Reform for Building Equal Partnership
Matsushita established the Corporate Equal Partnership Division in FY’01 and carried out various activities, mainly in Japan, to build a “Matsushita where diverse employees can work vigorously regardless of their gender.” Matsushita has organized Group-wide forums, provided various information to cultivate and raise the awareness of employees, and supported the reform of corporate culture to accelerate the participation of female employees in business management.

Social Responsibility

The phrase “Developing people before making products” has always represented Matsushita’s commitment to developing human resources. Regardless of the business resources it may have, a company may never achieve its mission without the right people to use these resources. We are making constant efforts to nurture a corporate culture that respects diverse values, which is then reflected in our management practices. We also consider the health and safety of our employees are part of the foundation of our business activities. As members of the manufacturing industry, we must be fully aware of the dangers that surround us and are making steady efforts to ensure safety in our workplace.

Personnel Principles

In addition to “autonomous management” and “participative management with collective wisdom,” Matsushita declares in its Basic Business Philosophy that “people” are the foundation of its business, and bases its Personnel Principles on the idea of “developing people before making products.” To put this into practice, Matsushita specifies in its personnel principles that the role of personnel administration is “to develop personnel who understand the Company’s Basic Business Philosophy fully and make efforts to achieve tasks in consistent compliance with this philosophy.” And the specific qualities required for Matsushita Electric personnel in the coming age are as follows: 1. Practice the Basic Business Philosophy, 2. Independence and Aspiration, 3. Top-of-the-field Expertise, 4. Rich Personality, 5. Cosmopolitan View. The employees and the company are striving equally to accomplish the objective stated in the Basic Management Philosophy. We expect each and every one of Matsushita’s employees to be truly professional.

Improve Management Quality p. 19
Number of Employees by Region p. 90
The Charter of Matsushita Electric Occupational Safety and Health

Based on the “respect for mankind” policy, Matsushita aims at building a healthful, safe, and pleasant workplace. We implement various kinds of activities in accordance with the Charter.

Occupational Safety and Health Declaration

To fulfill our corporate philosophy of “respect for mankind,” we will make consistent efforts to build a safe and pleasant workplace to ensure the physical and mental health of all employees.

Guidelines for Occupational Safety and Health

1. Comply with legal requirements
2. Invest management resources
3. Establish and maintain an occupational safety and health management system
4. Clarify responsibilities and authority, and establish an organizational structure accordingly
5. Eliminate and reduce dangerous and harmful factors
6. Set goals, and make and implement plans
7. Implement audits and carry out management reviews
8. Provide education and training

Efforts to Eliminate Labor Accidents

State of Occupational Safety and Health Management

The occupational safety and health management system continues to take root, enabling each Matsushita site to carry out activities on their own initiative. As a result, labor accidents in 2002 dropped 17% compared to 2001.

As a measure to prevent health hazards caused by chemical substances, Matsushita set up its own standards and took measurements of the workplace environment, thereby making steady improvements to the environment.

Labor Accident Rate

- State of Occupational Safety and Health Management
  - The occupational safety and health management system continues to take root, enabling each Matsushita site to carry out activities on their own initiative. As a result, labor accidents in 2002 dropped 17% compared to 2001.
  - As a measure to prevent health hazards caused by chemical substances, Matsushita set up its own standards and took measurements of the workplace environment, thereby making steady improvements to the environment.

- Stringent Equipment Safety Inspection
  - In order to eliminate labor accidents, it is important to enforce the safe design of equipment in addition to taking safety measures. Matsushita reviewed the Equipment Safety Standards in 2001 to step up the fundamental safety measures of equipment (fundamental safety), based on the international standards regarding safety of machinery (ISO/TR 12100), guidelines issued by Japan’s Ministry of Health, Labour and Welfare, and case studies of past labor accidents. Furthermore, Matsushita focuses on eliminating the causes of accidents in the early stages of manufacturing by conducting a three-step safety inspection for new equipment introduction.

- Stringent Equipment Safety Inspection Flow
  - New Equipment Introduction Flow
    - Design
    - Manufacturing and order
    - Completion
    - Installation and trial operation
    - Full-scale operation
  - Equipment Safety Standards
    - ISO/TR 12100
    - Guidelines of the Ministry of Health, Labour and Welfare (Japan)
    - Past labor accident cases

- Equipment Safety Inspection Flow
  - First assessment
  - Non-conforming (improvement)
  - Second assessment
  - Third assessment

- Participation of employees
  - FY’02: 64,444 persons
  - FY’01: 32,821 persons

- External Awards ➡ p. 90

- Easily Recognizable Safety Measures
  - At the Semiconductor Company, because various gases and chemical substances are used in the process of development and production, risk management for contingencies is extremely important. The company has established the occupational safety and health management system at seven manufacturing sites in Japan.
  - Specific measures include the posting of easily recognizable safety signs to indicate the characteristics of chemical substances and emergency escape routes, and the establishment of an Emergency Response Team (ERT) to take speedy and appropriate actions.

- ERT in training
- SCBA usage

“Healthy Matsushita 21”

Two years have passed since the “Healthy Matsushita 21” initiative started in April 2001 in Japan. It aimed at health enhancement of each employee. The initiative has steadily gained momentum and the number of employees voluntarily participating has almost doubled in this period.

- “Healthy Matsushita 21”: Programs and Participants
  - Lifestyle-related diseases
    - Smoking
    - Mental health
  - Participating employees
    - FY’02: 64,444 persons
    - FY’01: 32,821 persons

- Logo

- Topics
  - Easily Recognizable Safety Measures

Matsushita Electric Group Sustainability Report 2003 74
**Social Responsibility**

**Relationship with Customers**

The "Customer-comes-first" principle is the pillar of Matsushita’s Management Philosophy. It is a universal concept handed down by the founder Konosuke Matsushita. We maintain a close relationship with customers through various avenues ranging from the quality of our products and services, to the recycling of end-of-life products. Improving the quality of our products, enhancing universal design to make products easier to use for everyone, and paying attention to our customers’ feedback are all-important factors for Matsushita’s manufacturing.

**Quality Assurance System**

Matsushita supplies quality-guaranteed products only. Regardless of the region or manufacturing site, these products are designed and manufactured in compliance with a quality system that is based on our stringent regulations. In particular, Matsushita assures product safety by enforcing its own high standards and regulations such as the “Rules for Safe Design,” “Safety Standards of Matsushita Electric Industrial (MEISS),” and “Matsushita Industrial Standards (MIS).”

### Quality Elements Requiring Assurance

<table>
<thead>
<tr>
<th>Category</th>
<th>Assured Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Fire, electric shock, injury, burn, poisoning, etc.</td>
</tr>
<tr>
<td>Performance</td>
<td>Product functions, input, output, applicability into systems, impact on others</td>
</tr>
<tr>
<td>Environment</td>
<td>Save (energy-saving), Clean (reduced use of chemical substances), 3Rs</td>
</tr>
<tr>
<td>Easy handling</td>
<td>User-friendliness (operations, cleaning), nice feel, time-saving, and malfunction prevention</td>
</tr>
<tr>
<td>Appearance</td>
<td>Design, color, style, flaws, unevenness, cracks, texture, etc.</td>
</tr>
<tr>
<td>Robustness</td>
<td>Resistance to and security against abnormality</td>
</tr>
<tr>
<td>Durability</td>
<td>Time span in which quality is maintained</td>
</tr>
<tr>
<td>Installation and construction</td>
<td>Ease of connection or installation</td>
</tr>
<tr>
<td>Serviceability</td>
<td>Speed, cost, responsiveness</td>
</tr>
</tbody>
</table>

**The Concept of Quality**

Quality refers not only to the functions and performance of products and services but also to the ability to satisfy the needs of customers and society in terms of style, economical efficiency, serviceability, ease of installation, safety, and environmental friendliness. In other words, quality mirrors business activities. In order to offer good quality, we have to establish an effective total management system and ensure its smooth operation. Before shipping products from our factories, we evaluate those products from the customers’ viewpoint.

**“Checkpoints for Product Evaluation” — From the viewpoints of buyers and users**

1. Product design that meets requirements
2. Assurance of safety and security
3. Compliance with legal requirements
4. Reliability and durability assured for all use conditions
5. No noise, odor, or electromagnetic waves that harm or affect others
6. Precautions against misuse
7. Appearance and quality befitting a Matsushita product
8. Superiority to competitors’ products
9. Ease of use and maintenance
10. Ease of use with other equipment or as a system
11. Easy-to-understand operation instructions or status displays
12. Easy-to-understand cautions and model number
13. Quality and consumer information reflected in the product
14. Ease of installation and repair services
15. Energy and resource efficiency
16. Consideration to the global environment
17. Common and interchangeable parts and components
18. Easy-to-understand and useful operation manual
19. Ease of unpacking and repacking
20. Packaging that considers transportation, handling, warehousing, and disposal

Formulated in March 1964 and revised in April 1992

**Response to Quality Issues**

Despite our best effort in assuring quality, quality issues that might lead to more extensive damage do occur in rare occasions. In such cases, we put our highest priority on assuring the safety of customers while preventing damage to customers’ properties by providing information through the retailers, pamphlets, newspapers, and our website. In order to ensure that the products can be used safely, we take every possible measure such as exchanges of parts and components.

**TOPICS**

**Example: Safe Design for a Cordless Iron**

**In Use**

- When taking the iron out of the stand, a user may accidentally touch the power supply terminal. In order to prevent the user from receiving an electric shock, a shutter is installed on the iron.

**After Use**

- The case is designed so that the iron can be stored immediately after use while still hot.
- The case is designed so as not to release the iron if the user accidentally pushes the case detach button when carrying the iron in the case by holding the case handle. When the iron case accidentally receives physical shock by hitting furniture or falling on the floor, it will not release the iron.

Cordless steam iron

**NI-CL501**

[matsushita.co.jp](http://matsushita.co.jp) (Japanese only)
Promoting Universal Design

“Universal design” is a concept or initiative that aims at making a society comfortable to all people, irrespective of their differences in physical ability, age, sex, nationality, and language. Against the backdrop of the trends toward multi-functional products, increasing sophistication of technology, and a rapidly aging population, there is increasing demand for the universal design initiative.

Matsushita strives to incorporate universal design into its product manufacturing. Putting ourselves in the position of a customer during the product planning and development stages, we take measures to improve the “operability,” “efficiency,” and “amenity” of products by seeking overall satisfaction (usability) of products. Universal design products in FY’02 amounted to 476 models, incorporating 775 improvements and other considerations.

Three Aspects of Usability

- User-friendliness: Make the product easier to use
- Barrier-free: Eliminate inconveniences for the elderly and physically challenged people
- Accessibility: Turn “unusable” products into “usable” products for physically challenged people

Products Incorporating Universal Design

![Chart showing the number of models and considerations/improvements for FY 99 to FY 02](chart.png)

Example of Universal Design Products: Audible Remote Control for Air-conditioner

This air-conditioner remote control is the first in the industry to have voice response capability. For the development of this product, Matsushita interviewed elderly and physically challenged individuals and visited the homes of the elderly to conduct research. Because this product has simple functions and is easy to operate, it is user-friendly not only to the elderly and physically challenged but also to children. The sales of this product far exceeded original expectation.

Features

1. Every time a button is pressed, a voice will inform the user of the current setting, such as heating/cooling temperatures.
2. Braille is inscribed on the buttons and body of the remote control to enable people with visual impairment to easily operate the equipment.
3. The panel surrounding the buttons is designed to be higher than the buttons so that someone who needs to use the mouth to hold a stick to press the buttons can do so with ease.

Audible remote control

CZ-RR5

URL

national.jp/appliance/ace/product/pro15.html (Japanese only)

Example of Universal Design Products: Water-less Rice Washer

The water-less rice washer is Matsushita’s original product that can prepare rice for cooking without using water. The benefit of eliminating the rice washing process that uses cold water is far greater than expected, as it lessens burden on the body. Thus, the product received high recognition from wheelchair users during the home monitoring test. This environmentally conscious product was commended with the “Lake Biwa Eco Life Award (FY ’01)” because it eliminates wastewater from rice washing and helps lessen water pollution.

Features

1. A simple touch of the buttons can “measure” and “wash” rice without using water.
2. Braille is used on the buttons to make it easier for the visually impaired to operate.

Water-less rice washer

SN-KT12B

URL

procb.matsushita.co.jp/products/national/SN/SN-KT12B.html (Japanese only)

Hosting of Universal Design Exhibition

The “Universal Design Exhibition” was held in March 2003 at the Panasonic Center in Ariake, Tokyo. The results of Matsushita’s research and development of universal design were introduced under three themes: “Let’s enjoy housework,” “Let’s have a communication,” and “Let’s spend a healthy life.” Visitors had the opportunity to experience universal design by “looking” and “touching.” Matsushita will continue to propose various universal designs and to reflect customer feedback in its products.

External Awards ➪ p. 90

Visitor trying out the goggles for experiencing cataracts

Topics
Increasing Customer Satisfaction

Guided by the spirit of “true service” put forward by the founder, Konosuke Matsushita, we conduct business activities aimed at gaining customer satisfaction through products and services. We have set up a system to gather comments and suggestions from a wide range of customers and incorporate their opinions into our products.

TRUE SERVICE
Service is an integral part of any business. A business that does not provide service is no business at all.

Service, therefore, is the duty and obligation of any businessperson. But there’s nothing more aggravating than service provided only out of a sense of duty. Customers can sense it.

Service means satisfying customers, and when we satisfy our customers, we in turn find satisfaction in a job well done.

Satisfied customers and satisfied employees.
This is what constitutes true service.

Konosuke Matsushita

Customer Care Center
Matsushita operates a year-round Customer Care Center in Japan to answer any questions that customers may have concerning Matsushita products. In FY’02, the Center received 1.73 million inquiries, 51% of which concerned product usage and operations.

Inquiries from Customers
(10,000 inquiries, FY)

- Usage: 88
- Purchase: 40
- Repair: 29
- Others: 16
- 00: 151
- 01: 148
- 02: 131
- 98: 116
- 99: 131
- 00: 148
- 01: 151
- 02: 173

Customer Care Center (Japan)
0120-878-365

Meeting with Consumer Representatives
Since 1995, Matsushita has held gatherings with representatives of consumer groups and consumer life centers to exchange information at eight places in Japan. Management officers from our Corporate CS Division supervising the Customer Care Center, and from various districts attended these gatherings to introduce Matsushita’s customer-oriented initiatives and topical products. These gatherings aim at enhancing the understanding of Matsushita’s activities and feeding back consumer opinions to our pertinent divisions in order to improve business activities.

Global Customer Support System
Matsushita has been building a “global customer support system” in order to provide uniform services to customers throughout the world. As part of this initiative, our website was drastically revamped in October 2002 to provide easier-to-understand information. On the new website, contact information for Service Centers in various countries can be located more quickly, and the content of FAQs and downloadable software has been improved. Matsushita will continue providing useful information to service the needs of each region.

Example of Improvement based on Customers’ Feedback: “Personal Fax”

Personal Fax is one of the products that had many post-purchase inquiries regarding their usage and operations.

We received valuable comments such as “I got turned off by too much explanation in the user’s manual;” “I could not figure out where to find what information,” etc. We utilize these customer comments in new product development and make specific improvements. For example, the user’s manual was completely revised by summarizing the original 240 pages into 100 pages. This made the manual more readable and helped economize paper resources. Furthermore, for the WILL Series (KX-PW100CL), a cover was added to the feed tray, which helped improve the design.

Improvements Made from Customers’ Feedback
- Reduce the number of words
- Switch to visual explanation by adding illustrations and pictures
- Omit overlapping explanations
- Refrain from referring to other pages in the middle of an explanation
- Set the date and time before shipping
- Move the position of less frequently used buttons
- Provide dust prevention measures for feed tray

Personal Facsimile
KX-PW100CL

TOPICS

- Meeting with Consumer Representatives
- Global Customer Support System
- Increasing Customer Satisfaction
- TRUE SERVICE
- Customer Care Center
- Example of Improvement based on Customers’ Feedback: “Personal Fax”
Reparos y Servicios

En Japón, Matsushita ofrece servicios de reparación de productos a través de minoristas y centros de servicio de Matsushita Technical Service Co., Ltd. en todo el país. El número de reparaciones en FY’02 totalizó 5.9 millones, una disminución de 370,000 desde el año fiscal anterior. La disminución fue atribuible al aumento del número de clientes que optaron por reemplazar sus productos en lugar de repararlos. El mejoramiento en la calidad y la eficiencia energética, un importante descenso en los precios de los productos, y el costo relativamente alto de las reparaciones han animado a los clientes a comprar nuevos productos.

- Iniciativa para Reducir el Costo de Reparación
  Nos consolidamos nuestras operaciones de reparación con el objetivo de aumentar la eficiencia con el fin de reducir el costo y el tiempo de reparación. También tomamos una aproximación de arriba hacia abajo incorporando medidas de ahorro de tiempo en el diseño del producto.

- Información para Habilitar una Vida más Larga de los Productos
  La información sobre cómo obtener una vida más larga de los productos se introduce en el sitio web.

- "Mejores Maneras de Usar sus Electrodomésticos" introducen formas de cuidar los electrodomésticos.

 speak

**TOPICS**

*Desarrollar técnicos recuperadores de refrigerantes CFC*

Los CFCs se utilizan como refrigerante para los equipos de aire acondicionado. Los modelos de fabricación actualmente utilizados incluyen HFC (R410A), un sustituto de CFC libre de ozono, que se utiliza para reemplazar el especificado HCFC (R22). Existe preocupación por el impacto de los CFCs que dejan de funcionar en la capa de ozono, y también por los CFCs substitutos que causan calentamiento global, aunque el efecto en la capa de ozono es pequeño. Por estas razones, es necesario prestar una atención cerca de la instalación o reparación de los equipos de aire acondicionado para que el refrigerante (CFCs) no se escape. Matsushita Marketing Training Institute ofrece un Programa de Servicios Técnicos de Acondicionamiento de Aire y Seminario de Técnicos de Recuperación de Refrigerante para minoristas, distribuidores y empresas de reparación. Desde 1996 hasta marzo de 2002, estos programas han formado a más de 11,000 técnicos recuperadores de refrigerante CFCs.
As industrialists, our mission is to bring satisfaction to customers around the world through our business activities. In addition, our role as a corporate citizen involves cooperating as a member of the society in the development of a vibrant society friendly to the earth and its residents. This belief underpins our concept of “social contribution activities as a corporate citizen.” Our contribution is especially focused on the “development of human resources.”

We have also supported programs for promoting multi-cultural understanding and volunteer activities to help build a collaborative and supportive society. We are doing our share as a global citizen to tackle environmental issues in order to promote a peaceful coexistence among all stakeholders.

### Volunteer Activity Funding Program

This program was established in 1998 to lend support to our employees so that they can actively participate in the civil society. It supports financially some of the activities carried out by non-profit organizations (NPOs) in which Matsushita employees, their spouses, or retired employees participate in Japan. In FY’02, 55 organizations received funding (eleven of them were related to environmental conservation).

### Environmental Conservation Organizations Supported by Matsushita

- (N) Ecken (Fukuoka Prefecture)
- Society of Citizens to Protect the Virgin Beech Tree Forests of Hanamaki (Iwate Prefecture)
- Urban Development Study Group for the Vicinity of Kamoi Station (Kanagawa Prefecture)
- Commune with Koide River Club (Kanagawa Prefecture)
- Recovering White Beaches and Green Pines of Chikuzen Shingu Club (Fukuoka Prefecture)
- (N) Konan Environment (Shiga Prefecture)
- (N) Soft Energy Project (Kanagawa Prefecture)
- Furukawa River Fan Club (Hiroshima Prefecture)
- Myokenzaka District Urban Development Committee (Osaka Prefecture)
- Katano Bamboo Charcoal Making Volunteers (Osaka Prefecture)
- Uyun Reforestation Volunteer Association (Tokushima Prefecture)

Total funding for the above eleven organizations: 2.67 million yen

### Support for Major Environmental Conservation Organizations (Japan)

In the environmental conservation field, Matsushita supports organizations in Japan that carry out socially significant activities, participates in their activities as a corporate member, and cooperates in the implementation of programs.

### Japanese Environmental Conservation Organizations Supported by Matsushita

- (F) Japan National Trust
- (F) Oishca-International
- (F) Nature Conservation Society of Japan
- (F) Wild Bird Society of Japan
- (F) World Wildlife Fund Japan
- (I) Keidanren Committee on Nature Conservation
- (I) National LandAfforestation Promotion Organization
- (I) Japan Environmental Education Forum
- (F) Japan Environment Association
- (N) The Children of Earth’s Club
- (N) Nature Film Network
- (F) Ecosystem Conservation Society – Japan
- Earth Day 2002 Steering Committee
- Action for Greening Sahel
- (F) Institute of Urban Traffic Research
- (F) Osaka City Promotion Association
- (I) Flower Society
- (I) Corporation to Protect Verdant Pine Trees in Japan
- pico (Kansai Environmental Information Station)

Funding for FY’02: 22.77 million yen

### Concept of Corporate Citizenship Activity

“A corporation is a public entity.”

**Management Philosophy**

- Industrialist: Respond to customer needs with electronics, research, product development, manufacturing, sales, service, and recycling
- Corporate citizen: Contribute to society and fulfill social responsibilities
- “Coexistence with the global environment”

**Development of human resources**

- Global environment
- Social welfare
- Art and culture

**Contribution to the society**

- NPO support and partnership, donations, independent activities, and foundation activities
Major Corporate Citizenship Activities

Children’s Supporters/Matching Fund
In cooperation with the Japan Initiative for Youth Development (specified non-profit corporation), Matsushita has operated the fund since 2001 to create a donation culture that helps strengthen the activity base of non-profit/non-governmental organizations that are working to facilitate the healthy growth of children.

Organizations that Received Grants in FY’02
(6 projects, 6.663 million yen)

- (N) The Institute of Education for The 21st Century (Tokyo)
  Programs to create a national data map of new venues for learning
- (N) kodomoNPO (Aichi)
  Programs to promote the participation of children in city planning
- Tokyo YMCA “Lovy” (Tokyo)
  Establishment of a membership system and member support system
- Tatsunoko Learning Center for Deaf Children (Tokyo)
  Staff training programs
- (N) Kyoto Children Center (Kyoto)
  Strengthening of the operation of “Child Telephone Line Kyoto”
- Youth Rehabilitation Support Association “Olive” (Osaka)
  Programs to train staff on collaborative management

Environmental’s Supporters/Matching Fund
In cooperation with the Eco Future Fund (specified non-profit corporation), Matsushita has operated this fund since 2002 to create a donation culture that helps strengthen the activity base of non-profit / non-governmental organizations that are working to promote ecological life.

Organizations that Received Grants in FY’02
(6 projects, 4.359 million yen)

- Akashi-Biakko Environmental Citizens’ Initiative (Shiga)
  Construction of a portal site for networking
- (N) Citizens Environmental Foundation (Kyoto)
  Projects to upgrade infrastructures, such as operation efficiency
- (N) Kiko Network (Kyoto)
  Development of website and pamphlets on the organization
- Japan Center for a Sustainable Environment and Society (Tokyo)
  Update of website for information disclosure
- Oumi Junior Field (Shiga)
  Development of supporter training programs
- (N) Tsukuba Environment Forum (Ibaraki)
  Update of website and improvement of accounting system

Bird-watching with the Visually Impaired
Since 1999, Matsushita has hosted nature-watch- ing gatherings for people with visual impairment twice a year (spring and fall) at gardens in the Tokyo Metropolitan Area. With the cooperation of the Wild Bird Society of Japan and the Japan Braille Library, many Matsushita employees par- ticipated as volunteers to enjoy bird watching with visually impaired people by listen- ing to bird calls and admiring plants in gar- dens together.

The Japan Prize Award Ceremony
The Japan Prize was established by the founder Konosuke Matsushita’s advocacy. The 19th Japan Prize Award Ceremony was graced by the presence of the Emperor and Empress of Japan at the National Theater, Tokyo. The Japan Prize laureates this year included Dr. Benot B. Mandelbrot and Dr. James A. Yorke in the field of the science and technology of complexity, and Dr. Seiji Ogawa in the field of visualizing techniques in medicine. The Japan Prize is awarded to people who have made original and outstanding achievements in science and technology and contributed to the peace and prosperity of humankind.

Kid Witness News (KWN)
This is a program launched by Matsushita Electric Corporation of America in 1989 to support educa- tion for mainly primary and middle school stu- dents to nurture their creativity. Today, the pro- gram provides video equipment and production know-how to approximately 200 public schools in the USA and Japan in order to support their extra-curricular activities in video production. Mat- sushita employees also volun- teer their time to provide sup- port seminars.

A primary school student from Hawaii interview- ing Mr. Zenji Abe, a Japanese navy officer who fought at Pearl Harbor

National Tour of the Shakespearean Play for Children
The Shakespearean Play has been performed in a form that can be enjoyed by both adults and children, touring in Japan during the summer va- cation every year since 1995. Matsushita spon- sors the event in collaboration with local Matsush- ita companies. As an activity aimed at nurturing the spirit of children, Mats-ushita actively creates opportunities for the chil- dren to come in contact with the stage, by hosting workshops for middle and high school students and inviting them to watch stage construction, etc.

FRIENDSHIP CONCERTS
As a corporate citizenship activity for the com- munity, Matsushita has sponsored touring con- certs by members of the New Japan Philharmonic symphony orchestra since 2002, visiting facilities for children with intractable diseases, schools for the disabled, and hospitals. These children sel- dom have the opportunity to be in contact with music. The concerts are named “Friendship Concerts” because they are seen as a link to connect peo- ple together.

Support for Japanese Traditional Art Crafts
The founder Konosuke Matsushita was profound- ly interested in Japanese traditional art crafts, and became the head of the Kinki chapter of the Ni- no Kogeikai in 1960. Since then, he has lent support, hoping to pass on and invigorate Japa- nese traditional art crafts. Today, Matsushita is of- fering a wide range of support to promote tradi- tional art crafts, which can be said to be the origin of manufacturing. For example, Matsushita coop- erates in filming successor development pro- grams presented by those who harbor important intangible cultural heritage (living national treas- ure), helps the production and operation of the on-line gallery “Museum of Japanese Traditional Art Crafts,” and sponsors the Exhibition of Japa- nese Traditional Art Crafts by of- fering the Mat- sushita Award (Kinki Region), etc.

OBP Arts Project
Matsushita supports young artists by providing them with a venue for artistic expressions such as music, fine art and creative dance at the Osaka Business Park (OBP)—representative high- rise buildings in western Japan. Today, it has de- veloped into a venue of art management training for mainly university students. The Arts Project has turned into programs for discovering the so- cial function of art by integrat- ing business and art, and ex- changes among stu- dents, working people and citi- zens.

K. Matsushita Foundation of Expo’90
In order to facilitate the realization of the Expo’90 philosophy of “Coexistence of Mankind and Na- ture,” the Foundation gives Commemorative and Encouragement Prizes every year to individuals and groups residing in Japan in recognition of their distinguished academic studies and practical activities. In March 2003, concurrently with the 15th Commemorative Award Ceremony, a lecture was given by Dr. Muneo Yoshikawa, professor emeritus of the University of Hawaii. The theme of the lecture was “Let Sky have Stars, Ground have Flowers, and Man have Love—Ways to Lead Life in Harmony with Nature.”

Panasonic Scholarship Inc.
As an event to commemorate the 80th anniver- sary of the founding of Matsushita, the Panasonic Scholarship Program was established in 1998 to nurture leaders of Asia in the 21st century. This year marks the fifth year of the scholarship. Stu- dents from Asian countries are locally recruited and selected to attend science and engineering graduate schools in Japan. Adding the newly se- lected 19 candidates for FY’03, a total of 160 s- tudents have been awarded the scholarship.
Love the Earth Citizens’ Campaign

Matsushita started the Love the Earth Citizens’ Campaign (LE activities) in 1998. In the campaign, employees and their families actively participate in environmental activities at home and in their communities. We believe that changing the awareness, action, and lifestyle of individuals can contribute to the transition to a sustainable society. In FY’02, we shifted the emphasis of our activities from awareness enhancement to participation, and have started model activity in each region to form the core of activities.

The Environmental Household Budget Ledger

In Japan, the increase in energy consumption by the household sector has become a serious issue, and people are encouraged to enhance their energy saving and to put it into practice at their homes. As a company that supplies electric home appliances, Matsushita encourages employees to pursue ecological life by popularizing the use of the Environmental Household Budget Ledger at their homes.

Families having adopted the use of this ledger are called “LE Families.” “LE Family Certification” is given to those who submitted the data from their ledgers. We are stepping up our efforts to enhance employees’ participation in the campaign. In FY’02, there were 26,000 LE Families.

Employees’ Environmentally Conscious Lifestyle Survey

Defining the specific contents of an “environmentally conscious lifestyle,” Matsushita carried out an environmentally conscious lifestyle survey of their 10,255 employees (at 22 sites) from June to October 2002. Matsushita also identified potential leaders of the ecological life campaign and registered them in the LE Personnel Database. The information is meant to be used to create a Group-wide network to facilitate and promote LE activities.

Results of the Environmentally Conscious Lifestyle Survey

<table>
<thead>
<tr>
<th>Lifestyle surveyed</th>
<th>Participated</th>
<th>Did not participate</th>
</tr>
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<tbody>
<tr>
<td>Public transportation</td>
<td>54%</td>
<td>46%</td>
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<tr>
<td>Environmental volunteer</td>
<td>99%</td>
<td>1%</td>
</tr>
<tr>
<td>Recycling</td>
<td>99%</td>
<td>1%</td>
</tr>
<tr>
<td>Long-term use</td>
<td>99%</td>
<td>1%</td>
</tr>
<tr>
<td>Eco-cooking</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>Eco-bag</td>
<td>96%</td>
<td>4%</td>
</tr>
<tr>
<td>Green purchase</td>
<td>96%</td>
<td>4%</td>
</tr>
<tr>
<td>Energy-saving</td>
<td>98%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Employees and families harvesting rice in October 2002

Matsushita Green Volunteer (MGV) Club

The Matsushita Green Volunteer (MGV) Club was established in 1993 with funds contributed by approximately 70,000 of Matsushita’s current and retired employees and the Labor Union. In support of the Club, Matsushita also donated almost the same amount as a matching gift. The Club has carried out various activities, including cleanup of the Osaka Tsurumi Ryokuchi green areas, photo contests, and fixed-point observations of cherry blossoms. In FY’02, 10,000 people took part in these activities together with their families. In February 2002, a hand-made biotope*1 was created in a space of 500 m² in the Labor Union premises.

Volunteer (MGV) Club

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**ISO 14001 Certification Status**

#### Region: Japan (Semiconductor Company)

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<th>Site of Business</th>
<th>Business and Affiliates</th>
<th>Major Products</th>
<th>Date of Registration</th>
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</thead>
<tbody>
<tr>
<td>Semiconductor Company</td>
<td>Multiple-site Certification Group (4 sites)</td>
<td>Semiconductor</td>
<td>1997.11 ★</td>
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<tr>
<td>Mitsuwa Electric Instruments Corporation</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Toyo Densa Co., Ltd., Kiyoto Site</td>
<td>Semiconductor, Magneton</td>
<td></td>
<td>1997.6 ★</td>
</tr>
<tr>
<td>Toyo Densa Co., Ltd., Kameoka Site</td>
<td>Diode, Transistor, Micro-components</td>
<td></td>
<td>1997.6 ★</td>
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<tr>
<td>Kagoshima Mitsuwa Electric Co., Ltd.</td>
<td>LED, LCD module</td>
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<td>1997.3 ★</td>
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<td>Diode, Transistor</td>
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<td>1997.3 ★</td>
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<td>Display Devices Company/Lighting Company</td>
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<td>Multiple-site Certification Group (3 sites)</td>
<td>Fluorescent lamp, CRT, PDP</td>
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<tr>
<td>West Electric Co., Ltd., Nagatake Site</td>
<td>Flashtube, Backlight lamp</td>
<td>1998.8 ★</td>
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<tr>
<td>Inai Electronics Co., Ltd.</td>
<td>Bulb, Glow starter</td>
<td>1998.1 ★</td>
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<td>Mitsuwa Electric Industrial Co., Ltd.</td>
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<tr>
<td>Multiple-site Certification Group (3 sites)</td>
<td>Batteries</td>
<td>1998.3 ★</td>
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<tr>
<td>Moriguchi Site A Block</td>
<td>Alkaline manganese battery</td>
<td>1998.4 ★</td>
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<tr>
<td>Moriguchi Site B Block</td>
<td>Lithium battery</td>
<td>1998.7 ★</td>
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<td>Mitsuwa Electronic Components Co., Ltd.</td>
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<td>Multiple-site Certification Group (15 sites)</td>
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<td>Multiple-site Certification Group (4 sites)</td>
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<td>High Frequency Products Business Unit</td>
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<td></td>
<td>1997.11 ★</td>
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<td>High Frequency Products Business Unit, Moriguchi Site</td>
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<td>1997.6 ★</td>
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<tr>
<td>Mitsuwa Nippon Electric Co., Ltd.</td>
<td>Dielectric filter</td>
<td>1998.1 ★</td>
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#### Region: Japan (Motor Company)

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<th>Business and Affiliates</th>
<th>Major Products</th>
<th>Date of Registration</th>
</tr>
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<tbody>
<tr>
<td>Daito Site</td>
<td>Industrial motor, Controller</td>
<td>1997.6 ★</td>
<td></td>
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<tr>
<td>Takata Site</td>
<td>Home appliance/conditioner motor</td>
<td>1998.2 ★</td>
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<tr>
<td>Yanagisawa Site</td>
<td>IT equipment motor</td>
<td>1997.12 ★</td>
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<tr>
<td>Mitsuwa Electric Co., Ltd.</td>
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<tr>
<td>Mitsuwa Industrial Equipment Co., Ltd.</td>
<td>Industrial compact gear motor</td>
<td>1999.2 ★</td>
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<tr>
<td>Kofu Site</td>
<td>Electronic chip mounter</td>
<td>1997.12 ★</td>
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<tr>
<td>Tsubota Site</td>
<td>Electronic chip mounter</td>
<td>1997.7 ★</td>
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<td>Mitsuwa Electronics Co., Ltd.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Multiple-site Certification Group (4 sites)</td>
<td>FA equipment, Power distributor</td>
<td>1998.3 ★</td>
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</tr>
<tr>
<td>Panasonic AVC Networks Company</td>
<td>TV, VCR, Audio equipment, DVD</td>
<td>1995.11 ★</td>
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<tr>
<td>Panasonic Communications Co., Ltd.</td>
<td></td>
<td></td>
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<tr>
<td>Chikage Site</td>
<td>Cordless phone</td>
<td>1997.11 ★</td>
<td></td>
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<tr>
<td>Saga Site</td>
<td>Printer</td>
<td>1997.9 ★</td>
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<tr>
<td>Kikusui Site</td>
<td>CD-R/RW, COMBO drive</td>
<td>1998.3 ★</td>
<td></td>
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<tr>
<td>Tamae Site</td>
<td>Deflection yoke</td>
<td>1997.10 ★</td>
<td></td>
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<tr>
<td>Oita Site</td>
<td>Electric motor</td>
<td>1998.3 ★</td>
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<tr>
<td>Joshi Site</td>
<td>Well pumping equipment</td>
<td>2002.2 ★</td>
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<td>Nagaseki Site</td>
<td>Facsimile</td>
<td>1997.10 ★</td>
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<tr>
<td>Utsunomiya Site</td>
<td>Laser scanning unit</td>
<td>1998.3 ★</td>
<td></td>
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<td>Nagata Site</td>
<td>Facsimile, PCC</td>
<td>1997.6 ★</td>
<td></td>
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<tr>
<td>Nagano Site</td>
<td>Toner cartridge</td>
<td>1998.4 ★</td>
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<td>Shiono Site</td>
<td>Press reporting equipment</td>
<td>1998.12 ★</td>
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<td>Panasonic Mobile Communications Co., Ltd.</td>
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<td>Multiple-site Certification Group (2 sites)</td>
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<td>Hanamaki Site</td>
<td>Cellular phone, FHS</td>
<td>1998.10 ★</td>
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<td>Shizuoka Site</td>
<td>Cellular phone</td>
<td>1997.12 ★</td>
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<td>Panasonic Automotive Systems Company</td>
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<td>Matsutomo Site</td>
<td>Car navigation system, Car audio equipment</td>
<td>1997.6 ★</td>
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<td>Panasonic System Solutions Company</td>
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<td>Shinakawa Site</td>
<td>Microphone, CCVE camera</td>
<td>1995.12 ★</td>
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#### Region: Japan (Additional Companies)

<table>
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<tr>
<th>Site of Business</th>
<th>Business and Affiliates</th>
<th>Major Products</th>
<th>Date of Registration</th>
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</thead>
<tbody>
<tr>
<td>Mitsuwa Electric Industrial Co., Ltd.</td>
<td>Air purifier, Humidifier, Dehumidifier</td>
<td>1998.2 ★</td>
<td></td>
</tr>
<tr>
<td>Mitsuwa Electronic Components Co., Ltd.</td>
<td></td>
<td></td>
<td>1996.12 ★</td>
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<tr>
<td>Matsushita Automotive Company</td>
<td>Air conditioning system, Clean system</td>
<td>2001.3 ★</td>
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<tr>
<td>Matsushita Kiyose Electronics Industries, Ltd.</td>
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<td>Multiple-site Certification Group (6 sites)</td>
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<td>1998.3 ★</td>
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<tr>
<td>Victor Company of Japan, Ltd.</td>
<td>Multi-layer circuit board</td>
<td>1997.11 ★</td>
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<tr>
<td>Haicho Site</td>
<td>Monitoring equipment</td>
<td>1997.1 ★</td>
<td></td>
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<tr>
<td>Rinkan Site</td>
<td>CD</td>
<td>1997.4 ★</td>
<td></td>
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<tr>
<td>Yokosuka Site</td>
<td>Camcorder</td>
<td>1997.9 ★</td>
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<td>Region</td>
<td>Sites of Business Domain Companies and Affiliated Companies</td>
<td>Major Products</td>
<td>Date of Registration</td>
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<td>----------------------------------------------------------</td>
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<td>Asia/Oceania (Manufacturing)</td>
<td>Panasonic Corporation de Brasil Ltda.</td>
<td>Electronic components</td>
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<td>Matsushita Electric Corporation (UK) Ltd.</td>
<td>Speaker, Transformer, Coil</td>
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<td>TV, FBT, Microwave oven</td>
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<td>Panasonic Communications Company (UK) Ltd.</td>
<td>PBX, Telephone-related equipment</td>
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<td>JVC Manufacturing U.K. Limited</td>
<td>TV, Monitor</td>
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<td>Matsushita Display Devices (Germany) GmbH</td>
<td>CRT</td>
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<td>Matsushita Electronic Components (Europe) GmbH</td>
<td>Tuner, Power supply unit</td>
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<td>Panasonic AVC Networks Germany GmbH</td>
<td>Digital video, Audio equipment</td>
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<td>Panasonic Automotive Systems Co. Ltd.</td>
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<td>JVC Video Manufacturing Europe GmbH</td>
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<td>1999.12</td>
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<td>Matsushita Electric Esparta S.A.</td>
<td>Vacuum cleaner, Audio equipment</td>
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<td>Matsushita Battery Poland S.A.</td>
<td>Battery</td>
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<td>Panasonic JVC Networks Czech s.r.o.</td>
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<td>Panasonic Mobile &amp; Automotive Systems Co. Ltd.</td>
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<td>Matsushita Electronic Components (Boziao) s.r.o.</td>
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<td>Matsushita Electronic Components (PJ) Ltd.</td>
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<td>Matsushita Electric Motor (PJ) Ltd.</td>
<td>Micro electric motor</td>
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<td>Panasonic AVC Networks Singapore Pte. Ltd.</td>
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<td>Matsushita Refrigeration Industries (PJ) Ltd.</td>
<td>Refrigerator compressor</td>
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<td>Matsushita Kabushiki Kaisha Singapore Pte. Ltd.</td>
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<td>National Thai Co., Ltd.</td>
<td>Group</td>
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<td>JVC Manufacturing Co., Ltd.</td>
<td>FBT</td>
<td>1999.4</td>
</tr>
<tr>
<td></td>
<td>JVC Components Co., Ltd.</td>
<td>AV motor</td>
<td>2000.1</td>
</tr>
<tr>
<td></td>
<td>Matsushita Electronic Philippines Corporation</td>
<td>TV, Refrigerator, Air conditioner</td>
<td>1998.5</td>
</tr>
<tr>
<td></td>
<td>Panasonic Communications Imaging Co. of the Philippines</td>
<td>PRG</td>
<td>2002.7</td>
</tr>
<tr>
<td></td>
<td>Pioneer Laserworks Corporation of the Philippines</td>
<td>CD player, DVD, DMD (Mirrors)</td>
<td>1997.12</td>
</tr>
<tr>
<td></td>
<td>P. T. National Gobel</td>
<td>TV, Refrigerator, Air conditioner</td>
<td>1998.1</td>
</tr>
<tr>
<td></td>
<td>P. T. Matsushita Semiconductors Indonesia</td>
<td>Semiconductor</td>
<td>2000.7</td>
</tr>
<tr>
<td></td>
<td>P. T. Matsushita Gobel Battery Industry</td>
<td>Battery, Battery equipment</td>
<td>1997.2</td>
</tr>
<tr>
<td></td>
<td>P. T. Biatam Matsushita Battery</td>
<td>Ni-Cd battery, Solar battery</td>
<td>1998.1</td>
</tr>
<tr>
<td></td>
<td>P. T. Matsushita Advanced Components</td>
<td>Electronic components</td>
<td>1998.3</td>
</tr>
<tr>
<td></td>
<td>P. T. Matsushita Lighting Indonesia</td>
<td>Fluorescent lamp</td>
<td>1999.2</td>
</tr>
<tr>
<td></td>
<td>P. T. Matsushita Kabushiki Kaisha Philippines</td>
<td>VCR, Camcorder, Optical disc drive</td>
<td>1998.6</td>
</tr>
<tr>
<td></td>
<td>P. T. Matsushita Kabushiki Kaisha Philippines</td>
<td>CHD magnetic head</td>
<td>1999.11</td>
</tr>
<tr>
<td></td>
<td>P. T. JVC Electronics Indonesia</td>
<td>Car stereo, Audio equipment</td>
<td>1999.5</td>
</tr>
<tr>
<td></td>
<td>Panasonic AVC Networks Vietnam Co., Ltd.</td>
<td>TV, Audio equipment</td>
<td>2001.10</td>
</tr>
<tr>
<td></td>
<td>JVC Vietnam Ltd.</td>
<td>TV, Audio equipment, DVD</td>
<td>2001.4</td>
</tr>
<tr>
<td></td>
<td>Panasonic AVC Networks Australia Pty. Ltd.</td>
<td>TV, Audio equipment</td>
<td>1998.12</td>
</tr>
<tr>
<td></td>
<td>Indo National Ltd.</td>
<td>Battery</td>
<td>1998.2</td>
</tr>
<tr>
<td></td>
<td>Matsushita Lakhanbali Battery Ind. Ltd.</td>
<td>Battery</td>
<td>1998.2</td>
</tr>
</tbody>
</table>

Note: Sites that have been updated by 3rd year audits are marked with ★ (as of March 2003).
Environmental Performance Data (by Region)

- **CO₂ Emissions** (ten thousand tons-CO₂, FY)
  - Japan: 142.6 '01, 135.6 '02
  - Americas: 14.2 '01, 13.5 '02
  - Europe: 3.6 '01, 3.3 '02
  - Asia/Oceania: 70.8 '01, 67.8 '02
  - China/Northeast Asia: 54.0 '01, 63.2 '02

- **Water Consumption** (million m³, FY)
  - Japan: 44.2 '01, 40.1 '02
  - Americas: 12.2 '01, 11.1 '02
  - Europe: 32.0 '01, 29.0 '02
  - Asia/Oceania: 29.0 '01, 26.0 '02
  - China/Northeast Asia: 29.0 '01, 26.0 '02

- **Use and Release/Transfer of Chemical Substances** (thousand tons)
  - Japan: 66.6 '01, 63.9 '02
  - Americas: 0.7 '01, 0.5 '02
  - Europe: 7.0 '01, 0.9 '02
  - Asia/Oceania: 16.3 '01, 7.3 '02
  - China/Northeast Asia: 39.1 '01, 27.9 '02

- **Generated Waste and By-products with Value** (thousand tons, FY)
  - Japan: 193.4 '01, 171.8 '02
  - Americas: 20.9 '01, 17.6 '02
  - Europe: 8.7 '01, 6.2 '02
  - Asia/Oceania: 7.2 '01, 5.6 '02
  - China/Northeast Asia: 3.9 '01, 2.7 '02

- **NOx Emissions (FY'02)** (tons)
  - Japan: 1,416
  - Americas: 147
  - Europe: 14
  - China/Northeast Asia: 28

- **SOx Emissions (FY'02)** (tons)
  - Japan: 142
  - Americas: 2
  - Europe: 16
  - China/Northeast Asia: 117

- **COD Load (FY'02)** (tons)
  - Japan: 381
  - Americas: 1
  - Europe: 73
  - China/Northeast Asia: 494

- **Nitrogen Load (FY'02)** (tons)
  - Japan: 676
  - Americas: 0
  - Europe: 1
  - China/Northeast Asia: 3

- **Phosphorus Load (FY'02)** (tons)
  - Japan: 59.4
  - Americas: 0.0
  - Europe: 0.1
  - China/Northeast Asia: 0.4

Note: Improvements in the accuracy of the FY'02 examination (intensive examination in accordance with the Matsushita Electric Group Chemical Substances Management Rank Guidelines) have resulted in a considerable reduction in the amount of chemical substances used and released/transfered in some areas.
Facts & Figures
Environmental Performance Data (by Subject)

Prevention of Global Warming

- **Energy Consumption**
  - (10^12 MJ, FY)
  - Base year: FY'98
  - Crude oil equivalent (million kl)
    - 1998: 3.520
    - 1999: 3.589
    - 2000: 3.676
    - 2001: 3.502
    - 2002: 3.365
  - Percentage in total power consumption
    - 1998: 13%
    - 1999: 16%
    - 2000: 19%
    - 2001: 19%
    - 2002: 19%

- **Heavy Oil and Kerosene Consumption**
  - (thousand kl, FY)
    - Base year: FY'98
    - Percentage of Cogeneration in Total Electricity
    - 1998: 100%
    - 1999: 97%
    - 2000: 92%
    - 2001: 83%
    - 2002: 65%

- **City Gas Consumption**
  - (million m^3, FY)
    - Base year: FY'98
    - Percentage of Cogeneration in Total Electricity
    - 1998: 100%
    - 1999: 104%
    - 2000: 115%
    - 2001: 134%
    - 2002: 146%

- **Renewable Energy Consumption**
  - FY'00
    - Japan: 96,000 kWh

Note:
In Japan, we work to curb the consumption of energy such as heavy oil by implementing cogeneration systems powered by city gas, and by utilizing exhaust heat. As a result, energy consumption in terms of CO2 emissions per unit of joule has decreased.

*1 Percentage of Cogeneration in Total Electricity = Cogenerated Electricity/(Purchased Electricity + Cogenerated Electricity)
*2 CO2 Emissions per Unit of Joule (based on consumption)
An index showing the amount of CO2 emissions per 100 MJ of heat based on energy consumption by calculating 1 kWh of electricity as 3.60 MJ (860 kcal). As for Energy Consumption, 1 kWh of electricity is calculated as 10.26 MJ (2,450 kcal) input base.

Waste Reduction

- **Industrial Waste/By-products with Value and Final Disposal**
  - (Japan)
  - (Unit: tons)

<table>
<thead>
<tr>
<th>Item</th>
<th>Generation FY'00</th>
<th>FY'01</th>
<th>FY'02</th>
<th>Recycling FY'00</th>
<th>FY'01</th>
<th>FY'02</th>
<th>Final disposal FY'00</th>
<th>FY'01</th>
<th>FY'02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>70,505</td>
<td>57,005</td>
<td>52,964</td>
<td>70,302</td>
<td>56,691</td>
<td>52,478</td>
<td>60</td>
<td>112</td>
<td>109</td>
</tr>
<tr>
<td>Plastics</td>
<td>22,284</td>
<td>21,923</td>
<td>23,241</td>
<td>14,315</td>
<td>17,717</td>
<td>19,125</td>
<td>3,064</td>
<td>1,237</td>
<td>1,046</td>
</tr>
<tr>
<td>Sludge</td>
<td>21,762</td>
<td>16,510</td>
<td>20,535</td>
<td>16,969</td>
<td>13,103</td>
<td>18,124</td>
<td>3,221</td>
<td>1,894</td>
<td>921</td>
</tr>
<tr>
<td>Acid</td>
<td>65,146</td>
<td>44,371</td>
<td>19,506</td>
<td>63,683</td>
<td>41,912</td>
<td>17,559</td>
<td>35</td>
<td>104</td>
<td>19</td>
</tr>
<tr>
<td>Paper</td>
<td>18,696</td>
<td>18,597</td>
<td>18,642</td>
<td>15,572</td>
<td>16,364</td>
<td>16,630</td>
<td>532</td>
<td>208</td>
<td>191</td>
</tr>
<tr>
<td>Alkali</td>
<td>8,161</td>
<td>11,721</td>
<td>14,840</td>
<td>7,545</td>
<td>7,200</td>
<td>10,684</td>
<td>79</td>
<td>52</td>
<td>18</td>
</tr>
<tr>
<td>Glass / Ceramics</td>
<td>8,845</td>
<td>7,821</td>
<td>7,535</td>
<td>7,482</td>
<td>7,389</td>
<td>6,817</td>
<td>888</td>
<td>338</td>
<td>210</td>
</tr>
<tr>
<td>Oil</td>
<td>6,936</td>
<td>5,841</td>
<td>5,966</td>
<td>5,504</td>
<td>4,987</td>
<td>5,314</td>
<td>107</td>
<td>78</td>
<td>79</td>
</tr>
<tr>
<td>Others</td>
<td>9,024</td>
<td>9,549</td>
<td>8,551</td>
<td>6,724</td>
<td>7,388</td>
<td>6,553</td>
<td>967</td>
<td>199</td>
<td>137</td>
</tr>
<tr>
<td>Total</td>
<td>231,359</td>
<td>193,338</td>
<td>171,780</td>
<td>208,096</td>
<td>172,751</td>
<td>153,284</td>
<td>8,963</td>
<td>4,222</td>
<td>2,730</td>
</tr>
</tbody>
</table>

(percentages are approximate)
Consumed refers to the mass of substances which are contained in or released into water, total, or transferred as waste, as well as wastewaters or sludge discharged into the sewage system.

Released into water, total, transferred as waste, and recycled are calculated as net values obtained by subtracting quantities transferred to the areas other than the country from those released into water, or recycled.

Some of the data for recycled and/or transferred as waste may include a small amount not recycled, or transferred as waste, for example, new materials recycled in the last treatment cycle in recycled substances, or the mixture of recycled and transferred as waste.
Environmental Risk Management

Use of VOCs as Detergent
(tons, FY)

- Total elimination of use

Emissions of Hazardous Air Pollutants
(% FY)

- Total elimination of use

Use of In-house Incinerator
(units, FY)

- Total elimination of use

Shift to Green Distribution

CO₂ Emissions from Import/Export (rough estimates)
(tons)

Environmental Performance Data (by Subject)

Matsushita Electric Group Sustainability Report 2003

Recycling of End-of-life Products

Overview of Recycling for Specified Kinds of Home Appliances
(Numbers after the decimal point are truncated)

- Collected units at designated points (thousand units)
- Treated units for recycling (thousand units)
- Treated amount for recycling (tons)
- Recycled amount (tons)
- Recycling rate (%)

Products which Comply with the Law on Promoting Green Purchasing

Collected Materials by Product

- Iron
- Copper
- Aluminum
- Nonferrous metal and iron mixture
- Cathode ray tube glass

Total Amount of Materials Treated for Paid or Free Recycling to Be Reused
(Unit: tons) (Numbers after the decimal point are truncated)

- Air conditioner
- Television
- Refrigerator
- Washing machine

Total Amount of Collected Refrigerants
(Unit: kg) (Numbers after the decimal point are truncated)

- Air conditioner
- Television
- Refrigerator
- Washing machine

Recycled amount (tons)

Recycling rate (%)

Other by-products with value

Other by-products with value

Number of Models

Number of Models

Number of Models

Number of Models

Washing machine

Refrigerator

Television

Air conditioner

Lighting apparatus

TV

Printed circuit boards

Solar power generator

%
Environmental Communication

**Publication History of the Sustainability Report**

<table>
<thead>
<tr>
<th>FY</th>
<th>Number of Copies</th>
<th>Pages</th>
<th>Date</th>
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<td>'97</td>
<td>17,000</td>
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<td>24 Feb. 1998</td>
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<td>'99</td>
<td>18,000</td>
<td>5,000</td>
<td>40 Sep. 1999</td>
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<td>'00</td>
<td>22,000</td>
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<td>'01</td>
<td>20,000</td>
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<td>'02</td>
<td>25,000</td>
<td>5,000</td>
<td>78 Jun. 2002</td>
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</tbody>
</table>

**Facts & Figures**

**Environmental Technology**

- Development of High-Efficiency Inverter Air-conditioners
- Practical Application of Air-Buffering Packaging System
- Development of New Packaging Line and Design for Batteries

**Resource Conservation and Recycling**

- Zero Waste Program
- Eco-Products Recycling Program
- Product Take-back Initiatives

**Environmental Sustainability Management**

- ISO 14001 Certification
- Green Purchasing Network
- Environmental Management System

**Awards by Category (FY'02)**

- **Environmental Communication Award**
  - Japan: Japan Industrial Journal, “Global Environment Award”
  - India: Environmentally Friendly Product Award
  - Japan: Green Purchasing Network, “Green Purchasing Award”
  - China: ISO 14001 Compliance Model Company Award
  - China: Wuxi Environmental Protection Agency Award
  - Taiwan: Environmental Protection Administration Award

- **Prevention of Global Warming Award**
  - U.S.: EPA, “Energy Star Partner of the Year Award”
  - Japan: Energy Conservation Center, “Grand Prize for Energy Conservation”
  - Japan: METI, “Factory Energy Management Excellence Award”

- **Resource Conservation and Recycling Award**
  - U.S.: EPA, “eCycle Program”

- **Environmental Communication at Local Sites**

- **Participation in Exhibitions**
  - Exhibition: JCCl, Young Entrepreneurs Group’s National Conference
  - Location: Osaka
  - Date: Nov. 2002

- **Environmental Communication at Local Sites**

- **Major External Awards (FY’02)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Presenter/Name of Award</th>
<th>Name of Prize</th>
<th>Winning Organization/Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>President Nakamura</td>
<td>Grand Prize</td>
<td>Matsushita Electric Group</td>
</tr>
<tr>
<td>India</td>
<td>Environmental Agency of Andhra Pradesh</td>
<td>Award for Excellence in Environmental Management</td>
<td>Indi National Ltd.</td>
</tr>
<tr>
<td>Japan</td>
<td>Green Purchasing Network</td>
<td>METI Minister’s Prize</td>
<td>Matsushita Electric Group</td>
</tr>
<tr>
<td>China</td>
<td>Liaoning Environmental Protection Agency</td>
<td>ISO 14001 Compliance Model Company Award</td>
<td>Shenyang Matsushita Storage Battery Co., Ltd.</td>
</tr>
<tr>
<td>China</td>
<td>Wuxi Environmental Protection Agency</td>
<td>Green Company Award</td>
<td>Wuxi Matsushita Refrigeration Compressor Co., Ltd.</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Environmental Protection Administration</td>
<td>Office Environmental Protection Award</td>
<td>Matsushita Electric (Taiwan) Co., Ltd.</td>
</tr>
</tbody>
</table>

**Environmental Communication**

- President Nakamura receives the prize for Mr. Hidetaka Nakahara, Chairman of GPN.

**Green Purchasing Award**

In November 2002, the Matsushita Electric Group won the Minister of Economy, Trade and Industry Prize at the 5th Green Purchasing Award presented by the Green Purchasing Network, Japan. The Prize was given for our commitment to enhancing various environmental programs, such as the promotion of green purchasing and environmentally conscious products.
### Facts & Figures

#### Social Performance Data

**Data Related to Social Issues**

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Employees</th>
<th>National Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia/Oceania</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Americas</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Victor Company of Japan Ltd. not included (As of March 2003)*

**Employment Rate for People with Disabilities**

- **Matsushita**
  - Statutory employment rate: 1.85 (FY)
  - Private sector average: 1.91

**External Awards (FY’02)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Country</th>
<th>Presenter/Name of Award</th>
<th>Name of Prize</th>
<th>Winning Organization/Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Safety</td>
<td>Japan</td>
<td>Hyogo Labour Bureau Director’s Award</td>
<td>Award for Excellence in Health</td>
<td>Panasonic AVC Networks Company, IT Products Division, Kobe</td>
</tr>
<tr>
<td>Healthcare</td>
<td>Japan</td>
<td>Ministry of Manpower and Transmigration</td>
<td>Accident-Free Safe Enterprise Award</td>
<td>P.T. Matsuishi Gobel Battery Industry</td>
</tr>
<tr>
<td>Usability</td>
<td>Japan</td>
<td>METI Award for Exemplary Consumer Focus Enterprise Activity Service Award</td>
<td>Minister of Economy, Trade and Industry Prize</td>
<td>Matsushita Electric Industrial Co., Ltd., Tokyo Branch</td>
</tr>
<tr>
<td>Design</td>
<td>Japan</td>
<td>METI, Good Design Award</td>
<td>Good Design Award</td>
<td>72 awards (40: Panasonic products, 32: National products)</td>
</tr>
<tr>
<td></td>
<td>Japan</td>
<td>METI, Good Design Award</td>
<td>Universal Design Prize</td>
<td>Seated body shower</td>
</tr>
<tr>
<td></td>
<td>Japan</td>
<td>METI, Good Design Award</td>
<td>Long-selling Good Design Prize</td>
<td>2 awards: Turntable (record player), Microwave oven</td>
</tr>
</tbody>
</table>

**Work and Life Support Programs**

(As of March 2003)

<table>
<thead>
<tr>
<th>Employee Benefits</th>
<th>Child Care Leave</th>
<th>Applicable until the end of March after the child reaches 1 year old</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Child Care Flextime</td>
<td>Applicable until the end of March after the child reaches 3 years old and for the child’s first year of elementary school</td>
</tr>
<tr>
<td></td>
<td>Family Care Leave</td>
<td>A total of 1 year during a period of 2 years</td>
</tr>
<tr>
<td></td>
<td>Family Care Flextime</td>
<td>A total of 1 year including family care leave</td>
</tr>
<tr>
<td></td>
<td>Nursing Care Leave</td>
<td>Maximum of 5 days for nursing children</td>
</tr>
<tr>
<td></td>
<td>Work and Life Support Program</td>
<td>• Work at home, 2 or 3 days/week, core-time, half-day work, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Child care: Applicable until the end of March after the child reaches 3 years old and for the child’s first year of elementary school</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Family care: A total of 1 year including family care leave</td>
</tr>
</tbody>
</table>

**Information Disclosure and Communication**

- **Information Disclosure on the Web**
  - Provide governmental and corporate information about work and social life support and information designed for managerial staff
- **Development of Chat Rooms on the Web**
  - Share and solve work and child-care-related issues
- **Communication Tool for Supervisors**
  - Interview before/after taking leave, information exchange report for staff on leave

**Child/Family Care Support**

- **Corporate Contract with Nursery Agent**
  - Use child minding services and temporary child-care centers
  - Support elementary school children
- **Contract with Home Care Coupon Administration**
  - Dispatch home help or caregiver
  - Apply to employees and their family

### GRI Content Index

**Global Reporting Initiative (GRI) Sustainability Reporting Guidelines**

<table>
<thead>
<tr>
<th>Element/Indicators</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN1-EN8</td>
<td>2.1</td>
</tr>
<tr>
<td>EN12-EN21</td>
<td>2.2</td>
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<td>EN30-EN34</td>
<td>2.3</td>
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<td>EN35-EN39</td>
<td>2.4</td>
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<td>EN40-EN44</td>
<td>2.5</td>
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<tr>
<td>EN59-EN63</td>
<td>2.6</td>
</tr>
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<td>EN64-EN68</td>
<td>2.7</td>
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<td>EN69-EN73</td>
<td>2.8</td>
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<td>EN74-EN78</td>
<td>2.9</td>
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<td>EN79-EN83</td>
<td>3.1</td>
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<tr>
<td>EN84-EN88</td>
<td>3.2</td>
</tr>
<tr>
<td>EN89-EN93</td>
<td>3.3</td>
</tr>
</tbody>
</table>

*Matsushita Electric Group Sustainability Report 2003* 90
Third Party Comments

Sustainability Analysis by The Natural Step

The Swedish Sustainability Organization The Natural Step has provided a sustainability analysis in Matsushita’s last two environmental reports. Since then, Matsushita has received comments from many people on this. Among the comments we heard were “Very interesting,” “This is rather different from the reality of the situation” and “This is just too difficult to understand.” In this section, we would like to explain how we use these comments and the sustainability analysis to try to explain Matsushita’s thinking more clearly.

Q What is a sustainability analysis? How is it different from a third party verification?

Whereas the purpose of a third party verification is to assure the reliability of disclosed information, a sustainability analysis is a process of verifying whether the principles of Matsushita’s environmental initiatives, its specific measures taken, and the products created as a result are consistent with the goal of creating a sustainable society.

Q Why did Matsushita partner with The Natural Step?

Matsushita chose The Natural Step as its partner because The Natural Step clearly lays out the conditions necessary for achieving a sustainable society and is very positive about creating social change through corporate activity. Additionally, the act of analysis has taught us much about environmental policy in northern Europe, one of the most environmentally progressive parts of the world. Complementing this knowledge with Matsushita’s ideas and technology has potentially huge benefits for developing new strategies.

Q Why dose Matsushita disclose the contents of the analysis?

Matsushita feels it is important to share with every member of society the issue of what industry, citizens, and government should be doing to achieve a sustainable society. As a public entity, Matsushita believes in doing business for the benefit of society. This means doing business with society’s support and providing products and services in return. It is extremely important, therefore, that we disclose our ideas and actions as well as assessments of our efforts to the broader world. We feel that disclosure is our responsibility. We want our initiatives to be meaningful to our stakeholders.

Q What specific process dose Matsushita use for the analysis?

1. Determining what to verify
   - Matsushita has performed analyses for the past two years. The first time, in FY’01, the analysis focused on company environmental initiatives in general, while the analysis for FY’02 examined products representative of Matsushita, namely TVs and refrigerators. In each case, the results were included in our Environmental Sustainability Report.
   - Results from the survey included in the Environmental Sustainability Report 2002 indicated that readers have a strong interest in the recycling of home appliances.
   - Reflecting this interest, we decided to subject the home appliances recycling plant Matsushita Eco Technology Center (METEC) to analysis.

2. Writing answers (concept sharing)
   - Matsushita received a recycling plant questionnaire from The Natural Step.
   - At this point, it was important that the officials from units writing our answers really understood The Natural Step’s way of thinking. Together they shared “Backcasting from the Four System Conditions for a Sustainable Society” and applied this way of thinking to Matsushita’s efforts when answering.

3. Confirming basis of logic, visiting sites
   - Matsushita’s response was confirmed through interviews with responsible unit officials, site observations, and monitoring of information released to the outside world.

4. Analyzing
   - At The Natural Step’s Sweden headquarters, Dr. Karl-Henrik Robèrt performs the analysis based on Matsushita’s response, its communications to the outside world and site observations.
   - A “backcasting” analysis technique is used, in which one looks back on present efforts from some point at which a sustainable society has been achieved i.e. when the Four System Conditions are complied with. This technique gives a longer-term, more substantial third party view.
Sustainability Analysis Report of Recycling Plant Matsushita Eco Technology Center

[Outline]
The Natural Step has analyzed the operations of the recycling plant Matsushita Eco Technology Center (METEC) in terms of sustainability. The analysis consists of three parts, each performed in accordance with The Natural Step framework: analysis of human needs, analysis of major products and processes, and analysis of applications of products and processes in society.

[Analysis]

1. Vision for the Future
METEC has a vision based on the sustainability concept and has set corresponding goals. The fundamental needs for satisfying the Four System Conditions may be defined as follows:
   1) Recovery rates of products and substances must be increased and these recovered materials must have the same functionality as new materials in new products when they are used.
   2) All waste must be recycled and as little waste as possible must be created, i.e., even recycling itself must be minimized as far as possible.
   3) Heavy metals and persistent substances that are foreign to nature posing high risks of pollution must be banned from applications other than circulating technical systems that are limited to the industry.
   4) METEC should play the role of educating society in general, which includes ordinary citizens, materials suppliers, and governments.

2. Putting Words into Action
METEC has already made concrete changes putting it on the road to sustainability.
   1) Employee health and safety
   METEC has policies and specific measures in place concerning employee health and safety and is making sufficient efforts in this area.
   2) Banning of hazardous substances
   METEC is systematically removing substances that should be removed as far back as the production stage. It also publically discloses its timeframes for doing so. Substances included in this effort are heavy metals like lead, cadmium and hexavalent chromium as well as CFCs used in refrigerators.
   3) Recycling R&D
   METEC has a conscientious and systematic approach to designing products so that they are recyclable and certain substances are removed. Specifically, METEC has established an R&D department.
   4) Recycling technology and results
   Following its “from products to products” concept, METEC develops leading-edge recycling technology and is already producing recycled metal and plastic materials with weight and functionality equivalent to virgin materials.
   5) A social basis for recovering products
   With the cooperation of retail stores around Japan, METEC is establishing efficient and convenient ways of transferring materials with social systems for recovering products.
   6) Other-company products
   METEC is recycling not only Matsushita’s products but also those from competing companies.
   7) Talking to the public
   METEC is actively appealing to the public with plant tours and information provision over the Internet and has had excellent results. Plant visitors to date number more than 18,000 people and have included government and industry officials, school groups, and visits from Europe, China and other nations.
   8) Relationships with the local community
   METEC has established an environmental conservation council with the local community, and this council is actively discussing the surrounding environment (noise, pollution, traffic, etc.).

3. Honesty Regarding Remaining Issues
METEC demonstrates honesty in regard to remaining issues in order to put its sustainability convictions into action. Issues that cannot be resolved with current strategies are listed below.
   1) Labor conditions
   There is always room for improvement, and continuous efforts are needed. Generally, people tend to work with a positive attitude when they are in a new workplace. It is important to further clarify issues needing improvement.
   2) Product recovery rates and costs
   METEC does not currently identify its product recovery rate. Probably this is because there are no targets for these under Japan’s Law for Recycling of Specified Kinds of Home Appliances, but for society as a whole to be sustainable it is important that a large ratio of end-of-life products be recovered from the market. As a long-term strategy, Matsushita should take steps to increase product recovery rates, such as by including the recycling fee within the product price.
   3) Recovering high-purity resources
   There is room for further improvement in the technology for recovering high-purity materials from products. If the ultimate goal is to recover 100% of materials, then there must still be a 10% improvement in iron, 30% in mixed metal fractions like copper and aluminum, and 50% in plastic.
   4) Communicating with suppliers
   Matsushita should better clarify its policies on working with material suppliers in relation to its mid- and long-term targets. Each firm has responsibility for its business activities of the entire supply chain. Suppliers work in the upstream portion of the supply chain, including their extraction of virgin materials, transportation, design, which has an impact on sustainability. If one can affect this portion of the chain, it can greatly contribute to the sustainable development of society in general. For example:
   • The environmental and social burden from mining ore is a serious problem. This is a problem that the wealthy developed countries force onto developing countries by the act of importing ores. Matsushita should promote dialogue to solve this problem and take action against the social cost.
   • As energy sources used in factories and for transportation, oil and nuclear power are contrary to “the system conditions”.
   • Matsushita needs to make strenuous efforts to eliminate the use of certain scarce substances and persistent chemicals that are foreign to nature.
   5) Communicating with customers
   Communicating with customers on the subject of Matsushita’s mid- and long-term targets is critical to appealing to the public and achieving long-term economic change.
   6) Communicating with government agencies
   Japan’s Law for Recycling of Specified Kinds of Home Appliances sets product recycling rates, but it does not establish standards for the purity of resources recovered. Would it be to METEC’s disadvantage in terms of competitiveness if it were able to recover highly pure resources? This point should be clarified.

*1 The Natural Step Framework
The Four System Conditions
In a sustainable society, nature is not subject to systematically increasing:
   1) concentrations of substances extracted from the earth’s crust
   2) concentrations of substances produced by society
   3) degradation by physical means through overharvesting, introductions and other forms of modification
   and, in that society
   4) human needs are met in our society and worldwide.
How is Matsushita addressing The Natural Step’s concerns?

• Matsushita takes The Natural Step’s concerns very sincerely. We wish to address these concerns one-step at a time.
• Regarding the improvement of the work environment, we will continue our efforts following the slogan “Build factories where we show all and all can be seen.”
• Matsushita is striving to increase the purity of resources recovered. We are, for example, developing washing technology that will allow us to recover plastic in a purer state. Also, we are developing technology that detects and separates materials by color. Our ultimate goal is to achieve superior recycling that completes the “from products to products” loop.
• Matsushita’s policy on materials suppliers is to get them to eliminate hazardous substances from their products (p. 62). Matsushita will work globally to remove substances targeted by the European Union’s RoHS Directive (p. 49) and strive for supplier understanding of this policy.
• To increase product recovery rates, Matsushita is working to educate users to dispose of products properly and is discouraging illegal dumping.

Have Matsushita made use of the results of the previous analysis? What efforts is Matsushita making with these?

In FY’02, The Natural Step performed a product sustainability analysis on refrigerators and TVs. The results were presented to our Environmental Officers as feedback and included in our Environmental Sustainability Report. Subsequently Matsushita held an in-house seminar on the analysis to share the content with many of our engineering staff. Matsushita is actively using advertising and environmental labels (pp. 70-71) to promote eco-friendly products to consumers.
Publication Notes

Dr. Norman Myers of England converses with Hidetsugu Otsuru, Managing Director (center) and Sukeichi Miki, Special Technology Advisor.

Matsushita believes that for a corporate report to be credible to its readers, the report must clear certain hurdles in order to offer definite values to society. This year’s Sustainability Report includes the new Highlights 2002 section as a means of providing these values. This section was designed to make Matsushita’s corporate vision more realistic and put the spotlight on the ideas and actions of its employees. Every theme it addresses presents the story of another struggle, another sign of the transformation we are undergoing to achieve sustainability. Matsushita hopes to receive your comments and constructive criticisms in order to help us create reports that will adequately convey the social vision Matsushita seeks to achieve.

Hidetsugu Otsuru
Managing Director, Member of the Board
Matsushita Electric Industrial Co., Ltd.

Matsushita’s vision for the start of the 21st century can best be summed up as “Realizing a Ubiquitous Network Society” and “Coexistence with the Global Environment.” This century, we understand that a corporation cannot exist unless it coexists with the environment. Contributing to this coexistence through our business activities and achieving this sustainable society are among a company’s most critical missions.

In October 2002, I had the fortune to talk with Dr. Norman Myers at our Environmental Forum. Dr. Myers’ guiding principle is that companies have to work harder on behalf of a three-part bottom line: the financial bottom line of course, and also the environmental and social bottom lines, aiming to develop into Gaia companies that can learn a lot from Earth working as a living super organism. Moreover, he mentioned that Matsushita is already headed in this direction; it just needs to pick up the pace.

The guiding policy of Matsushita’s FY’03 environmental initiatives is to make “Each of Us Acting with the Spirit of a Founder — practice environmental sustainability management at the global level to establish an ‘environment-based enterprise.’” Matsushita believes in further strengthening its efforts for its three-part bottom line around the globe. This idea is the basis for our decision to include more economical and social information in the old Environmental Sustainability Report and change its name to the more encompassing expression “Sustainability Report,” beginning this year. We hope this report will inspire our stakeholders to share their comments with us. Matsushita accepts the challenge of transforming itself and achieving a sustainable society.

Hidetsugu Otsuru
Managing Director,
Member of the Board
Matsushita Electric Industrial Co., Ltd.

Afterword

Matsushita believes that for a corporate report to be credible to its readers, the report must clear certain hurdles in order to offer definite values to society. This year’s Sustainability Report includes the new Highlights 2002 section as a means of providing these values. This section was designed to make Matsushita’s corporate vision more realistic and put the spotlight on the ideas and actions of its employees. Every theme it addresses presents the story of another struggle, another sign of the transformation we are undergoing to achieve sustainability. Matsushita hopes to receive your comments and constructive criticisms in order to help us create reports that will adequately convey the social vision Matsushita seeks to achieve.

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Satsuma Kiriko, a cut crystal from Kagoshima on the main southern island of Kyushu, Japan, is renowned for its unsurpassed transparency. Clear glass is covered with colored glass and cut at a slight angle that brings out unusual gradations of color. The bokashi color gradation technique is unique to Satsuma Kiriko and imparts a soft, warm feeling that is unusual for glass.

Behind this gemlike art form lie the tenacious efforts of skilled craftsmen. Created and developed by Nariakira Shimadzu, the 28th lord of the Satsuma domain in the last days of the Edo Period, Satsuma Kiriko's reputation as an example of a fine cutting technique became established far and wide. The factory producing it was destroyed after only a few years, however, during an armed conflict with the British in 1863.

Over a century later in 1985, the time was ripe to restore the craft based on the few remaining pieces and references in documents. A process of trial and error by craftsmen led to the "restored Satsuma Kiriko" with all the once-lost skill now recovered. In 2001, an even more advanced form emerged using two different colors of glass.

The craftsmen's spirit has always been in demand and always will be.
Thank you for reading the Sustainability Report. We look forward to receiving your opinions.

We have tried to inform you about our environmental philosophy and activities in the Sustainability Report 2003 in an easy-to-understand format, but we know that there is always room for improvement. Your kind advice is an important asset for us to review our environmental activities and reporting. Please take the time to write down your opinions, impressions, or comments on the back of this form and send it to the address below.

August 2003

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Communication Sheet is also available on our website.
http://matsushita.co.jp/environment/2003e/
Communication Sheet  To: Corporate Environmental Affairs Division (FAX: +81-6-6909-1163)

•What do you think about this Report?

Understandability

Excellent □ Average □ Poor □

Number of pages you looked at

Ten or fewer □ About half □ About all □

•Which article(s) interested or impressed you?

☐ Corporate Profile, Editorial Policy
☐ Aiming for Coexistence with the Global Environment
☐ Achieving a “New Prosperity”
☐ Accomplish the Lead-Free Soldering Project
☐ Matsushita Eco Technology Center
☐ Fuel Cell Cogeneration Systems
☐ Light and Trust Service
☐ Achieve Zero Waste Emissions
☐ Improve Management Quality
☐ The Second Environmental Stakeholders Meeting
☐ The Third Environmental Stakeholders Meeting
☐ Love the Earth Citizens’ Campaign
☐ Americas
☐ Europe

☐ Asia and Oceania
☐ China and Northeast Asia
☐ Economic Performance
☐ Corporate Ethics and Compliance
☐ Corporate Governance and Finance
☐ Research and Development
☐ Environment Solution Business
☐ Environmental Sustainability
☐ Basic Policy for the Environment
☐ Target and Performance
☐ Environmental Sustainability Management and Promotion System
☐ Environmental Education and Awareness-raising
☐ Environmental Accounting
☐ Product Life Cycle and Environmental Impact
☐ Input to and Output from Production Activities
☐ Material Procurement
☐ Shift to Green Distribution
☐ Environmentally Conscious Product Design
☐ Environmental Risk Management
☐ Recycling of End-of-life Products
☐ Environmental Communication
☐ Relationship with Employees
☐ Relationship with Customers
☐ Relationship with Society and Communities
☐ Sustainability Analysis by The Natural Step
☐ Facts & Figures
☐ Publication Notes
☐ Front cover / Back cover

•Please feel free to comment or make suggestions on this report.

About contents on which you need more information.

About the best way to express carbon dioxide emissions (used as an indicator of global warming)? (See p.24)

About specific issues to be covered besides the environment you think should be covered.

•Which of the following best describes you?

☐ Consumer ☐ Business partner ☐ Shareholder/Investor ☐ Environmental officer of a company/organization
☐ Environmental NPO ☐ Research/Education organization  ☐ Student  ☐ Mass media  ☐ Government agency
☐ Resident near a Matsushita facility  ☐ Matsushita Electric Group employee or family member

•The following information is optional.

Name ____________________________ Sex ☐ Female ☐ Male  Age __________

Address

☐ Home  ☐ Office

TEL ____________________________ FAX ____________________________

Occupation (Company or School Name) ____________________________
e-mail address ____________________________

How often have you read the Matsushita Electric Group’s Sustainability Report? ☐ First time  ☐ At least once before  ☐ Every year

Would you like to receive next year’s report? ☐ Yes  ☐ No

Thank you for your cooperation.