

Environmental Sustainability Report 2001

Matsushita Electric Group Environmental Sustainability Report 2001

The photo shows an Aobizen ware by the Bizen potter Mitsuhiro Urakami. Bizen stoneware has a thousand year old tradition. It is generally fired unglazed and characterized by a uniquely simple texture and a reddish color from oxidized clay. Aobizen is made with a special technique to produce a subtle shade of blue. At present, about 200 potters are members of the Bizen-yaki Toyukai in Okayama Prefecture; very few can create Aobizen with such exquisite beauty, making this artwork furthermore precious. This particular piece was made with clay from 1.5 million years ago and was fired with Japanese red pine. The art of Bizen stoneware exemplifies the essence of Japanese workmanship.



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Printed in Japan
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Highlights of Environmental Activities in FY 2000

Introduced in brief below are some of the progress and status of environmental activities conducted in FY 2000 (April 2000 – March 2001) by the Matsushita Electric Group.

The background photo shows Japanese red pine wood, valuable resources for firing Bizen pottery kilns.

1 Environmental Vision Environmental vision

Year 2010

In view of building a sustainable society, our company's "Environmental Vision" was established, and the Green Plan 2010 targeted at FY 2005 and 2010 was formed in line with this Vision. (pp.7-8)

2 Environmental Management Evaluation of environmental performance

10%

In order to enhance environmental performance, an internal evaluation system was introduced. In addition to conventional evaluation items, achievement rates of Green Product and Clean Factory targets are evaluated in each business field, and reflected on overall business performance with an approximate weight of 10%. (p.18)

3 Green Products Environmental Characteristics Stickers

Total 266 models

Since 1997, "Environmental Characteristics Stickers" have been applied to products to help our customers understand our specific environmental considerations put into each product. As of the end of FY 2000, these stickers are affixed on a total of 266 models. (pp.19-20)

4 Green Products Products with lead-free solder

Total 6 million units

We are promoting the adoption of lead-free solder on PCBs. In Japan, by the end of FY 2000, 35 models of 16 products with lead-free solder have been marketed, amounting to a production total of approximately 6 million units. Our goal is total abolition of lead solder in our products by the end of 2002. (p.25)

5 Green Products Green procurement

3,000 companies

Since 1999, we have been implementing "Green Procurement" by purchasing parts and materials made with environmental considerations. In FY 2000, evaluation of approximately 3000 main suppliers has been completed. (p.29)

6 Clean Factories CO₂ emission

109% compared to FY 1990

As a result of expansion of the device business, which consumes a large amount of energy, CO₂ emission in FY 2000 at manufacturing sites in Japan ended at 109% compared to FY 1990. (pp.37-38)

7 Clean Factories Recycling ratio at the factories

96%

As a result of thorough promotion of reuse and recycling aimed at reducing factory waste, 96% recycling ratio was achieved in FY 2000. (pp.41-42)

8 Clean Factories Chemical substances

Reduced by 41% and 11%

The use and release/transfer of target chemical substances were reduced by 41% and 11%, respectively, compared to FY 1998. (pp.39-40)

9 Love the Earth Environmental Household Budget Ledger

20,000 households

As a part of the Love the Earth Citizens' Campaign (LE) for promoting environmentally conscious lifestyle of our employees and their family, approximately 20,000 households participated as "LE families" by using the Environmental Household Budget Ledger in FY 2000. (p.53)

Major Progress and Status of the Environmental Voluntray Plan

- Promotion of Product Assessment (pp.21-22)
 - ▶ Implemented assessment of 2,490 models
 - ▶ "Matsushita Product Assessment" Version 5 was published and a database system was built.
- Achieve a recyclability ratio of more than 80% (according to company standard) for main products in FY 2000 (p.27)
 - ▶ Televisions 91%, Refrigerators 80%, Air conditioners 86%, Washing machines 85%

- Reduce energy consumption of main products by more than 30% in FY 2000 (p.23)
 - ▶ VCRs 66%, Refrigerators 77%, Air conditioners 29%, Wide screen televisions 23% (compared to FY 1995)
- Reduce energy consumption per unit of sales at factories by 25% in FY 2000 (p.36)
 - ▶ 27% increase (compared to FY 1990)
- Establish recycling systems for main products (pp.33-35)
 - ▶ Established recycling technology and collection systems for four home electrical appliances (air conditioners, televisions, refrigerators, and washing machines), and commenced operation in Japan in April 2001.

* All data are based on FY 2000 results, but activities partially include those of FY 2001.

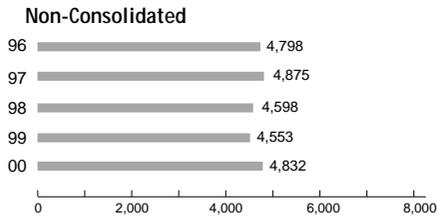
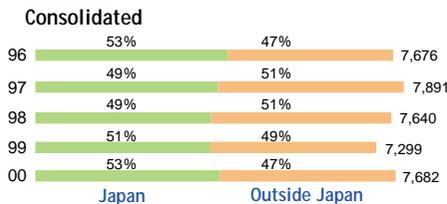
Corporate Profile (Consolidated)

Matsushita Electric Industrial Co., Ltd.
 address: 1006 Kadoma, Kadoma-city,
 Osaka 571-8501, Japan
 phone: +81-6-6908-1121 (main representative)
 Incorporated on December 15, 1935
 Established on March 7, 1918
 President and Representative Director:
 Kunio Nakamura

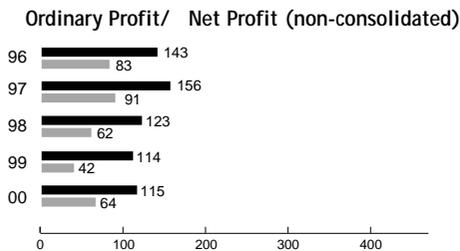
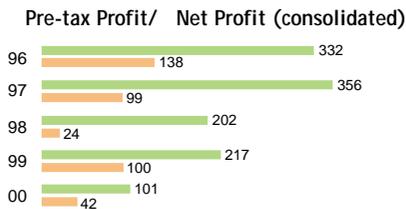
Japanese website: www.matsushita.co.jp
 English website: www.panasonic.co.jp/global

Stock Exchange Listings:
 Tokyo, Osaka, Nagoya, Fukuoka, Sapporo,
 New York, Pacific, Amsterdam, Frankfurt,
 Dusseldorf, Paris

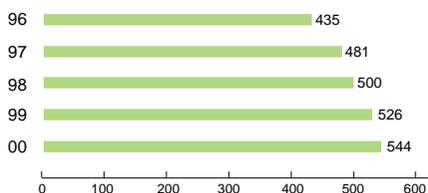
Net Sales (¥billion)



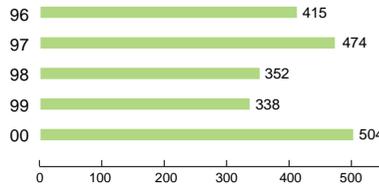
Profit (¥billion)



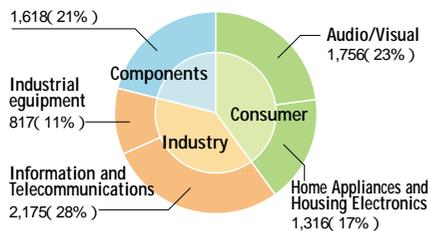
R&D Costs (¥billion)



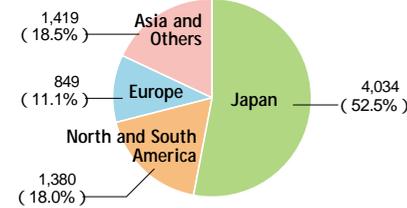
Capital Investment (¥billion)



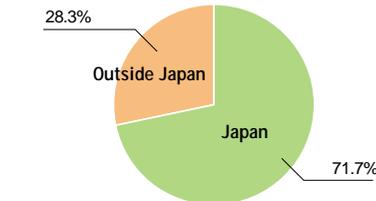
Net Sales per Product Category FY2000 (¥billion)



Net Sales per Region FY2000 (¥billion)

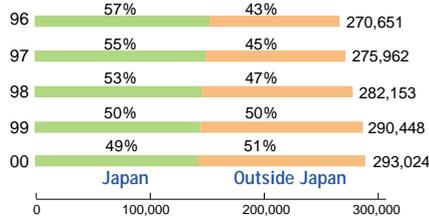


Production Ratio FY2000



*JVC's production is not included in the Outside Japan ratio

Number of Employees



*notes

- Matsushita's consolidated settlements of accounts are based on U.S. accounting standards. Reductions in corporate taxation rates, in line with the revision of the taxation system, resulted in effects on net income (consolidated) of ¥52.8 billion for FY 1997 and ¥33.3 billion for FY 1998.
- As of March 31, 2001, companies included in the consolidated settlements of accounts (parent and subsidiaries) totaled 321 companies, and the affiliates (where the equity method applies) totaled 53 companies.
- JVC and some of Matsushita's consolidated subsidiaries also sell their products under other brand names.

Matsushita Electric Group's Main Brand Names

Matsushita Electric Group's products are sold and served in more than 170 countries under these brand names:

National

Our founder Konosuke Mastushita registered this trademark in 1925, with the hint from the word "international". He wanted the name to imply "of an for the people". In 1927, it was first used on a box shaped battery powered lamp. It is currently used on home electric appliances and housing-related equipment in Japan, and home electric appliances in Asia, the Middle East and Africa.

Panasonic

Panasonic was first used in 1955 on speakers for export. The brand name is derived from "pan" meaning whole and general, and "sonic" meaning sound or the speed of sound. It is currently used on products such as audio and video equipment, information and communications equipment and factory automation equipment in Japan. In the Americas, Europe and Oceania, it is used on all the products; and in Asia, the Middle East and Africa, it is used on audio and video equipment and information and communications equipment.

Technics

First used in 1965 on high-grade speakers for the Japan market. It is currently used on Hi-Fi audio products and electronic musical instruments throughout the world.

Quasar

This trademark was originally used on TVs manufactured by Motorola. Matsushita continued the tradition when it acquired Motorola's electronic appliance division in 1974. Presently, it is used on specific TVs, videos, and microwaves in North America region.

Overseas Operating Divisions and Subsidiaries

Number of Companies per Buisness Category	Count
Headquarter	5
Manufacturing/Sales	44
Manufacturing	100
Sales	48
R&D	13
Finance	5
Others	14

Number of Companies per Region	Count
North America	33
Central/South America	11
Europe	54
CIS/Middle East/Africa	6
Asia/Oseania	82
China	43

(Total: 229 companies in 44 contries)



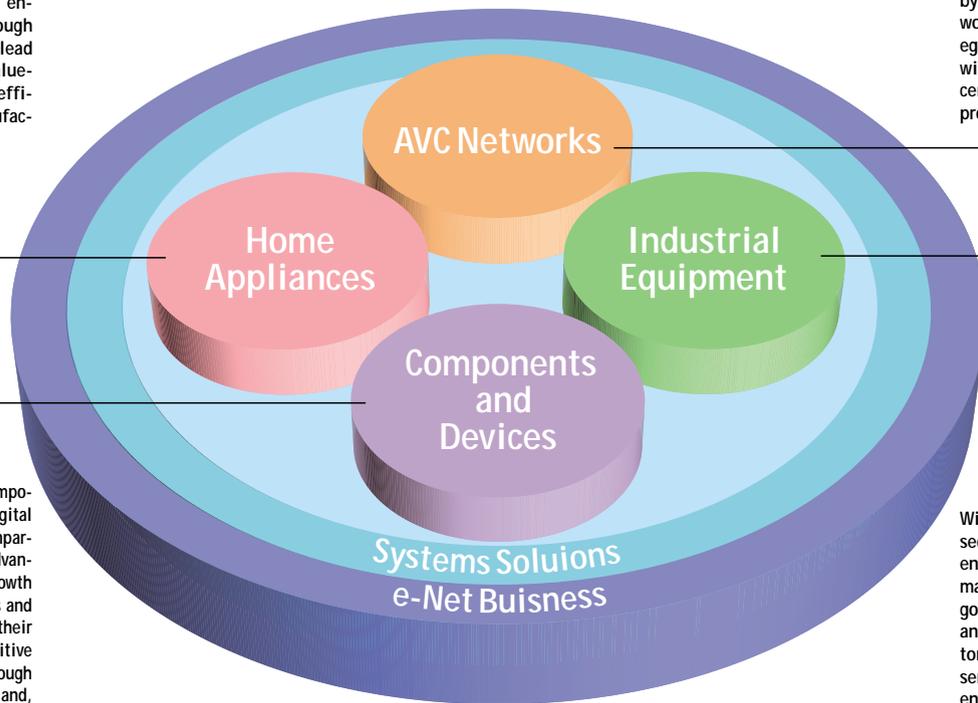
New Business Segments and its Main Products

In response to new business environments created by the evolution of digital networks, the integration of broadcasting and communications and other recent developments, Matsushita has reclassified its Con-

sumer, Industrial and Components segments into four new segments: AVC Networks, Home Appliances, Industrial Equipment, and Components and Devices.

Matsushita's strategy is to achieve steady business progress and ensure a stable income source through technological innovations that lead to the introduction of higher-value-added products, as well as efficiency improvements in manufacturing and sales.

Matsushita is seeking new growth by expanding its interlinking networkable products. This new strategy focuses on home networking, with digital AV equipment at its center, and mobile networking products, led by cellular phones.



Boasting a wide array of key components and devices essential for digital networking, Matsushita offers unparalleled total solutions. Taking advantage of this, and to ensure higher growth and profitability, our components and devices divisions are accelerating their efforts to achieve a greater competitive edge and operating efficiency through strategic selection of priority areas and, as necessary, strategic alliances.

Within the Industrial Equipment sector, we are reinforcing our engineering services business, mainly for private enterprises and government agencies in Japan and overseas. By providing customers with tailored value-added services, the Company seeks to enhance profitability and growth.

Main Products (From April 1, 2001)

AVC Networks

Color TVs, LCD and PDP TVs, videocassette recorders (VCRs), camcorders, DVD players, compact disc (CD), Mini Disc (MD) and SD players, other personal and home audio equipment, AV and computer product devices, prerecorded AV software, broadcast- and business-use AV equipment and systems, PCs, CD-ROM, DVD-ROM/RAM and other optical disk drives, HDDs, other data storage devices, CRT and LCD displays, copiers, printers, telephones, cellular phones, Personal Handyphone System (PHS) terminals and other mobile communications equipment, facsimile equipment, car AVC equipment, traffic-related systems, communications network-related equipment, other information and communications equipment and systems.



Digital video camera

Industrial Equipment

Electronic-parts-mounting machines, industrial robots, electronic measuring instruments, welding equipment, power distribution equipment, ventilation and air-conditioning equipment, car air conditioners, vending machines, other food industry-related equipment, medical equipment, elevators, escalators.



Automatic welding machine

Home Appliances

Washing machines, clothes dryers, vacuum cleaners, electric irons, microwave ovens, cooking appliances, dishwashers, refrigerators, room air conditioners, electric fans, air purifiers, heating equipment, kitchen fixture systems, electric, gas and kerosene hot water supply equipment, bath and sanitary equipment, healthcare equipment, electric lamps, bicycles, photographic equipment.



Centrifugal force washer-dryer

Components and Devices

Semiconductors, electronic tubes, LCD panels, PDPs, general components (capacitors, resistors, coils, speakers, power supplies, mechanical components, high frequency components, printed circuit boards, etc.), magnetic recording heads, electric motors, compressors, dry batteries, storage batteries, non-ferrous metals.



Plasma display panel

A Bold Step into the Century of the Environment

Aiming at Becoming a Company in Harmony with the Environment Even a Hundred Years from Now

Three Waves of Change

The 20th century is a century marked by an accelerated chase after material contentment in the pursuit of an affluent society. The modern civilization, which delivers materialistic prosperity, has unfortunately disrupted our life-supporting nature, as seen for example in global warming, bringing great damage to our irreplaceable earth. In this 21st century, said to be the Century of the Environment, "Coexistence with the Global Environment" has become the most important issue facing mankind.

We are in the tide of three waves of change. The first is technological evolution. The 21st century will surely be an era for human wisdom to blossom, in which unknown mysteries about life and the universe will become clear and seemingly impossible ventures will come into reach. At the same time, however, we will be with the task to find a delicate balance between the rapidly advancing technology, the deteriorating nature, and an ever-expanding world population. As a leader in the Japanese electronics industry, we are fully aware of the importance of our mission to find a viable management approach to harmonize the remarkable technological progress with nature.

The second is the formation of a global digital networking society triggered by the IT revolution. With the rapid formation of a digital networking society founded on the Internet, the economic order that existed in yesterday's world is being destroyed, in a constructive sense, to make way for people, materials, money, and information to move freely across national borders. Electronics is an industry also in the IT field that contributes to the progress of mankind, but it must exercise flexible management in tandem with the need of the times. In contemplation of the world's environmental problems, we are aware that IT can be employed as a powerful tool to integrate the wisdom of the world.

The third is the review of corporate structure. As a company, we must ask ourselves the fundamental question of what our company



Kunio Nakamura

President
Matsushita Electric Industrial Co., Ltd.

stands for. In the 21st century, we must seek an even more harmonious relationship between the company and the individuals working there. In my opinion, a company in the 21st century shall serve as a venue for self-actualization, where the creativity of individuals can come into full play. The interest of individuals and the company must merge so that everyone will find joy in his or her work. Business owners and managers must strive to achieve this goal. I would like Matsushita to be an exciting workplace for its employees to, as a top priority, provide products and services that can truly satisfy our customers. In this way, "Coexistence with the Global Environment" will become the fundamental theme shared by individuals and the company as their own mission.

In view of these changes, the first step to achieve harmony between the human society and the environment is to act with the self-awareness of a global citizen and to take the respective responsibility. Ever since we adopted the Matsushita Environmental Charter on June 5, 1991, we have conducted activities based on the concept of "Coexistence with the Global Environment." The year 2001, the start of the 21st century, is also the tenth anniversary of the adoption of the Matsushita Environmental Charter. In this memorable year, we have focused our attention again on our fundamental management philosophy of contributing to the society through business activities by formulating new visions and action plans befitting the Century of the Environment. As a duty of a company in the 21st century, we will devote all efforts to implement these plans and to make appropriate revisions in the future when needs arise.





Aiming at Becoming a Super Manufacturing Company

In search of the new image of a 21st century manufacturing company, Matsushita is transforming itself into an innovative Super Manufacturing Company that emphasizes customer-oriented services. A Super Manufacturing Company must have the attributes of outstanding strength in components and devices backed by leading-edge technologies, ability to manufacture products speedily with astute responsiveness to market needs, and creativity to provide customer-oriented services. Matsushita is making every effort to fulfill these attributes. The era of mass-production, mass-consumption, and mass-disposal has gone; the values have changed. Increasingly, manufacturers will be asked by customers to provide services and functions to help solve the issues they face, that is, to provide solutions for their daily lives.

With the enactment of the Law for Recycling of Specified Kinds of Home Appliances in Japan in April 2001, the epoch-making endeavor to collect and recycle discarded household electric appliances was launched with the cooperation of customers, retailers, and manufacturers, etc. Thanks to the support of many individuals and organizations, Matsushita has successfully established a collection and recycling system. Although there are still many challenges to overcome, I believe this system is a big step towards the realization of a sustainable society. Many people have visited our first experiment and demonstration plant for recycling, the Matsushita Eco Technology Center, which started operations at the enactment of the Law for Recycling of Specified Kinds of Home Appliances. The Center gives the public a view into the future recycling plants. It was not until the actual start of the operation of the recycling plant did many issues become known. For example, the machines to disassemble used products will be damaged if foreign objects are mixed in with the products. This underscores the importance for every customer to understand recycling and to cooperate in its implementation.

The 21st century is also the threshold to a new era of sustainable energy. As a first step, Matsushita is devoting efforts to develop a heat and electricity co-generation system for home use using fuel cells. To fulfill the responsibility of a full-fledged electronics manufacturer, Matsushita is employing a variety of new technologies to utilize energy efficiently, including the upgrading of energy conservation features in all products and of energy management systems to improve energy efficiency at homes and offices.

A Company That Provides Dreams

In the 20th century, many people dreamed of a life made convenient and comfortable by electrical appliances. Matsushita has delivered the dream of an affluent life to many people in the world. In the 21st century, the dream we pursue will be the richness we find in a sustainable society that exists in harmony with the environment. In order to bring true richness into our daily lives and our communities, Matsushita recognizes the serious mission to employ Environmental Technology and Ecological Thinking to make this new richness a reality. We will continue to deliver comfort, safety, and enjoyment, as well as new dreams and excitement to the people of the world.

Matsushita has conducted business activities with “Coexistence with the Global Environment” as its most important concern. The advance into the 21st century further reinforced our determination to take aggressive measures to build a sustainable society. We realize that a company cannot build a sustainable society alone. Therefore, we actively communicate the results of our on-going environmental activities to the society through this environmental sustainability report, exhibitions, and our Internet websites. We hope to share with the society the experience of our advanced experiments and at the same time, to receive valuable suggestions from you to enable us continue to make improvement. It is our earnest wish to join forces with our customers and business partners in the building of a sustainable society, so that Matsushita will stand tall as a company that coexists in harmony with the environment even a hundred years from now.

I appreciate the opportunity to share my thoughts with you in this first environmental sustainability report of the 21st century. I thank everyone who cares about our activities and I ask your continued support in our future endeavors.

The Matsushita Electric Group will contribute to coexistence with the global environment through Environmental Technology and Ecological Thinking.



Matsushita Electric Group's Basic Policy Towards the Environment

Environmental Vision and Green Plan 2010

Our corporate mission is “to 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.” Based on this philosophy outlined in the Basic Management Objective, the Environmental Statement and the Code of Conduct, together constituting the Matsushita Environmental Charter, were established on June 5, 1991. Building upon this Charter, operation

sites throughout the world set rules and standards for promoting environmental conservation activities. In 1993, the Matsushita Environmental Protection Promotion Action Plan was established as a concrete company-wide environmental action plan. In 2001, we now have a new action plan for the “century of the environment” and a vision showing its direction. With the aim of realizing a sustainable society, we are determined to pursue this plan.

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.

The Basic Management Objective states the purpose and raison d'être of our company, and serves as the basis of all our business activities. Since its establishment by Founder Konosuke Matsushita in 1929, we have continuously conducted business following this philosophy. Today, amid great transition in the global environment, society, and economy, we continue to base our activity on this management philosophy with the aim of contributing to the development of a sustainable society, thus opening paths to a new era.

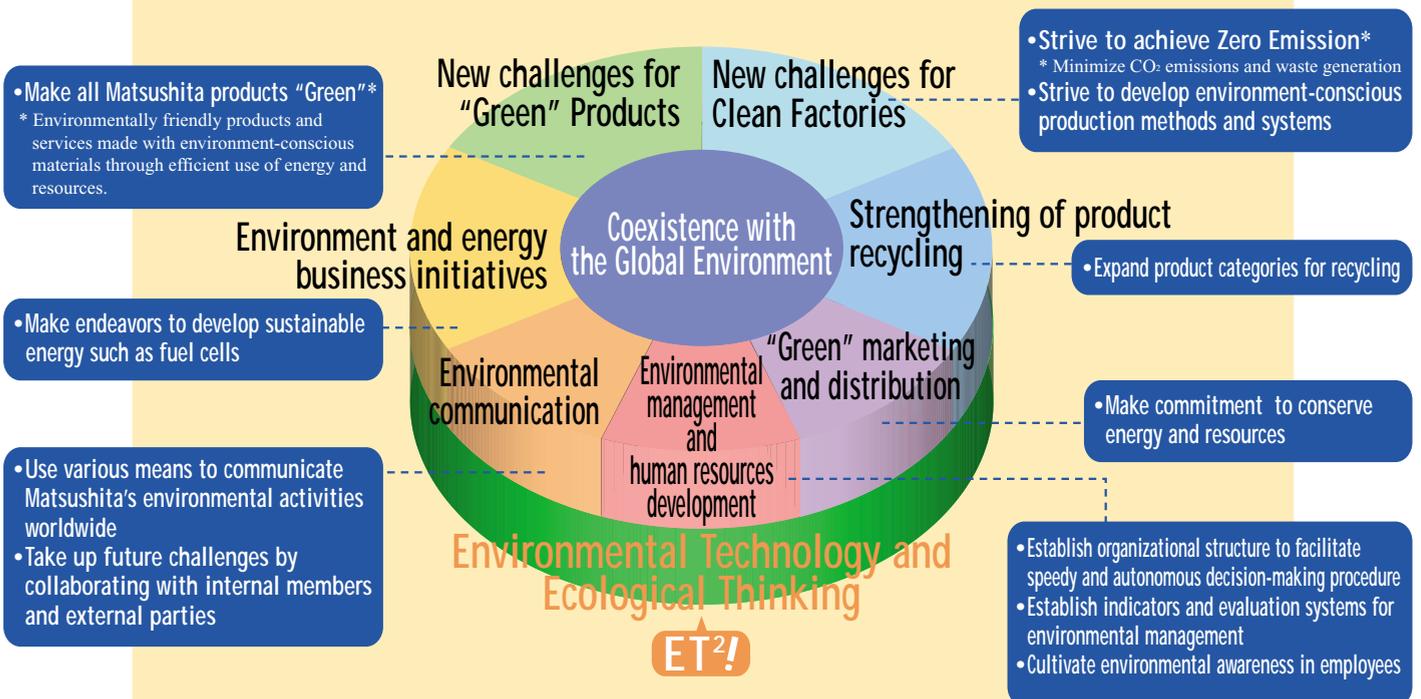
Environmental Statement

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.

The Environmental Statement is based on two concepts: 1. The law of nature that genuine progress and prosperity cannot be achieved without co-prosperity of all beings on earth, and 2. The fulfillment of social responsibility based on the awareness that humankind has the obligation to make the most of everything in a caring and fair manner.

Environmental Vision

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



Matsushita Electric Group uses the word “Green” as a synonym of “environment-conscious”

Green Plan 2010

(Base year: FY 2000, global targets)

Items		FY 2005 Targets	FY 2010 Targets
New challenges for Green Products	Prevention of global warming	• Increase energy use index ^{*1} by 30%	• Increase by 50%
	Chemical substances	• Discontinue use of lead, cadmium, mercury, hexavalent chromium, brominated and chlorinated flame retardants, and PVC	
	3Rs (Reduce, Reuse and Recycle)	• Increase resource use index ^{*2} by 50%	• Increase by 70%
	Product development	• Increase development of Green Products to more than 70%	• More than 90%
New challenges for Clean Factories	Prevention of global warming	• Reduce CO ₂ emissions per unit by 5% • Maintain CO ₂ emissions at the same level as FY 1990 (Japan)	• Reduce by 10% • Reduce by 7% (Japan)
	Chemical substances	• Reduce the amounts of use, release and transfer by 40%	• Reduce by 60%
	Waste and by-products with value	• Reduce emission per unit of sales by 10%	• Reduce by 20%
	Water	• Reduce emissions per unit of sales by 5% • Promote effective use of water resources	• Reduce by 10%
	Production methods and systems	• Establish new production methods and systems to enhance the efficient use of energy and resources	
Strengthening of product recycling		• Establish a system to increase the number of products for recycling • Improve recycling rate	• Establish recycling systems for all household electric appliances
Environment and energy business initiatives		• Launch full -fledged marketing campaign for home-use fuel cells cogeneration system • Strengthen energy management business	• Conduct full marketing campaign for the cogeneration system • Expand the business
Green marketing and distribution	Conservation of resources	• Conserve resources by making use of the Internet in marketing activities	
	Prevention of global warming	• Promote modal shift in distribution	• Introduce low-emission vehicles
Environmental communication	Information disclosure	• Develop the Environment Report into a Sustainability Report • Publish site reports • Promote communication with a wide range of stakeholders	
	Green investment / contribution to local communities	• Continue implementation of forest preservation activities • Increase green area of factory sites and roof gardens • Promote Green investment • Establish Green Fund	
	Corporate citizenship	• Expand the Love the Earth Citizens' Campaign to outside the company • Expand LE families to more than 50% of all employee households	• Build an inter-company network for LE activities • More than 80%
	Partnership	• Strengthen partnership and form networks with environmental NPOs • Actively cooperate with and contribute to environmental activities of international organizations, governments, and municipalities	
Environmental management and human resources development	Organizational structure	• Strengthen the environmental promotion system of Group companies throughout the world • Strengthen decision-making functions in each region	
	Development of human resources	• Prepare environmental training curriculums for each corporate level and division	
	Management evaluation system	• Establish a comprehensive environmental accounting system • Reflect the reductions in environmental impact of products and operations in the evaluation of business results	• Reflect environmental accounting system in the evaluation of business results

*1 Energy use index = 1 / (CO₂ emission throughout entire life cycle / product functions)

*2 Resource use index = 1 / {(mass of resource input throughout entire life cycle - mass of 3R materials - mass of 3R applicable materials) / (product functions x product life)}

Note: 3R materials and 3R applicable materials as defined by Matsushita Product Assessment

For the Realization of a Sustainable Society

Scenarios of the Society in 2025 and Sustainable Business Activities

The Matsushita Electric Group is holding dialogues with various stakeholders* on environmental issues. Through the environmental communication that has taken place in the last few years, we launched an aggressive search for ways to make our business activities sustainable. We realized that without making a fundamental change to our environmental awareness and actions, we are in no position to talk about the “sustainability of a company,” and we cannot say that we have heeded the advice of stakeholders.

In the Environmental Report 2000, we have made clear our commitment to actively seek partnership with various stakeholders and our determination to take the first step towards sustainable business activities. For this fiscal year, we report the activities we have taken as a second step. It is not easy to imagine a sustainable future and then formulate and implement long-term corporate strategies based on that image, but we will make advancement, step-by-step, in partnership with you.

* We consider children who will build future society, our customers, stockholders, suppliers, local community members, nonprofit organizations, governmental bodies, research and educational institutions, our employees and their families, and all other living things on earth as our stakeholders.



Meeting with stakeholders who provided messages for our Environmental Report 2000 (February 5, 2001)

to show us the right direction. Without a navigation chart and a compass, we will only move in circles without a clear vision. Our efforts will be wasted, and we may not even realize that we are exposing ourselves to great danger.

If a company only deals with imminent problems or predicts the future solely relying on its past success, it may not see the path it shall take, but may go full speed into a downfall.

A company is a member of society. Considering the impact that a company may have on the environment, it must take the lead in the effort of building a sustainable society. To do so, a company must first draw up a vision showing the direction to move and take steady steps toward that vision. We are committed to fulfill this role ahead of others so that we can become a model for the society.

Sweden’s Vision of Society in 2021

Sweden is an environmentally advanced country. In 1999, its Environmental Protection Agency drew up a vision for a sustainable society in 2021. The formulation of this vision was based on the “backcasting method” and the “four system conditions” (see p.63) advocated by The Natural Step, an international organization that defines system conditions for a sustainable society and works to raise the competitiveness of companies committed to meet those conditions. Backcasting is a concept about envisioning a desirable future and formulating strategy for its realization. It is a useful tool in the search for sustainable business activities.

Sustainable Social System and Sustainable Way of Life in 2025

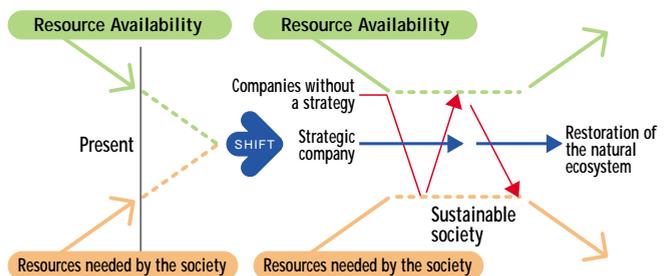
Many of us are beginning to think that we need to build a sustainable society. What is the image of a sustainable society specifically? What can and what shall Matsushita do as a company to achieve a sustainable development not only in the environmental sense, but also from the economic and social perspectives?

In an attempt to find some answers to these questions, Matsushita created “a viable scenarios of the future society and future life.” We have set a time frame of 25 years, approximately one generation, as a longest possible period where viable scenarios making is possible, to form the image of a sustainable society and way of life around 2025. According to the scenarios, we will make reforms to our business activities.

Applying the “Backcasting” Concept

In a chaotic era of deteriorating environment and increasing social and economic anxieties, we are as if lost in the darkness without seeing a gleam of light. As it is necessary to have a lighthouse to indicate the location of the harbor in a night voyage, we also need light

Image of Sustainable Development advocated by The Natural Step



The path to sustainable society is becoming narrower with time. The current development pattern wasteful of resources will soon bump against the wall.

In many parts of the world, business organization are beginning to transform themselves toward the realization of a sustainable society. Without scenarios for a future society and a vision to realize them, companies will never be able to take a right path. Companies can be sustainable only within a society that is sustainable.

As a step towards sustainability, Matsushita used the “scenario planning” method (see next page for details) to create a concrete and qualitative image of a sustainable society and way of life in 2025.

Scenario Planning for Sustainability

Scenario planning is a method to map out the future business environment. By creating multiple scenarios of the future environment, a company can identify more clearly the direction for corporate reforms.

In general, we tend to “predict” the future as an extension of what is happening in the present. However, there are highly certain elements and highly uncertain elements in the “future.” By combining the certain elements with uncertain elements in various ways, we can create multiple scenarios for the future. All the scenarios may come true. The important thing is not to predict which one may come true, but to find out what actions, what preparations that must be made now in order to properly cope with the situations that may result.



Working on scenario planning

Motive Power that May Change the Society and Daily Life

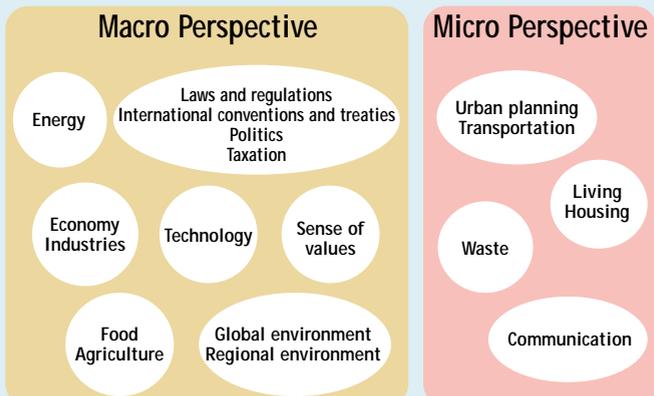
Because Matsushita is engaged in a wide range of electronics businesses from home appliances to information equipment, industrial equipment, electronic components and devices, system equipment, and to solutions business, we feel strongly responsible for achieving sustainability especially in fields such as “living, industry, and social system.” For this reason, we decided to identify sustainability scenarios in these fields.

As a first step, we imaged the eleven prime movers that are important for the creation of a sustainability scenario for our business environment and the phenomena that might occur in relation to each mover.

Theme for the Sustainability Scenarios (Agenda)

What kind of social system and lifestyle will there be in 2025?
(And what kind of business activities shall Matsushita undertake to lead the society to sustainability?)

Eleven Prime Movers Affecting the Scenarios



Factors Affecting Business Activities

From various fields related to the eleven prime movers, phenomena that might occur before 2025 were identified and then classified into factors that are certain to occur and the ones that are not.

Major Certain Factors (Applicable to all scenarios)

Factors that already exist or factors that have a high probability of occurring.

Technology and infrastructure for recycling and waste management industries will be developed.
Decline in natural capital will affect human and economic activities.
Technology for new energy will be developed.
The IT economy will further expand.
Environmental regulations and international treaties will be strengthened.
Individual power will increase and the media will become more diversified.
Population will increase.

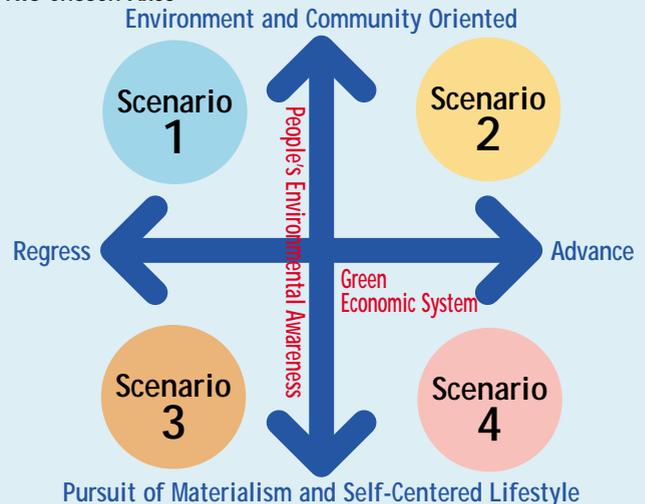
Major Uncertain Factors (The presence or absence of these factors may change the outcome of the scenarios.)

It is not certain if these factors will become true or not, but if they do, they will create an immense impact.

Social infrastructure of a new energy may be completed.
Environmental tax and new economic indicators may be adopted widely.
Biotechnology may be developed and may have a great impact on the society.
People's lifestyle may change to the one favoring health and a new concept of affluence.
Polarization of individualism and community may occur.
Cities and their transportation systems may be rebuilt or re-designed.
Eco-house (environmentally conscious housing) may become popular.
Home IT may be more widespread.
Locally produced food may be locally consumed.
Virtual learning and virtual entertainment using IT may advance.

Then after choosing two factors considered to have the most effect on our business activities as the X and Y axes, and by plotting the uncertain factors shifting in the minus or plus direction in each zone, we came up with four scenarios indicating what societies we may have, and what predictions we can make.

Two Chosen Axes



See next page for details.

Scenarios for Society and Lifestyle in 2025

For a Happy Society in Harmony with the Environment

Illustrated below are four scenarios for our changing society and lifestyle. The purpose of scenario planning is to prepare for any kind of situation that may arise in the future. Here, let us focus on

two scenarios: a Frontier Society Lead by Environmentally Conscious Companies and a Happy Society in Harmony with the Environment.

Scenarios for Society and Lifestyle in 2025

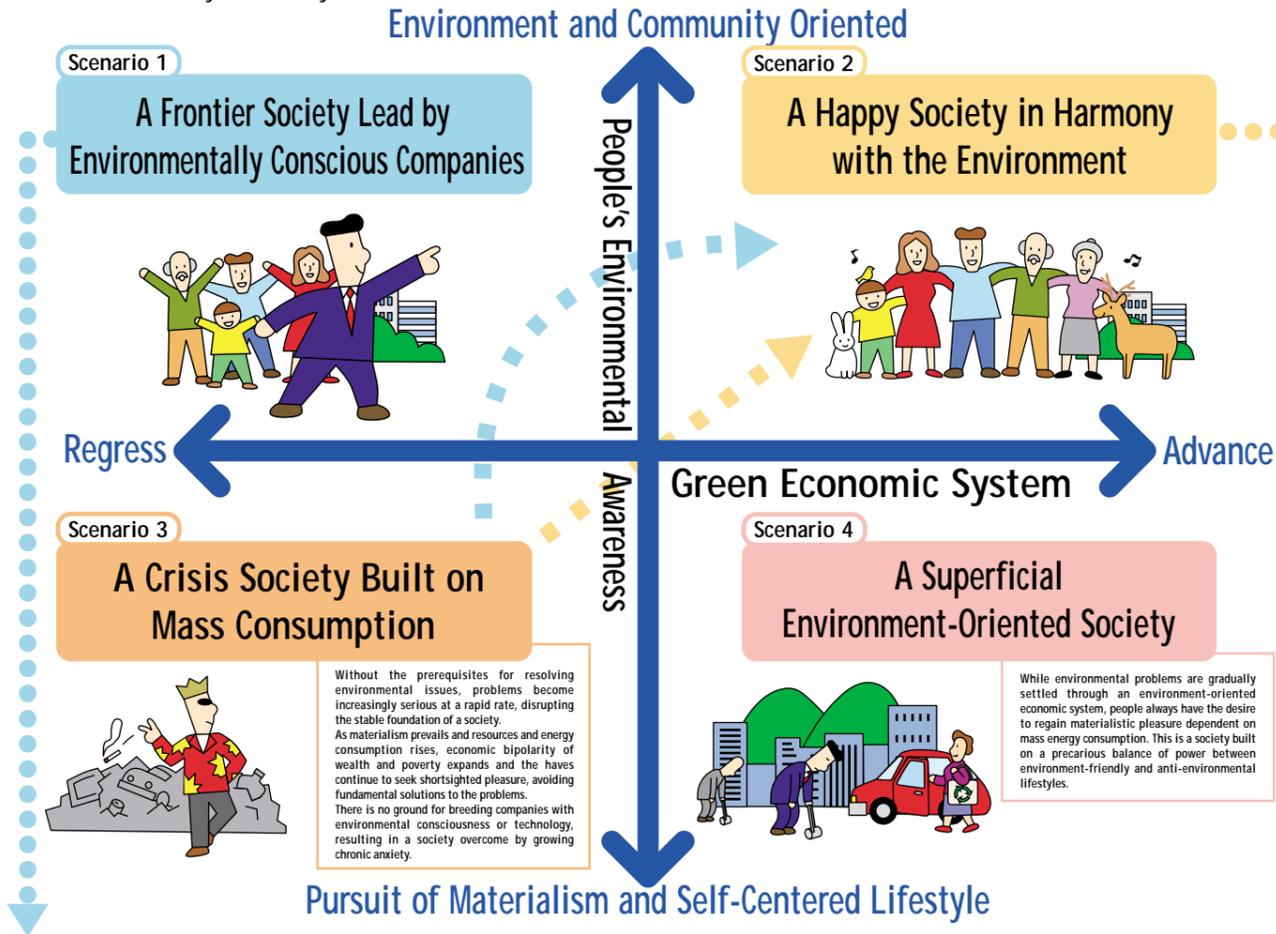


Image of a Happy Society in Harmony with the Environment



A Happy Society in Harmony with the Environment

A society in which one can feel connected with not only other human beings but also all beings on earth. Based on recognition that human activities inevitably exert adverse effect on the environment, a variety of measures are taken to maintain ecological balance. Environmental technology also advances to this end. While the impacts of past environmental problems remain, such as global warming and the depletion of the ozone layer, critical situation is evaded due to growing environmental awareness throughout the entire society. Environmental issues become closely associated with personal goals of self-realization and coexistence with nature, with greater and systematic social support to companies and people who voluntarily act toward these universal goals. The result is a happy society in which each individual enjoys a sense of purpose in life.

Changes for Sustainability

Environment With progress of the environmental rehabilitation projects, ecosystems essential to the survival of all living beings are gradually restored. To prevent depletion of resources, brakes are put on exploitation of new natural capitals, but impacts are still evident.

Politics Communities arise from active citizen movements. With increasing political participation of citizens, concepts of eco-community and eco-money are put into practice according to local needs.

Economy An economy built on natural capitalism, characterized by greatly enhanced productivity of resources, re-investment into natural capitals, service-oriented businesses. Companies that continue environmentally destructive activities are eliminated, and environmental rehabilitation projects are promoted.

Industry/Businesses In many manufacturing industries, completely sustainable production is practiced in all stages from design to recycling. Business strategies are promoted in concert with stakeholders, and employment modes become diversified along with networking of human resources.

Technology A genuine high-technology society based on technology that won't damage nature. With a growing trend toward decentralized sustainable energy, new forms of energy are developed. While high-technology development continues, order is maintained under the control of citizens.

A Pre-2025 Scenario

With the growing concern for the worsening environmental problems, citizens, businesses, and government officials will all turn into Green Consumers. Businesses will actively undertake environmental initiatives and governments will make drastic change to adopt an environment-conscious approach to policymaking. With the local governments facing deadlock in the cities' waste problem, technologies for waste treatment and recycling will be developed, and the necessary infrastructure will be established, along with progress that will be made in various technologies to protect the nature. On the other hand, companies that conduct activities detrimental to the environment will be excluded from the society.

Social contributions by companies combined with increasing voluntary activities on the part of citizens will raise the overall awareness of the society in working for the common good of the society and communities. Urban planning will take on different priorities and a decentralized energy supply infrastructure will be developed. With a sustainable society and its industrial structure gradually put into place, cities will be redesigned and business activities among industries will be coordinated in a manner to strengthen the cooperation among communities, cities, and the national and local governments. By doing so, environmental problems that are difficult to handle by a single individual, family, or business can be resolved through this wider coalition.

It will become natural for everyone to work together for the creation of a well-balanced society, in which everyone can establish his/her own connection with the society, making it possible to gradually realize a happy lifestyle built on the coexistence with nature.

A Frontier Society Lead by Environmentally Conscious Companies

In this society, instead of waiting for an environment-oriented economy to mature, companies motivated by an increasing number of people with strong environmental awareness take the lead in dealing with environmental problems. Citizens with a keen sense of growing crisis in the global environment serve as leaders of active citizens' movements in each community.

In a society caught in a stifling straitjacket awaiting changes but finding none coming its way, companies with an acute sense of social responsibility and pioneering spirit will work to put advanced environmental technology into practical use. For example, serious efforts will be made in the commercialization of fuel cells and other new energy technologies, rapidly strengthening the partnerships between companies and with related industries.

Through cooperation between citizens and businesses, construction of social infrastructures for a decentralized sustainable society is undertaken with prospects of alleviating environmental burden. This is a society gradually evolving into a happy society in harmony with the environment.

A Pre-2025 Scenario

The increase in the world's population and economic development will rapidly augment energy demand. More and more people will become concerned with the serious environmental deterioration. Certain companies with awareness of their social responsibility and pioneering spirit will stand out. To support these environmentally conscious activities, investors will invest in them and consumers will actively purchase their products. And qualified personnel sympathized with their corporate visions and activities will be attracted to the companies. The companies will invest these business resources to establish waste treatment and recycling businesses and to develop technologies for new energy, leading to lower the cost for these technologies and the establishment of the infrastructure for a sustainable society. As the price of fossil fuels will soar and the negative impact of global warming on the economy will become evident, the whole economy will move rapidly towards businesses engaged in the conservation of nature and diffusion of new energy.

As a sustainable society and its industrial structure gradually take shape, the citizens will gain higher awareness and will experience a sense of balance and solidarity, creating the possibility for the realization of a happy society.

Toward a Happy Society in Harmony with the Environment

Sustainable Social Systems and Lifestyles

Toward Independence and Coexistence

We define the keywords for simultaneously realizing a sustainable society and sound and comfortable lifestyles as “independence and coexistence.” Here, “independence” means deciding on one’s own will and acting on one’s own responsibility. “coexistence” refers to recognition of and living in close association with others. To realize coexistence of human beings and other living beings, humankind must realize that they are also a part of the ecosystem and live without disrupting that system.

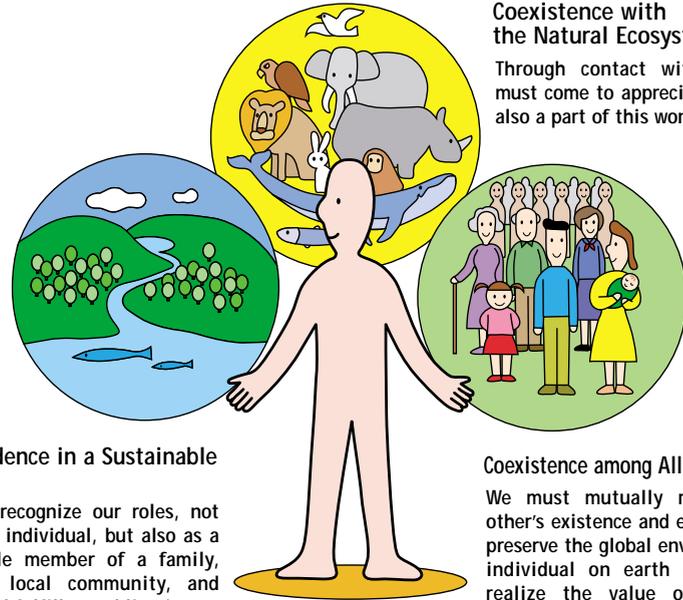
Sustainable Cities and Transport Systems

With changes in urban infrastructure toward a sustainable society, borders between residential, business, and leisure areas will become less distinguishable. By mixing residential and business areas, communities are revived, and smooth transportation and distribution are realized by ITS*1 and park & ride*2 systems. Cities and towns with different roles to play are linked by IT, so information is accessible from anywhere, anytime, by anybody who needs it. Moreover, cities will be redesigned as places for nurturing fulfilling lives and dreams.

*1 ITS: Intelligent Transport System

*2 Park & ride: a system for alleviating traffic congestion by parking private vehicles at parking lots in suburbs and commuting by railways and buses to urban centers.

Ecological THINKING



Coexistence with the Natural Ecosystem

Through contact with nature, we must come to appreciate that we are also a part of this wonderful nature.

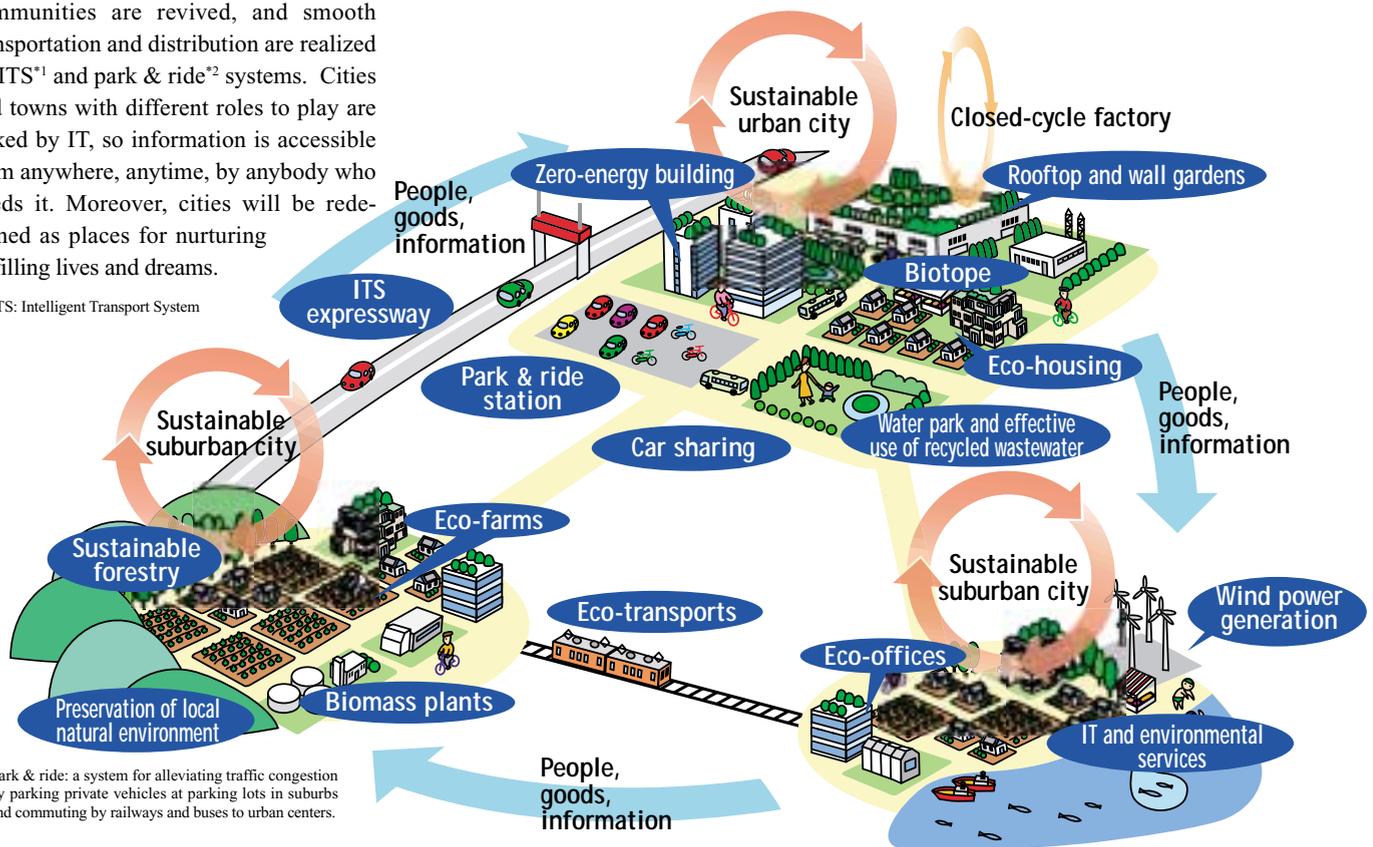
Independence in a Sustainable Society

We must recognize our roles, not just as an individual, but also as a responsible member of a family, company, local community, and nation, and fulfill our obligations.

Coexistence among All Human Beings

We must mutually recognize each other's existence and equal rights. To preserve the global environment, each individual on earth must come to realize the value of our natural environment and share the idea of interdependency.

Ecological CITY



Sustainable Lifestyles

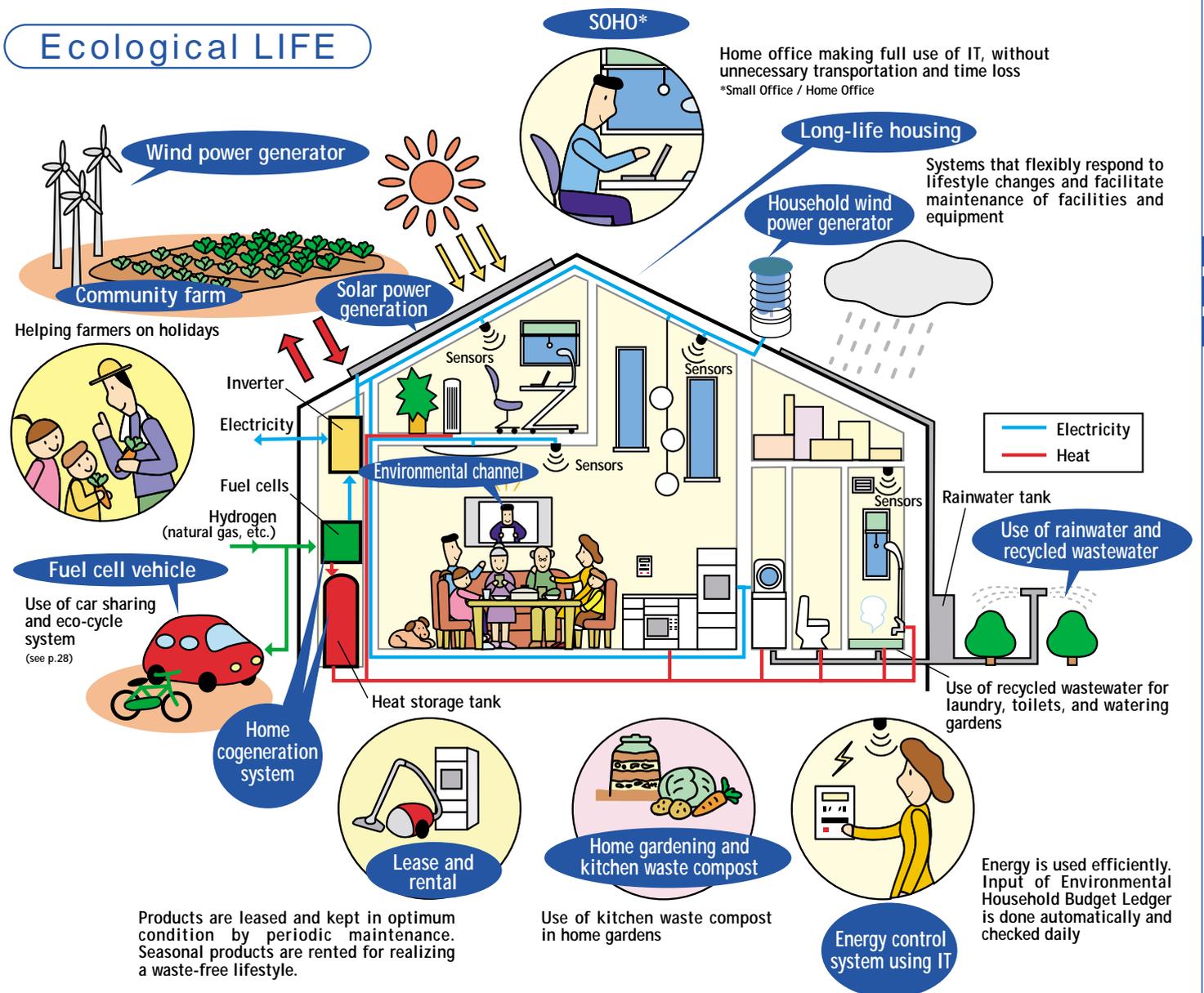
Various systems for recycling resources are essential to realizing sustainable lifestyles. In the field of energy, natural energies, such as solar, wind power, and biomass*, are used. A home cogeneration system (effective use of electricity and heat) with fuel cells using hydrogen as the energy source

will be introduced. In the future, hydrogen, an element contained in water, will be extracted from seawater by the use of natural energy, for storage and transport of energy.

In addition, with expansion of energy-saving products and introduction of energy

control systems for effective use of energy, conversion to a comprehensive energy supply system will be promoted.

* Biomass is an ecology term coined from "bio" and "mass." Here, it refers to organic matter derived from plants that can be used as an energy source.



The above is an attempt to envision the future, based on a hypothesis of a sustainable society from a long-term perspective. Instead of simply promoting the concept of preservation of the environment, Matsushita Electric Group aims to realize a world abound with "fulfilling lives and dreams" for the coming generations, from the perspective of everyday life.

Environmental Management Systems

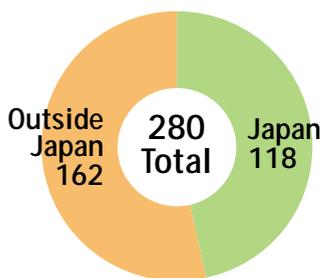
To further reduce the environmental impact of our activities, We have established environmental management systems at all of the operation sites. We effectively promote these systems through various committees and subcommittees that form part of a wider promotion organization, which is also responsible for establishing the "Environment Conference".

Acquiring ISO 14001 Certification

In addition to establishing the environmental management systems, we promote the acquisition of ISO 14001 certification. All of our manufacturing sites around the world have acquired the ISO 14001 certification by the end of fiscal 1998.

Currently, we are endeavoring to expand ISO 14001 certification to include our non-manufacturing sites, and rebuild the existing environmental management systems to increase their efficiency and ensure that they are the best systems available.

Number of sites with ISO 14001 certification
(As of March 2000; includes the Victor Company of Japan, Ltd.)



Registering Environmental Auditors

Internal audits are essential in checking that environmental management systems are being utilized effectively. Further, to ensure that internal audits are properly implemented, we have auditors registered with CEAR*, the Japan Environmental Management Association for Industry, and hold in-house seminars to train our own environmental auditing staff.

*A registration center for environmental management system auditors.

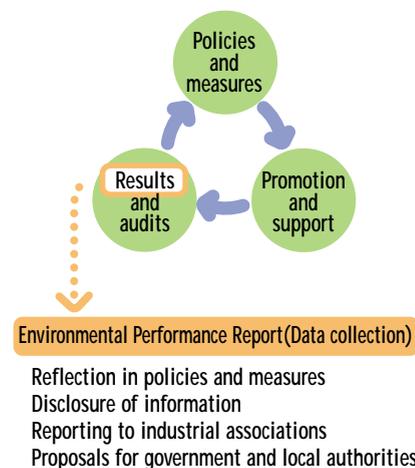
Environmental Management System Auditors

	1999	2000
CEAR-registered Auditors		
Chief auditors	24	33
Auditors	14	18
Auditing assistants	10	17
In-house Environmental Auditors		
Chief environmental auditors	499	565
Environmental auditors	2,610	2,831

Environmental Data Collection System

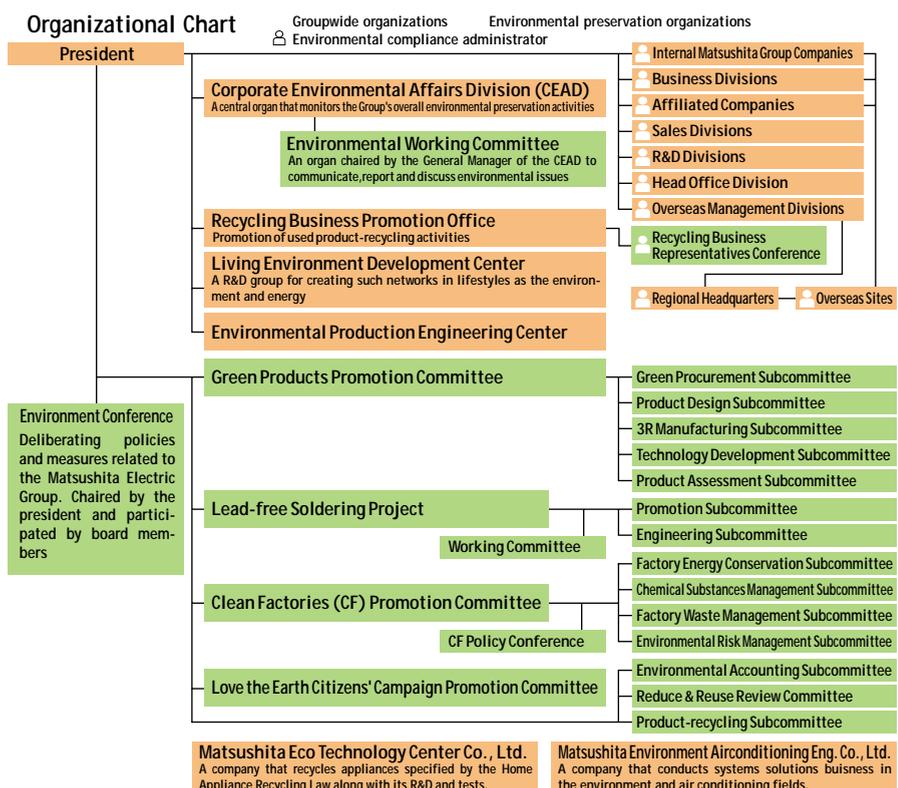
Quantitative analysis is indispensable in order to achieve regular targets in environmental impact reduction. Every year, we aim to reflect our policies and measures through our "Environmental Performance Report," together with an analysis of collected data concerning a variety of environmental activities.

Utilizing the Environmental Performance Report



Environmental Preservation Organization

The Environment Conference, chaired by the president of Matsushita Electric Industrial Co., Ltd., is a forum for deliberating the Company's major environmental policies and measures. The Environment Conference has been held twice a year since its inauguration in November 1997, and all business units and divisions are informed of the company-wide policies and measures deliberated and enacted at the conference through their environmental officers.



Environmental Education and Awareness

To realize environmentally conscious management, it is important to understand the factors that affect production processes, and continually make improvements in this area. In order to achieve this, we provide education and training for our employees.

Environmental Education System

As part of our environmental education program, we provide education and training based on the environmental management systems in place at each operation site. In addition, we carry out activities to help educate internal environmental auditors and trainings depending on individual ranks and professions.

Examples of the Matsushita Group's Environmental Education System

New employees	Regularly hired employee introductory education (environmental training)
	Mid-term hired employee introductory education (environmental training)
Promoted employees	Councilor training (environmental training)
	Assistant Councilor training (environmental training)
Employees in overseas posts	Overseas plant management training (environmental training)
Environmental auditors	Internal environmental auditing seminars
	Managerial internal environmental auditing seminars
Technical specialists	Energy conservation diagnostic training
	Recyclable product design training
	Global environmental measures seminars

Education and Training Based on ISO 14001

To support improvements in environmental performance at each operation site, we carry out an annual education and training seminar based on our environmental management systems. All employees participate in the general education seminar, which details our policies concerning environmental targets, operation sites, promotional organizations, and resource and energy reductions. For operations that have large impacts on the environment, we hold special education seminars that teach correct operation procedures, in addition to emergency trainings to prepare the employees for emergencies.

Environmental Education for Engineers

It is extremely important for our engineers in charge of research and development of products to be properly educated with the latest technologies, and continually improve their environmental awareness. We have held ten training seminars (approximate number of participants: 300) on global environmental measures that target employees in charge of research and development, product design, and production technology, as well as those in charge of establishing environmental management systems.

In fiscal 2000, we introduced a training course that teaches our employees how to design environmentally conscious products. In this course, the employees learn the environmental laws regarding the creation of environmentally conscious products, the basic philosophy of the Matsushita Product Assessment System (see p.21) using actual examples of Matsushita's leading-edge environmental technologies. To date, we have held the training course three times (approximate number of participants: 70).

Main Curriculum of Recyclable Product Design Training

Global environmental issues and company assessment
 Environmental laws related to product design
 Creating environmentally conscious products and types of standards and guidelines
 Present state of technologies and case studies
 Present state of electric appliance recycling and related issues



A training course in progress

On-site Activity Proposals

As a system to implement one of our corporate philosophy, "management by all with collective wisdom," we have introduced "employee suggestion system" in 1950 that encourages our employees to come up with original ideas regarding their business activities. In particular, we have set up the environmental proposal promotion months, including Environmental Month (June), Recycling Month (October), and Energy Saving Month (February), and recruit proposals that contribute to environmental conservation activities, such as resource and energy conservation.

In fiscal 2000, we received approximately 1.95 million proposals, of which 3% were ideas on environmental conservation techniques. Proposals that can be put into effect are further examined, and the results of some award-winning proposals are shared through company-wide displays.

Effective Use of the Intranet

The Matsushita Electric Global Environmental Information Library in our intranet offers timely information on environmental trends and promotional tools for environmental activities. It is also an information database serving the needs throughout the company.

TOPICS

40,561 Entries for Environmental Slogan Competition

Every year, we recruit environmental slogans from employees with the purpose of promoting environmental awareness in the workplace. In fiscal 2000, the topic was "Environmental Slogan for the 21st Century," and we received 40,561 entries, well exceeding the number of entries in fiscal 1999 (approximately 35,000). The best winning slogan was used to educate the employees during Environment Month (June),

Recycling Month (October), and Energy Saving Month (February) in fiscal 2001.

Slogans and Posters Award for Excellence

"Eco Life: For the future of the Earth and its children"
 (Home Appliance & Housing Equipment Company: Mai Sawada)

"The Courage to Stop and the Perseverance to Go:
 Energy conservation activities for everyone"
 (Factory Automation Company: Mitsuo Matsuo)

"Let's Utilize Resources, Replenish Resources, and Strive to Create a Sustainable Society Together"
 (Matsushita Eco Technology Center Co., Ltd.: Mitsuo Hanyu)



Environmental Accounting and Performance Evaluation

Considering as an important tool for environmental conservation and management, environmental accounting was introduced in fiscal 1998. Through the positive disclosure of information, we are striving to realize a transparent business management. Furthermore, since fiscal 2001, we have initiated a system for evaluating the over all business performance including environmental activities achievement.

Environmental Accounting

Environmental Costs (Unit: million yen)

Category		FY1999			FY2000			Definition	Reference
		Investment	Expenses	Total	Investment	Expenses	Total		
Cost within business areas	Prevention of pollution	3,769	5,566	9,335	5,515	5,203	10,718	•Costs required for preventing air, water, and soil pollution, noise, vibrations, and landing subsidence.	P.43-44
	Energy conservation at operation sites	7,342	2,417	9,759	9,985	2,416	12,401	•Costs needed for implementing "FY2000 Plan for Energy Conservation at Manufacturing Sites" and lowering energy consumption by 1% or more per unit of sales compared to the previous year. •The portion of savings from energy conservation in the case of multi-purpose costs.	P.37-38
	Processing and recycling of waste	1,147	4,756	5,903	1,451	5,395	6,846	•Costs required for the appropriate treatment or disposal of waste. •Costs required for reducing the amount of waste.	P.41-42
	Other environmental conservation activities	339	137	476	742	179	921	•Investment and expenses for environmental activities, including the prevention of global warming (excluding reductions in CO ₂ emissions), protection of the ozone layer, and utilization of recycled water and rainwater.	P.43-44
Upstream/Downstream cost (Product recycling)		38	2,964	3,002	3,302	3,286	6,589	•Costs required for establishing and testing recycling systems for used products (including the development of technology for establishing recycling systems). •Expenses needed for recycling-related payments to external organizations (Association for Electric Home Appliances, etc)	P.33-34
Management cost		20	5,755	5,775	6	6,439	6,445	•Expenses required for acquiring and maintaining ISO 14001 certification, environmental education and training activities (exhibitions, etc.).	P.15-16
R&D cost		2,178	13,222	15,400	2,409	12,532	14,941	•Costs needed for the development of technology with consideration for environment as a primary objective. •Costs required for developing and introducing environmentally conscious packaging. •Costs required for reducing environmental impacts, including the reduction of CO ₂ emissions in distribution (product delivery and used product collection).	P.19-31
Social activities cost		128	890	1,018	54	1,439	1,492	•Expenses for social efforts such as donating and providing information and support to environmental activities organized by environmental conservation organizations and local residents. •Expenses for disclosing environmental information including advertising, reports, and exhibitions.	P.59-62
Environmental damage cost		377	1,592	1,969	1,121	739	1,860	•Costs required for the investigation and treatment of past ground water and soil contamination.	P.43-44
Total		15,338	37,299	52,637	24,585	37,628	62,213		

Notes: Labor costs are included in the final cost figure. However, depreciation allowances for capital investments are not included. When the total figure cannot be considered an environmental cost, the differences or ratios have been calculated (divided proportionally). Research and development costs are limited to the investment and total costs associated with developing environmentally conscious technology. The costs of developing products that utilize this improved technology have not been included.

Environmental Benefits (Unit: million yen)

Category		FY1999	FY2000	Definition	Reference
Cost-saving	Energy conservation at operation sites	2,767	2,834	•Savings from energy conservation at operation sites	P.37-38
	Processing and recycling of waste	3,648	2,798	•Savings from rationalizing industrial waste treatment cost by reduction	P.41-42
	Reduction in water and sewage expenditures	125	117	•Annual savings in water and sewage costs by using rainwater and recycled water	P.43-44
	Reduction in packaging and distribution cost	1,474	1,845	•Annual savings in packaging materials and delivery	P.30
	Total	8,014	7,594		

Note: Cost-saving is the total of the annual reduction for each unit of capital investment. Cost-saving for investment in previous years is not included.

Major Environmental Performance Results

	FY1999	FY2000	Reference
Amount of energy used	820,000 kJ	850,000 kJ	P.37-38
Amount of CO ₂ discharged	320,000 t	330,000 t	
Amount of controlled chemical substances used	93,500 t	77,545 t	P.39-40
Amount of discharge and transition of controlled chemical substances	1,379 t	1,047 t	
Amount of harmful atmospheric pollutant discharged	85 t	2 t	P.44
Amount of industrial waste generated	223,000 t	231,000 t	P.41-42
Actual amount of industrial waste disposed	13,233 t	8,963 t	
Amount of water used	45,000,000 m ³	46,000,000 m ³	P.44
Amount of packaging materials used			P.30
Corrugated cardboard	62,000 t	50,000 t	
Expanded polystyrene foam	3,200 t	2,100 t	

The figures are based on data collected from the following companies (global)
Matsushita Electric Industrial Co., Ltd.,
Matsushita Communication Industrial Co., Ltd.
Matsushita Electronic Components Co., Ltd.,
Matsushita Industrial Equipment Co., Ltd.
Matsushita Battery Industry Co., Ltd.,
Matsushita Refrigeration Company
Kyushu Matsushita Electric Co., Ltd.,
Matsushita Seiko Co., Ltd.
Matsushita Graphic Communication Systems
This report covers 11 companies of Matsushita Kotobuki Electronics Industries, Ltd. and the Victor Company of Japan, Ltd. (included since fiscal 2000, and their domestic and overseas subsidiaries.)

Note: Environmental performance results cover all Japanese operation sites.

The environmental costs and results for each global region are recorded using the environmental performance results on pages 45 and 46 of this report.

Environmental Accounting Concept

In our environmental accounting, we classify and calculate items in accordance with "Developing an Environmental Accounting System (FY2000 Report)" published by the Ministry of the Environment in Japan. In addition to pollution prevention costs, which are conventionally recognized as environmental costs, expenses indirectly related to environmental conservation are also included in environmental costs. The environmental effect can be calculated using four parameters that enable the complete evaluation of environmental cost reductions. However, the deemed effects such as risk aversion are not reflected in cost calculations.

Environmental Costs by Business Sector

The component sector accounts for approximately 20% of net sales and comprises approximately 42% of the overall environmental costs. Looking at a breakdown of this, costs within the business area account for approximately 80%, and is used mainly to prevent pollution and conserve energy at manufacturing sites. As the component area includes many energy intensive businesses, we are proceeding with a focus on capital investments aimed at preventing global warming.

Evaluation of Business Area Performance

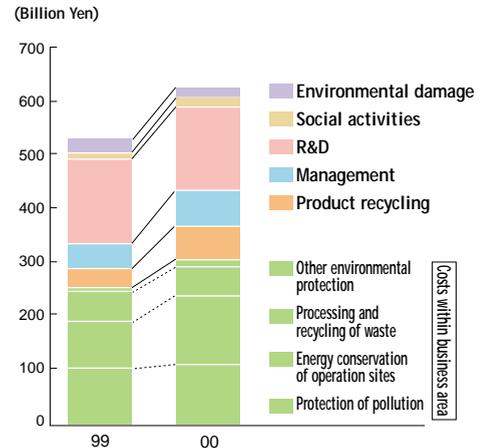
In order to improve environmental management, a system for evaluating the performance of environmental activities was introduced in fiscal 2001. We give this environment-based evaluation a weighting of approximately 10% out of total business performance.

More precisely, this system is based on the "greenness of products," a rating that evaluates the performance of a product based on three different aspects, and the "green factory rating," a system that indexes the recycling ratio for industrial waste and by-products with value. Further, we are examining the features of each business sector in order to better allocate resources.

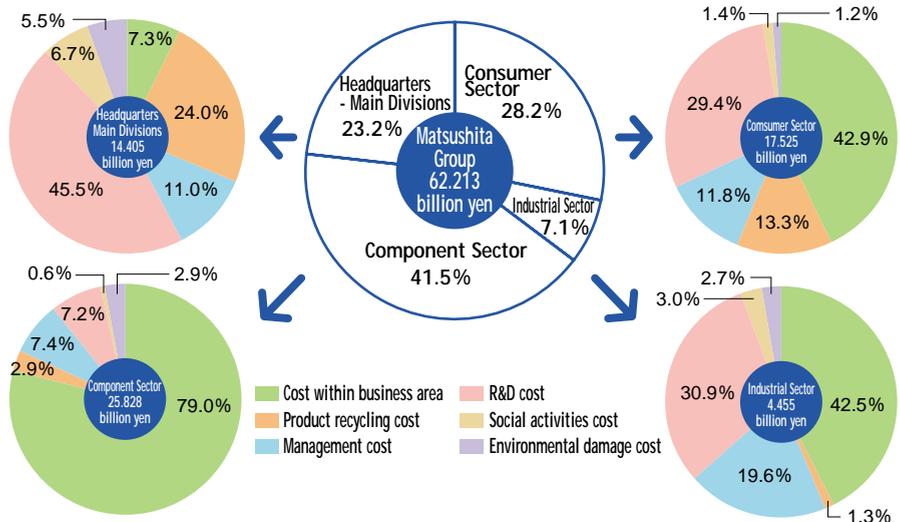
Analysis of Results for Fiscal 2000

In fiscal 2000, our global environmental costs totaled 62.2 billion yen, while our environmental effect costs accounted for 7.6 billion yen of this figure. Compared to fiscal 1999, the expenditure of environmental costs in fiscal 2000 increased by 300 million yen and then leveled off, while capital investment increased by 9.3 billion yen. The main reasons for this can be attributed to the recycling of used products, pollution prevention measures, and factory energy conservation measures. Further, the ratio for all environment-related capital investments was 4.9%, and the ratio for all environment-related research and development expenditure was 2.3%.

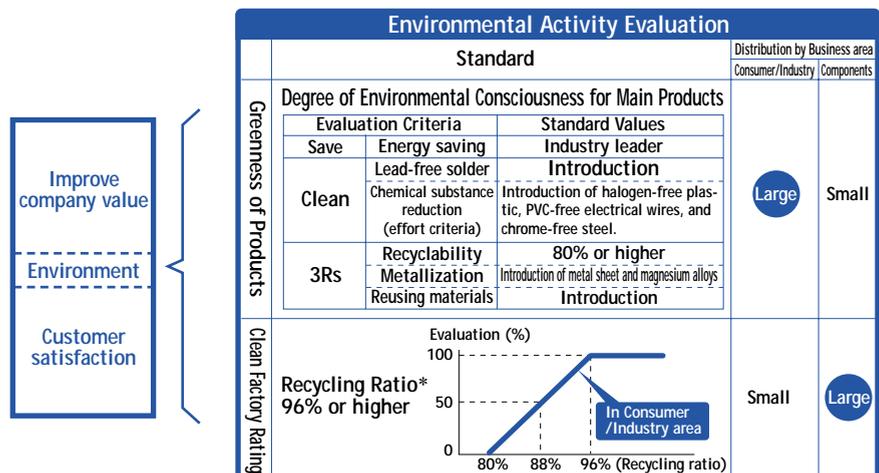
Trends in environmental costs



A Breakdown of Environmental Costs by Business Sector (FY 2000 Results)



Performance Evaluation Principals



*Recycling ratio(%)= Quantity recycled/(Quantity recycled + Quantity of final disposal) × 100

Green Products

We designate products with reduced environmental impacts as "Green Products," and promote the development of such products. Based on an assessment of the entire life cycle of products, from the planning stage to disposal, we are carrying out various activities aiming to reduce the environmental impact of our products.

Concept of Green Products

In addition to developing products that fulfill the basic quality and efficiency standards set by the industry, we develop Green Products that meet environmental standards in accordance with "Save," "Clean," and "3Rs."

We appointed our fiscal 2000 products in 1997 in accordance with the following principles, and have conducted product development along them.

Save
Save energy in both operation and standby modes to reduce CO₂ emissions.

- Maintain the top level of energy conservation in the same trade
- Reduce electricity consumption by over 30% in FY 2000 (Base year: FY 1995)

Clean
Reduce use of chemical substances that may be harmful to humans and the ecosystem.

- Use lead-free solder for all products by the end of fiscal 2002
- Reduce the use of halogenated compounds

3Rs (Reduce·Reuse·Recycle)
Increase the ratio of recyclable materials in weight, along with the reduction and reuse of materials.

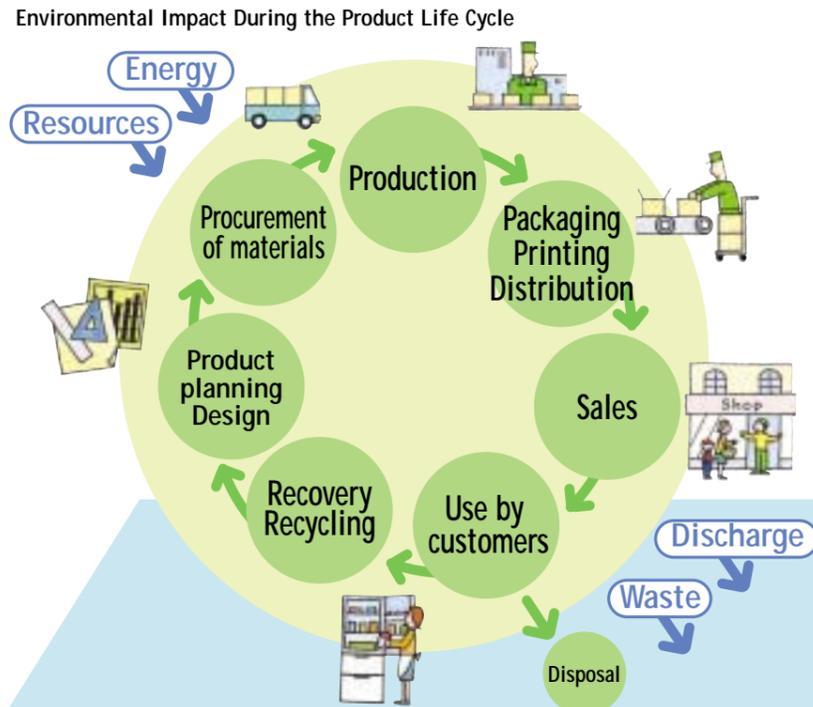
- Designing products with a recyclability ratio of 80% or more according to company standards

Disclosing the information of Green Products

We inform users of the basic content of environmentally conscious products using our original Environmental Characteristics Stickers.



We began affixing Environmental Characteristics Stickers to products that fulfill our original standards in 1997, and by the end of fiscal 2000, had marked a total of 266 models.



11 Typical Green Products

VCRs (Hi-Fi) (NV-HV5)

- Save** Reduces electricity by **64%** (Base year: FY 1995)
- Clean** Uses **lead-free solder**
- Uses **halogen-free materials**
- Uses **chrome-free steel sheets**
- 3Rs** Uses **recycled expanded polystyrene** in packaging materials



- Save** Reduces electricity by **49%** (Base year: FY 1997)
- Standby electricity : **0.35W**
- 3Rs** Uses **recycled expanded polystyrene** in packaging materials

BS Digital High Definition TV with a built-in hard disk video recorder (TH-36DH100)

- Save** Standby electricity⁴: **0.1W**
- Clean** Uses **lead-free solder**
- Uses **halogen-free materials**
- 3Rs** Uses **magnesium alloy** in the frame



- Save** Improves energy efficiency by **44%** (Base year: FY 1998)
- Sleep Mode electricity: **1.4W**
- Clean** Uses **specified non-flammable bromine-free products**
- 3Rs** Reduces packaging material mass by approximately **70%**⁵ (Base year: FY 1998)



Inverter Microwave Oven with Infrared Ray Sensor (NE-JW20)

- Save** Reduces electricity by **45%**^{*1}
- Clean** Uses **PVC-free electrical wires**
- 3Rs** Reduces unit mass by **12%**^{*1}



Triple Cooling System Refrigerators (NR-D47H1)

- Save** Energy conservation standards^{*2} Achieved **127%**
- 3Rs** Reduces disassembly time by **43%**^{*3} (Base year: FY 1999)
- Reduces the number of components by **40%**^{*3} (Base year: FY 1994)



Kitchen Waste Processors (MS-N45)

- Save** Reduces electricity by **38%** (Base year: FY 1999)
- Clean** Uses **lead-free solder**
- 3Rs** Recyclability ratio of **90%**

Energy Saving Light Bulbs "pa-look Ball You" (EFA22EL)

- Save** Reduces electricity by **75%** (compared to incandescent light)
- Clean** Uses **lead-free glass**
- 3Rs** Lasts up to **6 times longer** than incandescent light



Energy Saving Light Bulbs "pa-look Ball You" (EFA13EL)



Air Conditioners (CS-E281AH)

- Save** Achieves an energy conservation standard^{*2} of **115%**
- Clean** Uses **halogen-free materials**
- 3Rs** **Unificates plastic materials**^{*8}
- Uses **recycled plastics** for some parts



Vacuum Cleaners (MC-V270XD)

- Save** Reduces electricity by **32%**^{*6}
- Reduces motor power to a maximum of **400W** (previously 1,000 W)
- Clean** Uses **lead-free solder**
- 3Rs** Reduces unit mass by **31%**^{*7}



Centrifugal Force Washing Machines (NA-F802P)

- Save** Reduces electricity by **65%** (Base year: FY 1997)
- Reduces water usage by **60%** (Base year: FY 1995)
- Clean** Uses a **PVC-free bath water suction hose**
- 3Rs** Recyclability ratio of **85%**
- Uses **recycled corrugated cardboard** in packaging materials^{*9}

^{*1} Compared to NE-N20 in fiscal 1996. ^{*2} For information on energy conservation standards, see p.23. ^{*3} Realized through block-minimizing design. ^{*4} First on models with a built-in hard disk drive. ^{*5} Achieved through partial packaging. ^{*6} Comparison with the model without rubbish sensor. ^{*7} Compared to the MC-S260XD which does not adopt the exhaust circulation system. ^{*8} Polystyrene (PS) and polypropylene (PP). ^{*9} Approximately 85% of packaging material weight.

Product Planning and Design

Preliminary assessment of products on environmental impact is required at the planning and designing stages. We have established the Matsushita Product Assessment System, and with the introduction of its supporting database system, are able to conduct multiphase assessment efficiently.

Matsushita Product Assessment

Matsushita Product Assessment is a system that evaluates the environmental impact of products throughout its life-cycle. The assessment is conducted from the planning and designing stages to the trial production stage. The results are used to develop green products. We currently utilize this system in all of our production sectors, and used it to evaluate 2,490 product models in fiscal 2000.

We released Version 5 of the Matsushita Product Assessment system in May 2000, adding the life cycle assessment (LCA) as a method for material and quantitative assessment in line with green procurement.

Also, we have developed Matsushita

Product Assessment Support System for Version 5 to achieve efficient development of environmentally conscious products.

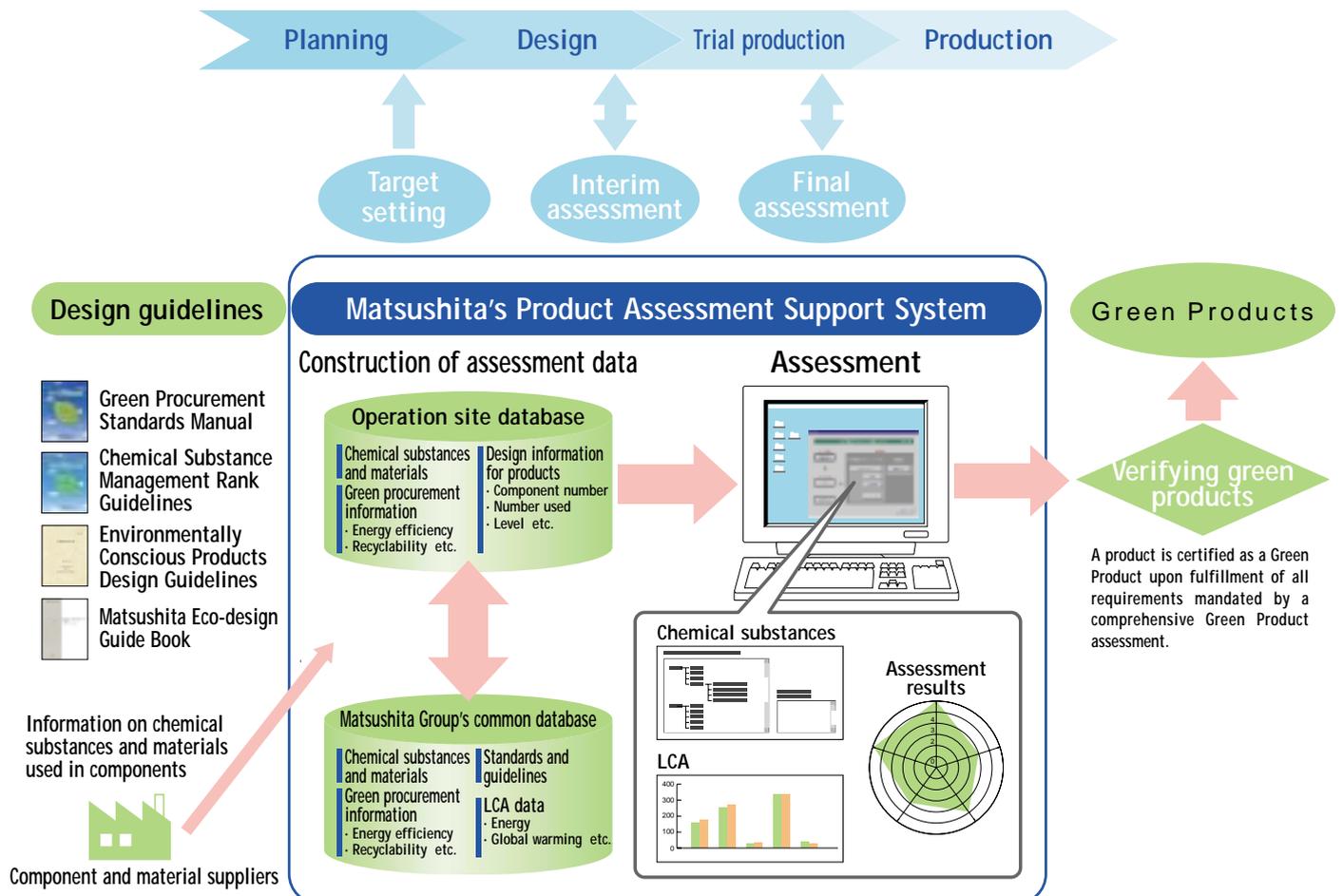
This system involves collecting information on chemical substances and materials used in components from component and material suppliers, sharing these information through operation site databases and the Matsushita Group's database, and makes assessment more efficient.

This system was used to assess one or more products at each business unit in fiscal 2000, and will be applied to all products in the future.

Matsushita Product Assessment Evaluation Items (Product version: Ver.5)

Product	Save	Energy reduction rate
	Clean	Chemical substances management
	3Rs	Recyclability, Ease of disassembly Separation of parts, Unification of materials, Sharing components Reusing components, Downsizing/Reduction rate, Ease of maintenance, Long-life Upgrade, Reused material rate Consumables reduction rate
	Green procurement	
Production	Information disclosure	
	Save	Rate of energy reduction, CO ₂ reduction rate
	Clean	Chemical substance management
	3Rs	Reduction in packaging for purchased components Emissions reduction rate, Waste reduction rate
Packaging	Clean	Chemical substance management
	3Rs	Recyclability, Downsizing/Reduction rate Separation of parts, Unification of materials, Reusability, Ease of shipping Reused materials rate
	Green procurement	
	User's manual assessment	
Comprehensive	Downsizing/Reduction rate, Reused materials rate Rate of environmentally conscious materials used	
	LCA (energy, global warming, acid rain, air pollution, resource wasting)	

Overview of Matsushita's Product Assessment Support System



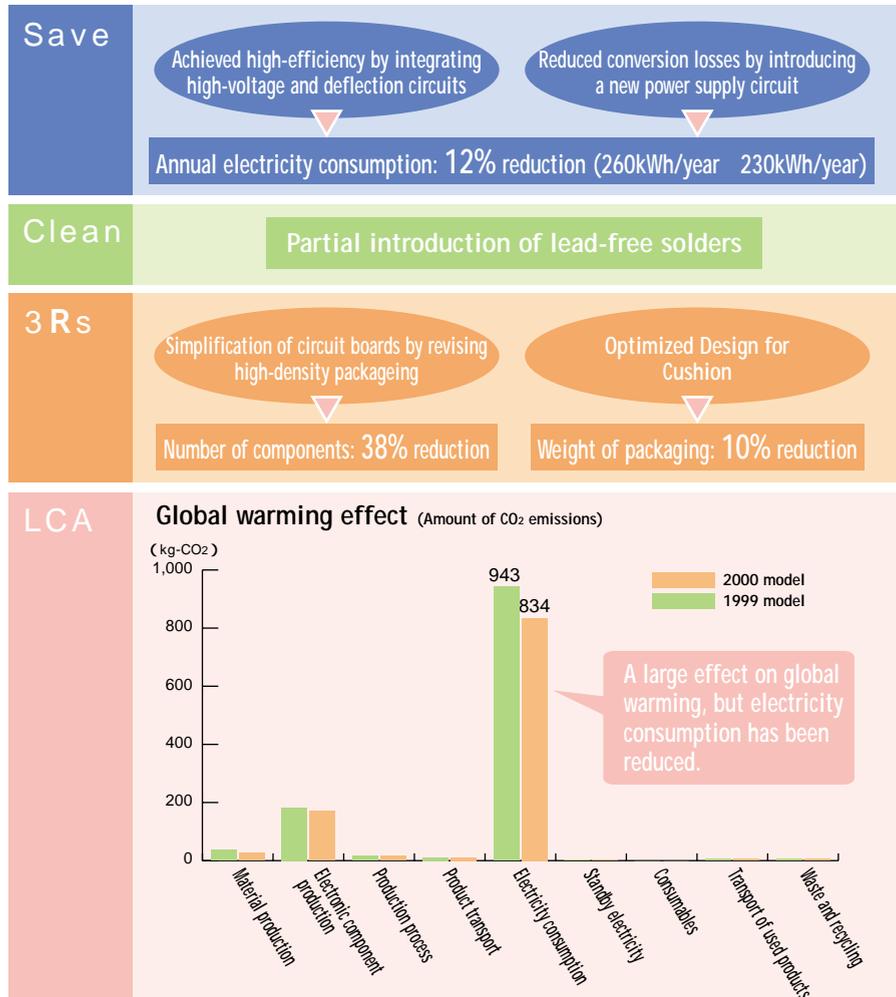
Matsushita's Product Assessment on TVs

We performed product assessments for fiscal 2000 TV models utilizing Matsushita's Product Assessment Support System. The first step of the assessment process was to establish targets for products at the planning stage, such as Save (energy saving), Clean (amount of chemical substances used in components), 3Rs (reduce, reuse, recycle), LCA, and green procurement. At the design stage, approximately 3000 items of data were automatically collected for components used in product design by utilizing the Matsushita Group's database and the databases at each operation site. In addition, we performed an interim assessment based on the steps Evaluation Improvement Reassessment, as well as a final assessment. By using LCA as part of product assessment, we were able to compare old and new TV models (new model: TH-36FP15, old model: TH-36FP20).



Wide Screen TV
(Progressive - scan)
(TH-36FP15)

Environmental Impact Improvements Using Matsushita's Product Assessment



TOPICS

Environmentally Conscious Refrigerators

R-12 (CFC12) was used in conventional refrigerators, but recently there has been a switch to R134a (HFC134a) in order to prevent destruction of the ozone layer. However, R134a has a global warming coefficient of 1,300, and it has been suggested that it could accelerate global warming when it is released into the atmosphere. Therefore, we promote refrigerant collection as a countermeasure against R134a released into the atmosphere, and promote the development of refrigerators that utilize natural refrigerants.

We are currently in the development stages of element technology for refrigerators that adopt the hydrocarbon refrigerant R600a (isobutane), and are aiming for zero usage of R134a. R600a has an ozone depletion potential of zero and a global warming potential of 3 to 5. Therefore, this substance has small impact on the environment.

The element technology we have developed is utilized to develop new relays, door switches, and minimization of refrigerant, helping to increase the safety of refrigerators. Currently, we are striving to apply this technology to further product development. In addition, we are making efforts to reduce environmental impact of our products in a variety of ways, including reducing the use of lead by 95%, and reducing the use of vinyl chloride resin by 80%.

Environmental Impact Comparison for Refrigerants

	CFC12	HFC134a	Isobutane
Ozone depletion potential ^{*1}	1.0	0	0
Global warming potential (value: 100 years) ^{*2}	8,500	1,300	3 ~ 5

*1 Relative value in terms of CFC12 as 1.

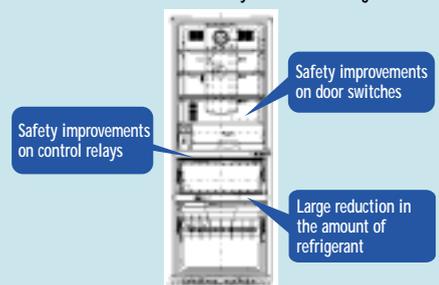
*2 Relative value in terms of CO₂ as 1.



Matsushita Refrigeration Company, Refrigeration Research Laboratory
Kenji Takaichi

"Eco-technology refrigerators use natural substances in harmony with nature."

Features of Environmentally Conscious Refrigerators



Save Energy-Saving Products

Our products use energy such as electricity and gas, while offering users a variety of functions that promote convenience and comfort. Despite energy reductions, we try to offer the same or even much better performance.

Concept of Energy-Saving

Home electrical appliances, such as refrigerators, convert electrical energy into a variety of forms for consumption. For example, electric power is converted into mechanical power, heat, or light in order to realize the functions of products. Therefore, our products can contribute to energy saving if they are able to perform these conversions efficiently. For equipments such as information and communication, audio, and visual, it is important to reduce power consumption and standby power consumption by minimizing losses due to digital data signal processing and switching.

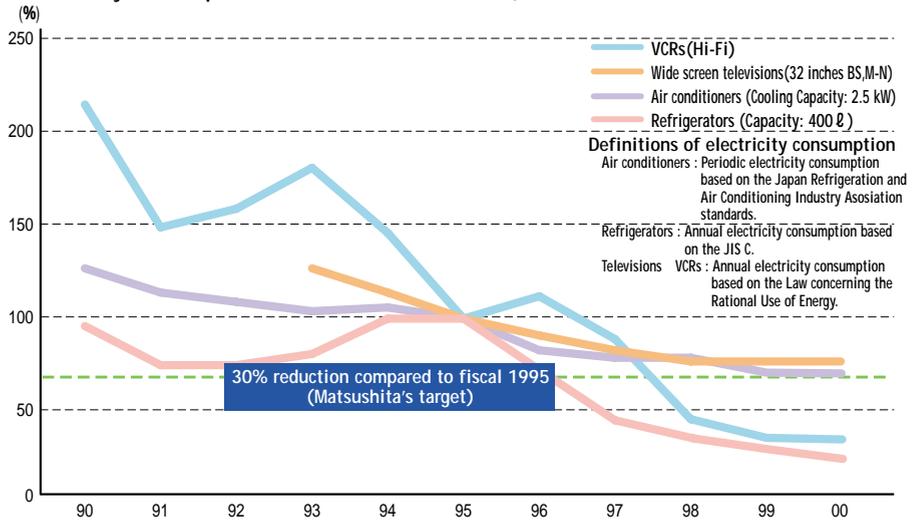
Reduction in Electricity Consumption of Refrigerators

Refrigerators are the second largest* consumer of electricity in the household, occupying approximately 17.2% of overall consumption. Until now, we have continued to be proactive in our efforts to reduce electricity consumption, and in fiscal 2000 we achieved a 77% reduction in electricity consumption per liter of refrigeration space (compared to FY 1995).

This was made possible by utilizing our new control technology.

Further, our products come equipped with an Energy-saving Navigation function, as

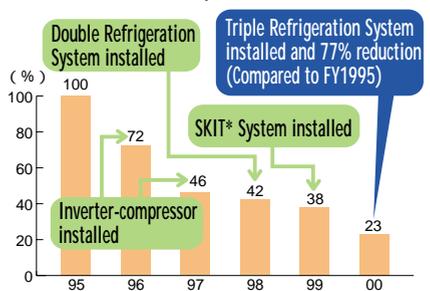
Electricity Consumption of Our Main Products (Base year: FY1995 as 100)



well as employing other operational devices.

*Agency of Natural Resources and Energy survey (FY1999)

Electricity Consumption Per Liter of Refrigeration Space (Base year: FY1995 as 100, Class: 400 ℓ)



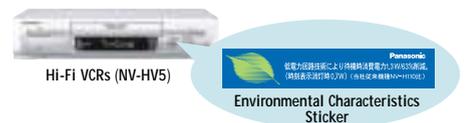
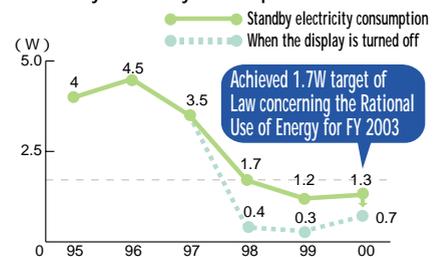
*Abbreviation for Super Kelvin Integrated Technology; Matsushita's original technology.

Reduction in Standby Electricity Consumption for Video Recorders

In households, standby power consumption accounts for approximately 9.4% of total electricity consumption, of which VCRs* are a major contributor. We are making efforts to reduce standby power consumption, and in fiscal 2000, achieved 1.3 W of it (approximately 68%) on VCRs(compared to FY 1995). Moreover, on power-save "Display OFF" mode, you can further reduce standby power consumption by up to 50% (0.7 W).

*Energy Conservation Center, Japan survey (FY 1999)

Standby Electricity Consumption for HI-FI VCRs



Energy-Saving Realized Through Product Technology and Operation

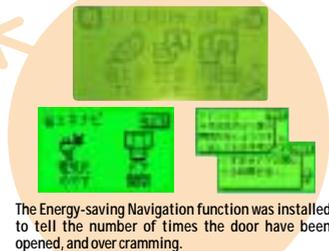
Energy-saving by product technology

- Refrigeration technology**
Energy saving using three different systems one each for cooling, chilling vegetables, and freezing.
- Insulation technology**
Development of unique high efficient insulation material (S-VIP).
- Control technology**
Installation of an H.W. Inverter that utilizes unique digital inverter technology.

Energy-saving



Energy-saving realized through operation



TOPICS

Energy-Saving Labeling System based on Law Concerning the Rational Use of Energy
Matsushita introduced its Energy-saving Labeling System on 21 August 2000, and uses it to rate five major household appliances: air conditioners, fluorescent lighting, televisions, refrigerators, and freezers. This system uses labels to show the degree of conformance of these products to Japan's energy-saving standards as a percentage (%), as shown on the right.

Achievement rate for Japan's energy-saving standards: **127%**
Annual electricity consumption (50Hz/60Hz): **340 kWh/year**
Target: FY2004
Example for a triple cooling refrigerator (NR-D47H1)

Normally, the color of the logo is orange, but for products that display excellent energy-saving (100% or more conformance to Japan's energy-saving standards), this logo is green.

Energy Conservation Center, Japan
www.eccj.or.jp/labeling/ (Japanese)

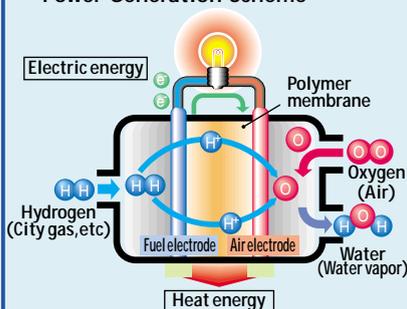
Household Energy-Saving Systems

In order to achieve total energy saving in households, we use fuel cells and ECHONET technology to aid research and development of household energy system solutions.

Household Cogeneration Systems Using Fuel Cells

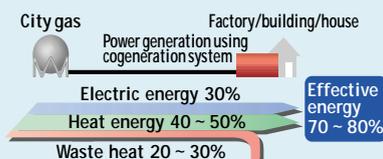
Fuel cells are not an electricity storage, but a generator that create electricity from hydrogen and oxygen. Fuel cells are constructed in such a way that the hydrogen reacts chemically with the oxygen in the air to produce electricity, heat, and water.

Power Generation Scheme



Because they can be turned on and off frequently and operate at low temperatures of less than 100 on air and hydrogen, which is obtained from the hydrocarbons of methane and other natural gases, we are undertaking research and development into solid polymer electrolyte fuel cells (PEFCs) that are highly efficient and low cost, making them ideal for commercialization. We are currently developing a cogeneration system that enables utilization of the generated heat from the generation of electricity to hot-water systems and air conditioning. Compared to the transmission of electricity from large-scale power plants (energy efficiency rate of approximately 35%), this cogeneration system has an energy efficiency rate of between 70 to 80%, and reduced CO₂ emissions. We have built a fuel cell production trial line, and trial production has already begun. Further, we continue to carry out research and development making fuel cells more compact and more efficient through long-term field test and research.

Energy Efficiency of Cogeneration Systems



Solid polymer electrolyte fuel cells



Cogeneration system Field test

Solar Power Generation System

The current solar power generation systems are costly to produce, and we must develop a way of increasing energy conversion efficiency and reducing production costs in order to realize widespread use of these systems. Towards this end, we continue to develop CIS (compound semiconductor) thin film solar cells that use Vacuum Evaporated Deposition and Sputtering technology, and have achieved an 18.5% of conversion efficiency for a trial solar cell of 1 cm x 1 cm.



Solar battery panel

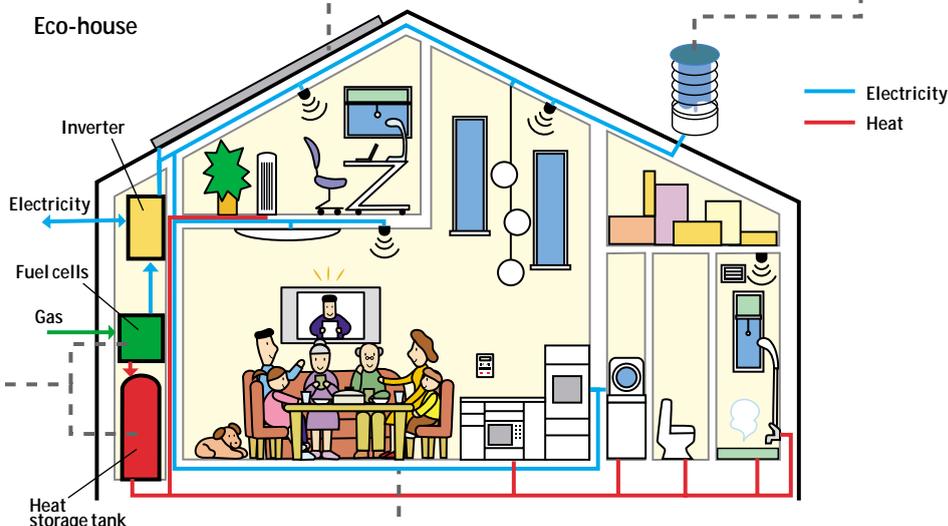
Wind Power Generation System

We have developed a wind-power generation system with so-called "Savonius-type" blades allowing for power generation with wind from any direction. Compared to other models, the "Savonius-type" system is ideal for installation in urban areas because it makes less noise and can be equipped with safety guards. Further, the



high-flexibility of design allows the model to be used as a kind of monument.

Wind power generation (hybrid streetlight)



Household Energy Management Systems

To realize energy saving throughout the household, we must develop optimum energy management systems instead of dealing with electrical appliances on an individual basis.

ECHONET technology realizes optimum energy management of appliance and equipment in households by using the existing wiring in houses, such as electric wires, to make two-way connections in order to control household electricity from remote locations to better adapt to occupant's versatile lifestyles. In addition to developing communication modules, controllers (see photograph on the right), and communication software development support tools, we are working to develop home appliances which can make networks with them.



Eco-mate Controller : Achieves energy saving through the use of ECHONET technology.

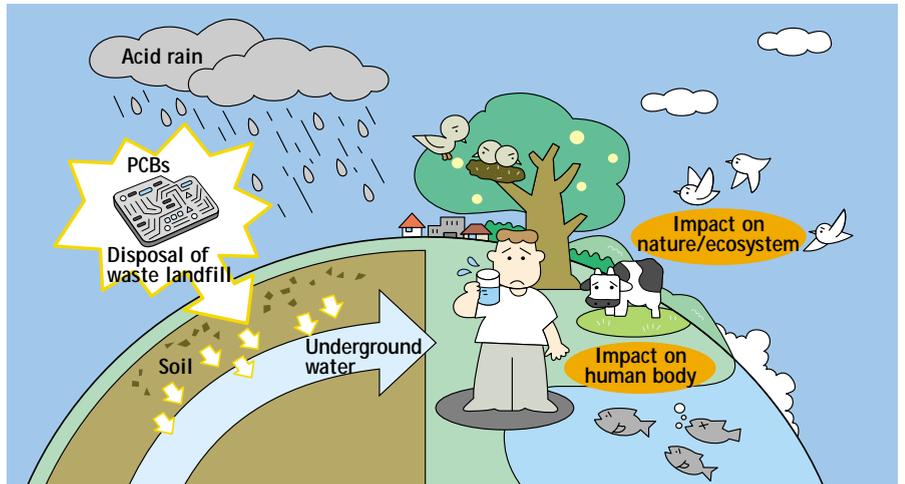
Clean Abolition of Lead Solder

We are working to reduce the use of chemical substances that are harmful to humans and the ecosystem. At the moment our top priority is to abolish the use of lead solder in all products by March 2003.

Environmental Problems Caused by Lead

Lead is a substance that will trigger nerve disorder if accumulated in the human body. Even so, the lead and tin utilized to make lead solder have been used for over 5,000 years, and are still used as part of standard technology worldwide to connect electronic components to PCBs(Printed Circuit Boards) in electric products. However, it has been pointed out that acid rain and other factors may have caused lead leakage into the soil and underground waterways from discarded materials that contain lead, ultimately affecting the ecosystem.

Image of Lead Leakage from a Discarded PCBs(Printed Circuit Boards)



Abolition of Lead Solder by the End of Fiscal 2002

We name the abolition of lead solder by the end of 2002 as a priority in the Clean concept to develop Green Products. In 1998, we were the world's first to begin the mass production of lead-free solder. Currently, we promote research and development into lead-free solder technology and its practical application as part of the target to abolish lead solder in all products and machinery on a worldwide scale by the end of FY 2002. In June 2000, under the auspices of our top environmental policy organ, the Environment Committee, established the Lead-free Solder Project, which promotes the disuse of lead solder through close cooperation between production headquarters, our various technology divisions, and production sites. Further, a taskforce comprised of full-time specialists accelerates technology development and helps build support.

Lead-free Solder Project System



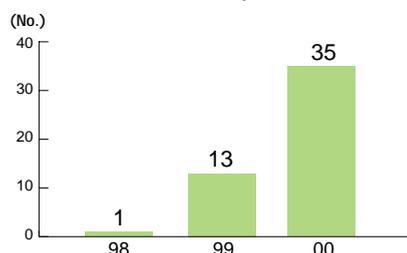
Results in Fiscal 2000

By the end of fiscal 2000, we had introduced lead-free solder in 35 models of 16 products at 31 of our 73 production sites in Japan, as well as in televisions and others at six of our companies outside Japan. We have produced a total of approximately 6 million units that use lead-free solder since we first started two and a half years ago.

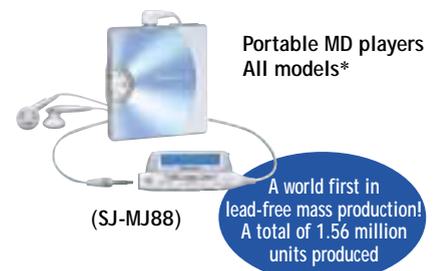
In addition, we lead the world with our practical application of component electrode lead-free plating. We use lead-free plating in approximately 85% of new semiconductors (1,039 models), and hope to introduce its use in 200 thousands types of electric components by the end of fiscal 2001.

We are cooperating with solder manufacturer, Senju Metal Industry Co., Ltd., to promote licensing activities that will enable the worldwide use of a tin-silver-copper solder, while acquiring special permission for production in Japan. Similarly, we are trying to acquire special permission to produce our own original tin-silver-bismuth-indium solder.

Lead-free Solder Adopted Models(Total)



Examples of Products Adopted Lead-free Solder



*All models on sale in fiscal 2000

Technology Issues Concerning Lead-Free Solder

Lead-free solders that use tin-silver-copper or tin-copper combinations are fused at higher temperatures than lead solder, and as a result, soldering affects components with low heat-resistance. Other problems surrounding the use of these solders include quality issues and production costs. Consequently, it is necessary to develop special soldering equipment, and high level production technology and quality control. Further, we need to select solder materials that best suit product characteristics, soldering methods*, and the components used.

* Including flow (molten solder immersion method), reflow (method of overheating the entire circuit board then fusing the solder), and mixed loading (using both flow and reflow methods).

Problem Solving and Introduction Promotion Activities

Based on our own research and case studies of preceding operation sites, we have created general guidelines for testing and standardizing technology specifications and quality assurance assessments for various construction methods and solder materials, and distributed this information throughout the entire Group. Also, we select recommended solders and promote their use on a company-wide scale. In order to effectively and accurately introduce technology solutions, case studies, and acquired know-how to each of our companies, we opened an internal Lead-free Soldering Techno-school to train our employees. This facility allows our on-site engineers to use lead-free solder on their actual commercial circuit boards, then study the effects and make a quality analysis of the results. 18 months after opening the

school, 163 participants from 48 different production sites had taken part in the training courses. In April 2001, we opened our Asia-Oceania region Techno-school in Singapore, and engineers from all over the Asia region are taking part in the courses.



A lecture at Asia-Oceania region Techno-school

TOPICS

Taking an Initiative in Lead-Free Soldering

Yoshinori Wada, who heads the Lead-free Solder Task force, plays a central role in projects that seek to abolish the use of lead-based solders in products. "The disuse of lead-based solders in products is not just an environmental counter-measure. It is also a reform in product development that displays the collective strength of the group." Solder is a fundamental technology that concerns almost all areas of our business. "No matter what the product, it is designed with the characteristics and functions of lead solder in mind. By making solders lead-free, we are changing the entire basis for products, and it no longer becomes a simple case of switching the materials used in solders." Changing the composition of solders affects all elements of a product, such as the heat-resistance of each component, circuit board patterns, and the types of production machinery used in production processes. "Therefore, it is not enough for manufacturing divisions alone to support the switch to lead-free solder. Activities that involve all areas of management - development, design, manufacturing, material, and quality control - are required. This has the extra effect of allowing the basic processes of products to be revised, and is beneficial since it brings down the ratio of poor quality products (approximately 50% in MD players and video recorders), and promotes cost reductions (approx-

mately 30% reduction in the cost of circuit board materials for air conditioners)."

"When we started mass production with these new solders, we had to tackle problems as they arose, and in doing so, have acquired much know-how in this area. In addition to removing the lead from solders used to join components and circuit boards, we set the target of making our component electrodes lead-free by fiscal 2002, and are going to expand these activities globally."



Production Technology Headquarters
Environmental Production Technology Center
Yoshinori Wada

A Solder Expert

Yasuji Kawashima is a member of the AVC Company's Television Systems Products Division, and is referred to as the "Solder Expert" as a result of receiving the Nakao Memorial Award in fiscal 2000 for his outstanding work in technology development. He is currently advising overseas factories on the introduction of lead-free solder. "We plan to introduce lead-free solder at 19 operation sites throughout 17 countries by March 2003. It takes about four months to introduce it at each factory. Especially in Europe, there is a lot of interest in introducing lead-free solder. The Minister for the Environment attended the

opening ceremony when we began large-scale production, and such events have been widely reported by the media, in the newspapers and on television." One of the problems arising from the introduction of lead-free solder is the time it takes before people realize that the nature of lead-free solder is quite different to that of conventional solders. "For example, compared to conventional solders, lead-free solders have a higher fusing point by approximately 30 , which gives them better adhesive qualities. However, when impure substances are mixed to make solder, the strength of the solder is reduced, affecting the reliability of the product. For this reason, we are constantly explaining the basic management procedures for lead-free solder."

"I received the Nakao Memorial Award for inventing a unique system of recycling solder using sesame seeds. Until this invention, refuse solder had been processed as waste. I was able to reduce the amount of solder used by 70%, and because my method involves simply sprinkling sesame seeds on the solder, large amounts of capital investment are not necessary. And because sesame seeds are edible, they are highly safe." This extraordinary invention can also be used for lead-free solders.

AVC Company
Television Systems Products Division
Production Department
Yasuji Kawashima



3Rs

The 3Rs of Products (Reduce, Reuse, Recycle)

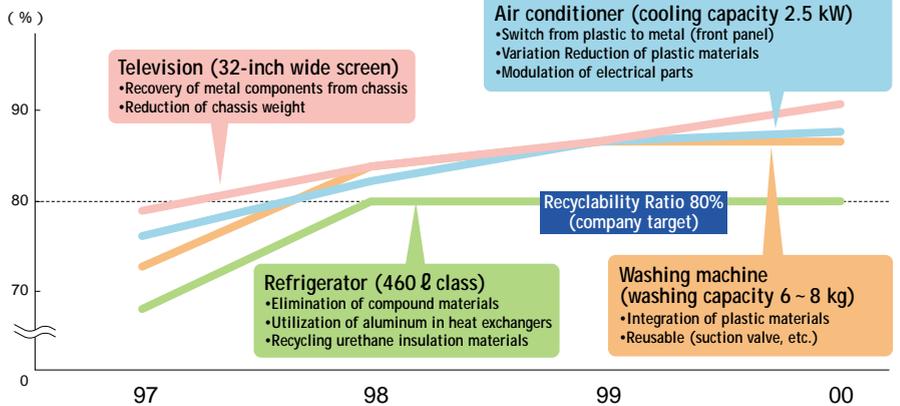
Our products are manufactured from variety of materials. We not only recycle the materials used in products, but also strive to reduce the amount of resources by simplifying production processes, and facilitating the disassembly of products to promote production development based on the concepts of "Reduce" and "Reuse."

Improving Recycling Ratios

Products are designed to achieve a recyclability ratio (percentage of materials' mass that can be recycled) of 80% or higher in accordance with our own standards, and we promote the development of these products.

With a focus on our four main products, by reducing compound materials, integrating grades of plastics that are hard to recycle, and reducing amounts of hazardous substances, we have improved recyclability ratio at the designing stage.

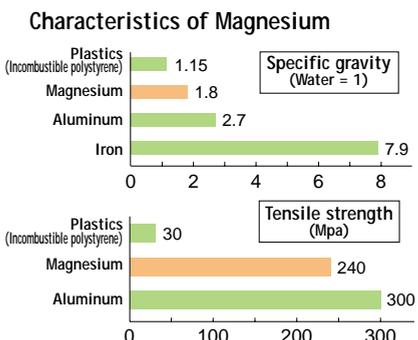
Recycling Ratios for Four Main Products (company standards)



Switching from Plastic to Metal

We are considering the use of metals in products as a replacement for the plastic materials which are comparatively difficult to recycle. Among easily recyclable metals, magnesium is fairly strong and abundant, and when compared to other metals, is relatively light. It also displays superior processing characteristics.

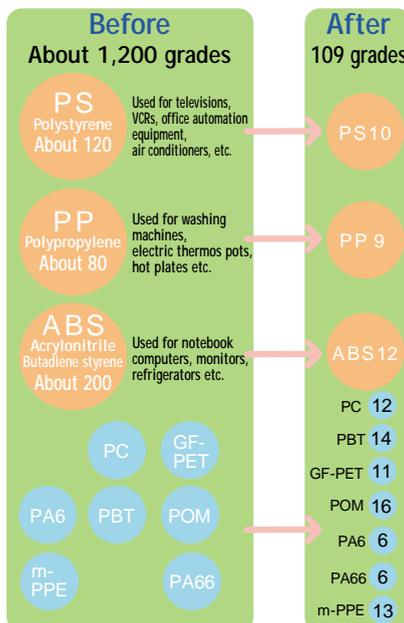
By applying our original plastic molding technology, we were able to produce the world's first 21-inch television (the TH-21MA1) that adopts magnesium alloy in 1998, and in June 2001, used the same magnesium alloy technology to develop the casing for a 36-inch television (the TH-36D100).



Integration of Plastics

Plastics are unique since their characteristic can be improved with the slight amount of additive, and because of it, we employ an extensive variety of plastics in our production processes. Since 1997, we have carried out drastic changes, reducing the number of types and grades of plastics, and established the Matsushita Standard Grades, a set of standards classifying our 10 most commonly used plastics.

Reduction in the Number of Main Plastic Grades

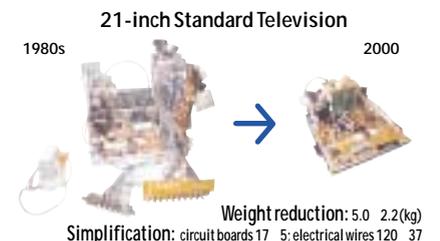


Example of the 3Rs Television Design

We are continually examining ways to improve the 3Rs, a task that is tackling from a variety of aspects starting at the design stage. We have been promoting the unitization of our products, increasing the ease of disassembly, and have shortened disassembling time from 140 to 78 seconds.

Simplifying and Reducing the Weight of the Chassis (electric circuit)

The chassis is comprised of electrical components and metals, and because it is extremely difficult to separate into each material, we must look for ways of simplifying the chassis design and reducing its weight.



Reducing Plastic Grades and Their Volume

By using the "blow molding" single unit molding technique, we were able to avoid the need to attach separate parts, and reduce the amount of plastic materials used in our products. In addition, we conduct strength testing on the plastic used in the mountings of the weight-consuming cathode ray tube to ensure that Matsushita Standard Grade plastic is being used to its optimum capacity.

•Reduction in plastic components	39 8
•Reduction in types of plastic	13 2
•Reduction in quantity of plastics used	26%

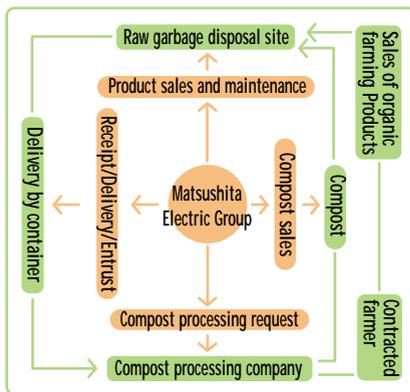
Environmentally Friendly Lifestyles and Transport Systems

We are not only working to reduce the environmental impact of our products, but also conducting wide range research into system solutions and offering proposals for them.

Composting Raw Garbage

We are suggesting raw garbage recycling system. The recycling system consists of collecting raw garbage, composting, selling the compost to farmers.

Composting Raw Waste Image



Reduction of Raw garbage (Disposer)

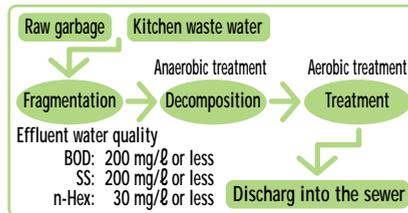
The raw garbage generated from daily household activities is crushed in disposer and then treated in a septic tank, providing a hygienic method of reducing raw garbage.



Disposer

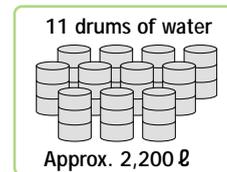
Using this method, the amount of CO₂ emissions presently generated by general waste incineration can be curbed.

Reduction of Raw Waste (Image)



Centrifugal Force Anhydrous Rice Washing Machine

Rice washing water contains large amounts of phosphorus and nitrogen and is a difficult household effluent to treat. We have released the “Centrifugal Force Anhydrous Rice Washing Machine” which washes rice without any water. Using this machine, a family of four can save eleven drums of water per year while not discharging any environmentally harmful effluent.



Annual water savings for a family of four

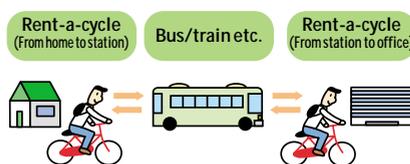


Centrifugal Force Anhydrous Rice Washing Machine (SN-KT12A)

Eco-Cycle System (Electric bicycle sharing system)

We are investigating and proposing a system that provides shared electric bicycles for commuters at numerous stations where bicycles can be ridden to and left. In addition to preventing bicycle damage and theft, bicycles can be used safely over an extended period of time since this system facilitates maintenance.

Eco-cycle System Image



Products for Electric and Hybrid Electric Vehicles

Emissions-free electric vehicles (EVs), along with low-emission Hybrid Electric Vehicles (HEVs) that run on a combined electric motor and gasoline engine, are attracting attention as effective options in the battle to combat global warming, air pollution and the depletion of world oil supplies. Active investment in the development of such future vehicles has been conducted not only by corporations, but also as national projects, in many countries of the world. To encourage the widespread use of



The new Panasonic high-performance, compact NiMH rechargeable battery module and pack system, designed to Toyota's specifications

EVs and HEVs, Matsushita commenced mass production of nickel metal-hydrate (NiMH) rechargeable batteries for EVs in September 1997. In December of the same year, Matsushita began mass production of a cylindrical NiMH battery for Toyota Motor Corporation's “The Prius”, the first HEV in the world. During fiscal 2001, Matsushita further expanded this product line with a new rectangular NiMH rechargeable battery, boasting high power in a compact design. This battery has been used in Toyota's “The Prius” since May 2000. In June 2001, Matsushita also began supplying this battery for Toyota's new hybrid minivan, “The Estima.”

ITS*-Creating a Smooth, Safe, Efficient and Environmentally Conscious Traffic Systems

We are making full use of leading-edge electronics and information transmission technologies, and researching and developing ITS, which aims to alleviate traffic congestion and prevent accidents, while helping to reduce vehicle exhaust emissions and contribute to improve fuel economy.

*ITS: Intelligent Transport System

Toyota's new HEV, “The Estima”



Green Procurement

We consider the adoption of environmentally conscious materials is the first step towards the creation of Green Products. Therefore, from the standpoint of a manufacturer and supplier, we promote that style of procurement.

Production Material Procurement Activities

To manufacture products, a variety of materials are procured. We share our ideas about environmental conservation with material suppliers, and carry out procurement activities based on the publications over the past two years. The publications are Green Procurement Standard Manual and Chemical Substances Management Rank Guidelines, which include Environmental Consciousness in addition to traditional Quality, Cost, and Delivery Time.

As part of our green procurement philosophy, "supplier assessment" and "material assessment" standards have been clearly defined in order to adopt the best possible materials. In terms of our supplier assessment standards, evaluations had been carried out on approximately 3000 of our main suppliers by March 2001, who represent over 90% of our annual procurement cost. Also, while urging our suppliers to continue improving their environmental ac-

tivities, we support those suppliers who acquire ISO14001 accreditation. In terms of material assessment standards, we are familiarizing with all types of chemical substances based on our original Chemical Substances Management Rank Guidelines, as well as familiarizing it with the specific quantities of chemical substances contained in the materials we procure.

"The Green Procurement Standards Manual" and the "Chemical Substances Management Rank Guidelines"



The Green Procurement Standards Manual



The Chemical Substances Management Rank Guidelines



"The Green Procurement Standards Manual"
"The Chemical Substances Management Rank Guidelines"
www.matsushita.co.jp/environment/en/index.html

Green Procurement Assessment Criteria

Supplier Assessment Criteria

- Acquisition of ISO 14001
- Corporate philosophy and policy on the environment
- Environment-related corporate organization and planning
- Environmental impact assessment
- Environmental education/information disclosure
- Rationalization of distribution activities



Material Assessment Criteria

- Observance of laws/regulations
- Forbidding the use of prohibited substances
- Chemical Substances Management Rank Guidelines
- Prevention of vibration/noise/odor
- Reduction of the harmful or poisonous levels of waste at disposal
- Conservation of energy and resources, and utilization of recycled resources
- Recycling-oriented design
- Disclosure of the environmental information of materials
- Reduction of the environmental burden of packaging materials



Overall Assessment



Component and Device Supply Activities

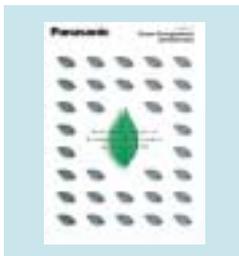
We are extensively involved in the component and device businesses and conduct activities that promote green procurement among our customers as a supplier.

We have formulated our own original standards, for the electronic components and devices to sell, and assess the environmental consciousness of components based on the standards with three aspects of Save, Clean, and 3Rs to inform our activities on the environment. Products that satisfy the standards, referred to as Environmentally Conscious Components, are then catalogued, and detailed information concerning their low environmental impact is announced.

Matsushita's Standards for Environmentally Conscious Components

Save	Energy saving during operation is 20% or more of the current component
	Reduction of standby power requirements by more than 50% of the current component levels
Clean	Lead-free, Halogen-free
	Reduction rate of Reduction Substances (Cadmium, chromium[VI] etc.) of more than 50%
3Rs	Reduce: Down-sizing rate (reduction in amount of resources used) of more than 20% of the current component
	Reuse: Components that can be easily recycled
	Recycle: Components with a recycled materials utilization rate of more than 30%

Catalogue of Environmentally Conscious Components and Lead-free Catalogues



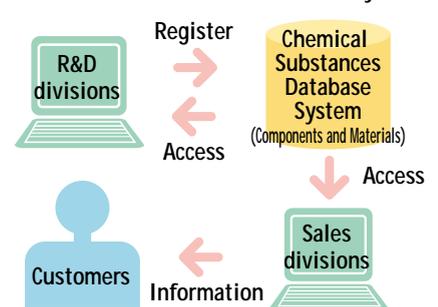
Lead-free Catalogues: www.semicon.panasonic.co.jp/lead-free/e-index.html
Catalogue of Environmentally Conscious Components: www.maco.panasonic.co.jp/maco/index.html

Chemical Substance Database System

We are presently creating a database accessible by the entire Matsushita Electric Group that includes information on the chemical substances and amounts used in our components.

Technical development department uses the database to assess products and promote the development of products that have even lower environmental impact. Further, by providing accurate information on products, our sales division is promoting the spread of environmentally conscious products.

Chemical Substances Database System



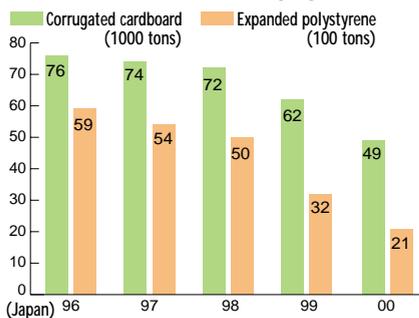
Packaging and Distribution

We are striving to reduce the amount of packaging materials by devising various new packaging methods. In addition, to reduce environmental impact due to transportation, we are working to improve distribution efficiency.

Packaging Activities

Starting from basic role of packaging, which is to “ensure product quality,” we are taking a rational approach (reducing quantity and using recycled materials) so that packaging matches the specific characteristics of the products. We are successfully working to reduce the volume of raw materials, use resources efficiently, reduce energy usage during transportation (ultimately decreasing transport expenses at the same time), reduce the volume of waste generated, and reduce the number of man-hours it takes to pack products.

Utilization of Main Packaging Materials



Reducing and Recycling Packaging Materials

Elimination

Cardboard boxes that eliminate the buffer materials for packaging air conditioners

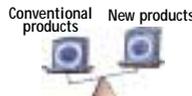


“Clear Pack” packaging for radio and headphone stereos



Drastic Reduction

Lightweight packaging material for fluorescent lights



40% reduction in weight

See-through packaging for washing machines



Reduction of cardboard side panels

Reuse

Reusing packaging material for components



At packing



At collection

QOOPAQ

To discover the “ultimate packaging material,” we turned our attention to “air” to develop a high-efficiency buffering material. “QOOPAQ” is a multi-layer-structured film filled with air. This packaging material has superior shock absorbing properties, and the added benefit of being able to reduce in volume to 1/250 of its original size for disposal.

By using QOOPAQ to package portable DVD players, we have been able to reduce annual consumption of corrugated cardboard by 244 tons.



Portable DVD players packaged with “QOOPAQ”

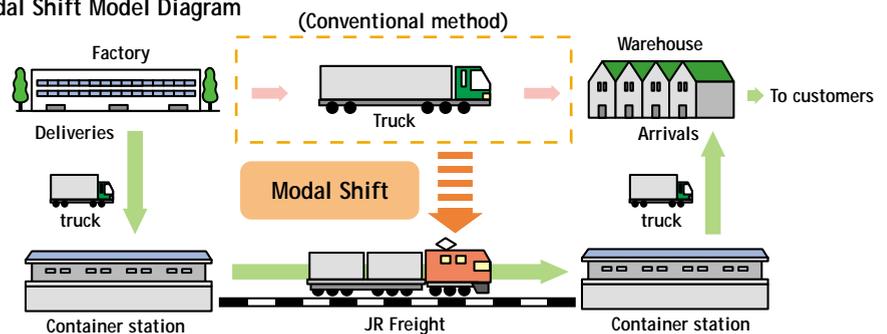
Modal Shift to Railroads

We have been working to increase the efficiency of distribution activities and reduce impact on the environment through “collective transportation,” and other activities such as improving the load-carrying efficiency of transport modes and reducing the size of packaging. Since fiscal 1998, we have been actively promoting a “modal shift,” which will allow for even greater reductions in environmental impacts.

“Modal shift” refers to the switch to a more efficient distribution system in terms of energy and cost, and we are shifting from truck to railroads for the transportation over distances of 500 km.

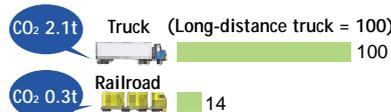
Our total railroad cargo for fiscal 2000 was 8,406 containers (each container weighs 5 tons), effectively reducing CO₂ emissions by 5,050 tons. When compared with the emissions from a 10-ton truck, these equal to a CO₂ reduction of 3,600 truck loads.

Modal Shift Model Diagram



CO₂ Emissions by Transport Mode

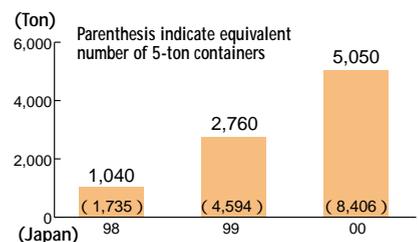
Compared with transport by a 10-ton truck between Tokyo and Fukuoka (1,200 km)



Truck: 10t × 1,200(km) × 48(g-c) × 44/12(convert to CO₂)=2,112,000(g)
 Railroad:
 A. Railroad 10t × 1,180(km) × 6(g-c) × 44/12(convert to CO₂)=259,600(g)
 B. Collection and delivery 10t × 20(km) × 48(g-c) × 44/12(convert to CO₂)=35,200(g)
 A+B=294,800(g)

(Data quoted from materials for the joint council meeting on Japan's measure against global warming)

Reduction in CO₂ Emissions due to a Modal Shift to Railroads (Estimated figures)



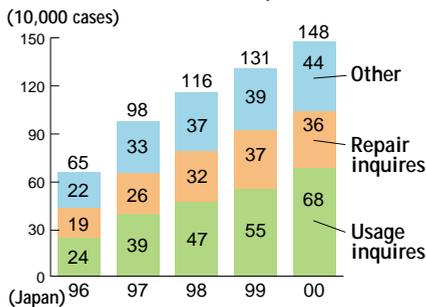
Services and Repairs

To extend the life of products and reduce amounts of disposal, the correct usage, maintenance, and repair of products is essential. We conduct a variety of activities, starting with customer service and repairs, to ensure the long and useful life of products.

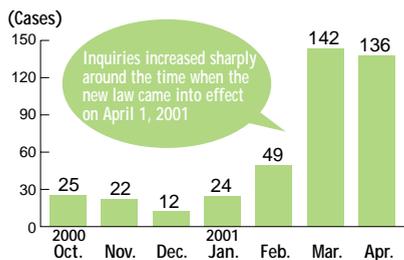
Customer Service Center

To ensure that we are available to answer any customer questions, we established Customer Service Center, which is open 365 days a year. Inquiries during fiscal 2000 totaled 1.48 million, an increase of almost 170,000 inquires compared to the previous year. A breakdown of the inquires shows that 46% of inquires concerned usage, 24% concerned repair work, and 21% were asking for advice on new purchases. We are listening to the voice of our customers carefully and applying their ideas and suggestions throughout our business operations, in management, product development, service, and sales.

Trends in Customer Inquires



Trend in Inquiries Relating to home appliance recycling

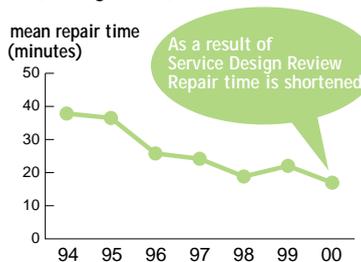


Customer Service Center (Only in Japan)
0120-878-365 (Office hours: 9 am - 8 pm)

Service Design Review

Since 1993, we have been conducting the Service Design Review in pursuit of user-friendly, durable, and easily repairable products with increased quality. In fiscal 2000, 15 operation sites conducted review activities, and the feedback sent to operation sites based on customer opinions and repair activities is being used to improve products.

Result of Service Design Review (Refrigerator)



Service Design Review

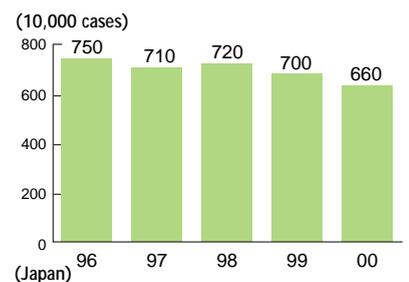
Repair Service

To increase the life of our products, we conduct a wide variety of repair services, with approximately 6.6 million cases of repair recorded in fiscal 2000.

We stock over 1.1 million kinds of repair parts at any one time, and make various efforts to ensure that our customers get the maximum life out of the products. These efforts include long-term storage and sharing of parts, keeping our service centers fully stocked at all times, and in addition, we have introduced partly automated repair sites.

In addition to developing easily repairable products, we have been conducting "service improvement campaigns" since 1989, aiming at reducing time to repair products. In 1995, the ratio of our products that were repaired in less than 30 minutes was only 48%. However, this figure had risen to 61% by 1998. Our present aim is to increase this ratio to 80% by the end of fiscal 2001.

Trend in the Number of Repairs



TOPICS

Introducing Maintenance tools

We introduce maintenance tools that help to maximize the life of home appliances. Since proper maintenance can considerably extend product life, we are introducing electrical appliance cleaning tools, filters, washing machine tub cleaners that remove grime from the inside of washing machines, and detergents that clean the boiling units of gas and oil hot water systems fitted to baths. In addition, our air conditioner maintenance specialist team cleans air conditioners for our customers, resulting in energy savings and long life in addition to convenience and comfort.

Professional Air Conditioner Cleaning

After many years of use, air conditioners accumulate dust and mold inside of them. Continuing the use of a dirty air conditioner not only reduces its performance, but can also lead to energy losses and shorten the life of the unit. However, servicing and cleaning conducted by air conditioner professionals ensures the long life of these products.

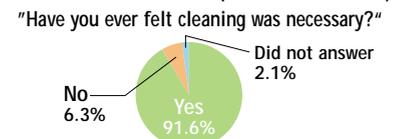
Air conditioner Heat Exchanger Cleaning



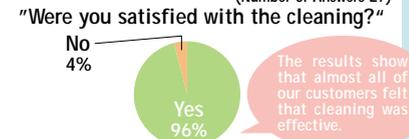
Before cleaning

After cleaning

Air Conditioner Cleaning Survey Results (Number of Answers 1173)



Free Trial Cleaning Monitor Survey Results (Number of Answers 27)



The results show that almost all of our customers felt that cleaning was effective.

A Study of Eco-Life : Part II*

Servicing Products: Making the Most of Eco Life

Since establishing our Eco Design Policy in April 1999, our Design Division has tried to reduce environmental impact and enhance the design of our products. This "A Study of Eco-Life" is the second part in a series of design studies first published in 2000, which targets environmentally conscious lifestyles for the near future by analyzing products and lifestyle relationships. The study is looking at the realization of "product servicing," based on the concept of only servicing products when necessary as an effective method for reducing environmental impacts. To achieve this, we reviewed the environmental merits of product servicing, and the actual processes involved.

*For details on "A Study of Eco Life Part 1," see "Environmental Report 2000"
Web site: (www.matsushita.co.jp/environment/en/m-pdf/2000pdf.pdf)

Eco Point 1 Ownership rests with the supplier but not the user

Therefore...



Maintenance

Pay particular attention to product management and be able to carry out maintenance when required.



Up-grades

Invest in the latest technology and maintain a high level of environmental performance.



Recycling root

Ensure product recycling root and facilitate product reuse and recycling.



Extend product life

Ensure long life through maintenance

Eco Point 2 Products are used by many users

Therefore...



Time-sharing

Efficient use of products through time-sharing.



Full use

Make full use of the product, thereby improving resource efficiency.

Eco Point 3 Design more suitable production that involve few model changes

Therefore...



Standardization of models

Negate the need for any unnecessary model differentiation or frequent model changes.



Product Sharing

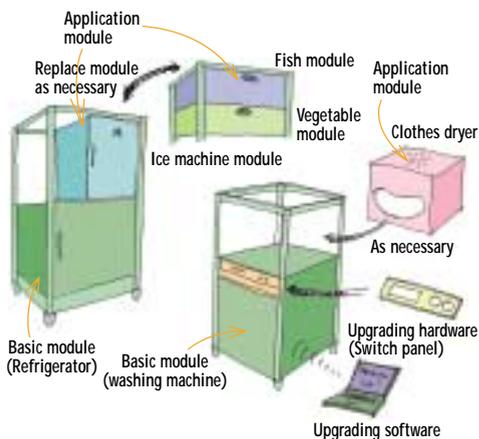
Standardize specifications and share components for products.

[Ideas for Making the Most of the Eco Life]

Interlocking Home Appliances

Flexible Servicing

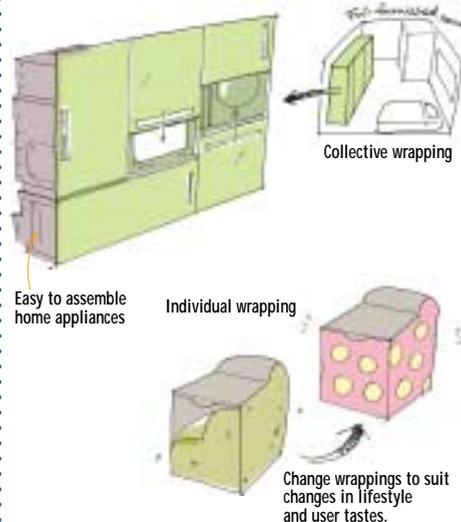
Upgrade with the changing seasons or lifestyle, and return goods and rearrange their components as you like. We can give you the ability to add a large freezer to base module during the summer.



Wrapping Home Appliances

Comprehensive Household Services

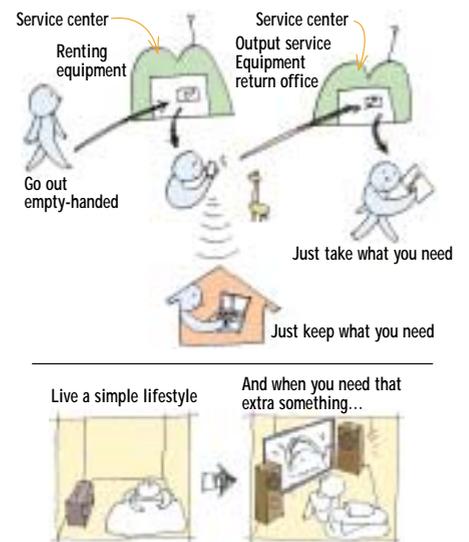
Pre-modularized units combine the basic electrical appliances with furniture. If you move, you can take your clothing and daily necessities and leave the rest behind. You can file household records, match the interior to suit your individual taste, and constantly maintain product and service supply management systems.



"Choigashi" (Lend-a-Bit) Home Appliances

Service Anywhere, Anytime

Information terminals are readily available for lease on every street corner. Take advantage of simple digital cameras, and video and music distribution services. Of course, information obtained can be stored and when the device is returned, retrieved and transmitted to the desired location. This system allows you to hire the latest audio-visual equipment anytime.



This design study provides just one model of environmentally conscious lifestyle. We are committed to continuing research into other possible lifestyle models that can exist in harmony with the environment.

Recycling Systems for Used Products

We have set up a new recycling system that uses resources effectively and changed the old perception of used products as mere waste. We are also developing technology for recycling and recovering resources.

Fundamental Policy on Home Appliances Recycling

We have established a decentralized recycling system for used home appliances by restructuring existing recycling systems.

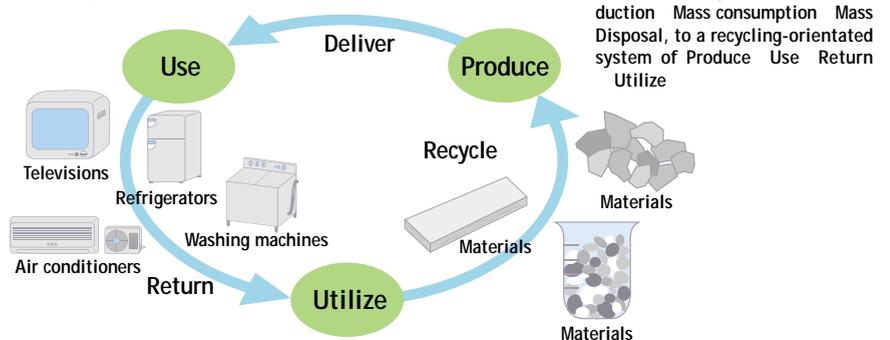
Constructing Flexible Management Systems

We have also set up a flexible recycling system that covers all areas of recycling, from the collection of used products, to recycling processes. In addition, we are working towards zero landfill, and are cooperating with recycling businesses and materials manufacturers to reduce costs.

Minimizing Recycling Cost and Decentralizing Recycling Facilities

In order to realize systems that operate in accordance with the Law for Recycling of Specific Kinds of Home Appliances, it is essential that we minimize recycling expenses. While utilizing our existing infrastructure as much as possible, we have constructed an effective decentralized processing system in cooperation with designated collection sites, recycling sites, and other existing businesses.

Recycling-Orientated Social Systems

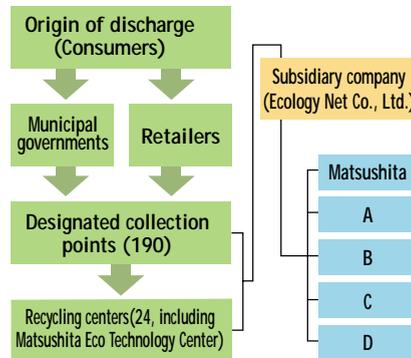


Establishing and Communicating Environmental Strategy and Policies

In April 2000, we established the Matsushita Eco Technology Center, the first for home appliance recycling and testing. As a home appliance recycling business, the Ecology Net Co., Ltd. manages recycling-related operations for the 19 manufacturers

participating in Matsushita's network, and promotes smooth operations by cooperating with 24 recycling centers and 190 designated collection points throughout Japan.

Matsushita Home Electric Appliances Recycling System



Recycling Fees

Air conditioner 3,500 yen	Television 2,700 yen
Refrigerator 4,600 yen	Washing machine 2,400 yen

T O P I C S

The Law for Recycling of Specific Kinds of Home Appliance

The Law for Recycling of Specified Kinds of Home Appliance was put into effect on April 1, 2001 to promote the effective use of valuable resources and energy, as well as reduce waste through recycling. The main features of this law include: (1) placing an obligation on businesses and reducing costs through market competition, (2) placing an obligation on retailers to collect and deliver home appliances for recycling, and (3) assigning recycling expenses to those who

dispose of appliances. These activities oblige manufacturers to use their detailed knowledge of products to recycle scrapped products, a groundbreaking system that is having a worldwide impact. Air conditioners, televisions, washing machines, and refrigerators account for approximately 80% in weight of the total home appliance disposal in Japan. Many useful resources, such as metals and glass, are contained in scrapped products, and under the law, we are ob-

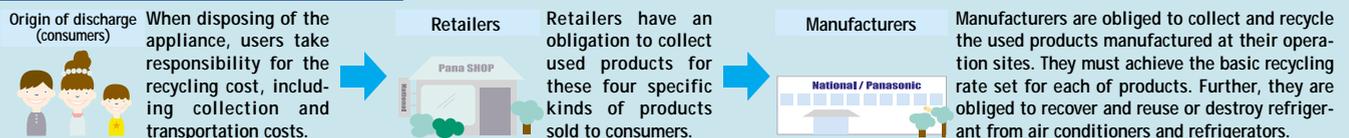
liged to effectively reuse and recycle these resources.

Four Target Products and Their Recycling Rates

Air conditioners 60% or higher	Televisions 55% or higher
Refrigerators 50% or higher	Washing machines 50% or higher

$$\text{Recycling rate} = \frac{\text{Reused component and material mass}}{\text{Product mass}} \times 100$$

Responsibility based on the law



Matsushita Eco Technology Center (METEC)

Matsushita Eco Technology Center performs the following roles:

1. Recycling scrapped materials into new products in accordance with the law
2. Development to promote recycling technology
3. Research and development based on feedback concerning low environmental impact product design

We dispatch these results and information to a variety of locations both inside and

outside the company, and in addition to recycling used products, are proactive in the research and development of leading-edge recycling technology. Further, we disseminate useful technologies to other recycling centers in order to achieve a high recycling rate and low recycling cost.

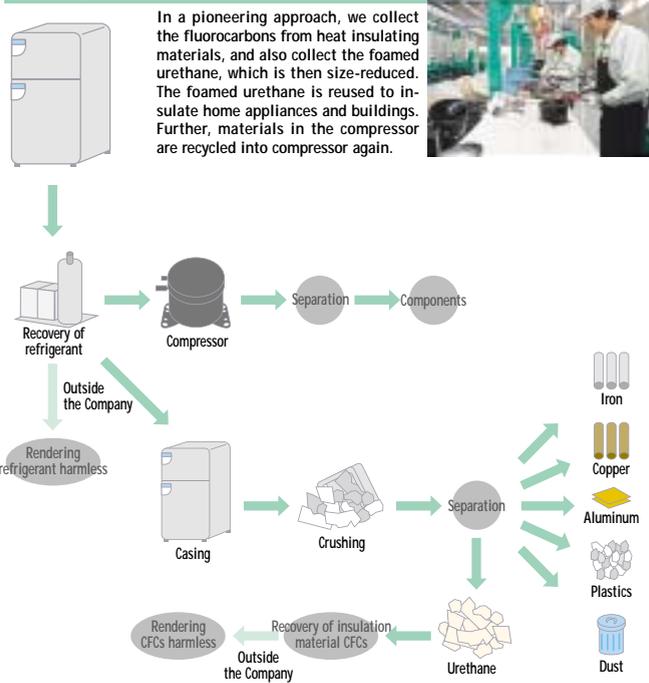
The research and development division of METEC performs research and development of easily recycled materials and recyclable designs, as well as promoting the creation into easily recycled products from the planning and development stages.

Outline of the Matsushita Eco Technology Center Co., Ltd.

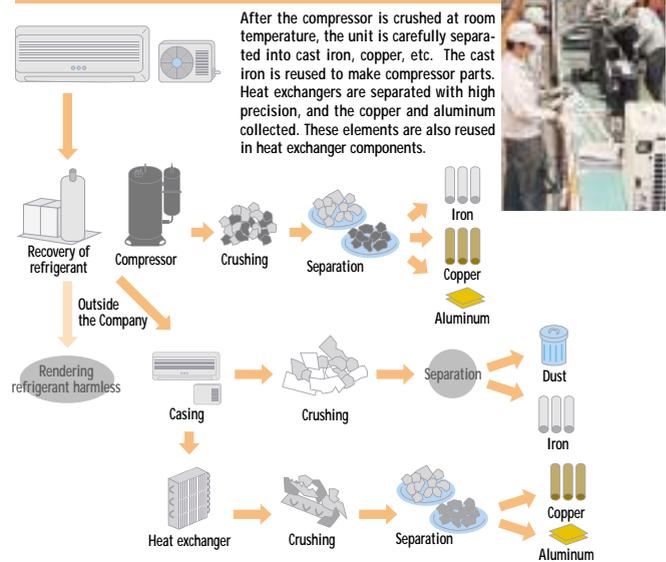
Location	50 Saho, Yashiro-cho, Kato-gun, Hyogo Prefecture
Inauguration	April 1, 2001
Number of Employees	Approximately 50
Area	Site area 38,570 m ² Building floor area 12,760 m ²
Number of units recycled	400,000 units/year (2001 forecast) Equipment capacity 1,000,000 units/year
Business operations	Recycling used home appliances, research and development of recycling technology

Recycling Flow of Four Products

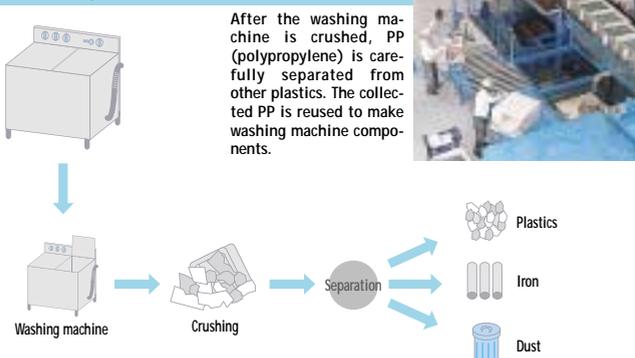
Refrigerators



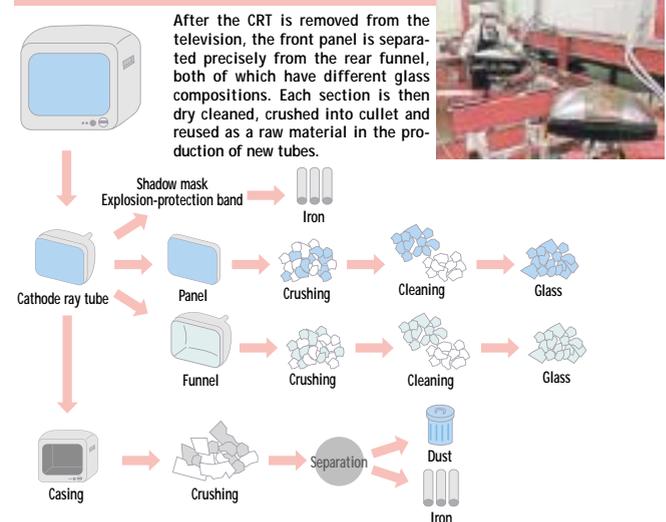
Air conditioners



Washing machines



Televisions

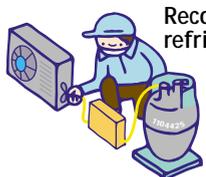


REPORT

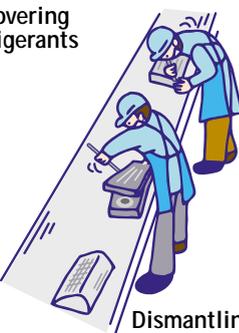
Home Appliance Recycling Site Tour

Matsushita Eco Technology Center Co., Ltd. began regular operation as the world's largest home appliance recycling site in April 2001. In addition to responding to the various challenges concerning the recycling business, the center searches for new ways to improve products. This brief report introduces you to the operations carried out at the center.

Air Conditioners



Recovering refrigerants



Dismantling



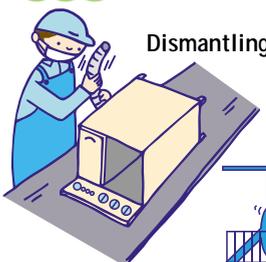
The heat exchanger is separated into copper and aluminum parts, leaving a press cake. (The photograph shows the aluminum press cake.)



Heat exchanger without the exterior panels

"The Matsushita Electric Group leads the way in the enforcement of the Law for Recycling of Specific kinds of Home Appliances and from March 1998 to December 1999, we continued our recycling research of four kinds of used product in cooperation with Sunny Metal Co., Ltd. We repeatedly test dismantling technology, such as the "press" and "shredder" methods, as well as parts separation and material collection technologies, and for example, utilize these technologies on site to recycle CRTs as glass, and recover refrigerants from refrigerators and air conditioners."

Washing Machines



Dismantling



Crushing and separating plant for washing machine.



Centrifugal force separator for mixed plastics



The Matsushita Eco Technology Center Co., Ltd. is located in Yashiro-cho, Kato-gun in Hyogo Prefecture, about one-and-a-half hours by bus from Shin-Osaka, and lies in a peaceful rural district.



The recycling home appliances are transported by covered vehicle and stored in a building, where they are protected from the wind and rain.



Tour Guide



"On this site not only do we dismantle products and separate them into parts, but we investigate ways of making products with a higher recycling ratio. We are going to use the acquiring know-how to aid in the development of new products."

Televisions



"Convenient Hand" The suction cup is vacuumed to facilitate the removal of heavy parts.

Removing the cathode ray tube (CRT)



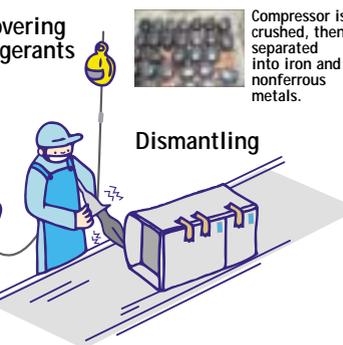
Separating the panel and funnel. Removing the shadow mask



Refrigerators



Recovering refrigerants



Dismantling



Compressor is crushed, then separated into iron and nonferrous metals.



"Until now, we have concentrated solely on creating products, so we are relatively new at recycling scrapped materials into new products. However, some rare experiences show that we must now turn to promoting the creation of products that are durable, as well as easy to dismantle."



For sites that generate large noises, walls of two or three layers are constructed to prevent noise leakage.



"Since loud noises are generated when products are scrapped, we are striving to soundproof the area with 30cm thick concrete walls and other types of sound absorbing materials. In addition, we have inaugurated the Environmental Preservation Association, comprised of representatives from neighboring communities, scholars, and government officials, The committee has introduced the Environmental Monitoring System for periodically observing and monitoring the company premises. Also, since the general public are welcome to visit the permanent exhibition hall on site, we hope our facilities will help to educate people about the environment."

Clean Factories

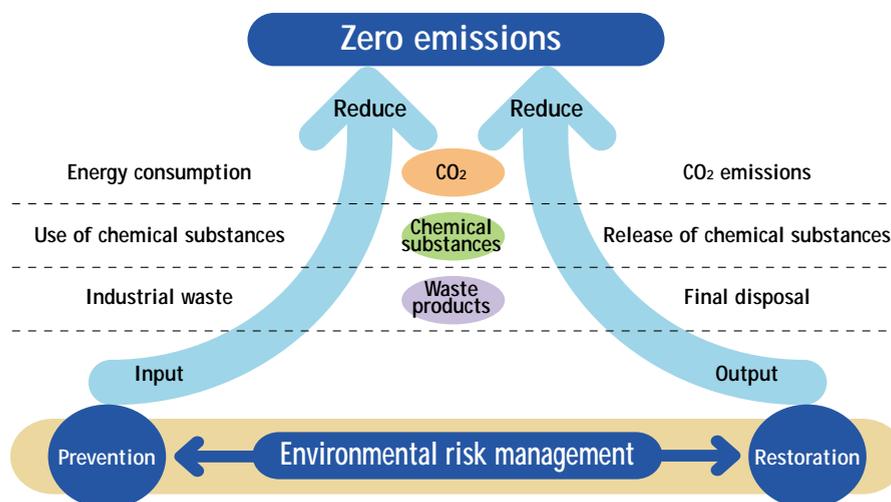
We strive to comprehensively reduce the environmental impact in production processes, and promote building factories that operate in harmony with the environment and local communities.

Achieving True Zero Emissions

The term that best describes the concept of Clean Factories (pollution-free factories) is “zero emissions.” According to a proposal by the United Nations University (UNU) in 1994, “The Zero Emissions concept is based on the full and effective utilization of the earth’s limited resources and the minimization of human impacts on the natural environment.”

Based on this concept, zero emissions activities do not simply stop at waste reduction, but aim for a universal minimization in emissions.

Realizing Clean Factories for a Sustainable Society



Three Challenges for Realizing Clean Factories

Energy Conservation Minimizing CO₂ emissions

In the past, we have promoted energy conservation on a company-wide level in order to reduce the emissions of CO₂, a major greenhouse gas. However, with recent digitalization and the spread of information networks, the weight of the component business, which consumes large amounts of energy, is increasing. In turn, this increases the amount of CO₂ emissions of the company. In the future, we need to enhance energy conservation activities in the component sector, which is expected to grow, and aim to achieve our mid-term targets.

Chemical Substance Management Minimizing the use, release, and transfer of chemical substances

Throughout history, mankind has either produced or used more than 100,000 types of chemical substances, which have ultimately been released into the environment. As a result, the effects these substances have on humans and ecosystems are becoming more apparent. Based on risk assessment, we have ranked the chemical substances designated for control into three categories: “Prohibition,” “Reduction,” and “Proper management.” We have also set specific targets, and are working towards reducing the amount of use, release, and transfer of chemical substances.

Waste Reduction Minimizing industrial waste and final disposal mass

Until now, we have concentrated our efforts on recycling activities that minimize the volume of landfill waste. As a result, we have achieved the landfill waste targets set by the government and industry much quicker than expected. Since fiscal 2001, we have been aiming to achieve even larger landfill waste reductions, and are carrying out activities with the aim of reducing waste generation by setting specific targets.

TOPICS

Summary of Matsushita's Environmental Voluntary Plan

Since the establishment of the Matsushita Environmental Protection Promotion Action Plan (Environmental Voluntary Plan) in 1993, we have conducted environmental activities to achieve specific goals. The results are as follows.

Global Warming Prevention Activities

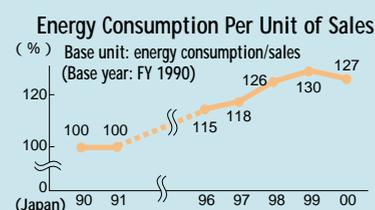
Target Reducing energy consumption per unit of sales by 25% in fiscal 2000 (Base year: FY 1990)

We invested approximately 10 billion yen into the company-wide energy conservation activities in fiscal 2000, but was unable to achieve the target. This has been attributed to the impact of our business restructuring activities and rapid market fluctuations.

Industrial Waste Reduction Activities

Target Reducing industrial waste per unit of sales by 75% in fiscal 2000 (Base year: FY 1991)

As a result of promoting the separation of parts in waste products, as well as the concepts of “reuse” and “recycle,” we were able to achieve our target. This was made possible by the conversion of plastics into solid fuels, and the utilization of sludge as a raw material in cement.



Energy Conservation and Reduction of CO₂ Emissions

Energy conservation activities are an important theme in Matsushita as reductions in CO₂ emissions contribute to the prevention of global warming and strengthen our management practices. We have set our own independent targets based on mid-term, long-term and global perspectives, and are accelerating our efforts to realize these targets.

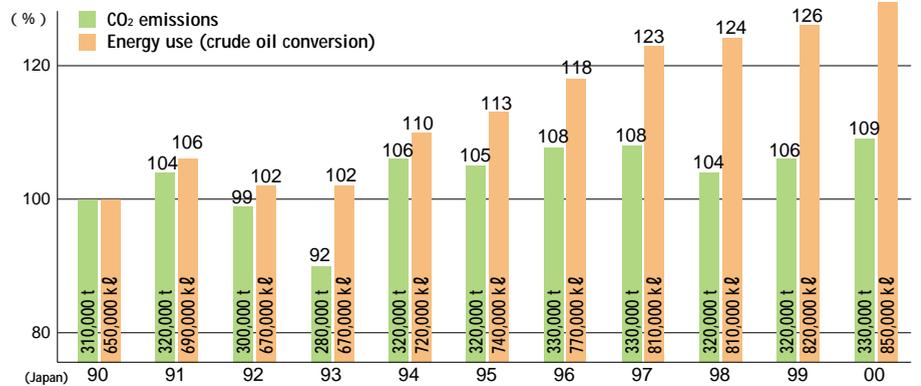
Mid-term Targets	 Global Target	FY 2005: Reduce CO ₂ emissions per unit by 5% (Base year: FY 2000) FY 2010: Reduce CO ₂ emissions per unit by 10% (Base year: FY 2000)
	 Domestic Target	FY 2005: Maintain CO ₂ emissions at the same level as FY 1990 FY 2010: Reduce CO ₂ emissions by 7% (Base year: FY 1990)

CO₂ Emission Reduction Target

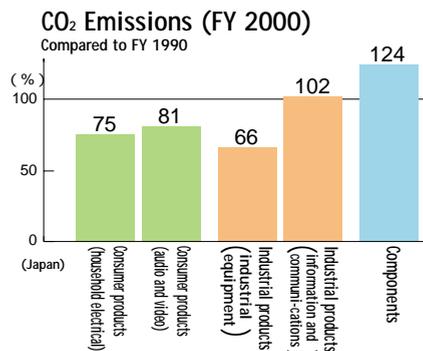
Our CO₂ emission reduction targets are based on mid-term and long-term targets established in 1998 in the wake of COP3*. These targets cover domestic manufacturing sites, and we have set a CO₂ emission reduction target of 7% compared with fiscal 1990 to be achieved by fiscal 2010. The progress of energy conservation and reduction of CO₂ emissions are in extremely difficult circumstances, as described in our "Environmental Voluntary Plan" (see p.36). Along with the movement towards digitalization and computerization, the manufacturing process supporting this plan is also changing greatly. Given this, we are carrying out capital investment activities, strengthening management to eliminate wasteful practices, and endeavoring to control increases in CO₂ emissions. Until now, operation sites outside Japan have promoted their own energy conservation and CO₂ reduction activities, based on independent targets. However, from fiscal 2001, these activities will be integrated under new global targets. In order to fulfill our responsibility as a globally active enterprise, we are working continuously towards achieving our targets.

*COP3: Third Conference of the Parties to the U.N. Framework Convention on Climate Change held in Kyoto in December 1997.

Energy Usage and CO₂ Emissions from Manufacturing sites Compared to FY 1990



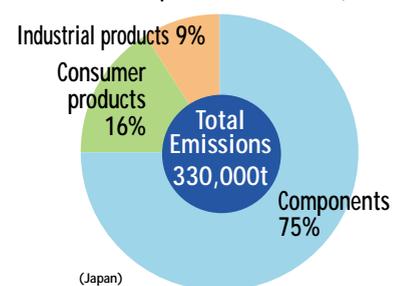
Note: Calculation criteria of Matsushita Electric Group
 1. CO₂ emission volume of electricity is calculated based on the basic output unit (kgc/kWh) of CO₂ provided by each power company each fiscal year (total of all power sources including thermal, hydroelectric, and nuclear power).
 2. Evaluation of CO₂ reduction volume by the cogeneration system is based on comparison with purchased thermal power.
 3. Though crude oil conversion and CO₂ emission volume may be calculated at the points of power generation or power consumption, values at the point of power generation are adopted here due to data sources.



CO₂ Emissions in FY 2000

CO₂ emissions from domestic manufacturing sites totaled 330,000 tons in fiscal 2000, a 9% increase compared with FY 1990 levels. Looking at the CO₂ emission levels for each business sector; emissions in the consumer and industrial (industrial equipment) sectors fell below FY 1990 levels, with levels for the components and industrial (information and communications) sectors exceeding FY 1990 levels by 24% and 2% respectively. Looking at our share of CO₂ emissions, the components sector accounted for 75% of the overall figure.

CO₂ Emissions per Business Sector (FY 2000)



Future Issues and Activities

As is evident from our fiscal 2000 results, reducing CO₂ emissions generated by the components sector will become a major issue in achieving our mid-term targets. In the future, it will be particularly important to focus on carrying out measures that deal with these issues. By carrying out activities common to the entire Matsushita Electric Group, and in conjunction with detailed energy conservation activities that meet the individual circumstances at each operation site, we aim to ultimately achieve our mid-term targets.

Energy Conservation Measures

Out of our "Four Key Action Programs," perhaps the most important activity is the "energy conservation diagnosis." This diagnosis is conducted by specialists from an ESCO* business in the group, like the Matsushita Environment Airconditioning Engineering Co., Ltd., and others. As at the

Four Key Action Programs



end of fiscal 2000, diagnoses had been conducted on approximately 50% of our operation sites. Moreover, examples of excellence in this area were collected from various sites, and a "Energy Conservation Challenge Competition" promoting the sharing of know-how throughout the Matsushita Electric Group was held from FY 1999.

*ESCO: Energy Service Company

Activities Outside Japan

Various activities are being carried out to promote energy conservation at our operation sites outside Japan. For example, the AVC Company's Energy Conservation Diagnostic Team, with a strong performance record, was dispatched from Japan to carry out diagnoses on manufacturing sites in Malaysia and Singapore, with the aim of encouraging talented personnel and to transfer know-how within the AVC Company.



An "energy conservation diagnosis" being conducted at a site outside Japan

TOPICS

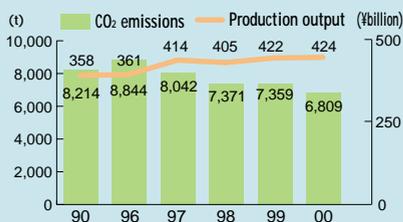
Activities at the Nagaoka Site of the Semiconductor Company

Established in 1968, the Semiconductor Company's Nagaoka Site in Kyoto is currently our main semiconductor facility. Masaki Yamamoto in the Environment Promotion Group conducts energy conservation activities at the Nagaoka Site.

Recipient of the Energy Resource Bureau Director's Award

"Through positive energy conservation activities, the We were able to achieve reductions in CO₂ emissions, while simultaneously increasing production output. Based on the efforts of all employees, the factory received both the Factory Energy Management Excellence Award and the Energy Resource Bureau Director's Award."

Production Output and CO₂ Emissions



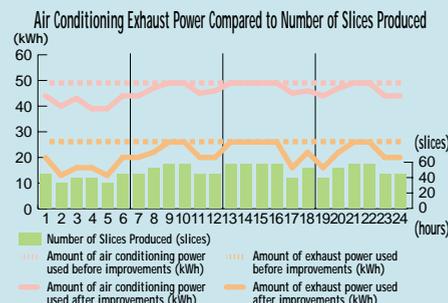
Characteristics of Semiconductor Production

Vast amounts of energy are needed for the production of semiconductors. "Another feature unique to semiconductor production is the use of what is called a 'clean room.' During its production, temperature and humidity fluctuations must be controlled in order to avoid the slight expansion or contraction in the chip. In the

'clean room,' hygiene, temperature and humidity management are of great importance." Temperature and humidity management requires large amounts of energy. "For example, to control the temperature in the 'clean room' to 25 and the humidity to 50% during summer, it is necessary to cool the air brought in from outside (30 with 80% humidity). However, since merely lowering the temperature to 25 results in a rise in humidity to almost 100%, once the temperature has been lowered to less than 25, the air must be dehumidified. Further, the air must then be reheated to 25. Therefore, the air used in the 'clean room' is in fact extremely 'expensive air.'" For this reason, it is very important to "waste as little of the air inside the room as possible."

Activities Inside the "Clean Room"

The air inside the room is circulated as much as possible, but a fraction of the air must also be released. "During the wet etching process, silicon wafers are dipped into a vat of chemicals, in order to prevent workers from breathing in this chemical-filled air, it is necessary to forcibly suck clean air into the area, and discharge harmful air out of the room. Previously, even when the wet etching process was not taking place, there was always a continuous stream of 'expensive air' being pumped into the room. By covering the chemical vat when it is not used, we are saving the 'expensive air!'"



Correctly Evaluating Business Activities

We have introduced the concept of "energy-increase" to factory operations. "As the semiconductor business continues to expand, although we are trying to conserve energy, increases in equipment and facilities have a negative effect on these savings, making it impossible to evaluate energy savings based on total figures alone. Therefore, we have divided the energy used at the factory into three categories; total energy used, energy saved, and energy-increase and are conducting management based on these three categories. This means that we can evaluate our energy conservation activities apart from the increased energy from the expansion of facilities." The Nagaoka Site carries out a variety of activities, and using this site as a model example for promoting these activities throughout the entire



company, we believe we can achieve our mid-term targets.

Semiconductor Company - Nagaoka Site
Environmental Promotion Group
Masaki Yamamoto

Comprehensive Management of Chemical Substances

We perform risk assessment based on toxicity and actual usage of chemical substances for the promotion of abolition, reduction, and proper management of chemical substances.

Mid-term Targets	 Global Target	Reduce the amounts of use, release and transfer of controlled chemical substances by 40% in FY 2005 (Base year: 2000) by 60% in FY 2010 (Base year: 2000)
	 Domestic Target	Reduce the amounts of use, release and transfer of controlled chemical substances by 33% in FY 2001 (Base year: 1998) by 50% in FY 2004 (Base year: 1998)

Reduction Targets for Chemical Substances

Through the comprehensive management of chemical substances, until now we have aimed to prevent environmental pollution before it occurs, reduce environmental risk, and to develop environmentally conscious products.

In March 1999, based on our selection of chemical substances to be controlled and the results of risk assessment on their toxicity and actual usage, we classified chemical substances into three ranks: Prohibition, Reduction, and Proper Management, and established targets for each of these ranks.

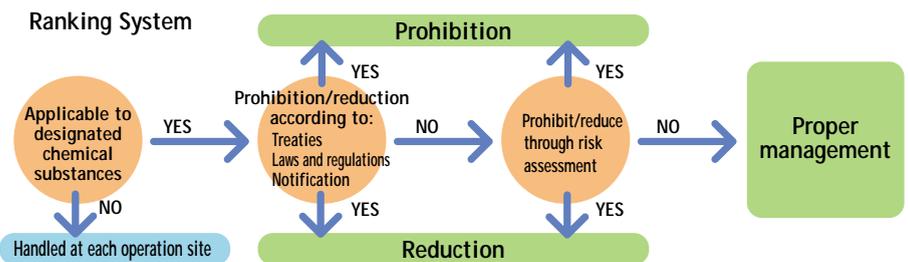
The company-wide targets for reducing the use, release, and transfer of chemical substances were based on the 33/50 Reduction Plan established in fiscal 1999. This plan was designed to be implemented at our domestic manufacturing sites, and using 1998 as the base year, establishes targets to reduce the use of Reduction chemical substances and the release/transfer of Proper Management substances by 33% in fiscal 2001, as well as 50% by fiscal 2004.

Further, in fiscal 2001, we established a new mid-term plan that includes our manufacturing sites outside Japan. We will continue to make efforts to reduce and properly manage chemical substances from a global perspective.

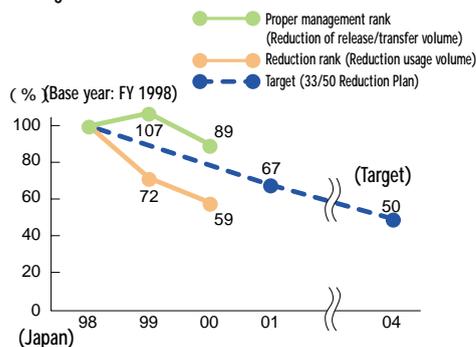
Selecting and Ranking of Chemical Substances to be Controlled

Chemical substances designated for control are reconsidered whenever new laws and regulations are enacted or a new toxicity is discovered. The results of the reconsiderations to date extend over 506 substance groups (1,413 substances). The system of

ranking chemical substances designated for control can be divided into two stages, (1) reflecting the content of treaties and laws, and (2) performing risk evaluation on the toxicity and actual usage of chemical substances at Matsushita.



Targets and Trends of Chemical Substance Reduction

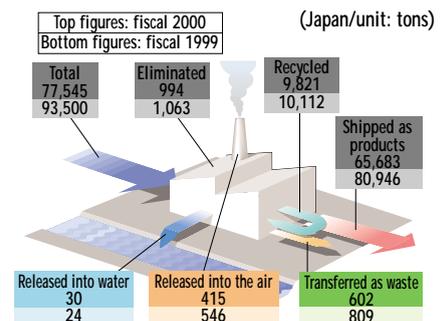


Results for Fiscal 2000

As results of implementing 33/50 Reduction Plan with specific targets, we reduced the usage of Reduction substances by 41% and the release/transfer of Proper Management substances by 11% compared with fiscal 1998 figures. To achieve these results, we have revised the production processes, adopted alternative chemical substances, and introduced activities that make use of recycling as part of the processes.

If we look at the material balance of chemical substances in fiscal 2000, we find that

Material Balance of Chemical Substances Used



compared to the last fiscal year, the total amount of chemical substances handled was reduced by 15,955 tons (17%), the total chemical substances released / transferred was reduced by 332 tons (24%), and the ratio of chemical substances released / transferred occupied 1.35% of the total chemical substances handled.

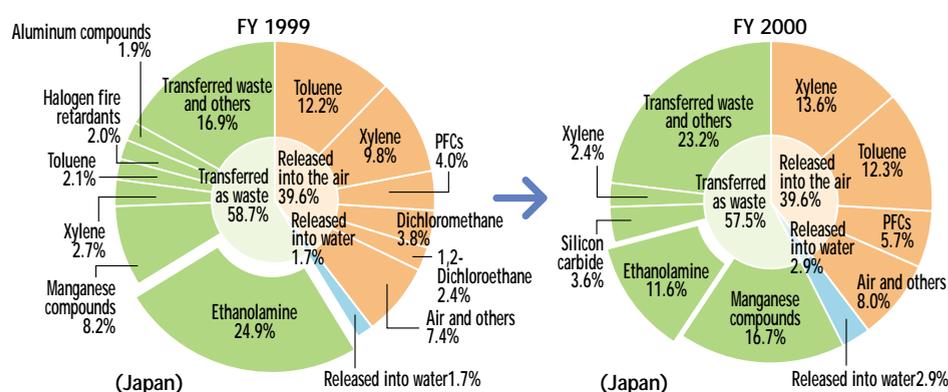
Key Activities in Reducing Chemical Substances

The substance with the greatest release/transfer rate for fiscal 1999 was ethanolamine. The Display Device Company's LCD business group has worked to reduce the usage of this chemical substance and its release/transfer ratios. Specifically, it has

introduced equipment that reuses fluid, and established routes for recycling generated fluids outside the company in cooperation with intermediate treatment contractors. In fiscal 2000, as a result of accelerating activities such as introducing recycling equip-

ment in fiscal 2000, the group was able to reduce ethanolamine, which occupied approximately 25% of the total in fiscal 1999, to 12%.

Breakdown of Releases and Transfers



"It was difficult updating our entire production system in parallel with full-production activities, but we were able to overcome this by effectively combining our production process, technology, and facility."

Display Device Company
LCD Business Group
Masaki Yasuda

Note: Based on the definition of the PRTR Law, we have reviewed our survey and the accuracy of figures for fiscal 1998 and 1999, along with the survey for fiscal 2000, and revised some figures of chemical substances handled.

PRTR Survey Results in Japan (FY 2000/unit: tons)

Substance groups	Total	Releases and transfers				Elimination	Recycled volume	Consumption
		Released into water	Released into the air	Transferred as waste	Subtotal			
Manganese compound	8683.102	0.313	0.209	175.179	175.732	0.115	31.803	8475.453
Xylene	254.112	4.108	141.934	25.486	171.529	29.151	53.151	0.282
Toluene	1442.964	0.895	128.428	20.130	149.453	556.149	730.146	7.216
Ethanolamine	534.476	1.834	1.249	121.712	124.795	98.502	311.151	0.029
PFCs	74.713	0.000	59.639	0.137	59.776	0.949	0.004	13.984
Silicon carbide	38.212	0.000	0.000	37.556	37.556	0.000	0.656	0.000
Hydrogen fluoride (gas)	120.831	6.489	0.435	22.606	29.530	48.245	43.017	0.039
Aluminum compounds (soluble salts)	3399.984	0.000	0.000	23.175	23.175	3.495	3371.509	1.805
Copper compounds	473.203	0.000	0.001	20.970	20.971	0.000	442.538	9.694
Ethylene glycol	1530.159	0.175	9.815	9.972	19.962	182.400	608.059	719.738
Nickel compounds	1224.101	0.008	0.105	16.618	16.731	0.437	339.224	867.709
Lead compounds	3593.059	0.008	0.004	16.661	16.673	0.000	351.981	3224.405
Halogen flame-retardants	383.936	0.000	0.000	16.137	16.137	0.000	9.753	358.045
Zinc compounds	1461.533	0.058	0.152	14.048	14.257	0.549	120.037	1326.689
HFCs	412.052	0.000	12.383	0.596	12.979	0.386	0.005	398.680
Sulfur hexafluoride	16.236	0.000	12.005	0.024	12.029	0.042	0.000	4.165
Boron and boronic compounds	34.428	6.412	0.559	4.333	11.303	4.675	5.464	12.986
Hydrogen chloride (gas)	20.422	0.000	9.517	0.156	9.673	10.407	0.000	0.342
HCFCs	793.925	0.000	8.725	0.442	9.166	1.898	0.070	782.791
Ethylene glycol monoethyl ether	17.284	0.000	2.105	6.462	8.567	0.238	7.650	0.829
Fluorine	44.736	6.570	0.000	1.900	8.470	0.000	36.258	0.008
PVC and PVC compounds	407.486	0.000	0.000	6.402	6.402	11.200	18.208	371.676
Di-n-butyl phthalate	7.145	0.000	6.074	0.100	6.175	0.000	0.216	0.754
Antimony and antimony compounds	302.168	0.000	0.003	5.919	5.922	0.010	34.776	261.461
Barium and barium compounds	84.139	0.122	0.001	5.098	5.221	0.003	5.219	73.696
Methylenebis(4,1-phenylene)=di-isocyanate	1825.060	0.000	0.000	5.010	5.010	0.000	0.172	1819.878
Tetrahydromethyl phthalic anhydride	77.755	0.000	0.000	4.930	4.930	0.000	0.365	72.460
Fluorine compounds (inorganic) (except silicon fluoride)	18.083	0.279	0.171	4.433	4.882	1.977	7.999	3.225
Nitrogen oxides	34.528	0.000	3.783	1.012	4.795	2.786	16.102	10.845
Lead and lead compounds	42170.589	0.014	0.191	4.578	4.783	0.000	2138.561	40027.245
Others (74 substance groups)	8064.983	2.828	17.151	30.626	50.604	40.405	1136.677	6837.297
Total	77545.403	30.112	414.639	602.406	1047.188	994.019	9820.770	65683.428

"Consumption" refers to the volume of PRTR substances that changed into other substances through chemical reaction and those contained in or accompanying products shipped out of the factories. "Elimination" refers to the volume of PRTR substances that changed into other substances through neutralization, decomposition, or chemical reaction treatments. "Recycled volume" includes paid recycling, as well as free and inverse onerous contract. Transfer amounts include the amount transferred as waste, as well as the amount of wastewater drainage into sewage system.

Reduction of Industrial Waste and By-products with Value

We implement activities to reuse and recycle various types of wastes generated during production process, as well as to reduce the waste mass.

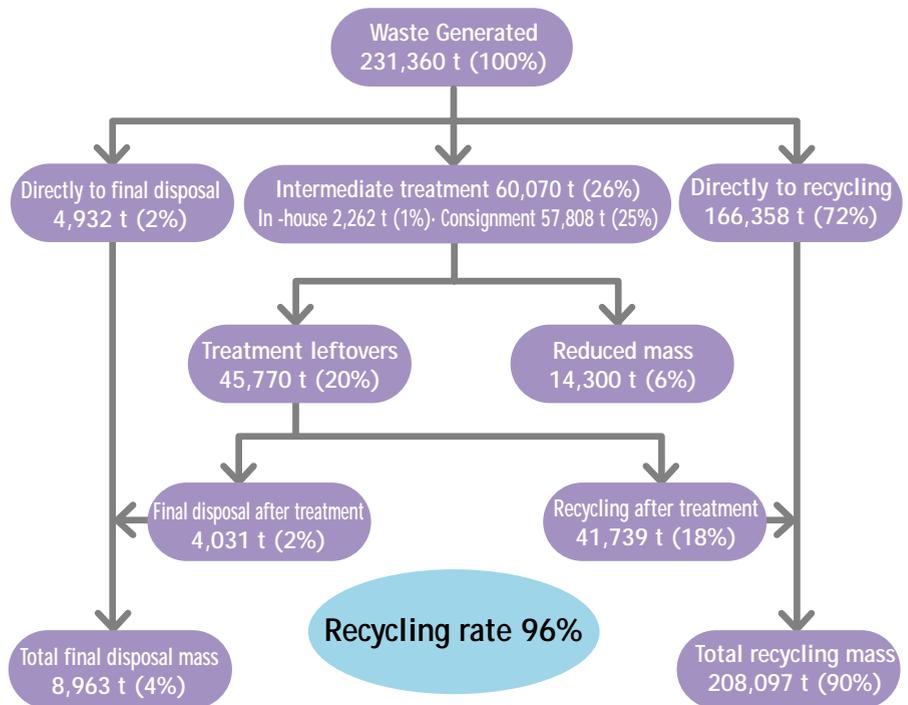
Mid-term Targets	 Global Target	Waste reduction Reduce emission per unit of sales by 10% in FY 2005 (Base year: FY 2000) Reduce emission per unit of sales by 20% in FY 2010 (Base year: FY 2000)
	 Domestic Target	Achieve a final disposal rate of zero by the end of FY 2002 (Recycling rate* of 98% or more) *Recycling rate = Recycling mass / (Recycling mass + Final disposal mass)

Reduction Targets for Waste and By-products with Values*

We have announced a company-wide target to reduce incinerated and landfill wastes generated from our domestic manufacturing sites as close as possible to zero by the end of FY 2002. To this end, we have carried out activities that improve the reuse and recycling rate in the manufacturing sites. "As close as possible to zero" is defined as a recycling rate of 98% or higher. As for the recycling rate, we expect to achieve our domestic target. Therefore, we established a new mid-term target in FY 2001 that includes two new challenges, "restricting the generation of waste" and "extending target globally to include manufacturing sites outside of Japan," to achieve higher targets than our original target.

*By-products with value: By-products that are paid to be collected.

Process Flow Image for Industrial Waste and Valuable Waste (FY 2000)
(Japan) According to the Clean Japan Center

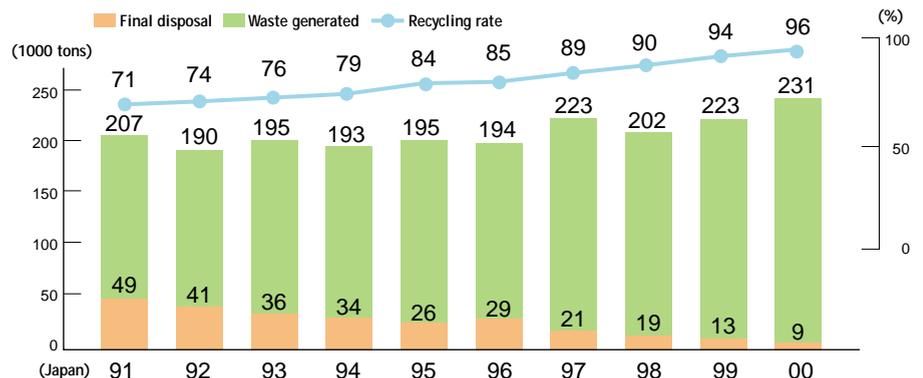


The total recycling volume is the sum of the mass of waste directly recycled and the mass of waste recycled from the waste left after intermediate treatment. The total final disposal mass is the sum of the mass of waste disposed directly and the mass of waste disposed from the waste left after intermediate treatment.

Actual Results for Fiscal 2000

Our recycling rate for fiscal 2000 was 96%. Although we generated 231,360 tons of industrial waste and by-products with value, a 4% increase compared with the previous year, we have conducted stringent reuse and recycling measures so our final disposal volume decreased by 32% compared with FY 1999 to 8,963 tons.

Amount of Generation, Final Disposal, and Recycling Rates for Industrial Waste and Recoverable Waste

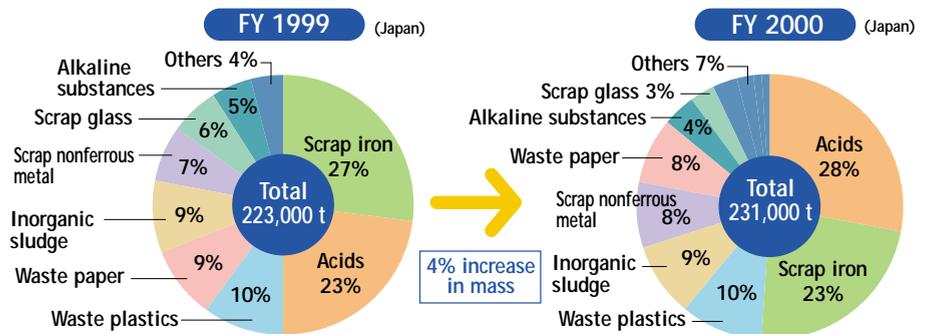


Towards Reductions in Generated Waste and Final Disposal

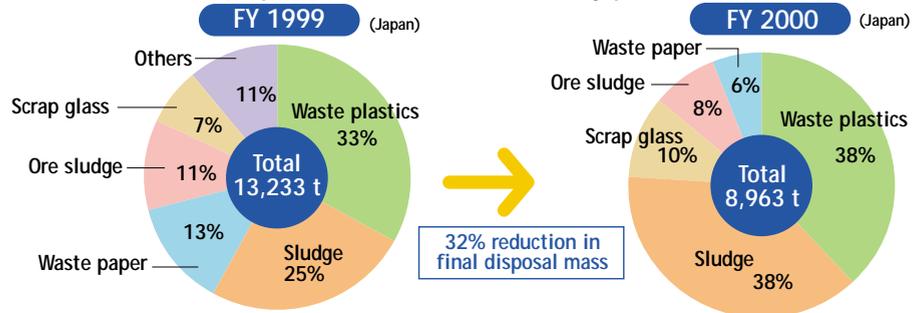
Looking at the breakdown for the mass of industrial waste and by-products with value generated in fiscal 2000, we see that 28% of the total waste generated was acids and 23% scrap iron. This means that these two waste categories accounted for more than approximately half of our overall waste mass. While conducting fundamental measures at waste origination sources, in cooperation with suppliers and reviewing our production processes, we are working towards achieving our targets.

On the other hand, looking at the breakdown for final disposal in fiscal 2000, the results show that plastics and sludge both accounted for 38% of the final disposal mass. In deciding upon appropriate recycling activities, we consider the status of regional infrastructure for recycling.

Breakdown of Industrial Waste and By-products with Value Generated



Breakdown of Final Disposal for Industrial Waste and By-products with Value



TOPICS

The Ongoing Challenge of Zero Waste Generation

Kyushu Matsushita Electric Co., Ltd., Factory Automation Division
The Factory Automation Division of Kyushu Matsushita Electric Co., Ltd., located in Tosu City in Saga Prefecture, manufactures super dense packaging production systems that support the production of compact and lightweight electronic devices. Since 1992, this factory has been participating in activities for resource conservation and increasing recycling rates, and in FY 1999 the site achieved zero waste.



Kyushu Matsushita Electric Co., Ltd.
Factory Automation Division
Katsumi Hirai

Activities in Production Process

Since 1992, Kyushu Matsushita Electric has been establishing systems to improve the recycling rate step by step. "We started out with activities that concentrated on recycling metals. Since our factory is involved in the entire production process, from the processing of parts to their assembly, we generate many kinds of scrap metal. To give added value to scrap metals as by-products with value, we have established an on site system for collecting and separating these metals into six different groups. Further, we have installed plumbing suitable for the collection of liquid and oil waste, which had previously been stored in metal barrels, into tanks

especially designed for this purpose."

Activities in the Offices

At our offices, it is essential that we separate all garbage. "The trouble is, unlike factory waste, office waste tend to be mixed. Therefore, we need to build a system that increase the environmental awareness of each of our employees. For example, we distinguish each of the four major classification groups for office waste with different colors. These groups are then divided up into 23 specific classification groups by number, and these numbers are indicated on all waste disposal bins. Using this method, our employees can easily identify what type of waste goes in which bin."



Complete waste separation system for offices.

Finally, Plastic Waste

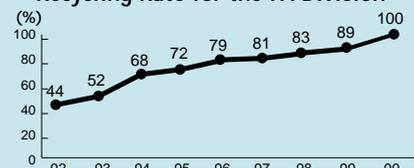
In 1999, items that we did not recycle were waste plastics and scrap wood. "The quality of waste plastics varies greatly, and there is really nowhere to recycle them. As a result, we decided to get our waste plastics processed into solid fuel (RDF) at a cement factory in northern Kyushu. As part of our activities towards zero waste, it is often a key factor to establish recycling routes, and we were lucky to have a good regional infrastructure."

The Never Ending Challenge

In January 2001, the factory achieved zero waste generation status. In 1996, it was recognized as the first Eco Office in Tosu City, and in fiscal 2000, received the Recycling Promotion Conference Chairman's Award. "However, at our current level of operation, we have only been able to achieve one of our targets, a 100% recycling rate. As the next step in this process, the Resource Conservation and Recycling Subcommittee is trying to establish activities that focus on the concepts "Reuse" and "Reduce." For example, small amounts of shock absorbent materials on their own cannot be reused and must be thrown away, but if all similar materials are collected at a single site, there will be a way to reuse them. Further, by improving the ratio of returnable boxes used to deliver our components, we are aiming to reduce packaging. However, we cannot implement activities such as these alone. Therefore, we must join forces with the related companies."

The FA Division's continual challenge expands from in-house activities to increasing cooperative ties with suppliers and community.

Recycling Rate for the FA Division



Environmental Risk Management

We regard the prevention of environmental pollution as the basis for environmental risk management. We not only comply with laws and regulations, but also conduct strict self-management for the conservation of soil, ground water, air and water quality.

Concept of Environmental Risk Management

Preventing Environmental Pollution

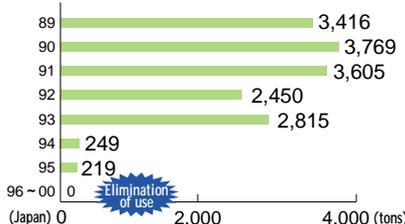
We consider that the largest environmental risk is the effect of harmful chemical substances on human health and the ecosystem. Therefore, as part of our comprehensive chemical substances management, we evaluate the risk of chemical substances that require management, and establish concrete targets that aim to prohibit or reduce the use of high-risk chemicals. On the other hand, some production processes require the use of harmful chemical substances because there are still no appropriate alternatives. Therefore, we are implementing measures at our operation sites based on the policy that we ought to prevent any pollution at any time even at the emergency situation.

Conservation of Soil and Ground Water

Restoration Activities

Because of their outstanding qualities as a detergent, volatile organic compounds have been used in factories on a worldwide since the 1950s and spread rapidly during the 1970s. We also have used these substances in the past. At the time of use, these substances were not widely recognized as a pollutant, and as very little care was taken when handling them, we have discovered that the ground water at some of sites exceeds today's environmental standards for pollution. The sites where the pollution was discovered have voluntarily reported the facts to the relevant local government agencies, and while receiving advice on the best action to take, are cleaning up the pollution and restore their respective sites to their original state.

Use of Volatile Organic Compounds as a Detergent



Compliance with Environmental Conservation Guidelines

We carry out surveys on soil and underground water in accordance with the Operation Standards of Guidelines for Surveys and Countermeasures Concerning Soil and Ground Water Pollution (hereafter Ministry of the Environment Guidelines) announced by the Ministry of the Environment of Japan in January 1999. In order to implement the Guidelines smoothly, we published the Ministry of the Environment Guidelines Handbook as a guide to our original activities. The activities include thorough checks, such as establishing monitoring wells close to the boundaries of our operation sites, even when there is no obvious risk of pollution.



Ministry of the Environment Guideline Handbook

Storing Electronic Devices That Contain PCB

In the past, PCBs (polychlorinated biphenyl) was used in parts such as electric condensers. PCBs do not decompose easily, and because process to render it harmless is still under development, we are currently storing devices that contain PCB in accordance with the national safety standards in Japan. The PCB Waste Disposal Special Measures Law* established in July 2001, requires the strengthening of management criteria for PCB storage and lays down rules for its disposal. We will continue to strictly control the storage of PCB, while investigating the implementation of fundamental disposal methods.

*A law for special measures that promotes the proper management of PCB waste.



PCB storage

Revision of Laws on Volatile Organic Compounds and Actions by Matsushita



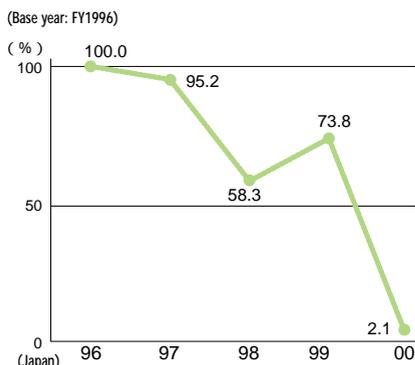
Legal Trends in Japan

Conservation of Air Quality

Management of Hazardous Air Pollutants

In response to the Guidelines for Promotion of Voluntary Management of Hazardous Air Pollutants by Business Entities announced by the Ministry of International Trade and Industries (name of ministry at the time) of Japan in 1996, the electric and electronics industries prepared the Voluntary Management Plan for Hazardous Air Pollutants. Based on this plan, we collect data on the use and emission of hazardous air pollutants to promote restriction.

Emission of Hazardous Air Pollutants

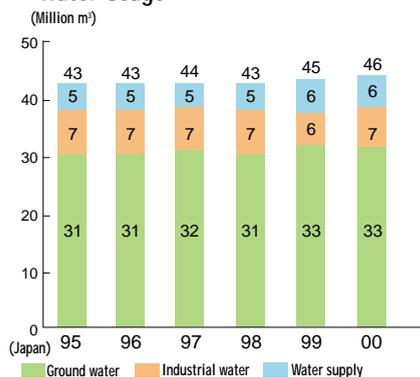


Conservation of Water Quality

Effective Use of Water

Despite the effects from continued business expansion and restructuring on water usage, factories are restricting the use of water by promoting reuse and repeated treatment (purification) of the wastewater produced during cleaning processes. On the other hand, offices are also promoting water conservation activities, such as using rainwater for toilets and watering plants.

Water Usage

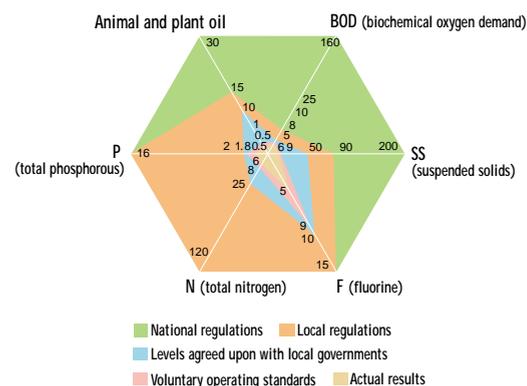


Conservation of Water Quality by Voluntary Standards

In order to achieve complete conservation of water quality, we control the effluent from our operation sites according to the Matsushita Product Assessment, a system of evaluating production processes from end-of-pipe management to upstream management based on voluntary standards that are more stringent than the established laws and regulations.

Example of Water Quality Management Standards and Actual Results

(Unit: ppm)



T O P I C S

Prevention of Environmental Pollution

Kyushu Matsushita Electric Co., Ltd. Kijima Plant
Kyushu Matsushita Electric Co., Ltd Kijima Plant is situated among natural surroundings overlooking the Chikugo River, Kyushu's largest river. At this plant, where environmentally conscious products such as water purifiers and raw garbage management systems are made, we adopt closed management drainage systems that do not release Chemical effluent out of the plant, enabling us to exist in harmony with our surrounding environment. Mr. Kazuo Takada from Environmental



Headquarters of Kyushu Matsushita Electric Co., Ltd is responsible for the constant vigil at this site.

Kyushu Matsushita Electric Co., Ltd.
Environmental Headquarter
Kazuo Takada

Implementing Measures from the Design Stage

At the Kijima Plant, a variety of environmental measures are included from the design stage. "Based on our extremely positive policy with the ultimate aim of becoming an environmentally advanced corporation, we have given consideration to the image we want to convey and the concrete measures we want to implement. Because we are situated next to the Chikugo River, we were most concerned with chemical effluent processing methods."

The Kijima Plant divides its effluent into two categories, chemical effluent and non-chemical effluent. "We use chemical substances to test the function and efficiency of our water purifiers. Effluent can be suitably managed by dividing it into chemical effluent and factory lifestyle effluent, such as that from dining rooms and bathroom facilities."

Evaporating Water to Reduce Effluent

Chemical effluent is collected in a water collection tank, and after the pH level has been adjusted, it undergoes closed management, an important process. "We evaporate the water completely, using both condensers and dryers. The water released into the atmosphere has the same level of purity as underground water. The small amount of sludge remaining in the final drier is collected by an industrial waste treatment company. Using this process, we effectively do not discharge any chemical effluent into the Chikugo River." In order to exist in harmony with the natural environment, it is important to grasp an understanding of regional characteristics first. The Kijima Plant can be given as a good example of this.

Global Environmental Activities

As a global player, we have established environmental divisions at the regional headquarters in our four main regions around the world. We carry out environmental conservation activities common to the entire group, as well as independent environmental activities in the communities.

4-Region Management System

We have established 229 companies in 44 countries outside Japan, with sales figures and employee numbers accounting for approximately half of the group's total figures. We have set up environmental divisions at the regional headquarters in four regions (the Americas, Europe, Asia/Oceania, and China), so that various operation sites around the world can promote the most suitable environmental activities for their particular region.

Global Conference for the Environment

We hold a Global Conference for the Environment on an annual basis, enabling the supervisors of regional environmental divisions to come together and share environment-related information and strengthen cooperative ties. In fiscal 2000, approximately 100 representatives from the four regions gathered, with the focus of their discussions on the global promotion of lead-free solder, one of our key objectives.

Global Conference for the Environment(2000)



Collecting and Analyzing Environmental Data

The first step in ensuring that environmental activities progress smoothly, is to acquire accurate data. We examine the results of environmental activities carried out at the Group's various operation sites on an annual basis, and use this data to compile our "Environmental Performance Report." Since fiscal 1998, we have widened the scope of our investigation to include manufacturing and non-manufacturing sites throughout the world, and are continually conducting company-wide investigation.

Environmental Contribution Award

In order to promote global environmental activities, we annually recognize outstanding examples of activities through Environmental Contribution Awards. In fiscal 2000, we established four new award categories (Clean Factories, Green Products, Environmental Management Systems, and Love the Earth) in conjunction with our major themes, and received a total of 36 applications from our four main regions.

Recipients of Environmental Contribution Award 2000

Award Category	Recipient
Top Award	China Hualu Matsushita AVC Co., Ltd.
Award for Excellence	Matsushita Refrigeration Industries (S) Pte. Ltd.
	P.T. National Gobel
	Dalian Matsushita Communication Industrial Co., Ltd.
	Matsushita Electric (Taiwan) Co., Ltd.
	Matsushita Electric of Puerto Rico, Inc.
	Matsushita Kotobuki Electronics Industries of America Inc.
Top Award	Matsushita Electric (U.K.) Ltd.
Award for Excellence	Matsushita Electric Corporation of America
	Matsushita Communication Industrial U.K. Ltd.
Top Award	Matsushita Electric Corporation of America
	Qingdao Matsushita Electronic Components Co., Ltd.
Award for Excellence	Matsushita Communication Industrial U.K. Ltd.
	Matsushita Communication Industrial U.K. Ltd.
Top Award	Matsushita Electric Corporation of America

CF : Clean Factories
 GP : Green Products
 EMS: Environmental Management Systems
 LE : Love the Earth

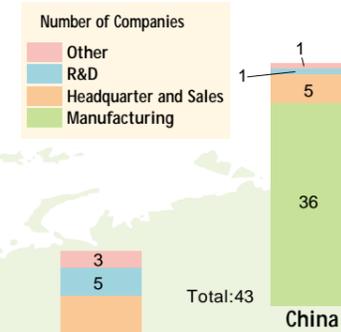
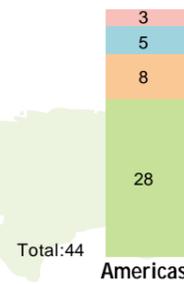
Americas

Number of employees: 10,000 people
 Consolidated sales: ¥100 billion

In an age where waste electrical products are attracting a lot of attention, Matsushita is taking a leading role in addressing environmental issues, from the product design and production activities stages, through to waste management. I am proud to be working for such a company.

David Thompson
 Matsushita Electric Corporation of America

Fiscal 2000 Data	
Energy	Electricity consumption 588,890,000kWh
Energy	City gas consumption 55,580,000m³
Waste	Total generated waste 36,252t
	Recycling rate 59%
Chemical substances	Treated mass 18,122t
	Release and transfer 637t
Water consumption	6,470,000m³
Environmental Accounting	Capital investment ¥619million
	Expenditure ¥1,278million
	Effects ¥495million



China

Number of employees: 10,000 people
 Consolidated sales: ¥100 billion

The factories operating in our country are still new, and business is expanding rapidly. Thus, we strongly feel the need for each factory to establish solid environmental management systems, and reduce environmental impact steadily.

Cai Jingzhong
 Matsushita Electric (China) Co., Ltd.

Fiscal 2000 Data	
Energy	Electricity consumption 367,640,000kWh
Energy	City gas consumption 4,090,000m³
Waste	Total generated waste 52,297t
	Recycling rate 82%
Chemical substances	Treated mass 26,435t
	Release and transfer 2,003t
Water consumption	5,500,000m³
Environmental Accounting	Capital investment ¥224million
	Expenditure ¥350million
	Effects ¥233million

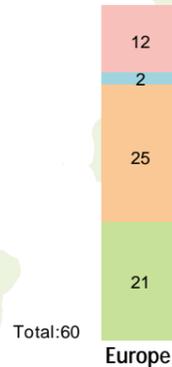
Europe

Number of employees: 10,000 people
 Consolidated sales: ¥100 billion

Matsushita has long been committed to contribute to society. Although it was once thought that supplying products of the highest quality improved people's lives, in recent years, it has become necessary to add environmental considerations to this way of thinking. It is not only important for us to positively support the environmental activities of the manufacturing industry in Europe, but also to implement the solutions at our factories.

Brian Atkin
 Matsushita Europe Ltd.

Fiscal 2000 Data	
Energy	Electricity consumption 131,600,000kWh
Energy	City gas consumption 8,500,000m³
Waste	Total generated waste 18,125t
	Recycling rate 76%
Chemical substances	Treated mass 40,489t
	Release and transfer 113t
Water consumption	560,000m³
Environmental Accounting	Capital investment ¥39million
	Expenditure ¥456million
	Effects ¥38million



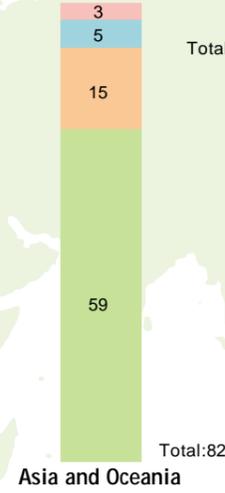
Asia and Oceania

Number of employees: 10,000 people
 Consolidated sales: ¥100 billion

Care for the environment and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The wind will blow its freshness into you and the storms their energy. Otherwise, the consequence is unimaginable.

Lim Joo Peng
 Productivity Support Center, Asia Matsushita Electric (S) Pte. Ltd.

Fiscal 2000 Data	
Energy	Electricity consumption 1,022,980,000kWh
Energy	City gas consumption 17,230,000m³
Waste	Total generated waste 75,800t
	Recycling rate 73%
Chemical substances	Treated mass 65,869t
	Release and transfer 1,650t
Water consumption	8,420,000m³
Environmental Accounting	Capital investment ¥1,403million
	Expenditure ¥2,013million
	Effects ¥541million



Americas

The region of Americas is a large market comprising approximately one third of our total overseas sales and an operations base consisting of 28 manufacturing companies. In fiscal 2000, our major environmental activities included: introducing environmental management system (EMS) at our non-manufacturing sites, promoting highly energy-efficient products, and carrying out volunteer activities that contribute to local communities.

Multiple-site Environmental Management System

In the North American region, we obtained ISO14001 accreditation at all manufacturing sites during 1998, with our next target set on establishing environmental management systems at all of our non-manufacturing sites. With this in mind, we gained ISO14001 accreditation at two sites in fiscal 1999, including the regional headquarter, Matsushita Electric Corporation of America, and gained accreditation at a further nine sites in fiscal 2000.

The main feature of the environmental management system introduced at our non-manufacturing sites is the fact that it can be managed from headquarter while allowing variability of each site. Underwriters Laboratories, Inc., registrar of Matsushita's ISO14001, described the EMS as "the simplest, most effective, multiple-site system" it had ever encountered.

We plan to introduce the multiple-site environmental management system to all the non-manufacturing sites with over 100 employees at Matsushita's non-manufacturing sites, and two additional sites will be added in FY 2001.

Observing Environmental Standards

Owing to its experience with soil contamination due to the high-tech industry, North America maintains strict laws and regulations in relation to the environment.

In 1993, Matsushita published and distrib-

uted the "United States Environmental Compliance Handbook" to the management and environmental divisions at each of its operation sites. We also hold regular seminars for environmental managers to support them in observing major laws and regulations, such as the "Toxic Substances Control Act" (TSCA) and the "Toxic Release Inventory" (TRI). Moreover, in 1992 Matsushita began using an independent North American Facility Profile, to better understand and analyze the environmental performance of each manufacturing facility in the United States.



United States Environmental Compliance Handbook



Figures of Facility Profile

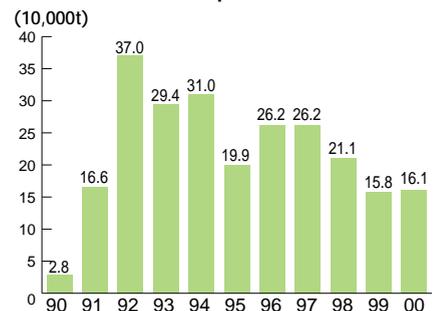
Reducing Chemical Substances

Each year, the US Environmental Protection Agency (EPA) requires that manufacturers report their use of chemical substances listed in the TRI. Submission of this report is required for companies that manufacture or import over 25,000 pounds (approx. 11,340 t), or otherwise use over 10,000 pounds (approx. 4,536 t) of listed chemicals.

If we look at the trend in the total amount of these chemical substances discharged by manufacturing sites, we can see a clear increase between 1990 and 1992. This can be attributed to a number of new factories which started operations during this period. Further, the increase during 1996 was a result of the establishment of Matsushita's

new battery line, which uses manganese compounds. However, due to our efforts to reduce and abolish the use of these chemicals, the amount we discharge has been decreasing.

Releases of TRI Specified Substances



Energy Star Award Recipient for the Third Consecutive Year

In 2001, we received the US Environmental Protection Agency (EPA) Energy Star Partner of the Year Award in the Home Electronics category for the third consecutive year. This award recognizes companies for their leadership in voluntarily reducing energy use and preventing pollution. At present, we have over 465 product models bearing the Energy Star label. In 2000, 100% of the audio-visual products (televisions, video recorders, and television-video recorder combo units) we sold in the United States met the Energy Star standards. This was much higher than the industry average of 69%. In addition, we were recognized for our achievements in developing products in 11 different categories with the highest levels of efficiency in the industry.



EPA Administrator presents the Energy Star Award to Matsushita executives

Supporting the Battery Recycling Program

We were also instrumental in establishing the Rechargeable Battery Recycling Corporation (RBRC*), for collection and recycling of rechargeable batteries in the U.S. and Canada. At over 30,000 retailers and business locations across the U.S. and Canada, the RBRC collects and recycles Ni-Cd, Ni-MH, Lithium-ion, and lead-containing rechargeable batteries used to power cellular phones, portable computers, video cameras and similar appliances.

*The Rechargeable Battery Recycling Corporation (RBRC) is a non-profit public organization that promotes the recycling of rechargeable batteries.



Volunteer Activities for Environmental Protection

Our employees are increasing their environmental awareness through volunteer activities that contribute to the protection of the local environment. For example, employees at the head office in the state of New Jersey participate in volunteer activities to preserve aquatic habitats. More specifically, clean up activities are conducted twice a year at the Sandy Hook National Park. Also, to protect the Hackensack Riv-

er wetlands, volunteers scoop up garbage along the edge of the water in canoes, while others help clean the shoreline. Further, employees at the Cypress operation site in California, participate in volunteer activities to clean up Pacific Ocean Beach.



Employees participating in volunteer clean up activities

Utilizing Green Energy

In recent years, there has been an increase in the use of "green energy," a highly acclaimed energy source that is obtained from the wind, sun, water, and the gases produced from landfill waste. Exelon, an American power utility, is currently conducting a trial program in Illinois that uses green energy as part of the contracted electricity supply. Matsushita recognizes the importance of green energy, and was the first business to take part in this program. James Indelak of the Matsushita Electric Corporation of America Facilities and Real Estate, commented, "As a good corporate citizen, Panasonic believes strongly in our environmental conservation responsibility

to our customers and to the communities where we conduct business."



Mexico Factory Awarded

Our manufacturing facility in Tijuana, Mexico, received the highest award at the Eco Tijuana 2000 industrial exposition. The five Matsushita Group companies in the Tijuana region were recognized for their outstanding environmental achievements, and were chosen from among 65 companies in the Industrial category. This marked the second consecutive year the Tijuana facilities received PROFEPA (Procuraduria Federal de Proteccion al Ambiente) recognition for their superior environmental record. The facilities were judged on the handling of hazardous wastes, recycling activities and methods, emissions controls, as well as the implementation of effective environmental policies.



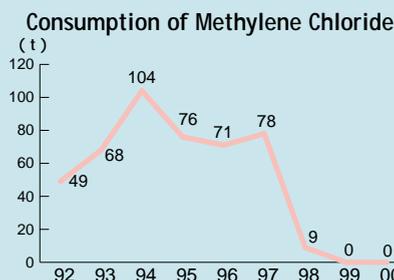
Presented with an award from the delegate of PROFEPA

TOPICS

Matsushita Electric of Puerto Rico Inc. The Clean Factory Challenge

Matsushita Electric of Puerto Rico completely abolished its use of methylene chloride, which up until now, had been the most widely used chemical in its production process. By making the transition to water-based adhesives, instead of using methylene chloride, which contains solvent-based substances, we were able to reduce waste management costs. However, immediately

following this switch, we experienced difficulties regarding product quality, due to the thermal behavior of the water-based adhesives. Despite this, by cooperating with chemical manufacturers, we found a solution to the problem and improved the quality of the adhesives. These results were shared with Matsushita Electric Espana S.A. in the form of a technology transfer, and are currently being applied by other companies in the Matsushita Group.



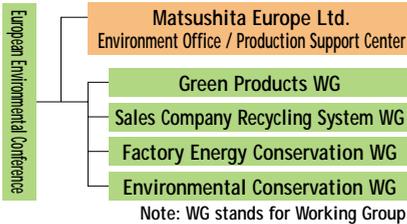
Europe

As European nations share international river systems and adjoining country borders, they have long faced pollution problems associated with industrialization. Thus, Europe is one of the regions with the highest environmental conservation awareness.

The European Environmental Conference

We conduct business in 18 countries throughout Europe. In 1999, in order to address environmental issues together in the region, the European Environmental Conference (EEC) was inaugurated. Four working groups have been established under the direction of the Conference to promote the actual activities.

The European Environmental Conference



The European Environmental Conference

Promoting Green Products

Some of our most important activities during 2000 included the publication of the European edition of the "Green Procurement Standards Manual" and the promotion of lead-free solders. The first European Lead-free Solder Promotion Meeting was held in July 2000, and future activities were confirmed in order to help achieve the "total abolition of lead solders by the end of FY 2002."



The first European Lead-free Solder Promotion Meeting

Industry Activities

We actively participate in many environment-related committees throughout Europe. Since 1984, we have been a member of the Environmental Working Group of ZVEI (German Electrical and Electronic Manufacturers' Association). Also, since 1996, we have been a member of the Environmental Affairs Committee of EACEM (European Association of Consumer Electronics Manufacturers) and the Environment Committee of ECTEL. Through our membership in these various committees we are contributing to finding solutions to environmental problems.

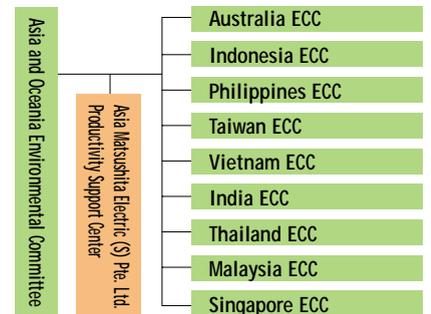
Asia and Oceania

The Asia-Oceania region consists of a diverse array of nations that respect various ethnic groups, religions, and languages. With 59 of Matsushita's manufacturing subsidiaries located in this region, it represents our largest overseas manufacturing base.

The Asia and Oceania Environmental Committee

In 1995, we established the regional Asia and Oceania Environmental Committee. This committee promotes activities through the Environmental Control Committee established in each country of the Asia-Oceania region. Due to the especially strong nature of the Asia-Oceania region as a manufacturing base, manufacturing activities are conducted with an emphasis on Clean Factory operations.

Asia and Oceania Environmental Committee and Environmental Control Committees



Note: ECC stands for Environmental Control Committee.

T O P I C S

Matsushita Communication Industrial U.K. Ltd. Recycling Company Joint Venture

In conjunction with major cellular phone manufacturers and distribution companies, Matsushita Communication Industrial U.K. Ltd. has established Mobile Takeback UK, and has introduced a collection and recycling program for used cellular phones. The phones are collected through supporting retailers, with more than 50,000 units having been recycled to date.



Mobile Takeback UK
www.Mobiletakeback.co.uk

Kyushu Matsushita Electric (U.K.) Co., Ltd.

Supplying Schools with Reusable Materials from Factories

Kyushu Matsushita Electric (U.K.) Co., Ltd. carries out activities that enable the reuse of factory waste materials and at the same time contribute to the local community. Waste materials from the factories are collected and sent to regional resource centers and local businesses where they are reused as packaging materials or sent to schools for use as resources in art classes and other educational activities. Our activities



have been recognized, and were awarded the 2000 Wales Community Support Environment Award.



T O P I C S

Matsushita Communication Industrial Corporation of the Philippines

Government Recognizes Community Contribution

Matsushita Communication Industrial Corporation of the Philippines conducts a variety of environmental activities, including energy conservation and reduction of water consumption. These activities were publicly recognized in June 2000 when we received appreciation from the government for the effort in enforcing the environmental management system. In addition, we also conduct tree-planting activities around La Mesa Dam, the main water source for the city of Manila.



Tree planting activities at La Mesa Dam

China

Key Activities for 2000

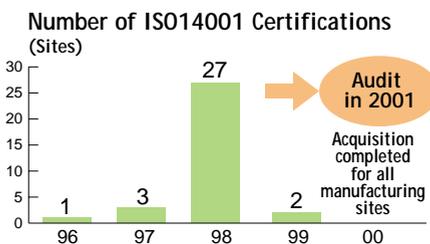
We conducted a variety of activities during 2000 with a special focus on Clean Factories. First, we promoted mutual internal audits between manufacturing sites, and established a system for sharing information and know-how. Also, in order to regionally enforce the company-wide target of "abolishing lead solder by the end of FY2002," we opened lead-free soldering techno-schools at Singapore. In addition to these activities, we conducted Energy Conservation Technical Study and training workshop for chemical substance management, and held the first joint Production Engineering and Environmental Control Committee exhibition.



China is becoming increasingly aware of the importance of addressing environmental issues due to the environmental impacts caused by its rapid industrial growth. Water pollution, acid rain resulting from the burning of coal, air pollution, and increasing desertification are becoming a serious concern.

ISO14001 Certification for all Manufacturing Sites

We have established 36 manufacturing companies in China, and the importance of these sites as our manufacturing base continues to grow. Further, because the majority of these factories were established in the 1990s, and are therefore relatively new, they are aiming to lay the foundations for future environmental activities in the country. The factories began acquiring ISO14001 certification in 1996, and by the end of 1999, all of the factories had acquired certification. In 2000, we proceeded to make additional improvements to the management systems at these factories, and conducted activities that would further increase the environmental performance of each site.



Conducting Training Meetings for Environmental Managers

In 2001, most operation sites will be facing their tri-annual ISO 14001 audit. Taking this as an opportunity to hold training meetings for environmental managers, Matsushita Electric (China), the regional headquarter, held training meetings at its three regional areas (Northern China, Central China and Southern China). The discussions at the meetings were based on group-wide policies, environmental performance report data, preparations for the coming audits, and the promotion of environmental conservation activities at all manufacturing sites.

Environmental manager meetings held in China's northern, central and southern regions



Matsushita Refrigeration Industries(S) Pte. Ltd. Model Factory for Energy Conservation

Matsushita Refrigeration Industries(S)Pte. Ltd. is leading the way in terms of energy conservation activities amongst our operation sites in the region. In 1998, we established the Energy Conservation Committee, which resulted in drastic reforms at each stage of our manufacturing processes. As a result, in 2000, we were able to achieve not only the original target of reducing energy consumption by 10% per unit, but a 14% reduction in comparison with the previous year.



A facility to increase energy efficiency

T O P I C S

Qingdao Matsushita Electronic Components Co., Ltd. Leading the Region in Environmental Management

Qingdao Matsushita Electronic Components Company was the first business in the Qingdao Economic Development district to obtain ISO14001 certification. Since then, not only have we sought to improve our own environmental management system, but also contributed to the development of environmental management systems at companies throughout the entire district. Further, to increase the environmental awareness of citizens, we are spreading environmental slogans in the town, distributing environmental goods, and conducting other community activities, all with the support of the Qingdao Matsushita Electronic Components Company's staff members.



Environmental campaign



Tangshan Matsushita Industrial Equipment Co., Ltd.

Establishing the Environmental Conservation Fund

In 1997, Tangshan Matsushita Industrial Equipment Company was the first business in China to establish an environmental conservation fund. Every year, we invest 1% of our profit and use it to recognize the efforts of people who have contributed to environmental business in Tangshan City. The effects of the fund are reflected in Tangshan itself, and it helps to promote environmental business in the region.

Love the Earth Citizens' Campaign

It is crucial that we reform social systems based not just on business activities, but also on citizens' values in order to resolve global environmental issues. Through the establishment of the Love the Earth (LE) Citizens' Campaign, we encourage employees and their families to change their environmental awareness and behavior.

Creating Ecological Products Like Traditional Arts

As the Kinki Region Branch Head of the Nihon Kogeikai* (Museum of Japanese Traditional Art Crafts), I am in favor of the traditional concept of creating objects from all-natural materials such as clay and grass. The idea of creating objects in this manner remains a legacy in traditional handicraft areas throughout Japan, such as making lacquer ware and pottery, dying, and doll making.

At first, the development of chemical technology appeared to facilitate an easier way of life, but due to a rapid increase in the use of harmful chemical substances, we have polluted the earth, and have lost sight of the "truly affluent lifestyle." Traditional manufacturing processes are carried out on the presumption that they do not pollute the natural environment outside the permissible range, resulting in the creation of a completely ecological product. I think that modern technology should also employ this concept.

The Forgotten Concept of "Waste Not, Want Not"

Our present convenient and comfortable lifestyles are realized through the con-

sumption of energy, such as electricity, gas, and gasoline. However, consumption of these energies has been linked to the emission of CO₂, and we are now faced with the serious issue of global warming. It is often misunderstood that an excessive use of electricity and water can be defined as an "advanced lifestyle," but when I was a child, the conservation of resources and energy was an everyday fact, and wasting was not allowed. Despite the fact that the Japanese once used their wisdom to make the most of what little resources and energy they had, it appears that they have forgotten the concepts of "cherishing what you have" and "waste not, want not."

Revising Domestic Education and Training

In most respects, Europeans live simple everyday lives. However, the community activity and interest groups to which they belong help them to achieve a high level of satisfaction and cultural awareness as individuals, despite the simplicity of this arrangement. We should graduate from an age that places importance on material satisfaction to an age of generosity and true affluence in the spiritual sense, while strictly conserving the use of resources, such as electricity and gas.

I was born in Kyoto, and had the concepts of "shimatsu" (thriftiness) and "waste not, want not" drummed into me all through my childhood. "Shimatsu" in the Kansai region, is used to imply that you should think about the end result of something before you act. This way of thinking could also be applied to future production processes. In addition, environmental conservation education and training need to be revised to include the concept of "waste not, want not."

Approximately 20,000 Matsushita employees and their families use our original Environmental Household Budget Ledger. Surely children who are disciplined by parents who use this ledger are naturally learning the concepts of ecology and balance. If children such as these do not become our future leaders, then mankind is heading for a very dangerous situation.

Changing Lifestyles Through Strong Motivation

Matsushita makes electrical appliances that support both households and society, and its corporate mission has been to try and coexist in harmony with the global environment by participating in a variety of environmental conservation activities. As Matsushita employees, we need to think about how much we should conserve the use of these products in our everyday lives; and we have the important role of taking the initiative from the perspective of global citizens in thinking about how environmental conservation activities can be applied to our usage of products and lifestyles, even just a little.

Today, it is crucial that we as individuals have a strong awareness of our role as global citizens in order to make the shift from a lifestyle of material affluence to one of spiritual affluence. The actions of Matsushita employees are reflected in the actions of their families, whose actions are in turn reflected in wider society, linking them to a host of people who share the same views on environmental conservation throughout the world. By expanding our global scale network through the "Love the Earth Citizens' Campaign," eventually we will be able to prompt a change in everyone's way of living, and I believe we have the motivation to do this.

*Nihon Kogeikai is a national organization which comprises artists of Japanese traditional art crafts. There are over 2,000 members in the organization including national assets with intangible cultural heritage. We cooperate in making the "Museum of Japanese Traditional Art Crafts" on the Internet for the objective of presenting the artwork, the artists, and exhibition information to the world.

 Nihon Kogeikai
www.nihon-kogeikai.com



Atsushi Murayama
Vice president
(Love the Earth Citizens' Campaign Promotion Committee Chairman)
Matsushita Electric Industrial Co., Ltd.



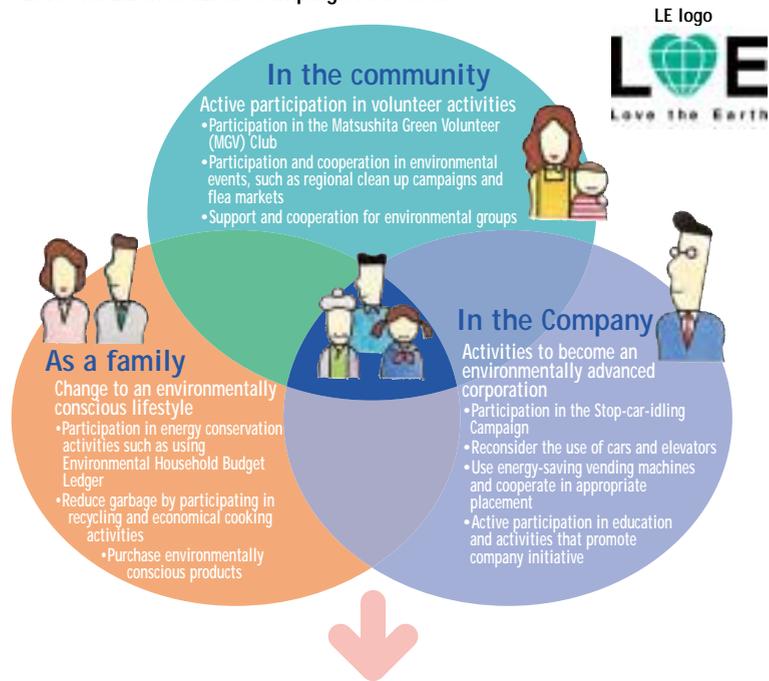
"I often go shopping to supermarkets but I am still shy to take the eco-bag with me. I would like to lead a natural, stylish, and enjoyable lifestyle."

Objective of the LE Campaign

In February 1998, we launched the Love the Earth (LE) Citizens' Campaign to encourage employees and their families to actively take part in environmental activities. By influencing the awareness and behavior of employees and their families, causing them to change their lifestyle patterns and ultimately widening their sphere of participation, we are promoting reform to create a society that can coexist with the global environment.

In promotion of this campaign, we are carrying out a wide variety of activities by cooperating with labor unions to organize a promotion committee chaired by the executive director of personnel, and to assign employees to positions of responsibility at each of our operation sites.

Love the Earth Citizens' Campaign Activities



Changing Corporations and Society Through Awareness, Behavior, and Lifestyle of Individuals

3 Executive Committees: Promoting Participation in Activities

LE Video for Internal Education

We produced an internal education video in order to deepen the understanding of employees and their families about the LE and corporate citizenship activities, as well as offer them the opportunity to take up these activities on a voluntary basis. We regard the production process of this video to be of great importance. It was produced entirely by committee members, from the creation of the scenarios to the collection of materials and writing of manuscripts. The video starts with an introduction from Murayama, the Love the Earth Citizens' Campaign Promotion Committee Chairman, and runs for approximately 15 minutes, giving examples of the actual condition of the global environment, and energy conservation activities carried out by LE families. We are ensuring the conservation of resources by reusing videotapes in offices and distributed the LE videotapes to our business sites. These videotapes can be used, among other things, to educate employees.



Title screen of the LE video

Using Public Ideas to Create the Eco-bag

We promote the Eco-bag* Movement to introduce environmentally conscious lifestyles. The annual consumption rate for plastic shopping bags is approximately 150 bags per person, and the raw material used to make these bags is petroleum. It has been calculated that each time one of these bags is not handed out, we are saving approximately 20 ml of petroleum. If we were to apply this figure to all of our employees and their households, this adds up to a saving of approximately 11 drums of petroleum resource per day. We appealed to our employees and their families to provide us with designs for the Eco-bag, and we selected the winning design from a total of 1,851 entries.



*Eco-bag
Carrying these reusable bags when you go shopping helps to reduce plastic bag consumption, and ultimately reduces waste.

Members of the Eco-bag Executive Committee examine the many unique proposals received for the Eco-bag.



The LE Symposium Held

In October 2001, we held our first public symposium for the Love the Earth Citizens' Campaign at our Multi-media Center in Shinagawa, Tokyo. We organized a keynote lecture and panel discussion based on the theme "increasing environmentally conscious people through partnership." We invited panelists from the government, education institutes, citizen groups and business organizations who held a discussion on the state of corporate citizenship. Previous to the symposium, we conducted a virtual debate on the Internet, gathering a wide range of opinions. In conjunction with this symposium, we also held events for children to participate in and enjoy, such as outdoor activities and documentary shows on wild animals.



www.matsushita.co.jp/environment/en/communication/le/index.html

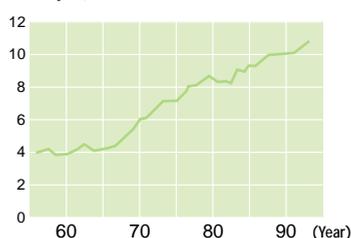
LE Activities in the Household

Continuous Increase in Household Energy Consumption

In Japan, the world's fourth largest contributor to CO₂ emissions, households have increased the amount of energy consumption by a ratio of approximately 19 times* that of the industrial sector. In order to gear down this increase, it is essential that we enhance awareness in the households on ways to conserve energy, so that families can put the appropriate measures into practice. As a first step, we are addressing our employees to introduce the Environmental Household Budget Ledger into their households.

* Compared to 1990. Source: Agency of Natural Resources and Energy in Japan

Amount of Energy Consumption Per Household in Japan (million kcal/year)



(Source: Agency of Natural Resources and Energy in Japan)

Environmental Household Budget Ledger Activities

We established our original Environmental Household Budget Ledger* as a tool for quantitatively analyzing and understanding how much impact households have on the environment, so we can work towards changing our lifestyle patterns. The ledger is distributed to all employees and their households who wish to participate in the program.

* Environmental Household Budget Ledger: This ledger is used to calculate the amount of water, electricity, gas, and gasoline used in the household and the corresponding amount of CO₂ discharged. Comparing these data with those of the previous month or the same month in the previous year helps to monitor lifestyle patterns and the energy consumption levels in households, making it easier to set reduction targets and economize on heating and lighting expenses.

The Environmental Household Budget Ledger

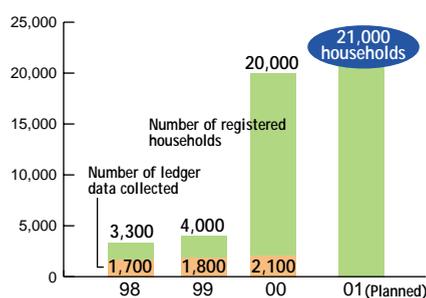


Increase of LE Families

Households who use the Environmental Household Budget Ledger are called "LE families." The program started in 1998 with 3,000 registered LE families, and currently, 21,000 families are registered with the program. Further, families who participate in the program for a year and submit their data to us are presented with an "LE Family Certificate" with the aim to increase acknowledgment in the workplace, and to expand activities in general.

After we have analyzed the data submitted in a variety of ways, we give feedback on the results of the program to our employees.

Number of LE Families and the Ledger data Collected (Household)



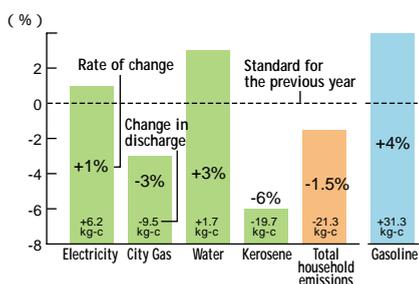
Fiscal 2000 Activities

The annual CO₂ discharge of LE families in fiscal 2000 was 2,180 kg-C* per household. As in fiscal 1999 this figure largely exceeds the national average due to high car ownership ratio. However, LE families who have participated in the program for the past two years achieved 1.5% reduction in household energy consumption.

* This unit is calculated on the weight of carbon (C) only, one of the elements found in CO₂.

CO₂ Emissions per Energy Source

(compared to the previous year)



Note: The rate of change was monitored based on data received from 1,344 households.

T O P I C S

Energy Conservation Ideas by LE Families Contributing to the Prevention of Global Warming



The Tanakas (Matsushita Refrigeration Company)

In our household, we hold "energy conservation meetings" that involve the children, and they often come up with new ideas for energy saving. We make a list of our targets and stick them on the wall, and try to enforce these targets together. Further, we rebuilt our house three years ago and installed a solar energy generation system. On the occasion, we moved the living room to the second floor, allowing better ventilation and effectively reducing our air conditioner usage time.

We have cut standby electricity consumption for appliances such as the television by using sockets with a power switch.



We remove the air conditioner plug from the wall socket once the season for use has ended.



We also turn off the main power for the electromagnetic cooker in the kitchen when we are not using it.



Getting used to keeping the Ledger.

Matsushita's Love the Earth Citizens' Campaign on our Internal Television Program

We are enhancing awareness of "Love the Earth Citizens' Campaign" through "Panawave," an internal television news program aired once a month. In the program, we explain our Environmental Household Budget Ledger and monthly eco-themes to promote environmentally conscious lifestyles in the household.



LE Activities In Communities

Environmental Education Support Activities

We are a member of the Global Environment Forum - Kansai, which researches global environmental issues and educates the public. In addition, we promote activities such as educating young school students about environmental issues, sending speakers out into the community to conduct lectures, and conducting tours of our factories. We will continue the environmental education of communities as well as disclosing our environmental activities.

Matsushita Green Volunteer (MGV) Club

The MGV Club receives donations from approximately 70,000 Matsushita Electric Group employees, union members, and retired personnel, and was established to increase individual interest of environmental issues and for their participations in greening activities. In support of this activity, we make a gift donation similar in amount to that donated by our employees, and have recently increased the support for LE activities.

Principal MGV Club Activities in FY 2000

Cherry blossom watching
This is an annual event that surveys the date when cherry blossoms bloom throughout Japan as a measure for monitoring climate changes and their impact on the natural environment. There are 93 cherry trees across Japan specified for observation.
Cleanups
Frequent cleanups of parks, roads, rivers, and shores near operating sites and homes are performed all over Japan.
Forest conservation activities
Volunteers participate in planting trees and thinning out forests while enjoying nature in its seasonal splendor.
Nature observation trips
These trips to learn more about nature are popular with both adults and children.
Recycling activities
Recycling aluminum cans and old newspapers, as well as sponsoring flea markets helps to nurture a sense of respect for nature's scarce resources.

 Matsushita Green Volunteer (MGV) Club
www.meu.or.jp (Japanese)



Members of MGV, meeting together for Leader Training

Kumanoda Elementary School (Osaka) Theme: Global Environment Issues and Our Lifestyles

In fiscal 2001, Matsushita Industrial Equipment Co., Ltd. sent a representative to speak about current global environmental issues and to what extent our lifestyles affect these issues. The speaker also outlined fundamental actions we can take to reduce the impact of our lifestyles on the environment.



Children listening intently

A thank you letter and notes from the children that arrived the day after the lecture



Forestation — Planting Beech Seedlings to Recover Forests

In fiscal 2001, the MGV Club's new forestation activities focused on planting 70 Japanese beech* seedlings at "Unitopia Sasayama"**. The activity was supported by the Osaka Green Trust, which provided the seedlings and supervised their planting.



Planting beech trees in the hope that they will grow big and strong

Educating People — Leader Training to Support the MGV Club

We conduct periodic training sessions on "educating people" to support MGV Club activities. In October 2000, approximately 40 volunteers participated in the 7th MGV Leader Training, which was held over a three-day period, with a focus on reconfirming the mission of the MGV Club.



Leader training in progress

Kokumei Elementary School (Osaka) Theme: Waste Issues and Corporate Activities

A lecture was held at Matsushita Industrial Equipment Co., Ltd. concerning resource recycling and corporate activities, with the main focus on waste issues. The MGV Club also held tours of our resource storage facility.



Enthusiastic Q & A about waste reduction and recycling activities

Inspecting how resources are separated and recycled



T O P I C S

Interviewing a Key Person on MGV Club Activities



Holiday Village "Unitopia Sasayama"
Hirotaka Ichimura
(MGV Activity Assistant)

A large portion of the vegetation which appears to be lush mountainous countryside is no longer in its natural condition. People depended on the forests in these mountains to provide them with food, fuel, drinking water, and the materials needed to make tools for the home. Therefore, they lived in harmony with the forests, ensuring that they were adequately protected from destruction. However, protecting forests is no longer a viable occupation, and the number of forests left to fall into ruin is increasing. The future water-holding capacity of forests has diminished, and this has led to the recent increase of mud slide accidents. As part of the MGV Club's activities, volunteers actually go into these forests and experience land care first-hand by clearing away undergrowth and thinning out the trees. Symbolic of the group's activities, it creates natural forests by planting Japanese beech trees, which are effective in regenerating forests. Each year, approximately 300 volunteers participate in the MGV Club's activities held in Sasayama. These activities are designed to increase citizens' knowledge about the state of the surrounding forest area as a trigger for promoting environmentally conscious lifestyles.

* If clean-up activities are not carried out in areas where conifers such as the Japanese cedar and Japanese cypress grow, devastation in these forests areas is likely. As a solution to this, the MGV Club has considered planting hardwood trees that help maintain ecosystems, and recently, Japanese beech trees are attracting particular attention, since they help maintain an excellent source of water.

**"Unitopia Sasayama" is an ecological resort run by Matsushita's labor union in Sasayama City, Hyogo Prefecture, and covers an area of approximately 30 hectares. It was established in 1973 as a place where natural preservation activities could be carried out and for vacation. It is also open to the general public.

Corporate Citizenship Activities

We believe corporations progress together with the society they are supported by. Therefore, in addition to contributing to society through our business activities, as a corporate citizen, we carry out activities that aim to create a healthy and rich society.

Fundamentals of Corporate Citizenship Activities

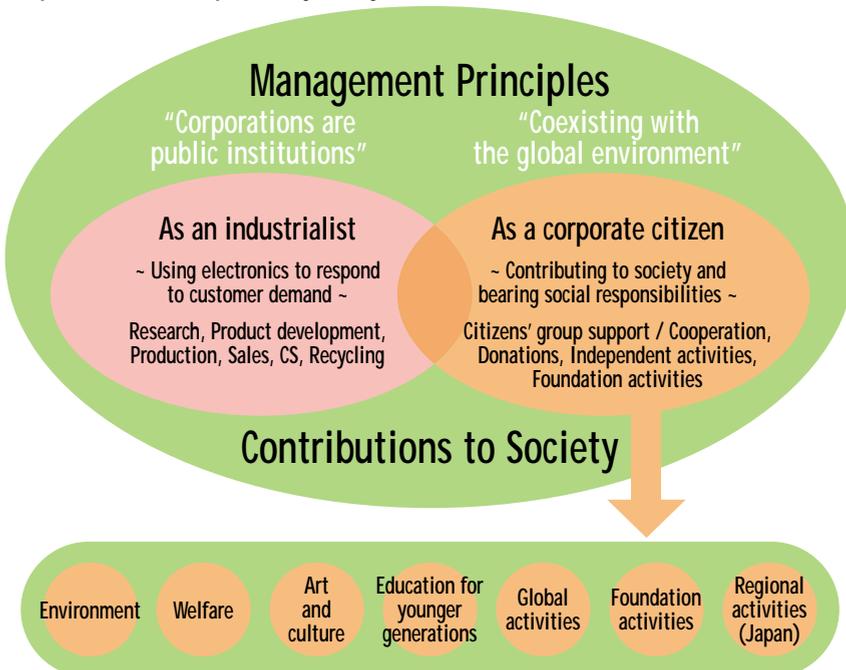
Our mission is to contribute to the happiness of people around the world and the advancement of culture, while carrying out activities that help to improve lifestyles in society. Our other mission as a corporation is to contribute to society by carrying out original corporate activities, while striving to coexist with the global environment. We also work as a corporate citizen cooperating with others to create a healthy and rich society.

Based on these principles, we have supported public welfare systems and inheritance of traditional culture for many years now. In addition to providing financial support for these activities, we participate in activities that make effective use of a variety of our resources, such as talented personnel, technology, know-how, and facilities. We focus on three main areas, environment, welfare, and art/culture. Further, we carry out activities that help the sound nurturing of younger generation.



Osaka Station Pedestrian Bridge, donated to Osaka City in 1964 to alleviate traffic congestion.

Corporate Citizenship Activity Policy



Volunteer Activities Funds Support System

Since 1998, we have been urging our employees to be more active in society by establishment of the Volunteer Activities Funds Support System. This system provides financial support for activities carried out by our employees, their spouses, and retiree, and NPO that contribute to society. In fiscal 2000, we provided financial support for 71 different activities and 9 of them were related to the environmental area (approximately 2.2 million yen).

Environmental Area Fund Support Groups

Bamboo Volunteer Society "Bamboo Rangers" (Osaka)
Suita Citizens' Environment Conference (Osaka)
Wuyun Forest Desert Tree Planting Volunteer Association (Osaka, Activity region: Mongolia, China)
Society of Citizens to Protect the Virgin Beech Tree Forests of Hanamaki (Iwate)
Soft Energy Project (Kanagawa)
Osaka EM Society (Osaka)
The Green Trust Utsunomiya (Tochigi)
Forest Mate Club, Hiroshima (Hiroshima)
Milky Way Beautification Club (Osaka)

Wuyun Forest Desert Planting Volunteer Association



Apanese orphan left behind in China after the war: Akemi Tachibana (Mongol name: Wuyun) established the Desert Planting Volunteer Association to aid in the afforestation of Horqin Desert. Up until now, 236 volunteers have participated in the activities, and approximately 120,000 poplar trees have been planted. (Activist: Mutsuo Takizawa)

Forest Mate Club, Hiroshima



This club carries out tree planting, weeding and brushing, pruning, and tree thinning activities, as well as cutting down withered pine trees, and send speakers and team leaders to events conducted by citizens' foresting movements. (Activist: Kenichi Shiraishi)

Soft Energy Project



The project promotes use of devices that prevent global warming, such as solar array panels and wind power generators. In addition, its members conduct education activities that promote participation in citizens', government, and corporate environmental preservation events. (Activist: Toshio Sakamoto)

Restoring White Sand and Green Pines to Shingu Club



The purpose of this club is to regenerate white sand along the Shingu coast in Fukuoka Prefecture, so the club carries out tree planting activities and tree thinning activities for the children to ensure that the next generation will inherit pine groves that shield the sand along this coast. (Activist: Yutaka Yokoyama)

Main Environmental Support Groups (FY 2000)

Osaka City Promotion Association
World Wildlife Fund Japan
Institute of Urban Traffic Research
Nature Conservation Society of Japan
Japan National Trust
Wild Bird Society of Japan
Japan Environment Association
Keidanren Committee on Nature Conservation
Keidanren Committee on China (Forestry Cooperation Division)
National Land Afforestation Promotion Organization
Japan Environmental Education Forum
Japanese Pine Tree Protection Society
Flower Society
General Energy Promotion Committee
Kansai Environmental Information Station Pico
Japan Bamboo Society
The Children of Earth's Club
TOKYO Car-free Day 2000 Executive Committee
Earth Day 2000 Campaign

Children's Hour Campaign



The Children's Hour Campaign is a global activity established by the International Youth Foundation (IYF) of America and has spread to 52 countries around the world. The purpose of the campaign was to donate income earned in the last hour of the millennium to NPO projects that carried out activities for the benefit of children.

We participated in this campaign, and by appealing to our Japanese employees, were able to collect 32,000 donations.

Between FY 1999 and 2000, we collected a total sum of 21.25 million yen in donations for 16 projects in Japan, with another 15.11 million yen of donations for IYF partners in Thailand and Mexico.

Actual Examples of Sponsorship in 1999 and 2000

- Increased the number of adventure playgrounds and developed the "Play Leader Training Program"
- Used IT to provide information and education for the children of foreign nationals living in Japan
- Funded the Okinawa Eco Study carried out by junior high school students, etc.

Dynamic Jazz Stage



The venue where art and jazz become one

In July 2001, the 10th charity concert was held at the Twin 21 Gallery in Osaka City. As an experiment, this year, a drop curtain was hung from the ceiling and abstract artworks were shown one after another using a slide projector. This mixed well with the atmosphere of the music, and everyone enjoyed themselves immensely. Approximately 120,000 yen of contributions were collected on the day, and this was then combined with a contribution of the same amount from the company and donated to the Panasonic Philanthropy Fund for the Handicapped, a fund that supports art and culture activities for the handicapped.

Kids' Guernica Gallery

The International Children's Peace Mural Exhibition



Kids' Guernica Gallery in Nepal

We support Kids' Guernica Gallery, an international art education program established in 1995. For this project, children at various locations all over the world create murals the same size as Picasso's Guernica with the common theme of "Peace," and express their wish for a peaceful 21st Century through exhibitions. To date, approximately 15,000 children from 19 different countries have participated in the project. In Nepal, approximately 3,000 children created a total of six murals, and displayed these together with the murals in the past exhibitions on December 2000.

Art Gallery on the Internet

One aim of philanthropy (cultural support) activities is to link art and society. We have set up an art site on the Internet, and also supports the establishment of other Web sites.



Traditional Arts Museum
Informing the world of the traditional art and culture of Japan
www.nihon-kogeikai.com/index-E.html

Panasonic Scholarships

In 1998, we supported the fostering of talent and promoted goodwill between regions with the establishment of Panasonic Scholarship system. This system targets exchange students from Asia who wish to study in a masters course at a university in Japan, but who must do so at their own expense. Students who meet the requirements for the scholarship can receive financial assistance for two years (three years for applicants from outside Japan). In fiscal 2001, 41 new scholarship recipients were announced, and as of April 2001, a total of 82 students are receiving the scholarship to help them in their research.



Carrying out training at the Research Institute of Innovative Technology for the Earth (RITE)

Affiliated Foundations

The Science and Technology Foundation of Japan (JSTF)

The foundation gives out the Japan Prize, an international prize that is highly regarded in the field of science and technology, established in 1983. The prize is referred to as the "Nobel Prize of Japan," and is presented to scientists around the world who have made a significant contribution to the advancement of science and technology through their original and outstanding achievements, and have thus contributed to the peace and prosperity of mankind.

2001(17th) Prize Winners and Their Achievements

Category: Science and Technology of Environment Conscious Materials

Discovery of environmentally benign electrode materials for high energy density rechargeable lithium batteries
Dr. John B. Goodenough [Professor at the University of Texas (America)]

Category: Marine Biology

Contribution to the development of Biological/Fisheries Oceanography and for conservation of fishery resources and marine environment
Dr. Timothy R. Parsons
[Professor emeritus at the University of British Columbia (Canada)]

Ryozen Institution (Meiji Restoration Research Center)

Distressed to see the sacred places that were prominent in connection with royalists of the Restoration Period left in disrepair, the late founder Konosuke Matsushita established this Institution in 1968, the centennial anniversary of the Meiji Restoration, asking for extensive cooperation from business circles. The objectives of the Foundation are to "preserve and maintain the historical features of the sacred mountains (Ryozen)" and to "preserve for future generations and promote the Japanese traditional spirit."



Relationships with Employees

Without "people" to make use of management resources, a company cannot fulfill its mission. Matsushita has constructed its personnel system based on the philosophy of "respecting humankind," and is working to create a new corporate climate that recognizes a variety of personal values.

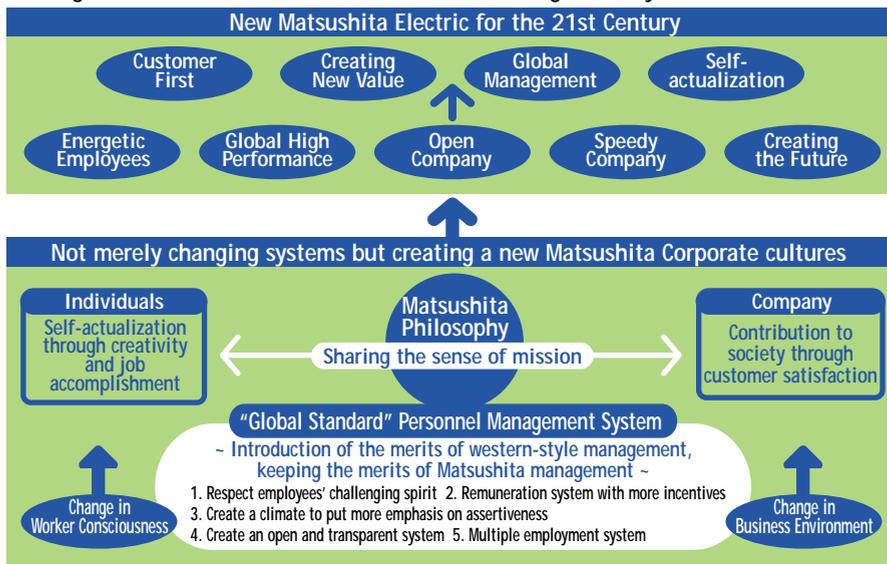
New Personnel System

Matsushita's personnel policy is based on the principles of "people" as the foundation for management and "developing people before making products." The main three features of this system include "Management by all Individual Entrepreneurship" "Merit system" and

Management by all Individual Entrepreneurship	Each job has its own value Everyone is a manager of his/her own job
Merit System	Based on fair appraisal, we treat people by performance and capability
People Oriented Management	People are the source of added values. Human resource development and appropriate placement are the company's responsibility. Emphasis on human resource development

"People oriented management" This is a universal way of thinking. However, in order to offer customers more creative solutions, our employees must display a higher level of independence and individuality than ever before. Individual employees must also continue to be sympathetic to company values that pursue "customer satisfaction." Similarly, Matsushita participates in a variety of activities that support personnel policies, and uses these as its basic philosophy for building "independent individual" and "company" relations that contribute to society and achieve self-realization in individuals.

Background and Aim of New Human Resource Management System



Building a Corporation Where Men and Women Can Shine Together

In April 2001, Matsushita established its Corporate Equal Partnership Division, a step that had the effect of initiating corporate climate reform. This included (1) creating a corporate climate that recognizes diversity, (2) promoting women's participation in management, and (3) creating (new) business and products that support both work and life. Matsushita proposed the concept of nurturing a corporate climate that recognizes diverse values as part of its "Mission Statement," and is interviewing each of its employees to discuss how they can best improve their work. By promoting a shift in employee attitudes away from the mindset of creating new products all with similar levels of quality to the concept of creating a variety of products that meet individual customer needs, we are trying to create a company that operates in perfect harmony with the environment.

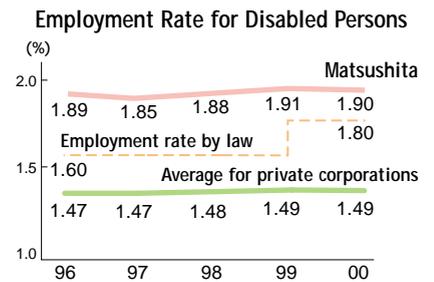
"Mission Statement"

In order to become a truly global corporation, Matsushita Electric is making efforts to construct a corporate climate that openly accepts diversity and recognizes differences in values. As part of this, individuals are encouraged to freely and openly display individualism and creativity, and the Company is striving to become a customer value creation company by continuing to grow at both the corporate and individual levels.

5 Concepts of Matsushita's "Mission Statement"	
1. Diversity	Recognizing each other's differing values and individuality
2. Sociality	Utilizing our sense of values and experience as members of society in management
3. Creativity	Displaying creativity and specialization with spirit
4. Sensitivity	Increasing sensitivity to changes in the times and society, and taking on the challenge of reform
5. Productivity	Striving for optimum results, while recognizing that "time is a limited management resource"

State of Employment for Disabled Persons

It is wonderful how people, both those with disabilities and those without, can find satisfaction in life by utilizing their various aptitudes and abilities to engage themselves in work. In the past, Matsushita has provided support on a variety of levels to ensure the establishment and operation of an autonomous welfare site that provides disabled people with a place to work. We have also set up and operate two subsidiary companies for the same purpose. For the past five years, Matsushita's employment rate is high in comparison to the rate required by law. Matsushita is highly commended for these efforts, and has received a variety of awards related to the employment of disabled persons.

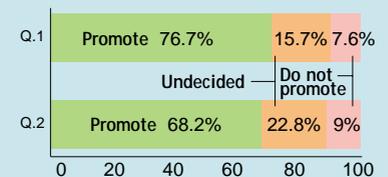


T O P I C S

Company Opinion Poll

Matsushita has conducted a company-wide opinion poll every other year since 1986. Through this, Matsushita is able to quantitatively analyze management's degree of reliability, as well as the vitality of the workplace and amount of employee awareness, and use this to devise measures to revitalize the corporate climate and enact company-wide policies. The 2000 opinion poll was conducted in September of that year.

- Questions Related to Environmental Conservation Activities
- Q1. Do you think Matsushita positively promotes activities concerned with environmental conservation and the effective use of resources?
- Q2. Are you concerned with environmental conservation at the regional or individual level, and consider yourself to promote environmental conservation activities?



76.7% answered that they think Matsushita positively promotes these activities, indicating a high awareness of environmental conservation among Matsushita's employees. Further, 68.2% answered that they promote environmental conservation activities at the regional or individual level, slightly down in comparison to environmental conservation awareness at the corporate level.

Health and Safety at the Workplace

As each and every employee is an asset of a company, we think it is one of a company's main responsibilities to create a healthy, safe business environment. We are proactively working towards "creating a safe and pleasant workplace" based on a philosophy of "respect for humankind."

The Charter of Matsushita Electric Health and Safety at the Workplace

Declaration of health and safety at workplace

We will make a consistent effort to fulfill our corporate mission of respecting humankind by building a safe and pleasant workplace to ensure the physical and mental health of all employees.

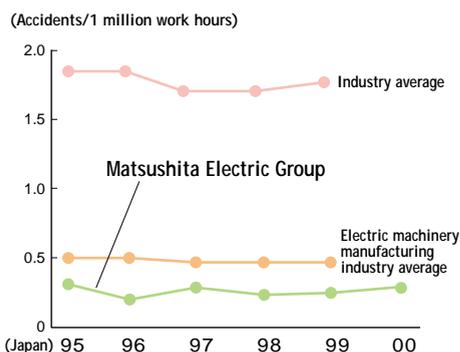
Guidelines for health and safety at workplace

1. Complying with legal requirements
2. Investing management resources
3. Establishing and maintaining health and safety management systems in the workplace
4. Clarifying responsibilities and authority, and establishing an organizational structure
5. Eliminating and reducing dangerous or harmful factors
6. Setting goals / making and implementing plans
7. Auditing / management review
8. Education and training

State of Safety and Health Activities

In addition to meeting the minimum standards for safety and health in the workplace as required by law, we have established independent internal standards to carry out safety and health activities. Moreover, we have evaluated and given recognition for the efforts at each of our operation sites in carrying out safety and health activities that increase employees' awareness in the workplace.

Labor Accident Rate



Risk Assessment

With the aim of realizing "zero-accident" goal, we have established "zero-risk" goal to prevent accidents from occurring. We conduct risk assessment at all dangerous points of operations and equipments, and use the results to enact risk reduction policies. We also conduct risk assessment before introducing a new production equipment, in order to confirm the industrial health and safety of it. Furthermore, we have made operational improvements using ergonomics, aiming to lessen fatigues from work.

Example of Risk Assessment (Matsushita Battery Industrial Co., Ltd.)



Introduction of Occupational Health and Safety Management System

We began introducing occupational Health and Safety Management System in 1999 after the publication of the guideline by the Ministry of Labor (presently the Ministry of Welfare and Labor) in Japan. More specifically, company-wide guidelines were formulated in FY 1999, and the corporate education system was established in fiscal 2000. Currently, we are developing the Occupational Health and Safety Management System at each operation site.

In fiscal 2000, based on the third-party evaluation, the AVC Company's Okayama Site and Matsushita Kotobuki Electronics Indus-

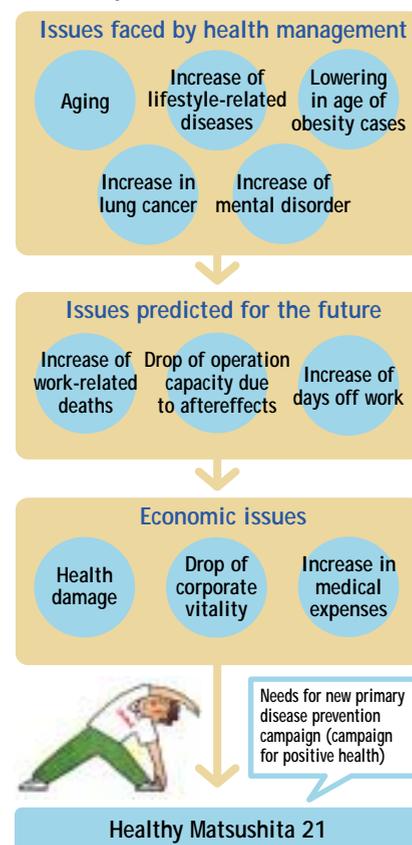
tries, Ltd. both received "Occupational Health and Safety Management System" certification that conforms to BS8800 standards from the Japan Audit and Certification Organization for Environment and Quality (JACO).

Background and Aims of "Healthy Matsushita 21"

Against the background of the aging society and an increase of lifestyle-related diseases, we have taken the issue of caring for the employees' physical and mental health seriously. Therefore, in cooperation with the companies, labor unions, and health insurance associations, we have set up "Healthy Matsushita 21" to maintain the positive health of employees.

In addition to maintaining and developing employees' health, Healthy Matsushita 21 has been designed to vitalize the workplace. It offers advice for better lifestyles, such as on how to improve nutrition, exercises, and smoking habits, as well as how to take care of one's mental health. It was established as a 10-year long-term plan for looking after the health of company employees.

"Healthy Matsushita 21" Activities



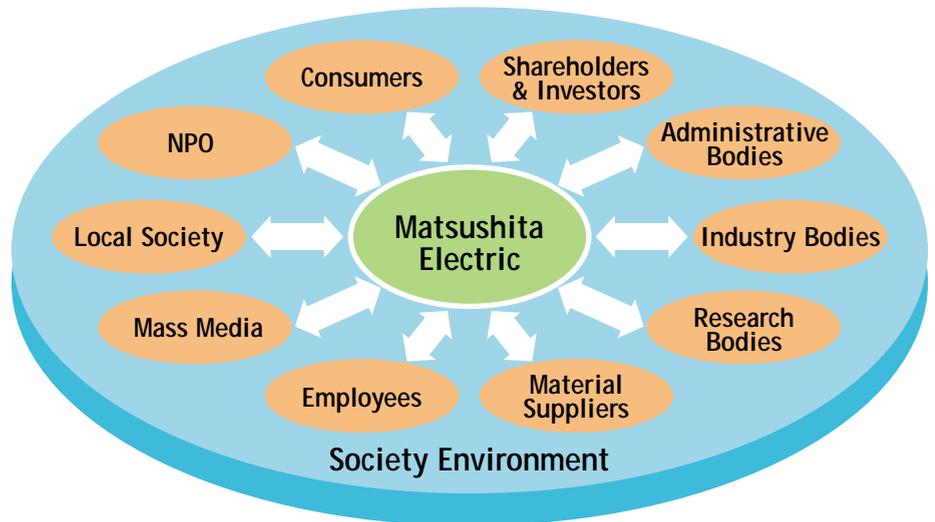
Environmental Communication

Environmental stakeholders include a wide range of people, starting with our shareholders and customers, and extending to NPOs, local residents, and the children who will inherit our future.

Because environmental communication is an important tool that connects a company and its stakeholders, we are carrying out a variety of activities.

Just as humankind is part of the natural ecosystem, company is a member of society. Therefore, we believe that the true stakeholders of company include all living creatures that inhabit the earth, both present and future. Starting with the "Environmental Sustainability Report," we employ various means of communication such as Internet, advertisements, public exhibitions, lectures, e-mails, letters, telephone calls, and faxes to publicize our environment related information. From now on, we will continue to make every effort to improve two-way communication with our stakeholders.

Environmental Communication with Matsushita's Stakeholders



Publication of the Environmental Sustainability Report

The environmental report is a core media for our environmental communication and was first published in 1997, and this year marks its fifth edition. Currently, we are putting a lot of effort on creating the Web sites, and our operation sites disclose information to the public in the so-called "site reports". We are also actively working to ensure that the information published meets the needs and is useful to our readers.

Publication history of the Environmental Report



FY	97	98	99	00
Japanese Version(copies)	17,000	10,000	18,000	22,000
English Version(copies)	8,000	10,000	5,000	5,000
Number of Pages	24	28	40	56

Top page of our Environmental Web Site



Fully updated in 2001

www.matsushita.co.jp/environment/en/

Matsushita's Environmental Exhibitions

We hold the annual Environment Exhibition with the aim of sharing environmental information within the Matsushita Group. We held the Exhibition to the public for the first time in fiscal 2000. In fiscal 2001, the Exhibition was held in Tokyo in October and will be held in Freiburg, Germany in December.

Matsushita Electric Group's Environmental Exhibition 2000



3,050 people attended, including approximately 1,400 people from outside the Company (August 23-24, 2000: Matsushita's Human Resources Development Center, Osaka)

Eco-Products 2000



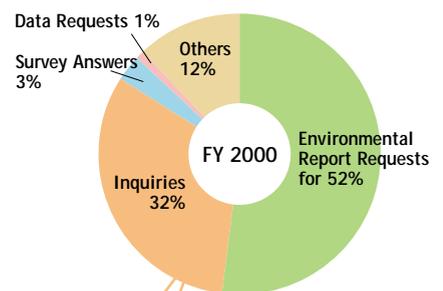
We exhibited over 30 "Green Products" and technology themes, including lead-free soldering, under the project theme of "Co-existence of Manufacturing and the Global Environment in the 21st Century." (December 14-16, 2000: Tokyo Big Site)

Environment-Related Inquiries

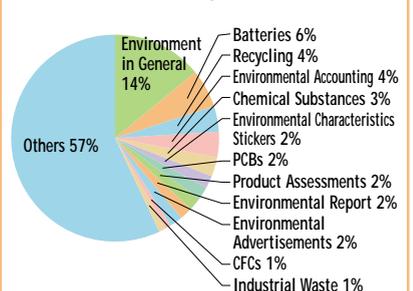
Approximately half of the inquiries we receive are e-mails from people asking to be sent copies of our environmental report. As a basic rule, we try to respond to all inquiries within 24 hours.

Number of Requests, Opinions and Questions

FY 1999: 283 cases → FY 2000: 397 cases



Breakdown of Inquiries



Gallery of Environmental Advertisements

As means to inform as many people as possible about our stance on environmental conservation and our latest conservation activities, we have made advertisements in newspapers, televisions and radios. Since many themes related to the environment are difficult for the public to understand, "simplicity" in advertisement is extremely important. Here, we introduce some of our corporate advertisements on the environment.

Social movements Matsushita's Movements

1993 The Basic Environment Law was enacted
 "Matsushita's Environmental Voluntary Plan" was formulated



"Taking Matsushita Electric's Zero Mercury technology to the world"

We started the full-scale environmental advertising in 1993, one year after the "Earth Summit" was held. So far we have introduced our pioneering technologies, such as, "zero mercury batteries," "making products that can be easily disassembled," "effective use of resources," and other examples of our leading-edge cases.

1994 Framework Convention on Climate Change Protocol was established
 Promotion of the total abolition of the use of designated CFCs



"The television sets to be recycled"

1995 Containers and Packaging Recycling Law was enacted
 Commenced construction of our Environmental Management System



"Origami Packaging"

1996 ISO 14001 International environmental standard was enacted
 ISO14001 certification plan was formulated



"Re-Cycle"

From 1995, we have started building the environmental management systems, as well as acquiring ISO 14001 certification. This was a period when interests in recycling and energy conservation as means to prevent global warming had increased.

1997 COP3 was convened.
Matsushita's Environment Conference was inaugurated.



"Listening to you, Building Tomorrow"

Due to the Third Conference of the parties(COP3) and increased concerns for reducing CO₂ emissions, chemical substances and their effect on humans and the environment have attracted considerable attention. We have listed environmental activities as one of our main managerial concerns, and in October 1998, inaugurated the Environment Conference. The Conference is chaired by Matsushita's president, and is a policy and decision making body focused on finding solutions to environmental issues. In 2000, we proceeded with our environmental activities, and announced our three main themes - "Save," "Clean," and "Recycle."

1998 Law for Recycling Specific Kinds of Home Appliance was enacted.
Love the Earth Citizens' Campaign commenced.



"Quality the Earth can smile about"

1999 Chemical Substances Control Law (PRTR Law) enacted.
Green Procurement was started.



"Save more and more energy"

The newspaper advertisement on our original "environmental characteristic stickers," which provide specific visual information on the environmentally conscious products, received a huge public response. This advertisement was made into an information panel and displayed at retail outlets to provide customers with explanations about our environmentally conscious products at the time. Those panels prompted customers to think about how they could conserve energy at home, and as a result, had the effect of assimilating consumer thoughts with those of the business sector.



Acquisition of ISO14001 certification was completed.

2000 Basic Law on Promoting a Recycling Society was enacted
Lead-free Soldering Project was launched



"Your Earth, Your Smile"

Thus, in our advertising activities, we have placed importance on conveying our honest business stance, instead of resorting to vivid or flashy eye-catching images. In environmental activities, a corporate image alone should not be emphasized. Only by thinking and working together with our customers, can we get the preferable results. We regard each environmental advertisement as a letter to you, and will continue to accurately present our thoughts.

Environmental Stakeholders Meeting

Until now, most of our environmental communications may have been unilateral, with Matsushita doing most of the talking. From now on, we would like to share our latest environmental activities and develop a dialogue to promote true environmental communication. To this end, we held the first "Environmental Stakeholders Meeting."

- **Title**
The First Environmental Stakeholders Meeting
- **Date/Time**
August 8, 2001 10:00-19:00
- **Place**
Rice Cooker Division, Home Appliance & Housing Electronics Company, Matsushita Electric Industrial Co., Ltd. (Yashiro-cho, Hyogo Prefecture)
Matsushita Eco Technology Center Co., Ltd. (Yashiro-cho, Hyogo Prefecture)
- **Purpose**
 - ① To provide stakeholders with a realistic look at how our leading-edge environmental activities are carried out.
 - ② To deepen mutual understanding through dialogues with stakeholders.
 - ③ To reflect stakeholders' opinions and ideas in our future environmental activities.
- **Participants**
We invited 109 people who responded to our questionnaire provided in the Environmental Report 2000 and on our Web site. 19 people desired to attend the meeting.

- **Discussion Topics**
 - ① Environmental activities concerning manufacturing processes
 - ② Measures taken in response to home appliance recycling
 - ③ Environmental activities in general
- **Participants' Standpoints**
Vary in expertise and insight (Relative standpoints are listed beside the names of the participants)
- **Information Presentation Methods**
 - Participants were required to read the 2000 Environmental Report in advance
 - Presentation on the activities of the Rice Cooker Division, and an inspection of the factory and its Development Division
 - A briefing on the Matsushita Eco Technology Center, and an inspection of its operation sites
 - Expanding on our views through a question and answer session and exchanging opinions.
- **Opinion Collection Methods**
 - From participants' comments made during the meeting's discussions
 - From opinions contributed in post-meeting questionnaires

Stakeholders' Opinion Overview

Toshie Ishizu

Research and educational organization



Since environmental issues are extensive, and stakeholder interests vary considerably, companies are repeatedly trying to determine the focus of their environmental activities through a trial and error method. With this in mind, your company's idea of offering stakeholders an opportunity to participate in bilateral communication shows your high regard for the environment. I think your attitude is wonderful. Today, I wanted to hear more about your viewpoint on the relationship between environmental activities and company operations. Saying that solutions to environmental problems are the responsibility of corporations, or that they are in the company's best interests, sounds fine in theory, but in practice, there are many factors that affect how enterprises deal with these issues. Sustainable development has become a major global issue, but I think the key to sustainable development lies in recycling practices and the knowledge of them. If activities for environmental issues can be seen as beneficial for their shareholders, I think sustainable development can be realized. (Hokusei Gakuen University)

Keizo Kawakami

Environmental consultant



I admire the wide-range, multilateral activities. I saw how Matsushita is tackling the difficult issue of recycling household appliances. I look forward to your future success and continuous development of technologies, while maintaining good working conditions and preventing work-related accidents. (Kawakami Eco Management)

Satoshi Kikuno

Product user, Environmental management consultant



As an industry leader of Japan, Matsushita is carrying out business effectively and efficiently. I expect more recycling activities than just the four basic kinds of products, and hope for you to make progress from material recycling to material reuse. I think that the processes at the Electrical Appliance Recycling Factory did not show enough regard to the environment. (JMA Consulting Co., Ltd.)

Hisaaki Kuroiwa

Business associate, Corporation/organization Environmental Officer



I want to see Matsushita exert more leadership, and disclose more information about zero emissions activities. I also want to see them link their product assessment evaluation criteria and detailed LCA evaluation standards with their green procurement activities. (Orion Machinery Co., Ltd.)

Hiroyoshi Kuroki

Environmental NPO, Student



Current trends in the consumer market show an increase in popularity for imported electrical appliances, especially among young people due to products' good designs. Those consumers are looking for a product they can feel a strong attachment. In addition to functionality, Japanese manufacturers need to increase product values by better designs. (NPO Real Link Kyoto)

Ichiro Kobayashi

Environment and science writer



I admire your business attitude to environmental issues very seriously. I expect you to show us something that "only Matsushita can do." Experience of seeing such a large quantity of electrical appliances being destroyed made me feel that we should not take the use of products for granted. (Writer)

Ryoji Kobayashi

Product user, Corporation/organization Environmental Officer, Environmental NPO



I want Matsushita to achieve business success through the development and implementation of cutting-edge environmental technologies. I also want you to consider improving your employee health and safety management system at the Electrical Appliance Recycling Factory. (Environmental counselor, Gifu)

Kazuo Saeki

Corporation/organization Environment Officer



The Electrical Appliance Recycling Factory is a model factory for the 21st century. But why not appeal to the government to buy the compressors (crushed at the factory), and instead of sending them to the shredder, investigate the possibility of recycling and selling them as second hand components? This meeting was a good opportunity for business and consumers to exchange their ideas and opinions. Especially in today's age of the Internet, face to face interaction is important. (Toyota Tsusho Corporation)

Hirokazu Shimizu

Product user



I would like Matsushita to develop industry standards of the products that help the customers to select environmentally conscious products. Matsushita should do more to promote its Electrical Appliance Recycling Factory. (Shimizu Printing & Packaging Co., Ltd.)

Kunihiko Sone

Product user, Shareholder/Investor, Research and educational organization



If you have sufficient knowledge and awareness about something, you can always make an informed decision. At the group level, a whole range of intricate relationships must be considered when making these decisions, but perhaps we are influenced too much by the pressure of having to make a prudent decision. How about just choosing aspects of a product and testing them. It is important to give society feedbacks from these results, even when the product did not pass the test. (Future Circuit board Research Center)

Shuichi Takeoka

Business associate



"Environment" is the keyword for resuscitating the depressed Japanese economy. Although the Matsushita Group is also going through a difficult time, I want you to place importance on the long-term vision of your environmental conservation activities, and lead businesses on a global scale. (Japan Pulp and Paper Co., Ltd.)

Kenjiro Hoshino

Someone concerned about the environment from a business perspective



This meeting reconfirmed my original idea that Matsushita takes its business seriously. In general, I believe we can have faith in your environmental activities. I was overwhelmed by the huge amount of energy they use at the Electrical Appliance Recycling Factory. It made me realize that "consumption" ends up as "destruction." I hope you will disclose information (disposal methods, future targets, etc.) on components that cannot be recycled at present. (General Press Corporation)

Wajo Hosoya

Business analyst, Environmental management system/Environmental report research



As an industry leader, and as Japan's most environmentally advanced enterprise, Matsushita is making an enormous effort to reduce its environmental impacts, and we are beginning to see the results. I want you to continue the environmental activities and environmental communications. The Environmental Stakeholders Meeting is an excellent activity, as it is important that you can include the opinions of stakeholders in your environmental policies. The number of people and processes involved at the Electrical Appliance Recycling Factory exceeded my initial ideas. Now I learned that this factory plays a strategic part in developing new products. (Hitachi ULSI Systems Co., Ltd.)

Tadashi Masuya

Product user, Environmental NPO



I was encouraged to see Matsushita's company-wide approach on environmental issues. I hope that you will increase the range of activities to include products that are not presently covered by the Home Appliance Recycling Law, and take the initiative in environmental activities in Japanese electrical appliance industry. I also expect your leadership not only in supplying the products, but also in providing services for the products. (Global Environment Forum-KANSAI)

Eri Iwakawa

Environmental NPO



I felt the confidence of the Matsushita Group from a variety of aspects. You are not just handing out as many Environmental Reports as possible, but trying to increase the number of people who actually read and understand it. I think this is a success in itself. I hope by continuing to create opportunities such as this meeting to exchange dialogues with stakeholders, you will encourage wider spread of your environmental report. (Kansai Environmental Information Station Pico)

Saeko Ebata

Environmental NPO



When I had trouble with my vacuum cleaner, Matsushita fixed it for me with special care, and it was like you were teaching me how to care for products. Likewise, I want you to inform more consumers on environmental issues, and raise "green consumers" (environmentally conscious consumers). At the Electrical Appliance Recycling Factory, I was a little shocked to see how products are destroyed. Now that I understand the limit of mass consumption, I will work hard not just on recycling, but also on 4Rs (Refuse, Reduce, Reuse, Recycle). (Global Village Network)

Teru Obayashi

Housewife, Environmental NPO



Matsushita is constantly improving its products, and conducting wonderful company-wide activities. To me, it seems that Matsushita is really trying to change the nature of society and corporations. We must create a system that reforms corporations so that we can live in harmony with the earth forever. (Kansai Environmental Information Station Pico)

Ken Kashima

Waste consultant



I was able to see your sincerity to the environment. In regard to manufacturing, in addition to the fashionable and multifunctional aspects of products, I want to see more emphasis being placed on the creation of products that people will "want to use their entire lives." I think Matsushita's manufacturing process management is marvelous, but more employee health care management is needed to be enforced at the Electrical Appliance Recycling Factory. (Kokusai Kogyo Co., Ltd.)

Satoru Katsuda

Research and educational organization



I could confirm that Matsushita is actively developing products based on the concept of improved resource productivity by reducing the resource amounts, simplifying materials, and reusing resources. In terms of recycling, Matsushita's efficient recycling system of difficult-to-recycle materials greatly exceeded my expectations. (Sanno College)



Inspecting resource recycling systems at the Matsushita Eco Technology Center



Commemorative group photo



Third Party Comments to the Environmental Report

With the aim of confirming the validity of our environmental policy and activities and improving their quality, we sought Sustainability Analysis and Third Party Comments of our Environmental Report to The Natural Step, a Sweden based organization. Introduced below are the analysis results from The Natural Step based mainly on information provided by us.

Sustainability Analysis Employing The Natural Step Methodology

- **Purpose**
 (1) To verify, as a company conducting global business activities, whether our environmental policy and efforts are in line with the global trend toward realization of a sustainable society.
 (2) To make use of the analysis results and third party comments in future planning and activities.
- **Analysts**
 Helene Lindman (Sustainability Analyst, The Natural Step)
 Mats Nystrom (Sustainability Analyst, The Natural Step)
- **Information provided by Matsushita**
 Environmental Report, Annual Report, Environmental Vision, Green Plan 2010, Matsushita Product Assessment, Green Procurement Standards Manual, Chemical Substances Control Ranking Guidelines, Eco-design Guidebook, Environmental Household Budget Ledger, Environment Website

Videos on Environmental Activities, Reference materials for Environmental Scenario Planning, Other company documents

- **Period of interview**
 July 23-25, 2001 at The Natural Step in Sweden



Interview at The Natural Step

Results of Sustainability Analysis

Purpose and Target Areas

The purpose of sustainability analysis is to identify the environmental impact of business activities conducted by the Matsushita Electric Group (hereinafter referred to as Matsushita) and the opportunities for Matsushita to become a successful company in a sustainable society.

The following factors were comprehensively analyzed and examined:

- **Flow of resources:**
 flow of critical energy sources and materials in business activities
- **Environmental impact during product use:**
 estimated cost of reviewing products, product development, and adapting products to natural cycles and closed-loops system
- **By-products and risks:**
 waste, recyclable materials, and environmental risks
- **Abilities:**
 company awareness, human resources, communication, sustainability strategies
- **Capacity-building:**
 environmental system and management, training, various tools
- **Environmental policy and achievements:**
 direction and steps ahead

Process of Analysis

This analysis is divided into four steps as follows:

1. Collection and research of company documents (including open, closed, and confidential documents) on organizational structure, communication with stakeholders and the general public, and environmental data.
2. Additional collection of information by interviewing key person on resource-flows and environmental activities at Matsushita and relations to suppliers.
3. Definition of sustainability and upstream measures, grasping of the present status of flow of resources and process, and system analysis based on such information.
4. Analysis, from a holistic point of view, of the possibilities and risks in conversion to a sustainable society, as well as opportunities and threats.

Analysis Results

Vision and Policy

Matsushita's vision and environmental statement is heading towards sustainability, but there is a need to evolve it into a more clearly defined and committing policy.

Transmaterialization

While efforts are being made in transmaterialization, it is necessary to prove the changes in environmental impact brought about by substitution. Matsushita has already made a number of good achievements in this area, such as the substitution from plastics into magnesium.

Transportation and logistics

Matsushita has an advantage here by having chosen to transfer parts of their logistics to train transportation, which is an action many companies have yet to make.

Product development

Matsushita's effort in this field currently mainly focuses on energy efficiency of products. However, company A is today leading the global trend toward "sales of function."

Product range

All four companies analyzed are actively working on expanding their respective shares of environmentally sound products. Matsushita has a greater challenge than the other companies due to the type of products, such as TV-sets etc., which demands greater efforts to develop in a sustainable direction.



The Natural Step is an international non-profit environmental organization founded in Sweden in 1989 by Dr. Karl-Henrik Robèrt. The overall objective of The Natural Step is to advocate a new concept for enhancing the competitiveness of a company by planning and conducting business according to the prerequisites for realizing a sustainable society.

Presently, The Natural Step is carrying out activities in Sweden and countries throughout the world, including Australia, United Kingdom, Canada, New Zealand, U.S.A., South Africa, Israel, and Japan.

Based on the consensus of many scientists, The Natural Step defined a set of system conditions for a sustainable society, which have been established as the four System Conditions, serving as the foundation of the Natural Step Framework.

The 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;

And in that society...

4. human needs are met worldwide.

The Natural Step organizations worldwide employ their methodology to assist companies and organizations in strategic environmental management planning. Companies use this framework as a tool for reducing their environmental impact and integrating environmental measures with business management. Currently, environmental management systems, environmental auditing, life cycle assessments, and various indicators adopted by many companies can become more effective when using them according to this framework. TNS Framework will ensure organizations maximum flexibility and profitability, and at the same time, steer operations in a sustainable direction.

For more details, check The Natural Step website at www.tnsj.org and www.detnaturligasteget.se.

Communication

Matsushita is gathering a vast amount of information. It is difficult for an outside viewer, however, to find Matsushita's fundamental sustainability objectives in the large flows of information. This, however, can in part be subject to cultural differences, and could undergo a customer-controlled communication project to see if, and what changes would prove to be fruitful.

Performance ratio/tempo

Matsushita has come a long way and achieved a number of good steps in this field, such as the development of the Cogeneration System for Home Use. A wider perspective would help get a profound boost in this efforts and improved overall results.

Sustainability Benchmarks (Max. 5 points)

	Matsushita	Company A	Company B	Company C
Vision and policy	2.5	4	3	2.75
Transmaterialization	2.75	4.1	2.5	3
Transportation and logistics	3.2	3.87	2.85	2.85
Product development	2.5	3.55	3.5	3
Product range	2.1	3.75	3.5	3
Communication	3	4	3.6	2.5
Performance ratio/tempo	2	4	3.55	2.5

* Benchmark Companies A-B are three electronics companies with headquarters based in Europe. The benchmark timing is August 2001.

Environmental management

Staff and economical resources channeled for sustainability affairs appear to be adequate, resources could be allocated more efficiently to faster reach company objectives. The autonomy of divisions and subsidiaries provide room for independent initiatives, allowing flexibility to adapt the corporate sustainability efforts to the respective body. However, this also emphasizes the need for strong leadership and unified management and a clear, conformed and communicated vision of objectives based on mutual understanding. To this end, it is vital to strengthen the status of sustainability affairs to further improve the management of environmental affairs.

Products and Services, Product Development

Although few compared to the overall product range, the number of products made with environmental considerations is increasing every year. Matsushita provides products that consume less energy and resources and contain reduced types and amount of chemicals. To make products and services sustainable, environmental demands placed on suppliers hold great potential. When procuring materials for products and services, it is vital to select substitutes appropriate to the environment and convey clear demands to suppliers at all times. The good sign is that Matsushita is convinced that the keys to its survival in the future are a paradigm revolution taking into account revisions of related laws and regulations and production responding to the needs of environmentally conscious and active consumers.

Product Development

Matsushita develops environmentally conscious products with a concept called Green Products.

When developing new products, in particular, Matsushita must study the following risks:

1. Whether Matsushita is placing too much emphasis on reducing CO₂ emissions, thereby underestimating other environmental fields.
2. Whether efforts undertaken by Matsushita are focused on avoidance, not improvements.

Measures for Closed Loop Systems

Matsushita is conducting important studies in finding substitutes to compounds added to plastics. It is desirable to substitute them with decomposable substances that are abundant in nature. For example, Matsushita increases use of magnesium alloy, as a substitute to plastics containing halogenated compounds. Matsushita has also succeeded in reducing resources. The types of plastics have also reduced as a result of improved management of chemicals in plastics.

Matsushita is aware that correct use and proper maintenance and repair are essential to long-term use of products. Various efforts to extend the life of products is important for reducing energy and substances extracted from the earth's crust and from the perspective of sustainability. Furthermore, Matsushita is investing management resources into product recycling technology and collection systems, with emphasis on cost efficiency in the product recycling process

Environmental impact of product use

Matsushita is making active efforts to minimize energy consumed during product use. As one of the Japan's top ranking companies in energy saving performance, Matsushita achieved 30% energy saving in major products compared with the 1995 levels. However, efforts to reduce chemicals, such as detergents and cleaning agents, and use of water are not as active.

Responding to customer needs and products in a sustainable society

Today, Matsushita is constantly offering and developing products and services with decreasing environmental impact. If business operations are converted in a sustainable direction, and if such efforts are effectively communicated to gain acceptance of stakeholders, then there is the possibility of showing the way to a sustainable society in the future.

Environmental impact from manufacturing processes

Matsushita is a major user of and largely dependant on substances from the earth's crust and man-made non-biodegradable substances in today's production. Based on company data, Matsushita carries out risk management of chemical substances and has a policy for preventing environmental destruction. Matsushita has also worked successfully to reduce emissions (CO₂ emissions, release of chemical substances).

While company awareness appears to be more focused on a zero-emission paradigm in technical cycles, more precautionary measures and upstream thinking is necessary. Effective and efficient management is required in early stages of the manufacturing process, as well as in later stages in the products life cycle, and these considerations would doubtlessly improve the company's conditions to meet prerequisites for sustainability.

Love the Earth Citizens Campaign

The Love the Earth Citizens Campaign contributes to the environmental awareness of Matsushita employees, nevertheless, there is room for improvement. The Environmental Household Budget Ledger could be additionally advantageous if used as a tool to further educate the employees, thereby creating a more dynamic and creative environment at the workplace. A variety of information could be provided on sustainability efforts in employee's personal life and at work as Matsushita transforms into a sustainable company. Great importance is placed on the reduction of CO₂ emissions in the Environmental Household Budget Ledger, and a more balanced picture of environmental problems and other important areas from a sustainability perspective would prove even more fruitful.

Communication

Currently, sustainability communication occurs mainly via intranet for those responsible, and more people will access this information in time. Information opened to the general public, too, would mean high standards in terms of volume and efforts.

Environmental fairs are being held in Osaka, Japan and Freiburg, Germany in 2001, and Matsushita is acting with a high sense of transparency in their communication with the public. Information is provided through annual reports, environmental reports, and environmental characteristic stickers, and the public is invited to take part in the Matsushita sustainability efforts.

Clarity and transparency, however, does not necessarily mean quality. Moreover, too much information could lead to a lack of interest and understanding for the reader. Further monitoring among stakeholders regarding the actual quality of information given might provide ideas for further improvement of corporate communication skills.

Comments from the Analysts

Matsushita has undergone various stages of evolution toward the realization of sustainability. Specifically, (1) obtaining the ISO14001 certification has provided a sound foundation, (2) comprehensive management of chemical substances has formed an important step toward substitution and discontinuation of non-biodegradable compounds, and (3) cooperation with suppliers has been established.

Further efforts are required in such areas as enhanced awareness toward sustainability within the company. In particular, company-wide concerted efforts with a shared awareness are vital to real change. The basic benchmark is to realize sustainable material flows in conformity with the four System Conditions (see previous page). It is vital to reduce the volume of resources used, as well as to review the process from an upstream perspective. For example, metals that are abundant in nature can be turned into sustainable flows. However, scarce metals are problematic from a sustainability perspective and should not be "minimized," but eliminated from the production process. To realize sustainable flows of compounds, it is not enough to phase out compounds that are persistent and foreign to nature. All compounds that cannot easily be processed and assimilated in natural cycles will – if they are used in large scale by society – start to increase in concentration in nature and approach unforeseeable thresholds to unforeseeable effects. Combined with minimized use of naturally occurring substances, a policy of utilizing only sustainable flows of chemicals and compounds would direct business to true sustainability. Understanding the root causes of the environmental problems is the road to solving those problems.

Helene Lindman

HELENE LINDMAN

Environmental Analyst
The Natural Step

Aug, 2001



Comments from TNS Chairman Karl-Henrik Robert



Karl-Henrik Robert

KARL-HENRIK ROBERT
Chairman
The Natural Step

Matsushita Electric Group has a number of assets with regard to their potential of having a successful development towards tomorrow's market:

1. A history of serious and devoted social and ecological responsibility, going back to the time of their founder.
2. An understanding of the need to have visions of being a firm driven by a wider social awareness -- the good company.
3. An understanding of the need to look upstream in cause-effect chains of environmental problems and to involve suppliers in the development.
4. A number of achievements regarding concrete change in such fields as efficiency, recycling-rates, green product lines, and ISO 14001 certification.

There are also a number of issues that need to be worked on to really utilize the leverage of all the achievements.

1. The achievements, as well as the visions and plans should be put in a sustainability perspective. As it is now, the agenda seems to be run by an "improvement" strategy. This means that terms such as "minimizing" are interpreted as "minimizing as much as possible" rather than "minimizing until the company is sustainable." The rest of the suggestions for improvement will follow more or less automatically from this:
2. Current material flows and activities, that are qualitatively critical from a sustainability perspective (i.e. not only critical with regard to quantity) would be revealed with greater ease certain flows and routines that are not sustainable shouldn't only be "minimized", but phased out as the ultimate objective). The same goes for monitoring of improvements; the ultimate "benchmark" is not minimization per se. Matsushita Electric Group's vision is to be sustainable, and to be a good company that helps the rest of society to become sustainable. The conclusion from this must be drawn through more subtle measures that can be deduced from a concrete sustainability perspective:
3. Having sustainability as a benchmark, also applies to one of the most essential aspects - social sustainability. This aspect ought to be elaborated more in depth, particularly in consideration of the vision of the company's founder.
4. Finally, a sustainability perspective would allow a bolder attitude as regards to the company's future stakes. Sustainability should not only be about responsibility for improving today's activities. The attitude could be more constructive, finding new business opportunities in a world where all players are facing the same problems. How could Matsushita Electric Group enter a path, on which they would discover endless opportunities in a rapidly changing market? In what way can Matsushita's skills be utilized to help other players become sustainable?



Stockholm, a city of water and natural beauty, where The Natural Step office is located



The Natural Step office



The Natural Step Sustainability Analysis group

Konosuke Matsushita

His Thoughts on Humanity

Shinshin-an is located in the tranquil neighborhood of Nanzenji Temple at the foot of Higashiyama Mountain in Kyoto City. Against a backdrop of Higashiyama, this garden was designed by Jihei Ogawa, a renowned gardener of the Meiji era. Here, one can feel and appreciate the nature cherished by our Founder, Konosuke Matsushita. Shinshin-an is named as a seminary for seeking after truth (shinjitsu-shinri) amidst the serene surroundings.



The Founder, Konosuke Matsushita at Shinshin-an, where he inquired the truth of nature.

All things in the universe begin anew every day, as creation and growth is the law of nature.

Konosuke Matsushita believed that the law of nature underlying all things created by the power of the universal origin is not degeneration and death, but new creation and growth of everyday.

“One day, I thought to myself, where did the first human being come from? I thought hard of all possibilities and arrived at the conclusion that human beings were born from the universal origin by the power of the source. Yes, it suddenly flashed across my mind. I thought, not just human beings, but everything in the universe came into being through this power from the origin.”

“I think that all nature in the universe are put into place by the power of the universal origin. That’s the true nature of the universe. In short, this power of the origin created nature all around us, rendering it with unlimited laws of natural movement.”

“There is one rule. It’s called the law of nature. And, it has the power to create and develop all things in the universe.”

Human beings are given the power of realizing peace and happiness through physical and spiritual prosperity.

In 1946, Konosuke Matsushita established the PHP* Institute for collective wisdom on measures to realize a physically and spiritually rich and peaceful society in which people live in happiness. With Shinshin-an as the base, he devoted himself to this study along with young researchers. Themes explored extended beyond management and economy to politics, education, culture, and to the true nature of human beings, nature, and the universe.

“Ultimately, it comes down to the idea that all things have life, and the way life is assigned is different for every being. This distinction makes everything what they are.”

“In other words, nature creates all, and provides all with one special character. It gives a different mind to all. A different form to all.”

“So, it means that, by knowing one’s given life through a clear state of mind and making the most of one’s special character in conformity with the law of the universe, one is rewarded with abundant prosperity and happiness.”

“It can be said that human beings are the king of all nature. That is, while adapting themselves to the law of nature, human beings develop this great power hidden in the universe, and while seeking the true nature of all things and making use of them, human beings are able to bring forth genuine physical and spiritual prosperity. Human beings are bestowed with such special quality as their destiny.”

Konosuke Matsushita considered “life, family, companies, nations, all doings planned by human beings to be management,” and this management philosophy was backed by such meditation on the true nature of human beings.

*PHP: Peace and Happiness through Prosperity



Konosuke Matsushita exchanging ideas with PHP researchers at Shinshin-an.

The true mission of Matsushita Electric is to build an earthly paradise.

More than fifty years of experience in directing the operations of his company convinced Konosuke Matsushita that "successful corporate management depends upon the establishment of a sound management philosophy." What is a management philosophy? Basically, it is a set of beliefs and practices, taken together, that gives a coherent answer to the following questions:

"What is the reason for a company's existence?"

"What is the goal of its operations?"

"What methods does it employ to achieve its goals?"

A sound management philosophy not only helps to attract the technology, capital, and most importantly the people that a company must have, but it also enables these resources to manifest their true worth. A sound management philosophy breathes dynamic life and spirit into a company.

On May 5, 1932, Konosuke Matsushita assembled all his staff at the Osaka Central Electric Club auditorium and announced the mission of his company and the "250-Year Plan" for fulfilling that mission.

"Only after there is a limitless supply of material goods as well as spiritual peace of mind will man achieve true happiness. I believe that here is the manufacturer's true mission and the mission of Matsushita Electric. I would like you all to keep in mind that the true mission of Matsushita Electric is to produce an inexhaustible supply of goods, thus creating peace and prosperity throughout the land. To this end, 250 years from today on will be devoted to fulfilling this mission."

He explained to all his staff, "Though we may not be able to achieve great happiness for all now, we will in 250 years from now. As we cannot live until 250 years later, it will be divided into 10 periods. We will work on the first 25 years, then the next generation will take on the subsequent 25 years. By repeating this 10 times, 250 years from now, Japan would become a paradise of abundance and prosperity, and so would the rest of the world."



Foundation Day ceremony held at the Osaka Central Electric Club

A Limitless Number of Ways.

There is really no limit at all to what you can do. Just maintain the determination to cultivate your potential, and a boundless number of ways will be open to you. There are innumerable teachers out there to assist you.

Having an experienced colleague who is always willing to guide you is a real advantage. However, not having such a guide is not necessarily a disadvantage. It can, in fact, be a great strength. It forces you to find your own vision. Once you do that, you will realize that the possibilities are endless.



Calligraphy by Konosuke Matsushita "Michi (Way)"

The making of...

Yasuhiro Asai (Photographer)
Chie Ebata (Illustrator)
Junya Fukuzumi (Cre-en Co., Ltd.)
Tatsuya Hamasako (Y's Factory)
Yasuko Hiramatsu (Cre-en Co., Ltd.)
Atsushi Honda (Studio Esquisse)
Shuhei Kawakami (Kawakami Shuhei Office)
Yukiko Kokudo (Cre-en Co., Ltd.)
Tomohiro Kugai (Heartway Co., Ltd.)
Noriko Maehama (Studio Esquisse)
Keiko Minami (Aquarius)
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Afterword...

Konosuke Matsushita was seriously determined to realize a paradise over a span of 250 years. What is the reason for a company's existence? My mind wonders back to our origin. (Arai)

Behind various environmental activities, there are people who support and faithfully undertake these tasks. I hoped to convey their efforts directly to the readers of this Environmental Report, making it a bridge between people. (Iida)

With a vision of promising a bright world for our children even 100 years from now, I hope this Environmental Report serves as a key to seeking our social responsibility and to changing companies and society together. (Kida)

What are the environmental activities required of a company? How far can we go? These are the questions I reconsidered while working on this report. I will strive to make Matsushita Electric a company always at its best. (Kayano)



Members of the Corporate Environmental Affairs Division

Published by Nobuhisa Ito, Director, Corporate Environmental Affairs Division

Please send comments and inquiries regarding this report to below.

Planning Group, Corporate Environmental Affairs Division
Matsushita Electric Industrial Co., Ltd.
(Yoshiaki Arai, Shinichi Iida, Yuko Kida, Satoshi Kayano)
1006 Kadoma, Kadoma City, Osaka 571-8501, Japan
Tel: +81-6-6908-1243 Fax: +81-6-6909-1163
E-mail: PEX00131@pas.mei.co.jp
<http://www.matsushita.co.jp/environment/en/>

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