

National/Panasonic

Environmental
Report
2000

Matsushita Electric Group

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Definition of Marks



•Internet mark
Refer to Internet website for more detailed explanation



•Target mark
Targets being pursued in current FY 2000



•Commendation mark
Products and operation sites commended by external organizations in FY 1999

Editorial Policy

The Environmental Report 2000 is compiled based on the business performance of the Matsushita Electric Group companies in FY 1999 (April 1, 1999 to March 31, 2000), with the inclusion of some activities after April 1, 2000 and future forecast.

Due to our one-year business cycle, the report is published once a year. Business results and environmental performance data are collected from operation sites at the end of March and analyzed by June, allowing the publication of the report at the end of September. Future reports will also be published yearly.

In preparing for this report, we have studied various guidelines for environmental reports and this year, we tried to refer to GRI* guidelines issued in June 2000, covering social and economical aspects in addition to environmental activities. Although we have adopted only a few items from the GRI guidelines, we intend to incorporate the information-rich guidelines further into our future activities.

The report is divided into two parts: the Environmental Report and the Social Report, with emphasis on environmentally conscious activities including the development of Green Products (environmentally conscious products) and Clean Factories (pollutant-free factories).

URL is provided to give further information on related topics and Target Mark to highlight objectives in each section.

This report marks our first attempt to issue a sustainability report which pursues sustainability of a company. We invite you to share your opinion with us so that we can make further improvement to our environmental activities and to the content of these reports.

December 2000

GRI*

It is the abbreviation for Global Reporting Initiative, an international organization established in fall 1997 to develop global guidelines for Sustainability Reporting by companies. The organization is supported by the United Nations Environment Programme (UNEP) and World Business Council for Sustainable Development (WBCSD), with members that include corporations, NGOs, consultants, accounting firms, and business entities all over the world. GRI promotes sustainability reporting with emphasis on the interrelationship between environmental, social and economic aspects.

Newly Added or Improved Items to the Environmental Report 2000

1. Environmental concept of chief environmental officer P5 ~ P6
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13. Disclosure of comprehensive zero-emission plan for manufacturing sites P33 ~ P38
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The Reporting Scope

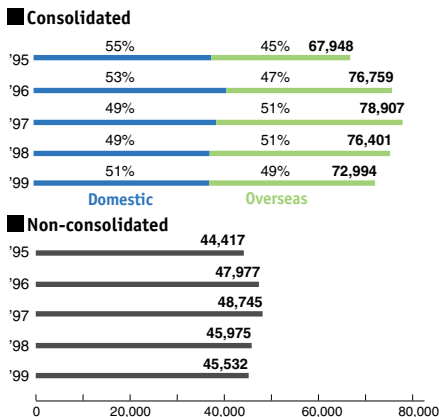
This report covers Matsushita Electric Industrial Co., Ltd., its 10 main affiliated companies, and their domestic and overseas subsidiaries. Although most of these companies are consolidated companies, there are some (such as the Victor Company of Japan, Ltd.) that are not under our environmental management.

- Matsushita Electric Industrial Co., Ltd.
- Matsushita Electronics Corporation
- 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, Inc.
- Matsushita Kotobuki Electronics Industries, Ltd.

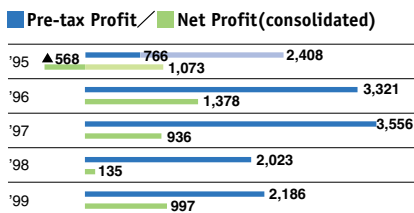
COMPANY OUTLINE (Consolidated)

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
 (appointed June 29, 2000)

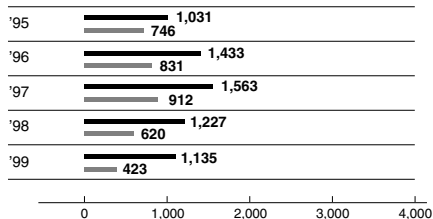
Net Sales (¥100 million)



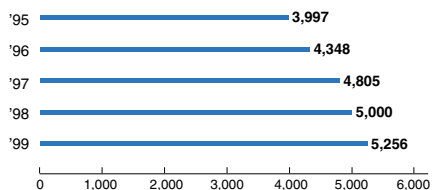
Profit (¥100 million)



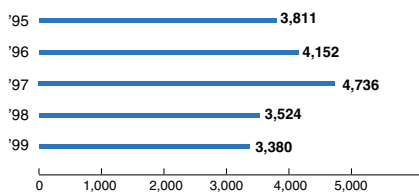
Ordinary Profit / Net Profit (non-consolidated)



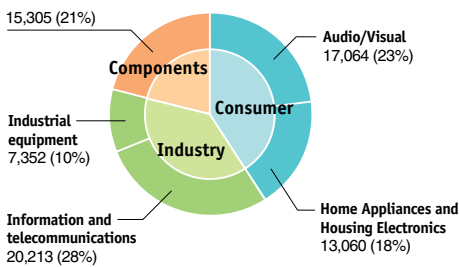
R&D Costs (¥100 million)



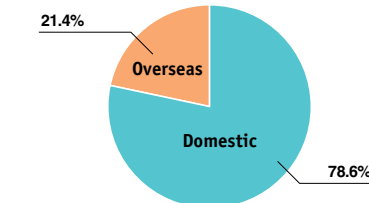
Capital Investment (¥100 million)



1999 Net Sales per Product Category (¥100 million)

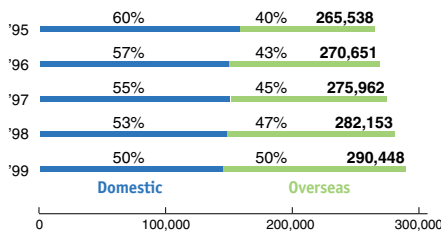


1999 Domestic/Overseas Production Ratios



*In the Environmental Report 1999, only Matsushita Electric's domestic and overseas production ratios were used. Starting with this year, the consolidated production ratios are used, accounting for the 8% difference.

Number of Employees (Person)



*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.
 •In FY 1995, Matsushita transferred 80% of its holdings in MCA, Inc. (now Universal Studios, Co., Ltd.) to Seagram, Inc. In the consolidated accounting of this transfer, the company recorded a ¥164.2 billion one-time currency exchange loss.
 •As of March 31, 2000, companies included in the consolidated settlements of accounts (parent and subsidiaries) totaled 335 companies, and the affiliates (where the equity method applies) totaled 54 companies.

Investor Information <http://www.matsushita.co.jp/ir/index/html>
 Company Outline <http://www.matsushita.co.jp/corp/company/>

History of Environmental Efforts

- 1970 Launched Pollution Survey Committee
- 1972 Established Environmental Management Office
- 1988 Launched CFCs Countermeasures Committee
- 1989 Established Environmental Protection Promotion Office (an outgrowth of the Environmental Management Office)
- 1991 Established Matsushita Environmental Charter
 Established Environmental R&D Center
 Adopted Matsushita Product Assessment
- 1993 Formulated Matsushita Environmental Protection Promotion Action Plan (Environmental Voluntary Plan)
 Commenced Matsushita Group environmental auditing
- 1996 Formulated ISO 14001 Certification Plan
- 1997 Established Corporate Environmental Affairs Division (CEAD)
 Started Environmental Conference
- 1998 Commenced Love the Earth Citizens' Campaign
 Established Recycling Business Promotion Office
- 1999 Started Green Procurement
- 2000 Established Clean Factories Promotion Committee
 Launched Lead-free Soldering Project

Overview of ISO 14001 Certification (As of March 31, 2000)

Sites
JAPAN (101 Sites)
AVC Company, Matsushita Electric Industrial Co., Ltd.
Television & Network Systems Division (Ibaraki Site)
Television & Network System Division (Utsunomiya Site)
Fujisawa Site
AV Kadoma
AVC Devices Division (Yamagata)
AVC Devices Division (Sendai)
Audio Division (Fukushima)
Video Equipment Division (Okayama)
Recording Media Division (Tsuyama Site)
Personal Computer Division (Kobe Site)
Personal Computer Division (Moriguchi Site)
Home Appliance & Housing Electronics Company, Matsushita Electric Industrial Co., Ltd.
Washing Machine Division
Vacuum Cleaner Division
Kitchen Appliance Division
Rice Cooker Division
Electric Iron Division
Nara Site
Kitchen and Bath Group
Air-Conditioner Company, Matsushita Electric Industrial Co., Ltd.
Kusatsu Site
Kofu Plant
Motor Company, Matsushita Electric Industrial Co., Ltd.
Daito Site
Takefu Site
Yonago Site
Matsusaka Precision Co., Ltd.
Matsushita Electric Industrial Co., Ltd.
Electronic Circuit Capacitor Division / Matsue Matsushita Electric Co., Ltd.
Liquid Crystal Display Division (Ishikawa Site)
Corporate Production Engineering Division
Manufacturing Equipment Division (Kofu)
National Bicycle Industrial Co., Ltd.
Matsushita Electronics Corporation
Takatsuki Site
Kyoto Site (Nagaoka / Kyoto Research Center)
Arai Site
Toyama Site (Uozu / Tonami)
Okayama Site
Utsunomiya Site
Matsushita Electronic Instruments Corporation (Takatsuki Factory)
Matsushita Electronic Instruments Corporation (Utsunomiya Site)
West Electronic Co., Ltd.
Toyo Dempa Co., Ltd., Kyoto Plant
Toyo Dempa Co., Ltd., Kameoka Plant
Matsushita Communication Industrial Co., Ltd.
Tsunashima
Saedeo
Hanamaki
Shizuoka
Matsumoto
Shirakawa
Matsushita Electronic Components Co., Ltd.
Kadoma Site
Yashiro Site
Capacitor Division
Matsusaka Site
High Frequency Products Division (Kiyosu)
High Frequency Products Division (Gifu)
High Frequency Products Division (Motomiya)
Hokkaido Matsushita Electric Co., Ltd.
Fukui Matsushita Electric Co., Ltd.
Wakasa Matsushita Electric Co., Ltd.
Tajima Matsushita Electric Co., Ltd.
Tsuyama Matsushita Electric Co., Ltd.
Yamaguchi Matsushita Electric Co., Ltd.
Matsushita Nitto Electric Co., Ltd.
Matsushita Industrial Equipment Co., Ltd.
Toyonaka Site
Toyama Matsushita Electric Co., Ltd.

Sites
Kadoma Site
Kaga Site
Matsushita Battery Industrial Co., Ltd.
Moriguchi Site A Block
Moriguchi Site B Block
Chigasaki Site
Hamanako Site
Wakayama Site
Matsushita Refrigeration Company
Osaka Site
Refrigerator Division, Kusatsu Business Unit
Fujisawa Site
Food Solution Business Group
Cooling Device Division
Ayama Site
Kyushu Matsushita Electric Co., Ltd.
Headquarters Group
Factory Automation Division
Telecom Division ,Chikugo Plant
Telecom Division ,Nagasaki Plant
Saga Site
Devices and Components Division Taimei Plant
Kikusui Site
Devices and Components Division Oita Plant
Miyazaki Matsushita Electric Co., Ltd.
Kagoshima Matsushita Electric Co., Ltd.
Matsushita Seiko Co., Ltd.
Fujisawa Division
Osaka Division
Kasugai East Division
Kasugai West Division
Matsushita Graphic Communication Systems, Inc.
Shonan Plant
Nagano Plant
Niigata Plant
Utsunomiya Plant
Matsushita Kotobuki Electronics Industries, Ltd.
Saijo Office
Matsuyama Office
Sakaide Office
Oosu Office
Wakimachi Office
Ipponmatsu Office
Kagawa Matsushita Kotobuki Electronics Industries, Ltd.
Inai Electronics Co., Ltd.
ASIA/OSEANIA (47 sites)
Matsushita Refrigeration Industries (S) Pte. Ltd.
Matsushita Electronics (S) Pte. Ltd.
Matsushita Electric Motor (S) Pte. Ltd.
Matsushita Electronic Components (S) Pte. Ltd.
Matsushita Denshi (S) Pte. Ltd.
Matsushita Kotobuki Electronics Industries Singapore Pte. Ltd.
Matsushita Graphic Communication Systems (S) Pte. Ltd.
Matsushita Technology (S) Pte. Ltd.
Matsushita Electric Co., (M) Bhd. SA1
Matsushita Electric Co., (M) Bhd. SA2
Matsushita Electric Co., (M) Bhd. BNG
Matsushita Electric Co., (M) Bhd. PK
Matsushita Industrial Corporation Sdn. Bhd.
Matsushita Air-Conditioning Corporation Sdn. Bhd.
Matsushita Compressor and Motor Sdn. Bhd. 1
Matsushita Compressor and Motor Sdn. Bhd. 2
Matsushita Compressor and Motor Sdn. Bhd. 3
Matsushita Electronic Components (M) Sdn. Bhd.
Matsushita Electronic Devices (M) Sdn. Bhd.
Kyushu Matsushita Electric (Malaysia) Sdn. Bhd.
Matsushita Television Co., (Malaysia) Sdn. Bhd.
Matsushita Electronic Motor (Malaysia) Sdn. Bhd.
Matsushita Precision Capacitor (M) Sdn. Bhd.
Matsushita Foundry Industries Sdn. Bhd.
Matsushita Refrigeration Industries (M) Sdn. Bhd.

Sites
Toyodempa Malaysia Sdn. Bhd.
Matsushita Audio Video (M) Sdn. Bhd.
Matsushita Battery (THAILAND) Co., Ltd.
Matsushita Electronic Components (THAILAND) Co., Ltd.
Matsushita Communication Industrial (THAILAND) Co., Ltd.
Matsushita Seiko (THAILAND) Co., Ltd.
Kyushu Matsushita Electric (THAILAND) Co., Ltd.
Matsushita Industrial Equipment (THAILAND) Co., Ltd.
Matsushita Electric AVC (THAILAND) Co., Ltd.
Matsushita Technology (THAILAND) Co., Ltd.
A.P. National Co., Ltd.
Matsushita Refrigeration Company (THAILAND) Ltd.
Matsushita Electric Philippines Corporation
Matsushita Business Machine Corporation of the Philippines
Matsushita Business Machine Corporation of the Philippines (Santa Rosa)
Matsushita Communication Industrial Corporation of the Philippines
P.T. National Gobel
P.T. Matsushita Gobel Battery Industry
P.T. Matsushita Kotobuki Electronics Industries Indonesia
PT.Batam Matsushita Battery
PT.Panasonic Gobel Electronic Components
Matsushita Electric Co., (Australia) Pty. Ltd.
Indo National Ltd.
Indo Matsushita Carbon Co., Ltd.
Lakhanpal National Ltd.
Indo Matsushita Appliances Co., Ltd.
Matsushita Electric (Taiwan) Co., Ltd.
Panasonic Computer (Taiwan) Co., Ltd.
Taimatsu Industrial Co., Ltd.
PT.Matsushita Lighting Indonesia
CHINA (33 sites)
Beijing • Matsushita Color CRT Co., Ltd.
Hangzhou Matsushita Home Appliance Co., Ltd.
Beijing Matsushita Communication Equipment Co., Ltd.
Matsushita-Wanbao (Guangzhou) Electric Iron Co., Ltd.
Matsushita-Wanbao (Guangzhou) Air-Conditioner Co., Ltd.
Matsushita-Wanbao (Guangzhou) Compressor Co., Ltd.
Shunde Matsushita Seiko Co., Ltd.
Beijing Matsushita Electronic Components Co., Ltd.
Shanghai Matsushita Battery Co., Ltd.
Qingdao Matsushita Electronic Components Co., Ltd.
China Hualu Matsushita AVC Co., Ltd.
Tangshan Matsushita Industrial Equipment Co., Ltd.
Shanghai Matsushita Microwave Oven Co., Ltd.
Shanghai Matsushita Electronic Instrument Co., Ltd.
Shenyang Matsushita Storage Battery Co., Ltd.
Hangzhou Matsushita Motor Co., Ltd.
Shanghai Matsushita Semiconductor Co., Ltd.
Dalian Matsushita Communication Industrial Co., Ltd.
Beijing Matsushita Precision Capacitor Co., Ltd.
Wuxi Matsushita Refrigeration Co., Ltd.
Xinhui Matsushita Industrial Equipment Co., Ltd.
Anyang Matsushita Carbon Co., Ltd.
Tianjin Matsushita Electronic Components Co., Ltd.
Suzhou Matsushita Communication Industrial Co., Ltd.
Shangdong Matsushita Television and Visual Co., Ltd.
Hangzhou Matsushita Gas Appliances Co., Ltd.
Beijing Great Wall Matsushita Seiko Airconditioning Equipment Co., Ltd.
Wuxi Matsushita Refrigeration Compressor Co., Ltd.
Zuhai Matsushita Electric Motor Co., Ltd.
Hangzhou Matsushita Kitchen Appliances Co.,Ltd
Matsushita Audio (Xiamen) Co., Ltd.
Zuhai Matsushita Battery Co., Ltd.
Matsushita Seiko Hong Kong International Manufacturing Co., Ltd.
Matsushita Electronic Components (H.K.) Co., Ltd.
NORTH AMERICA (23 sites)
Matsushita Television & Network Systems Company of America
Matsushita Television & Network Systems de Baja California S.A. de C.V.
American Matsushita Electronics Company
Matsushita Electric of Puerto Rico, Inc.

Sites
Matsushita Compressor Corporation of America
Matsushita Home Appliance Corporation of America
Matsushita Communications Industrial of U.S.A.
Matsushita Communication Industrial de Mexico S.A. de C.V.
Matsushita Electronic Components Corporation of America/td-
Matsushita Electronic Components Corporation of America
Matsushita Electronic Components Corporation of America
Matsushita Electronic Components de Baja California, S.A. de C.V.
Matsushita Ultra-Tech. Battery Corporation
Matsushita Battery Industrial Corporation of America 1
Matsushita Battery Industrial Corporation of America 2
Matsushita Battery Industrial Corporation of America 3
Matsushita Battery Industrial de Baja California, S.A. de C.V.
Matsushita Refrigeration Company of America
Kyushu Matsushita Electric Corporation of America
Matsushita Kotobuki Electronics Industries of America Inc.
Matsushita Electric Motor Corporation of America
Matsushita Technology Corporation of America
Panasonic Disk Services Corporation
Matsushita Electronic Components de Tamaulipas, S.A. de C.V.
EUROPE (15 sites)
Matsushita Electric (U.K.) Ltd.
Kyushu Matsushita Electric (U.K.) Ltd.
Matsushita Communication Industrial UK Ltd.
Matsushita Electronic Components (U.K.) Ltd.
Matsushita Electronic Magnetron Corporation (U.K.) Ltd.
Matsushita Graphic Communication Systems (U.K.) Ltd.
Matsushita Industrial Equipment Co. (U.K.) Ltd.
Matsushita Kotobuki Electronics Industries Ireland Ltd.
Matsushita Audio Video (Deutschland) GmbH
Matsushita Electronic Components (Europe) GmbH
Matsushita Communication Deutschland GmbH
Matsushita Business Machine (Europe) GmbH
Matsushita Electronics (Europe) GmbH
Matsushita Electric Espana S.A.
Matsushita Television Central Europe s.r.o.
LATIN AMERICA (6 sites)
Panasonic de Mexico, S.A. de C.V.
Panasonic Centroamericana S.A.
Panasonic Electric Industrial de Peru S.A.
Panasonic do Brasil Ltda.
Panasonic de Amazonia S.A.
Panasonic Componentes Electronicos do Brasil Ltda.
NONMANUFACTURING (18 sites)
Matsushita Research Institute Tokyo, Inc.
Matsushita Electric Industrial Co., Ltd., Tokyo Branch
Matsushita Electric Industrial Co., Ltd., Head Office
Matsushita Electric Industrial Co., Ltd., Corporate R&D Division (Keihanna Site)
Matsushita Electric Industrial Co., Ltd., Corporate R&D Division (Moriguchi Site)
Matsushita Electric Industrial Co., Ltd., (OBP Twin 21 N Tower)
Matsushita Electric Industrial Co., Ltd., (Overseas Division)
Matsushita Electric Industrial Co., Ltd., (Multimedia Center)
Matsushita Marketing Training Institute Inc.
Matsushita Electric Industrial Co., Ltd., Corporate R&D Division (Nishikadoma site)
Matsushita Science Center of Industrial Hygiene
Matsushita Air-Conditioning R&D Centre Sdn. Bhd.
Panasonic Singapore Laboratories Pte. Ltd.
Asia Matsushita Electric (S) Pte.Ltd.
A.P.National Sales Co., Ltd.
Siew-National Co.,Ltd.
Matsushita Compressor & Motor R&D Center Sdn. Bhd.
Matsushita Electric Corporation of America
THIRD-SECTOR COMPANIES (2 sites)
Kibi Matsushita Co., Ltd.
Katano Matsushita Co., Ltd.
Note: Regions are divided based on Matsushita's EMS.

Aiming at Coexistence with the Global Environment

The 20th century is a manifestation of mankind's pursuit for affluence and convenience, highlighted by technological advancements and cultural achievements in every facet of life. The management objective of the Matsushita Electric Group is to enhance the quality of life and to help advance the world's cultures. We are committed to making products that will bring peace and happiness to mankind.

Mankind's pursuit for a better life, unfortunately, has resulted in compromising the nature's wonderful ecosystem. The 1992 Earth Summit in Rio de Janeiro has instilled in us a new sense of value for the new century, prompting us to redefine the meaning of "affluence". Now, in the beginning of the 21st century, every nation is working hard to strike a balance between economic growth and environmental preservation.

In 1991, we established the Matsushita Environmental Charter stating that we are "Fully aware that humankind has a responsibility to respect and preserve the delicate balance of nature," that "we at Matsushita acknowledge our obligation to maintain and nurture the ecology of this planet," and "we pledge ourselves to the prudent, sustainable use of the earth's resources and the protection of the natural environment..." Since then, we have operated under the principle of "coexistence with the global environment," and we have established environmental management systems at operation sites to enforce environmental activities.

How can a society enjoy sustainable growth while maintaining its natural ecosystem? And what businesses can do to make it a reality? The aim of Matsushita is to seek true "coexistence with the global environment", and we would like to join hands with you in realizing that goal.

This environmental report is an important tool for us to keep you informed of the progress of our environmental activities. We hope it will help you understand our approach to environmental preservation and the various activities we are undertaking in this area. We invite you to share your opinion with us so that we can bring improvement to our future activities.



President
Matsushita Electric Industrial Co., Ltd.

Kuniō Nakamura

Matsushita Electric Group's Environmental Concepts

Reasons for Tackling Environmental Issues

Businesses have contributed immensely to the society by improving the quality of life. However, from an environmental point of view, they are also guilty of exerting negative impact on nature in the course of mass-producing convenient and inexpensive goods.

As we are approaching the 21st century, it goes without saying that any trust-worthy company shall seek coexistence with the global environment. To gain the trust of the society, a company must show that "it is honest" and that "it will face issues with sincerity and modesty." We believe the environmental report is one of the tools to gain that trust.

Meaning of Caring for environment

To a certain extent, the "environment" is like "life" in that an environmental problem signifies "a threat to life." Perhaps, it is high time that we take a fundamental look at our materialistic and economic affluence, to admit that human activities are destroying our wonderful ecosystem. The fact that we are accustomed to convenience may make it difficult for us to give up the convenient lifestyle suddenly. It will take time and education to cultivate awareness for the environment. It is important that we keep in mind the gratitude we shall have for nature's blessings.

Rediscovering Traditional Approach to Product-making

Japan is a country with limited natural resources and Japanese excel in making the



best use of every material. This is really what environmental technology is in a nutshell. For example, when Japanese people make Japanese swords they exercise a ritual to thank gods and show their respect for the nature. We shall return to that basic principle of "respecting and maximizing the use of limited resources."

Product making Requires Sensitivity Nurtured Only by the Nature

I grew up in the nature-rich suburbs of Matsuyama in Shikoku, where I could ride my bicycle to a nearby river to catch fish or dive into the transparent sea to pick shellfish. I remember that it was in the late 1950s that red flags started appearing, forbidding residents to get into the water contaminated by agricultural chemicals.

Being raised on a farm gave me a natural penchant for clean air, pure water and greenery. I believe that by getting in touch with the nature, we can develop a rich sense of gentleness and respect for living things, strength and flexible thinking. People with such sensitivity can put their hearts in the things they make— with care and without waste.

Making Electronic Products Like Growing Organic Vegetables

If we realize that mankind is also part of the nature, protecting the environment is only sensible. Nature's activities produce nothing useless that can be called waste; likewise by returning man-made "waste" to the natural cycle, we can be in coexistence with the environment. To do so, we must look at our businesses in a different light. We must adjust the production level so that the earth can regain its own recycling ability. Even with higher price tag, we have to deliver our products which can maintain true customer satisfaction and ask customers to use our products for long time with care.

I believe electronic products shall be made in the same way as organic vegetables, in that customers are assured that no substances harmful to the ecosystem is used. The priority for us at the moment is to develop Green Products (environmentally conscious products) and to establish Clean Factories (pollutant-free factories). It is a big management challenge, and it will mark our first step in becoming a company that operates in harmony with the global environment.



Kazuhiro Mori, Managing Director,
Corporate Environmental Affairs Division,
Matsushita Electric Industrial Co., Ltd.

Promoting Eco-life for Each Employee

It is the sense of impending crisis and problem-awareness that drive environmental activities at companies, in homes and local communities. It is important for everyone to participate in the Love the Earth Citizens' Campaign. We support employees and their families to take active participation because the accumulated effort of each of us will create a big impact on the society. Our founder Mr. Konosuke Matsushita once said, "Matsushita is a company that develops people before making products." We will try our best to educate employees and make environmentally conscious products so that we can become an environmentally advanced company in the 21st century.



Photo taken at a visit to Yakushima Island,
a world natural heritage.

"Getting in touch with Mother Nature sharpened my sensitivity."

The objective of the Matsushita Electric Industrial Co., Ltd. is that “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.” Based on this management philosophy, we drew up the Matsushita Environmental Charter (basic policy for environmental management) on June 5, 1991. Environmental guidelines and standards that promote this philosophy have been established for all business units around the world to help them carry out environmental preservation activities.

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 our purpose and raison d'être as an organization and is the basis for all our business activities. We have operated with this objective since our founder, Mr. Konosuke Matsushita, established it in 1929. Today, with the environment, society, and economy entering into a big transition, we have set our goal at becoming a company that can contribute to the development of a sustainable society, and at opening up a new era operating in line with this management objective.

The Matsushita Environmental Charter (Basic policy for environmental management)

Environmental Statement

Fully aware that humankind has a 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 beliefs. 1. The natural law that without prosperity for all things on earth, there will not be true development and prosperity, and 2. The fulfillment of social responsibility based on the awareness that humankind has the obligation to make the best use of things in a kind and fair manner.

Code of Conduct

1 Social Responsibility

With the recognition of the importance of environmental protection and prevention of pollution, each operation site shall fulfill its social responsibility through business operations, which consider/serve the demands of the earth, communities, and customers by sustaining and improving the environmental protection activities of itself and its employees.

2 Establishment and Improvement of Environmental Management Systems

Each operation site shall establish and maintain an environmental management system, designed to enhance environmental performance and foster continual improvement, which includes an appropriate management structure to carry out each element of this environmental control policy.

3 Environmental Targets and Objectives

As a part of its environmental management system, each operation site shall assess the environmental aspects and identify potential environmental impacts associated with its activities, products, and services, and establish appropriate targets and objectives consistent with this policy.

4 Compliance with Legal Requirements

As a part of its environmental management system, each operation site in each country shall establish and observe individual standards that comply with all applicable environmental legal requirements governing its activities, products, and services, including laws, regulations, and international treaties and protocols effective in the country where the operation sites are located.

5 Environmental Management Program

In order to implement its environmental management system, each operation site shall establish an environmental management program, supported by appropriate resources

*The Code of Conduct was formulated on June 5, 1991 and revised on March 31, 1998.

that include the necessary procedures and practices to ensure compliance and achieve environmental targets and objectives, the assignment of responsibilities and lines of authority, education and training, documentation, and other appropriate elements. Each program's procedures and practices shall ensure compliance with the Matsushita environmental protection and pollution control standards for developing, manufacturing, and discarding products.

6 Environmental Assessment, Auditing and Management Review and Correction

Each operation site shall establish a process for environmental assessment, including periodic auditing, to evaluate implementation of its environmental management system, with particular emphasis on compliance with its individual standards, applicable environmental legal requirements, and procedures and practices, and adopt an appropriate management review system to monitor compliance performance and trends, and develop necessary corrective actions that foster continual improvement. Also, an appropriate environmental assessment shall be performed before acquiring any real estate.

7 Education and Training

The education and training components of each environmental management program shall upgrade employee environmental awareness and instruct employees concerning the proper performance of procedures and practices to ensure compliance and achieve environmental targets and objectives.

8 Information Disclosure

Each operation site shall provide to the communities in which it operates and to the general public a description of its environmental policy and this environmental control policy.

Environmental Guidelines

Basic regulations for each company in the Group

Divisional Environmental Management Manuals (environmental management rules)

Basic regulations for each operation site

First Step to Sustainable Corporate Activities

Matsushita Electric Group's Relationship with Society and the Environment (Ecosystem)

What really matters to a company is its relationship with the society and the ecosystem because it operates within their context. Its activities are meaningful only if they are carried out in harmony with mankind and other living things.

In 1972, we set up the Environmental Management Office at our headquarters and expanded our environmental activities. The purpose of these activities at the time was mainly for the prevention of pollution in local areas. As we entered into the 1990s, social consciousness for the environment increased, and there was great demand from the society for us to incorporate environmental measures into business activities. In response, we drew up the Matsushita Environmental Charter in 1991 and established environmental management systems at all Operating Units, aiming to achieve coexistence with the environment. Although various efforts have been made, we must admit that our business activities still exert great burden on the environment.

Is it possible for a society to maintain a healthy ecosystem while conducting business activities and enjoying continual growth? If possible, how should the society go about it? When a company commits itself to the environmental cause, it is important for it to clarify not just the role of its environmental division, but also the role of all divisions in the company. Above all, we need to gather the wisdom of everyone to find the answers to these questions.

We are presently gathering information from various divisions so that we can have a better understanding of the relationship between the activities of the Matsushita Electric Group, the society and the ecosystem. Based on the findings, we will define our future role and set up specific goals for our activities. In this sense, our challenge for a sustainable business operation has just begun. We will try our best to make the efforts fruitful.

Economic and Social Missions of a Sustainable Company

Since our inauguration in 1918, we have grown into a global company employing 290,000 people worldwide. We purchase materials from over 6000 companies in Japan and market various products and services including household electric appliances, industrial/information equipment and electronic components, etc. to 170 countries in the world, with sales volumes reaching 7 trillion yen per year.

About 50% of our sales and 21% of production are carried out in foreign countries. While fulfilling our business and employment obligations, we also make efforts to reduce the con-

sumption of energy and resources, as well as cut waste and emissions at various stages of the production in Japan and overseas.

We must maintain our contribution to the society by paying taxes to the government of the country where the operation site is located, and participating in social welfare and voluntary activities. We, as a company, must continue to search for our future direction while maintaining communication with all interest groups including the stockholders, customers, local communities, suppliers, government offices, local authorities, the mass media, employees, etc.

Grasping Current Input/Output and Working Towards Zero Emissions

We utilize various resources from the earth (including also people, land, money, information, etc.) to carry out business activities, which are the processing and sales of products. The earth's limited resources are used when we purchase materials and components; energy, water and chemical substances are used for processing; energy is used when products are delivered and used by customers; and finally, waste and emissions are discharged from various stages of the products' life cycles.

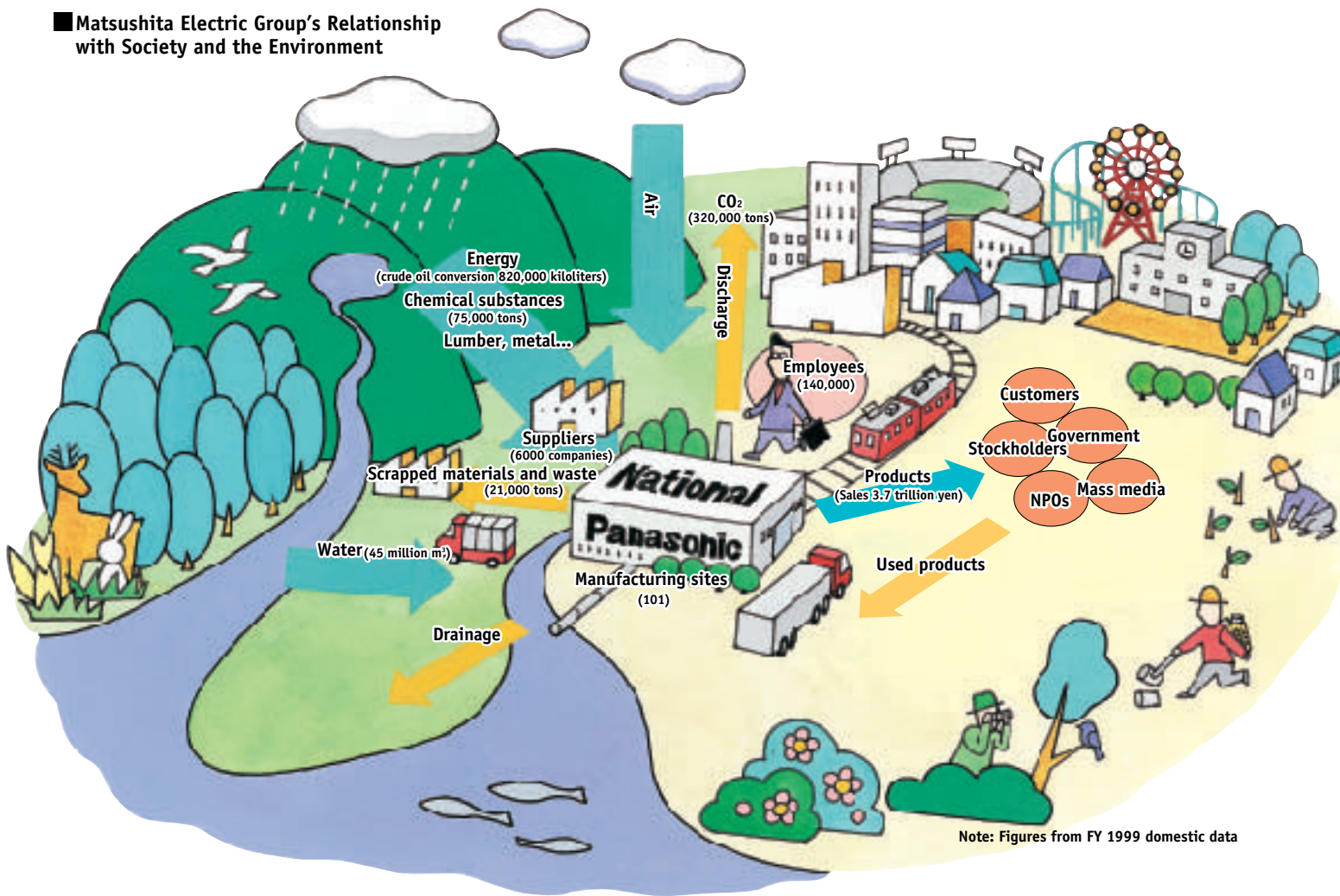
According to our estimates, energy consumed by our company is about 0.1% of the energy consumed by the whole nation, and energy consumed by customers in using our products

accounts for 1-2% of that of the whole nation.

Furthermore, used products are discarded increasingly every year. Among the four main product categories (television, refrigerator, air conditioner, washing machine) that account for 0.1% of the waste volume in Japan, it is not difficult to guess the share of our products.

For a company that can have such a big environmental impact, it is one of our social responsibilities to obtain thorough knowledge of our input/output volumes, and to reduce the environmental impact as much as possible through various measures.

Matsushita Electric Group's Relationship with Society and the Environment



Matsushita Electric Group's Main Challenges at Present

Although all our production facilities have acquired ISO 14001 certification (see p. 13), we are making efforts to improve environmental performance (results of environmental activities) under the current framework. As a manufacturer, our first goal is to minimize the environmental impact at every stage of production and to recycle used products. We believe it is important to initiate change into homes and societies starting with our employees and their families.

Generally speaking, environmental activities exert a cost burden on a company. Today, with the tightening of environmental laws on a global level, the cost further increases. However, businesses have on their side the market competitive power. If a company can find a way to shoulder environmental costs that have been placed

on the society and ecosystem heretofore in a more economical way, it will give great benefits to the society and the ecosystem. We adopt environmental accounting as the tool to enable us take proactive environmental measures that will bring benefits to the society, the ecosystem, and the company.

We appreciate your support in helping us play an active role in realizing a sustainable society that enjoys continual growth. We will devote our utmost effort to pursue this goal.

Main Challenges



Highlights of FY 1999 Environmental Activities

Among the environmental activities of FY 1999 (April 1999-March 2000), we selected five main themes and they are summarized below.

HIGHLIGHT 1999

Developing Green Products (environmentally conscious products)

Making Products with Less Environmental Impact Throughout Life Cycle

Our products, ranging from household electric appliances to components, devices, and industrial equipment, exert all kinds of impact on the environment. To help realize a sustainable society that enjoys continual growth, as a manufacturer, we must make the reduction of environmental impact throughout products' life cycles our top priority. To that end, we have strengthened and accelerated our development of Green Products.

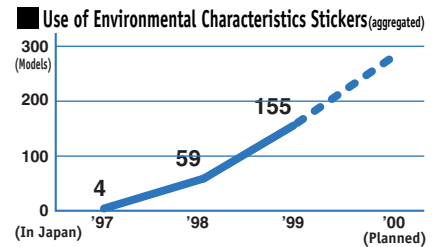
CLEAN Products Using No Regulated Chemical Substances

In addition to launching four products and 13 models made with lead-free solder, we also engaged in the development of electric wires and plastics such as polyvinyl chloride resin that contain no halogen compounds. In September 1999, we launched the world's first wide screen television that does not contain halogen compounds in its low-voltage electric wire, cabinet, back cover, and some of printed circuit boards.



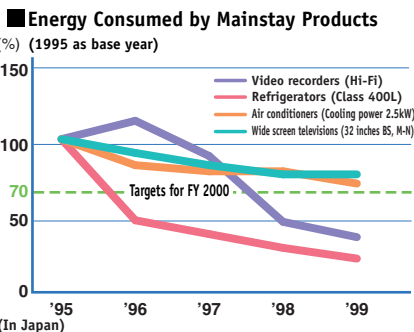
Environmental Characteristics Stickers on 155 Models of 25 Products

Environmental Characteristics Stickers are pasted on products to provide visual information on the products' specific environmental considerations.



SAVE Products that Save Energy in Operating and Standby Modes

The specific goal for FY 2000 is for our mainstay products to save 30% or more energy in comparison to 1995 levels.



3R Products Designed for Easy Recycling (Reduce, Reuse, and Recycle)

Recyclability ratio is the amount of materials that can be reused as resources. When designing our mainstay products, we aim at achieving a recyclability ratio of 80% (company standard).

■ Recyclability Ratio of Four Mainstay Products at Design Stages (Based on company standards for 1999 products)

Products	Recyclability Ratio (%)
Televisions (36 inches wide screen)	85%
Refrigerators (Class 400L)	80%
Air conditioners (cooling power 2.5kW)	86%
Washing machines (washing capacity 8 kg)	85%

Green Procurement: Environmentally Conscious Procurement Activities

Since the start of our Green Procurement program in March 1999, we have prepared and distributed a Green Procurement Standards Manual to about 3,000 suppliers to explain Matsushita's environmental standards in parts and materials.



HIGHLIGHT 1999

Promoting Love the Earth Citizens' Campaign

Solving environmental problems calls for a fundamental change in personal lifestyles. The Love the Earth Citizens Campaign (LE), in its third year now, is one of the awareness activities we support. In 1999, we set up LE offices at all operation sites, appointing a

total of 120 members in charge of promoting LE activities. In 1999, 4,000 employees (3,300 in 1998) participated in the lifestyle improvement program using our original Environmental Household Budget Ledger. An average 4.6% reduction of CO₂ emissions versus previous year was recorded.



HIGHLIGHT 1999

Establishing Clean Factories (pollutant-free factories)

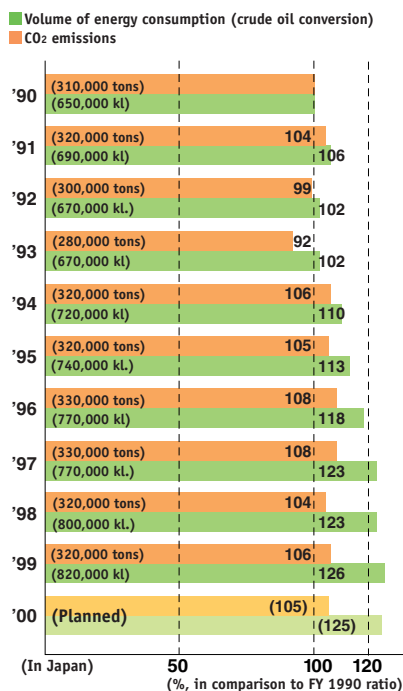
Three Challenges in Establishing Clean Factories

In line with the concept of Clean Factories, we have formulated policies to reduce our overall environmental impact. This includes implementing environmental risk management, and meeting the three challenges of minimizing input/output volumes at factories, reducing environmental impact, and maintaining good business results.

Challenge 1 Minimizing energy consumption and CO₂ emissions

Energy consumption increases with the expansion of the devices business (semiconductors and liquid crystals, etc.). In 1999, we employed new measures and were able to suppress CO₂ emissions to an increase of only 1.6% versus previous year.

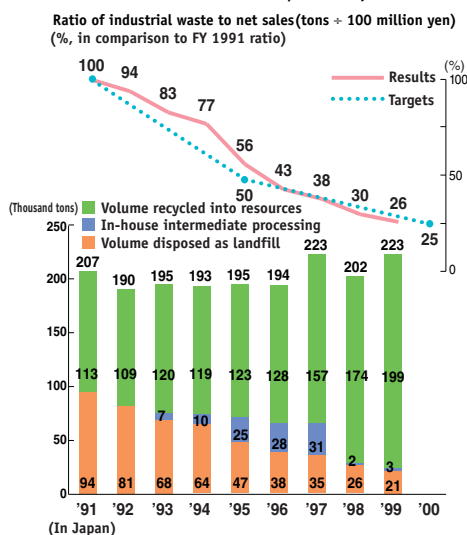
Energy Consumption and CO₂ Emissions from Manufacturing Sites



Challenge 2 Minimizing Industrial Waste and Landfill

We try to reduce the loss of materials at the time of production and minimize the amount of landfill through recycling. In comparison to the FY 1991 levels, we have achieved a reduction of 74% in 1999, and will aim for a reduction of 75% in 2000.

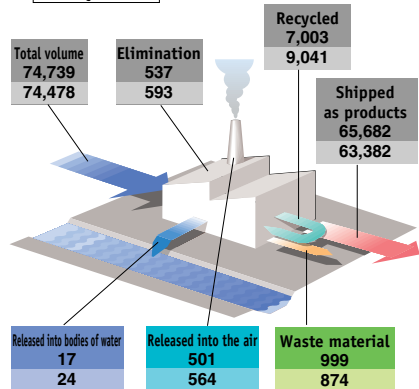
Volumes of Industrial Waste/Landfill per Net Sales



Challenge 3 Minimizing Use of Chemical Substances and Discharge

In March 1999, we published the Chemical Substance Management Rank Guidelines, which ranked chemical substances into prohibition, reduction, and proper management categories, using the risk assessment method. We plan to halve the volumes of consumption, discharge, and transfer of chemical substances in 2004 in comparison to the 1998 levels.

Material Balance for Types of Chemical Substances Used



HIGHLIGHT 1999

Environmental Accounting Minimizes Costs and Maximizes Benefits

Based on the FY 1999 data collected from our 11 main companies and their factories in Japan and overseas, we have achieved a quantitative cost saving of 8 billion yen, out of a total of 52.6 billion yen in environment-related expenditures.

Environmental Costs (FY 1999, global, unit: million yen)

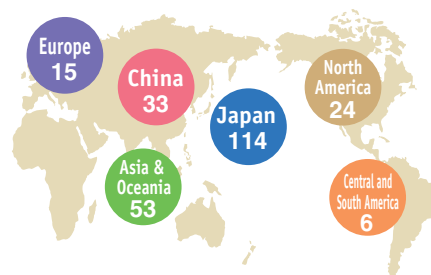
Category	Amount
Cost within business areas	
Prevention of pollution	9,335
Energy conservation at operation sites	9,759
Processing and recycling of waste	5,903
Other environmental conservation activities	476
Product recycling cost	3,002
Management cost	5,775
R&D cost	15,400
Social activities cost	1,018
Environmental damage cost	1,969
Total	52,637

Environmental Benefits (FY 1999, global, unit: million yen)

Category	Amount
Cost-saving	
Energy conservation at operation sites	2,767
Processing and recycling of waste	3,648
Reduction in water and sewage expenditures	125
Reduction in packaging and distribution costs	1,474
Total	8,014

HIGHLIGHT 1999

Current status of ISO 14001 certification



ISO 14001 Certification at 245 operation sites in the world (as of March 2000)

FY 1999 Progress Report

Since the establishment of the Matsushita Environmental Protection Promotion Action Plan in 1993, we have conducted environmental activities to achieve specific goals. The followings are the main themes currently undertaken.

Important themes	Goals	FY 1999 results	Self-evaluation*	Reference pages
Development of Green Products	Promoting product assessment	: Built database system using version 5 (to be published in 2000) by upgrading version 4 published in 1997 : Conducted assessment for 2,530 models	★★★	P.18
	Expanding use of Environmental Characteristics Stickers	: Applied stickers to a cumulative total of 155 models of 25 products (59 models of 14 products in FY 1998)	★★★	P.27
	Reducing use of regulated chemical substances : Reducing use of lead solder : Reducing use of halogen compounds	: Launched 11 models of 4 products using lead-free solder (an aggregate of 13 models) : Conducted research at 28 operation sites : Launched models using plastics that contain no halogen compounds including televisions, video recorders, personal computers, washing machines, rice-cookers, air conditioners, etc.	★★★★ ★★★	P.21
	Setting recyclability ratio at 80% or more at the time of design (company standard)	: Achieved recyclability ratio of 80% or more for all 4 main household electric appliances (television 85%, refrigerator 80%, air conditioner 86%, washing machine 85%) : Launched personal computers, portable MD players, cellular phones, video cameras made from magnesium-aluminum alloy	★★★ ★★★	P.22
	Reducing electricity consumption of mainstay products by 30% or more in 2000 (in comparison to 1995 levels) Note: The plan has been revised due to the fact that the goal to realize 10-15% reduction in electricity consumption of mainstay products by 2000 (in comparison to 1990) as set forth in the 1993 Voluntary Plan has already been achieved.	: Reduced electricity consumption of stationary videos to 64%, refrigerators to 78%, air conditioners to 29%, and wide screen televisions to 23%	★★★	P.23
	Promoting green procurement	: Published the Green Procurement Standards Manual and held meetings with 3,000 suppliers to explain Matsushita's procurement standards	★★★	P.20
Establishment of Clean Factories	Promoting energy conservation at operation sites : Suppressing CO ₂ emissions at factories to +5% in 2000, same level in 2005, and -7% in 2010 (in comparison to 1990) : Reducing energy consumption per unit of sales by 25% in 2000 (in comparison to 1990)	: Increased by 6% : Increased by 30%	★★ ★	P.35
	Reducing waste : Reducing industrial waste per unit of sales by 75% in 2000 (in comparison to 1991)	: Reduced by 74%	★★★	P.34
	Reducing use of chemical substances : Reducing volumes of emissions/transfer by 33% in 2001 and 50% in 2004 (in comparison to 1998)	: Increased by 4% (Reduced 29% discharge into waters) : Reduced 11% discharge into the air : Increased 14% in waste transfer	★★	P.38
Establishment of environmental management systems	Encouraging non-manufacturing sites to acquire ISO 14001 certification	: In 1999, 11 non-manufacturing sites received (an aggregated total of 18 non-manufacturing sites)	★★★	P.13
Establishment of recycling system for used products	Setting up recycling systems for four mainstay household electric appliances (televisions, refrigerators, air conditioners, washing machines)	: Developed recycling technology and collection system, to put into use in 2001	★★	P.29
Promotion of Love the Earth Citizens' Campaign (LE)	Promoting LE activities : Setting up organizations : Increasing the number of people using Environmental Household Budget Ledger	: Set up LE offices at operation sites and appointed 120 employees as LE promoters : Participated by 4,000 families (an increase of 14% versus 1998)	★★ ★★★	P.47

A summary of FY 1999 activities

1999 was a very fruitful year, thanks to the establishment of company-wide environmental management systems since 1995, and the completion of ISO 14001 certification in March 1999. We have received many commendations, including the "Global Environmental Grand Prize" (Minister of International Trade and Industry award) for our environmental activities, the "Energy Conservation Equipment Award" and "Energy Star Partner of the Year" (USA) for the superior performance of three of our main products, and the "Commendation for Excellent Energy Control" for our factories, etc. Despite our serious effort to save energy at factories, we have not been able to meet our goal set up in 1993, due to the expansion of the energy-intensive devices business. From 2000, we will revise our mid-to-long term goals in accordance with social changes, and will devote our best effort to realize these goals.

*Self-evaluation is classified into four levels. Depending on the goals, it may not be possible to evaluate some items in quantitative terms.

*Little result **Some result ***Good result ****Excellent result



E nvironmental Report

It is the “products”, and the “factories” that constitute the most important environmental aspects in business activities. In this section, we have summarized our management systems activity results, future goals and direction of our current top-priority undertakings in the development of Green Products and establishment of Clean Factories.

Environmental Management Systems

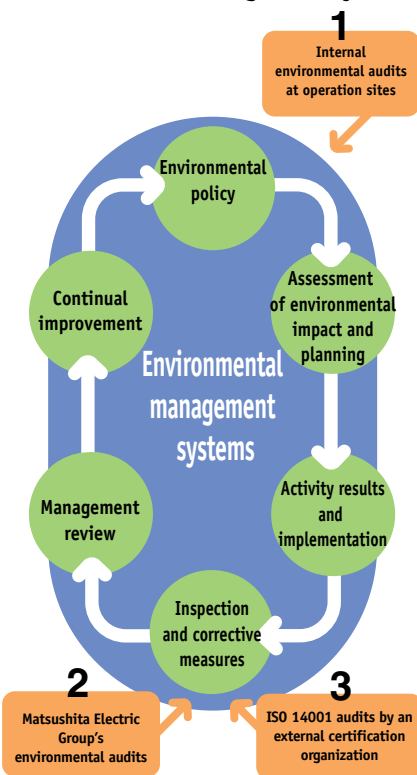
Environmental Auditing and ISO 14001

Environmental Management Systems and Three-tier Environmental Auditing Structure

To reduce the environmental impact we have established environment management systems in all operation sites since 1995. We also initiated a three-tier auditing system comprising internal audits, the Group's environmental audits, and audits by the external ISO 14001* certification organization, in order to make improvement in our environmental systems and performance. With this set up, we aim to carry out comprehensive and full-fledged environmental activities.

*International Organization for Standardization. The ISO 14000 series for environmental management standards have been, and continue to be established. The ISO 14001 is the standard for environmental management systems.

Matsushita Electric Group and Environmental Management Systems



1 Internal Environmental Audits

Internal environmental audits are carried out voluntarily at operation sites where an environmental management system has been set up. To ensure that internal audits are properly implemented, auditors registered with CEAR*, the Japan Environmental Management Association for Industry are hired and in-house seminars for environmental auditors are held to train our own auditing personnel.

*A registration center for environmental management system auditors.

■ CEAR-registered Auditors (as of March 2000)

Chief auditors	24
Auditors	14
Auditing assistants	10

■ Matsushita Electric Group's In-house Environmental Auditors (as of March 2000)

Chief environmental auditors	499
Environmental auditors	2,618

2 Matsushita Electric Group's Environmental Audits

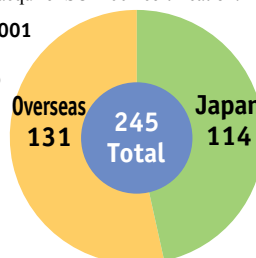
Auditors are chosen from across the Matsushita Group to form an auditing team that is neutral and has no direct affiliation with the site being audited. The auditing will inspect whether the environmental system of the site is appropriate, and whether the environmental activities are effective and law-abiding. This provides an objective auditing and at the same time, enables operation sites to share know-how. In 2000, we especially place emphasis on the inspection of environmental performance and the sharing of know-how.

3 ISO 14001 Audits by an External Certification Organization

All our 221 manufacturing sites around the world have acquired the ISO 14001 certification by the end of FY 1998, and the number of sites increased further to 245 by the end of FY 1999. We have also set plans for all newly established manufacturing sites to acquire the certification within three years of operation.

Our main emphasis for 2000 is to improve the environmental performance of all ISO 14001 certified sites and to help non-manufacturing sites (R&D and sales divisions, etc.) establish environmental management systems and acquire ISO14001 certification.

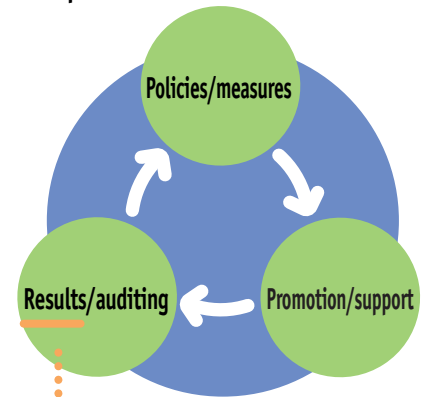
■ No. of ISO 14001 certification (as of March 2000)



Environmental Data Collection System "Environmental Performance Report"

By collecting accurate data on the environmental impact of our business activities and products, we can forecast the environmental risk and thereby, implement proper control through new policies and measures. Starting 1992, we have asked all our operation sites with environmental management systems to provide an environmental performance report every April so that we can conduct an annual quantitative analysis of our environmental burden on a global scale. Until 1994, our survey covered only domestic sites, although we have also monitored operations in other countries under separate schemes. Since 1998, our investigation has extended to all major non-manufacturing sites and has been carried out on a global scale. We are currently developing simpler system to collect environmental data in a speedier and more detailed manner.

Utilizing Environmental Performance Reports



Collecting data

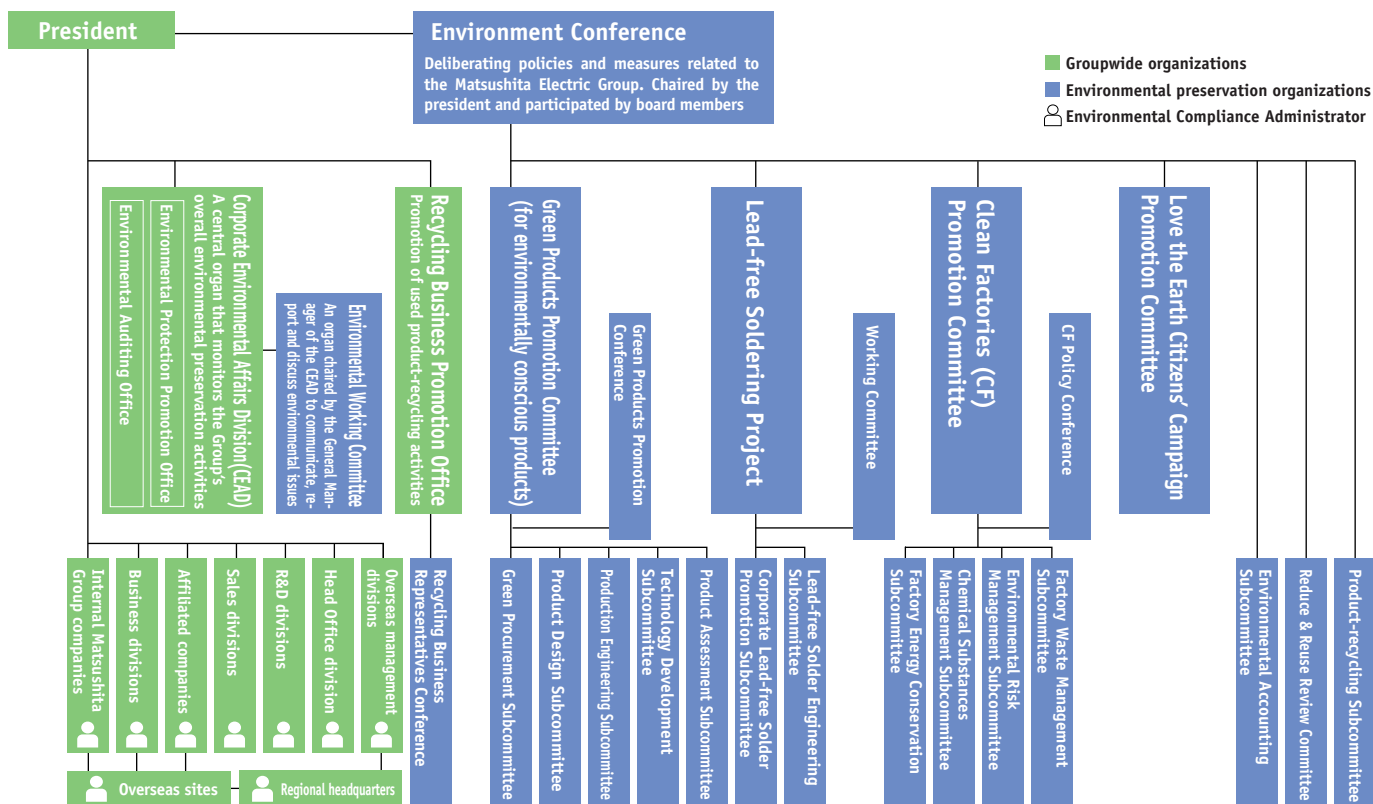
Environmental Performance Reports

Utilization

- 1 Reflection in policies and measures
- 2 Disclosure of information
- 3 Reporting for industrial associations
- 4 Proposals for government of-fices and local authorities
- 5 Matsushita Electric Group's environmental audits

Environmental Preservation Organizations

Organizational Chart



The Environment Conference, chaired by the president of Matsushita Electric Industrial Co., Ltd., is where the major environmental policies and measures are deliberated. All business units and divisions are informed of the company-wide policies and measures deliberated at the conference through their environmental officers. And based on these policies, each busi-

ness unit carries out environmental activities headed by the environmental officer according to its specific needs and situation.

For important themes that concern the whole Matsushita Electric Group, group-wide committees, special sessions and task forces are set up to go beyond the existing organizational framework to find a solution to the issues in question.

Environment Conference

Chaired by the president and attended by management executives to deliberate and follow up on issues, it was first held in November 1997 and every six months afterwards. At the beginning, only directors related to the issues attended the conferences, but since the 5th conference in 1999, presidents of all affiliated companies in the Matsushita Electric Group and related companies are required to attend.

Environment Conference

	Date	Main themes
First	November 1997	Environmentally conscious products, etc.
Second	April 1998	Development of environmental technologies, etc.
Third	October 1998	Environmental accounting, environmental label, etc.
Fourth	April 1999	Environmental risk management, etc.
Fifth	October 1999	Reduce & Reuse, PRTR, etc.
Sixth	April 2000	Abolition of lead solder by FY 2002, etc.

Clean Factories Promotion Committee

We integrated the Energy Conservation Committee and Environmental Risk Management Promotion Committee to strengthen our measures for preventing global warming and environmental risk.

Previous promotional system

Energy Conservation Committee at operation sites

Environmental Risk Management Promotion Committee

From FY 2000 onward

Clean Factories Promotion Committee

CF Policy Conference

Factory Energy Conservation Subcommittee

Chemical Substances Management Subcommittee

Environmental Risk Management Subcommittee

Factory Waste Management Subcommittee

Lead-free Soldering Project

This project was started based on a company-wide policy to strengthen activities for abolishing the use of lead solder in all products by FY 2002.



Mr. Mori, Director of Corporate Environmental Affairs Division, at the Lead-free Soldering Project kick-off meeting

Environmental Accounting

Background for the Introduction of Environmental Accounting

Environmental accounting is a mechanism that the Matsushita Electric Group uses to monitor and publish the costs and benefits of environmental activities in quantitative terms (monetary or material base). Due to the social demand for environmental preservation and information disclosure in recent years, we have established environmental management systems and published environmental reports regarding the improvements we have made in business activities, products and services based on our environmental policies and objectives, as well as environmental performances (energy use, waste, gas emissions, drainage, etc.). The environmental cost savings generated by environment-related investment, and the impacts of each performance on the environment are important yardsticks to help us determine whether our environmental policies, objectives and goals have been met. The publication of environmental accounting in environmental reports also gives transparency to our business operation.

In addition to the voluntary use of environmental accounting, it has become imperative for a company to have firm knowledge of the environmental cost, which has increased as a result of stricter legal regulations. With the introduction of environmental accounting in FY 1998, we have been able to obtain concrete figures on how much we spent on what items, and the benefits that resulted. Environmental accounting is a useful tool that helps us evaluate our goals and make improvement to environmental performances.

Defining Environment-related Expenditure

We calculate the environmental cost of each category in two types of costs—environment-related investment in plant and equipment, and environment-related expenses. We have also extracted items related to environmental preservation, which used to be included in other expenses, as environmental cost (an indirect cost), in addition to the costs conventionally recognized as environmental ones, such as pollution prevention cost (a direct cost).

Although personnel expenses are included as an expense, depreciation of investment in plant and equipment is not.

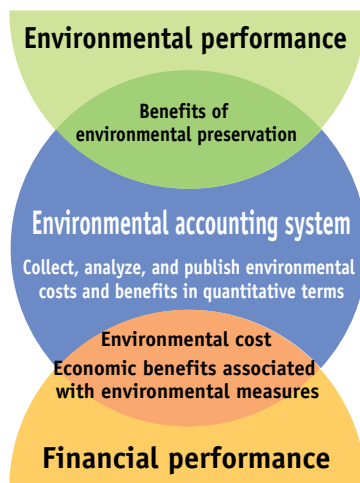
For investment or personnel expenses whose amount cannot be counted totally as an environmental cost, adjustment using cost difference or ratio is carried out. Details of these adjustments are recorded in the "Cases and Calculation Standards of Environmental Costs" prepared to supplement the definition of the environmental accounting items.

For environment-related R&D such as energy-saving products, only the amounts of investment in plant and equipment and expenses related to the basic technology of the product are counted. We are reviewing the inclusion of office supplies and materials purchased under Green Procurement into environmental accounting in the future.

Methods to Calculate Cost Savings in Monetary Terms

Cost savings generated by the environment-related investment represent a total of four cost reduction items that can show the exact saving amounts and be controlled on site; namely, the disposal and reduction of industrial waste, energy conservation at operation sites, reduction in water and sewage costs, and reduction in packaging and distribution costs. Any deemed effects, which need the company's specific premise, such as the benefit of risk avoidance, are not reflected in the amount of cost savings; only the "amount of reduction in the environmental cost" is reflected.

Basic Framework of Environmental Accounting



Example of environmental cost calculation (Energy conservation at an operation site)

Category	Examples and assessment standards	Amount
Energy conservation at an operation site	(1) Investment for energy conservation	
	1. Introduction of equipment using new energy	Total amount
	2. Switch to high efficiency equipment	Difference
	(2) Multi-purpose investment including energy conservation	
	1. Introduction of equipment to rationalize production (Total amount of investment) × (amount resulting from energy conservation) / (amount of total savings) Calculated by using the ratio of energy-saving efficiency in total savings	Ratio
	2. Introduction of equipment for purposes not including the rationalization of production (Total amount of investment) × (investment for purposes not including energy conservation) Calculated the difference as the cost for energy conservation	Difference

Environmental accounting results for in FY 1999

Similar to the data in this environmental report, the environmental cost (amount of investment in plant and equipment and expenses for reducing environmental burden) and the amount of savings generated by environment-related investment are gathered from all domestic and overseas operation sites of Matsushita Electric and its 10 main affiliated companies. Improvements in environmental performance corresponding to each environmental cost category are shown on the pages given in the following table.

In the 1999 environmental accounting, the domestic and overseas environmental cost totaled 52.6 billion yen (investment in plant and equipment 15.3 billion yen, and

expenses 37.3 billion yen) and the cost savings amounted to 8 billion yen. Our environmental cost is characterized by the high ratios of (1) the cost for energy conservation at operation sites which is about 48% (7.3 billion yen) of investment in plant and equipment and (2) the cost for environment-related R&D which is about 35% (13.2 billion yen) of expenses. Greater part of the R&D cost is incurred in Japan, with an increase of 6.5 billion yen over the previous year, mainly due to the development of fuel cell and lead-free soldering. In 1999, the environment-related investment in plant and equipment was 4.4% of the total investment in plant and equipment (338 billion yen), and the environment-related R&D expense was 2.5% of the total R&D expenses (525.6 billion yen).

Future Directions of Environmental Accounting

We plan to improve environmental accounting in the following ways.

- (1) Include third party opinions to secure a currency and completeness
- (2) Use eco-efficiency (environmental impact reduction ÷ environmental cost), in addition to financial balance, to evaluate and improve environmental management
- (3) Include publication of deemed cost savings in future reports, stating the premise on which savings can be realized

The environment is one of the most important issues for a company, and environmental accounting provides important indicators. We will work to upgrade our environmental accounting system so that it can be more effective and applicable to wider use.

Environmental Costs (FY 1999/unit: million yen)

Category		Investment	Expenses	Total	Definition	Page showing environmental performance
Cost within business areas	Prevention of pollution	3,769	5,566	9,335	: Investment and expenses needed for the prevention of air, water, and soil pollution, noise; vibrations and land subsidence	P.40
	Energy conservation at operation sites	7,342	2,417	9,759	: Investment and expenses needed for implementing "FY 2000 Plan for Energy Conservation at Manufacturing Sites" and "lowering energy consumption by 1% or more per unit of sales over previous year" : The portion of savings from energy conservation in the case of multi-purpose investment or expenditure	P.35-36
	Processing and recycling of waste	1,147	4,756	5,903	: Investment and expenses needed for appropriate treatment or disposal of waste from manufacturing sites : Investment and expenses needed to reduce the amount of waste	P.34
	Other environmental conservation activities	339	137	476	: Investment and expenses for environmental activities, including the prevention of global warming (excluding reduction in CO ₂ emissions), protection of the ozone layers, use of recycled and rain water, etc.	P.40
Product recycling cost		38	2,964	3,002	: Investment and expenses needed for the establishment and demonstration testing of recycling systems for used products (including the development of technology for establishing recycling systems) : Expenses needed for recycling-related payment to external organizations (Association for Electric Home Appliances, etc.)	P.29-30
Management cost		20	5,755	5,775	: Expenses needed for acquiring and maintaining ISO 14001 certification, environmental education and training activities (exhibitions, etc.)	P.13
R&D cost		2,178	13,222	15,400	: Investment and expenses needed for the development of element technology designed primarily for environment consideration : Investment and expenses needed for the development and introduction of environmentally conscious packaging : Investment and expenses needed for the reduction of environmental impact including the reduction of CO ₂ emissions at distribution (product delivery and collection of used products)	P.17-30
Social activities cost		128	890	1,018	: Expenses for social efforts such as donating and providing information and support to environmental activities organized by environmental conservation organizations and local communities : Expenses for disclosing environmental information including environmental advertising, environmental reports, exhibitions, etc.	P.47-51
Environmental damage cost		377	1,592	1,969	: Investment and expenses needed to investigate and treat past contaminations (ground water, soil, etc.)	P.39
Total		15,338	37,299	52,637		

*Depreciation of investment in plant and equipment is not included in expenses.

Environmental Benefits (FY 1999/unit: million yen)

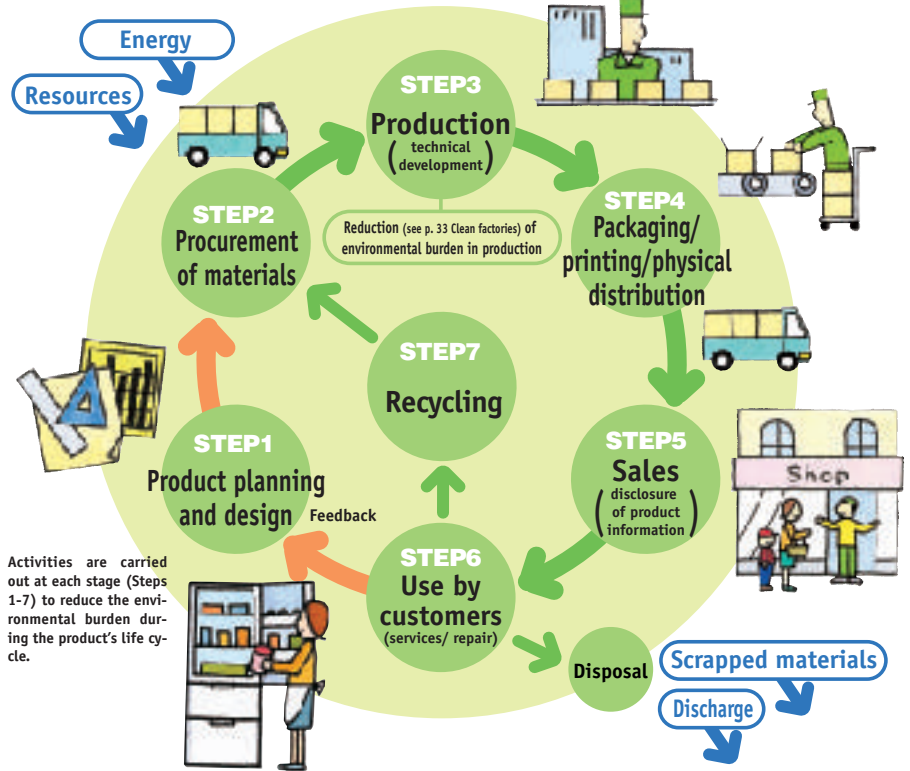
Category		Amount	Definition	Page showing environmental performance
Cost-saving	Energy conservation at operation sites	2,767	: Savings from energy conservation at manufacturing sites	P.35-36
	Processing and recycling of waste	3,648	: Savings from rationalizing industrial waste treatment	P.34
	Reduction in water and sewage expenditures	125	: Annual savings in water and sewage costs by using rainwater and recycled water	P.40
	Reduction in packaging and distribution costs	1,474	: Annual savings in packaging materials and delivery	P.26
Total		8,014		

Green Products (environmentally conscious products)

Concept of Green Products

To build a recycling-oriented society, manufacturers must reduce the environmental burden throughout the products' life cycles. Due to Matsushita's wide range of products from household electric appliances to parts, devices, and industrial machinery, we exert influences on the environment in numerous ways. Since we started the development of Green Products in 1997, we have worked to minimize the input of energy and resources and the output of waste and emissions throughout the products' life cycles.

Environmental Burden during the Product Life Cycle



Elimination, Reduction and Utilization

For many years, we have pursued convenience, comfort, low cost including energy conservation, as the basic qualities we seek in products. In line with our basic environmental concepts of "elimination, reduction and utilization," we have developed Green Products and added the environmental values of "energy-saving", "clean (reduced use of regulated chemical substances)" and "3Rs (reduce, reuse, and recycle)."



Product image of 2000



From 1997, we have adopted "save", "clean" and "3Rs" as goals for our FY 2000 products, and specific targets have also been set up at individual manufacturing sites to achieve these goals.

Save

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

- : Maintain top level of energy conservation in industry
- : Reduce electricity consumption by over 30% (in comparison to FY 1995)

Clean

Reduce use of chemical substances that may be harmful to the human body and ecosystem.

- : Use lead-free solder for all products by the end of FY 2002
- : Reduce use of halogen compounds

3R (Reduce · Reuse · Recycle)

Improve the ratios of recyclable materials, in addition to reduction and reuse.

- : Designing products with recyclable ratio of 80% or higher (company standard)

STEP1

Product Planning and Design

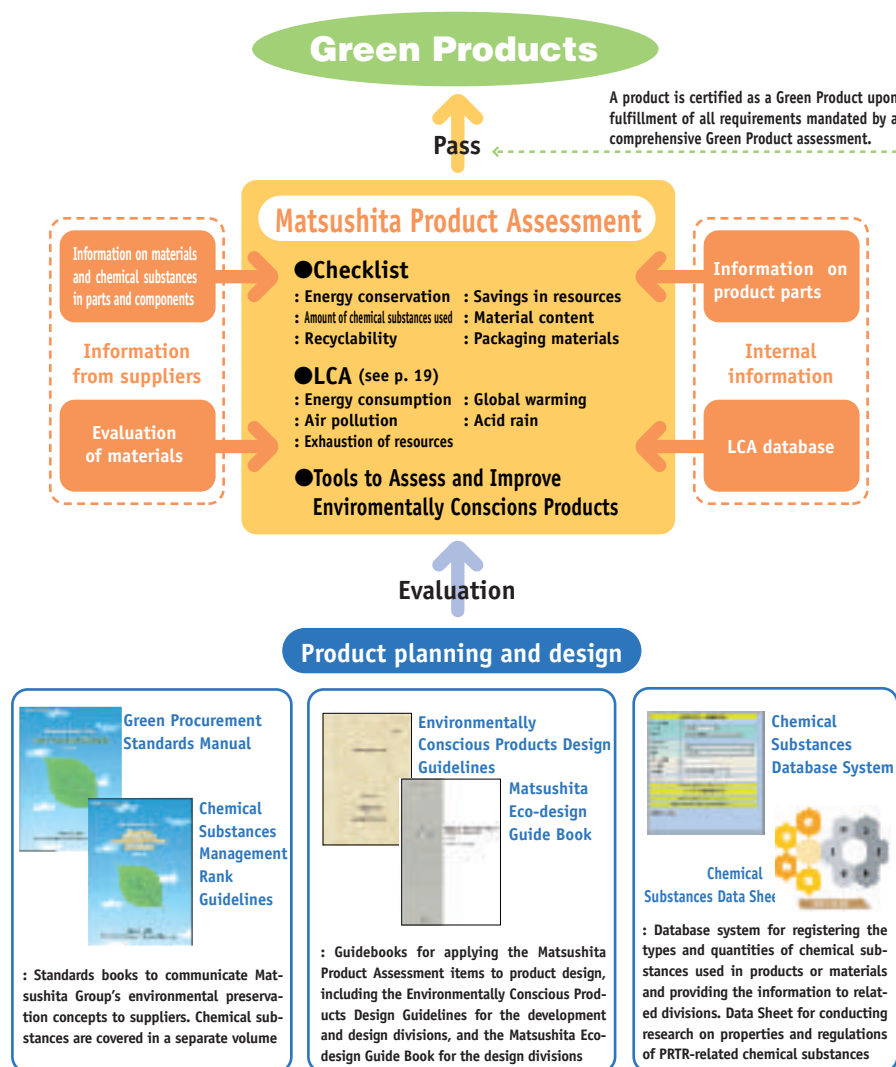
Matsushita Product Assessment

The Green Product standards and assessment systems have been applied to our product planning and design. When a Law for promoting recycling* was enacted in 1991, we took the lead in launching the Matsushita Product Assessment, a system that evaluated the environmental impact of products from the planning and design stages. (In 1993, it was commended the Industry's first Ministry of International Trade and Industry Prize for Industry Contributing to Recycling.) We added the items of energy conservation in 1993, chemical substances in 1995, as well as items covering production processes and a general quantitative assessment of the environmental consciousness of products in 1997. The Matsushita Product Assessment is implemented in all Matsushita Electric Group products in their planning and design stage; 2,530 models were evaluated in FY 1999.

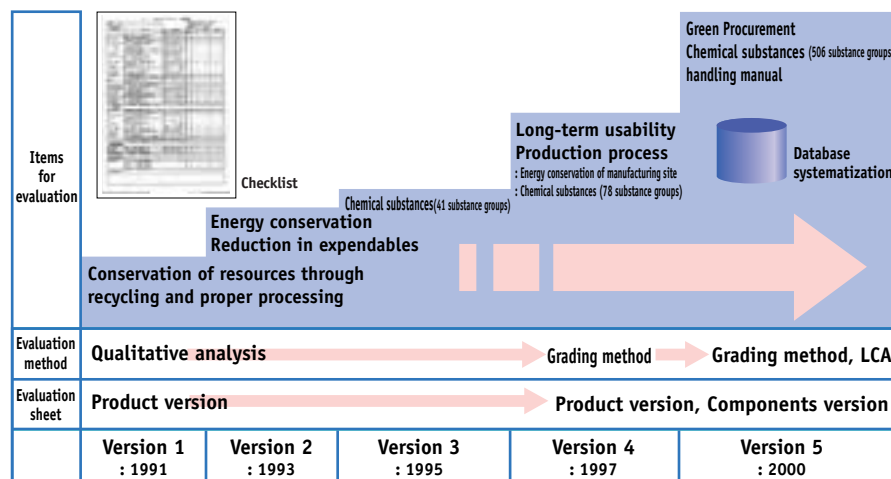
We released Version 5 in May 2000, adding to it the lifecycle assessment (LCA, see p. 19), material assessment in line with Green Procurement, and also are creating a database system.

*Law for the Promotion of Utilization of Recycled Resources (Japan)

Assessment and Standards of Green Products



Upgrading the Matsushita Product Assessment



Assessment Results (FY 1999)

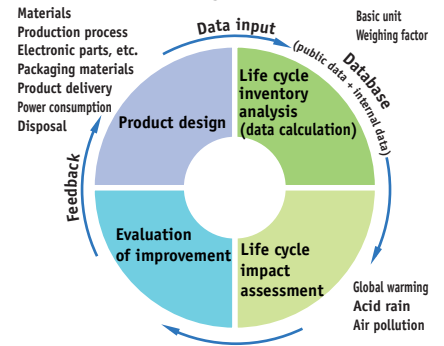
Product category	Models
AV/Communication devices (television, PC, telephone, fax, etc.)	420
Household electric appliances (washing machine, air conditioner, refrigerator, vacuum cleaner, etc.)	340
Industrial devices (industrial robot, air conditioning devices, medical appliances, etc.)	600
Components (printed circuit board, battery, semiconductor, resistor, condenser, etc.)	1,170
Total	2,530

Life Cycle Assessment (LCA)

Life cycle assessment (LCA) is a comprehensive method to evaluate the impact of products on the environment in quantitative terms from the acquisition of raw materials, to production, sales, use, and disposal. Since 1996, we have used LCA as part of the product assessment to measure the quantities of major environmental impact.

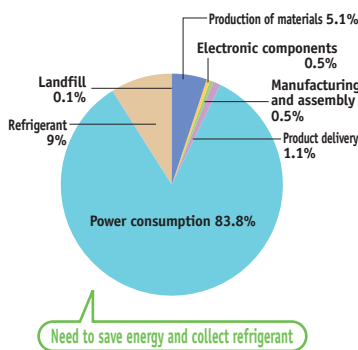
Environmental impact is mainly classified into 5 categories: energy consumption, global warming (CO₂ emissions), acid rain, air pollution, and depletion of resources. As an example, the LCA database was put into use in the planning and design of new air conditioner in FY 1998.

Production using LCA

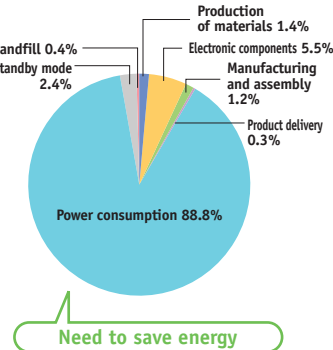


Product Impact on Global Warming using LCA

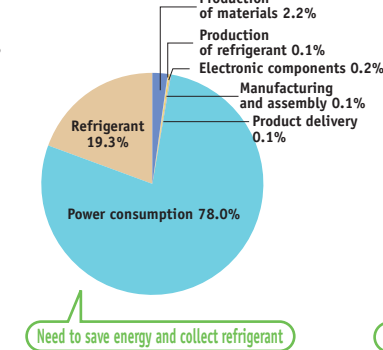
Refrigerator (NR-D47A1, 470-liter)



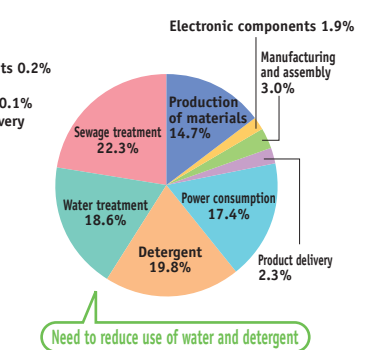
Television (TH-28MX2, 28 inches)



Air conditioner (CS-G25T, 2.5kW)



Washing machine (NA-F801P, 8 kg)



Tools to Assess and Improve Environmentally Conscious Products

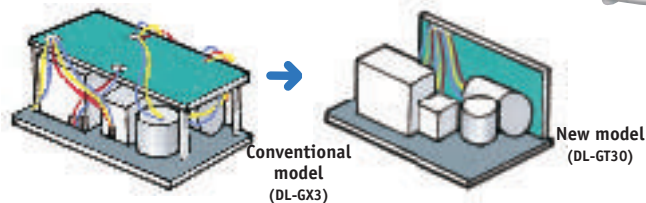
To help develop Green Products, we use a quantitative method to assess if the materials and parts of a certain product are easy to be disassembled or recycled. The assessment improves product design because it evaluates the ease of production and disassembly, and eco-friendliness of a product in its planning and design stage. We aim at making products smaller, lighter, easier to disassemble and recycle, and with less

material and energy at the very early stages of product making. By doing so, we believe we can promote the recycling of products and reduction of waste for disposal.

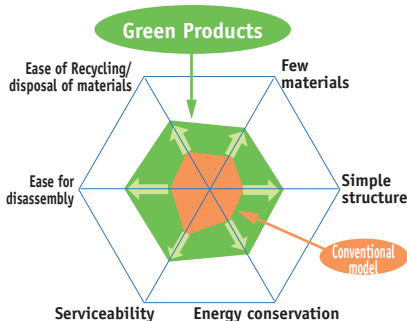
Electric bidet with showers (Beauty Toilet DL-GT30), an example of simple structure and energy-saving design derived from a review of basic functions.



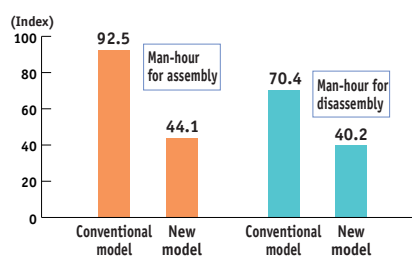
Making Products into Simple Unit Structures



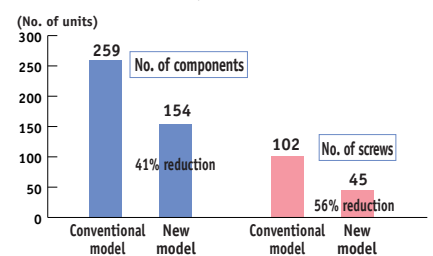
Tools to Assess and Improve Environmentally Conscious Products



Reduction in Man-hour



Reduction in Components



STEP2

Procurement of Materials

Green Procurement

To reduce the environmental impact of products, we need to carry out environmental activities not only on the products at our Group companies, but also on their materials at the suppliers. We started Green Procurement in March 1999 to share our environmental preservation beliefs with suppliers and to cooperate with them in acquiring materials with higher environmental quality.

Materials to purchase have traditionally been selected based on the criteria of quality, cost and delivery time. Green Procurement emphasizes the use of eco-friendly parts and components to improve the environmental performance of products. We published the Green Procurement Standards Manual to communicate that concept to the manufacturers of parts and materials. Based on this Manual, our purchasing divisions set up criteria to evaluate environmentally conscious suppliers and materials for future purchases.

Material Assessment and Survey of Chemical Substance Content

Materials are evaluated with heavy emphasis on the Chemical Substances Management Rank Guidelines, which regulate the use of chemical substances. Chemical substances are divided into three categories: prohibited, reduction required, and appropriate control required (see p. 37). Using these guidelines, we can identify the types and quantitative contents of chemical substances in the purchased parts and components.

Green Procurement Evaluation Criteria

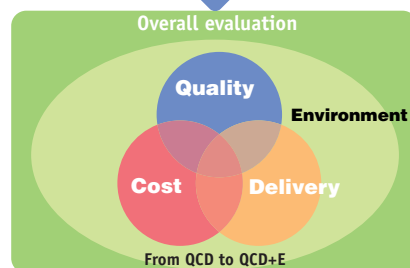
Criteria for supplier evaluation

- : 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 physical distribution



Criteria for material evaluation

- : 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



TOPICS

Physical Distribution Measures in Material Procurement

The physical transportation of materials creates big environmental burden. For example, the CO₂ emissions from transporting materials at Matsushita's Home Appliance & Housing Electronics Company's Nara site are estimated to be about one-fourth of the entire CO₂ emissions from its business activities.

Materials used to be delivered separately by different suppliers to different divisions, resulting in inefficiency and energy loss. Since 1994, we set up a collective pick-up and joint-warehousing system at each district, enabling us to

efficiently deliver small shipments to business divisions through mass-transportation and collective pick-up.

Today, this collective pick-up and warehousing system is set up at every district in Japan. In the Shiga, Nara and Kobe districts, for example, eight business divisions in Shiga share the same warehouse facilities. Although we will have to work on shortening the span from ordering to delivery, we shall channel all efforts to make further improvement.

Seeking Cooperation from 3,000 Major Suppliers

Since 1999, we have held meetings for about 3,000 domestic suppliers (accounting for over 90% of our total annual purchase of 2.1 trillion yen) out of 6,500 to explain our Green Procurement policy and standards. As of July 2000, we have completed the evaluation of 2,400 suppliers (80%).

Green Procurement Promotion Schedule

FY 1999		FY 2000	
First half	Second half	First half	Second half
Information meetings for suppliers			
	Review environmental measures of suppliers		
		Request for environmental improvement and follow-up	

Green Procurement Standards Manual

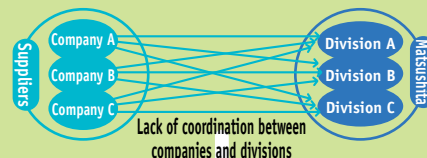


Chemical Substances Management Rank Guidelines (Version 2)

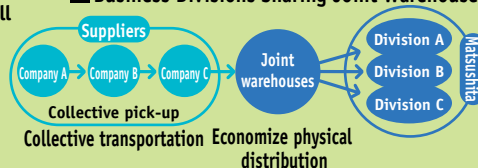
Green Procurement Standards Manual

Green Procurement Standards Manual
<http://www.matsushita.co.jp/environment/indexe.htm>

Conventional Practice



Business Divisions Sharing Joint Warehouses



STEP3

Technological Development and Products Clean (pollution-free)

We are working to reduce the use of regulated chemical substances that are harmful to the human body and the ecosystem. The top priority at the moment is to abolish the use of lead solder in all products by March 2003. We are also making progress in reducing the use of halogen compounds in plastics.

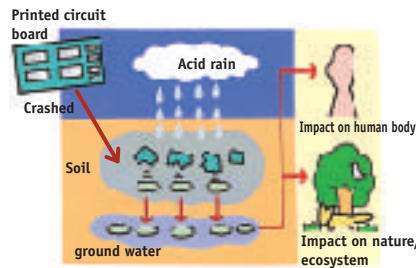
Abolition of Lead Solder by the End of FY 2002

Lead is a substance that will trigger nerve disorder if accumulated in the human body. It has been pointed out that acid rain might have caused lead leakage from discarded scrapped materials. The European Union in its draft for electric and electronic equipment will ban the use of lead solder from 2008. Humans have used tin and lead for over 5,000 years. Due to the stable nature and flexible application of tin/lead solders, they have been used to connect electronic parts to the printed circuit board inside products. With the imminent ban on lead solder, it

becomes necessary to develop substituting soldering materials and master their usage. We have developed a lead-free solder and the affixing technology that enabled us to launch in October 1998 the world's first portable MD player (SJ-MJ30) that does not use lead solder in the main body's printed circuit board. By the end of FY 1999, we have extended the use of lead-free solder to 4 products and 13 models. Although lead solder is plated to the electrode of electronic parts, lead-free solder has gained increasing popularity in semiconductor products.

information on semiconductor products and the development of lead-free solder
<http://www.mec.panasonic.co.jp/guide/eco/lead-free/e-index.html>

Image of Lead Leakage from Discarded Printed Circuit Board



Products Using Lead-free Solder (as of March 2000)

Products using Tin/Silver based

Headphone stereo, 2 models



(RQ-SX71)

Portable MD player, 6 models



(SQ-MJ77)

A total of 1 million units using lead-free solder (as of July 2000)

Products Using Tin/Copper based

Video recorder, 2 models
Main circuit board only



(NV-HVB1)



Kotatsu table, 3 models
Connecting part of power plug

A total of 1 million units using lead-free solder (as of August 2000)

Reducing Use of Halogen Compounds in Plastic Materials

Plastic materials are used in making cabinets and electric wire coats in products. Halogen compounds such as the non-flammable bromine or polyvinyl chloride resin have been used in plastics to raise the safety level. Unfortunately, there is the danger of toxic gas emissions when halogen compounds are incinerated as waste.

Plastics and electric wire manufacturers have confronted problems of reliability, performance level, processing nature, cost in their search for materials that do not contain halogen compounds. For this reason, Matsushita joined forces with major electric wire and plastics manufacturers to conduct research on the development of halogen-free electric

wires and plastics.

In September 1999, we succeeded in launching the world's first low voltage inner electric wires, cabinets, back covers, and a part of the printed circuit boards of a wide screen television (TH-36FP20) that contain no halogen compounds. Today, there are more products including personal computers and monitors that are free of halogen compounds.

Products Using Halogen-free Plastics

Used for the cabinet of "Will" PC monitor



(CS-E400AH)

Used for the terminal cover of parts in all air conditioner models after April 2000



(CF-E1)

Used for the controller cover of all washing machine models currently in sale



(NA-F802P)

Used for the cabinet, back cover, part of the printed circuit board, and low voltage electric wire of wide screen television



(TH-36FP20)

Technological Development and Products 3Rs (Reduce, Reuse and Recycle)

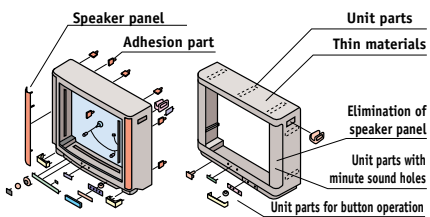
Products are designed to attain the recyclability ratios (percentage of materials that can be recycled) mandated by company policy. Mainstay products using metals, instead of plastics, have been developed to raise recycling efficiency, resulted in a recyclability ratio of 80% or more at the design stage. Plastic materials, which are difficult to recycle by nature, have also been improved by integrating different grades (types) into larger groups.

The Reduce and Reuse Research Committee, launched in May 1999 (see p. 30), has outlined specific plans to minimize resource and energy consumption, simplify production processes, prolong product life and facilitate the disassembly of products.

Recyclability Ratios of Four Mainstay Products at Design (company standards for products)

Television (36 inches wide screen)	Refrigerator (400L class)	Air conditioner (air cooling capacity 2.5kW)	Washing machine (washing capacity 8 kg)
85%	80%	86%	85%

Facilitating Television Disassembly and Separation of Parts

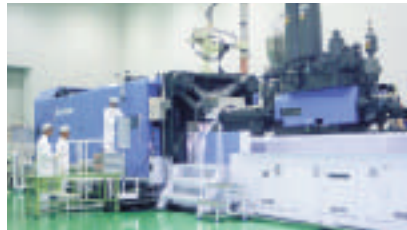


(Conventional structure) (Light weight due to hollow structure)

Utilizing the technology of molding parts into units in the production of large televisions, we have reduced the number of television cabinet parts by 80% compared to 1990. Furthermore, we have also integrated the grades of PS (polystyrene) resin, reducing them from 20 to 2 to facilitate the disassembly and separation of parts.

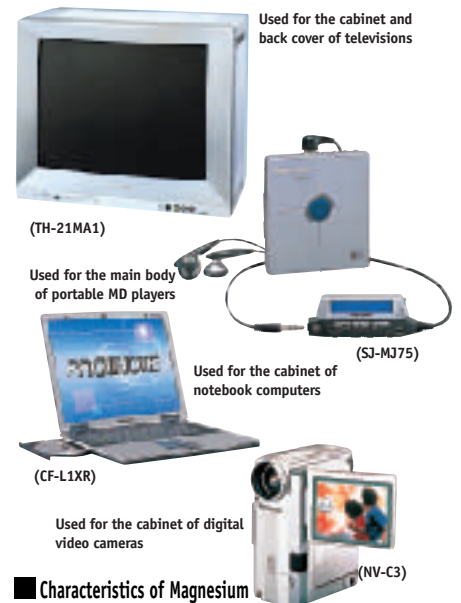
Switching to Metals for Easier Recycling

Metals, such as light aluminum and magnesium, have gained new recognition as highly recyclable materials to substitute for plastics that are difficult to recycle. Magnesium, in comparison with other metals, is especially abundant, light and easy for processing. Applying our original plastic-molding technique to metals, Matsushita is the first in the world to use magnesium alloys to make the cabinet and back cover of a 21-inch television (TH-21MA1) launched in October 1998. The use of magnesium alloys has now expanded to a variety of products including notebook computers, portable MD players, cellular phones etc.

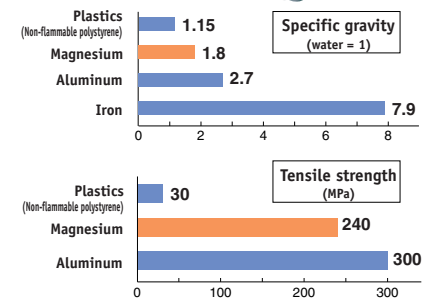


World's largest magnesium alloy molding machine

Products Using Magnesium Alloys



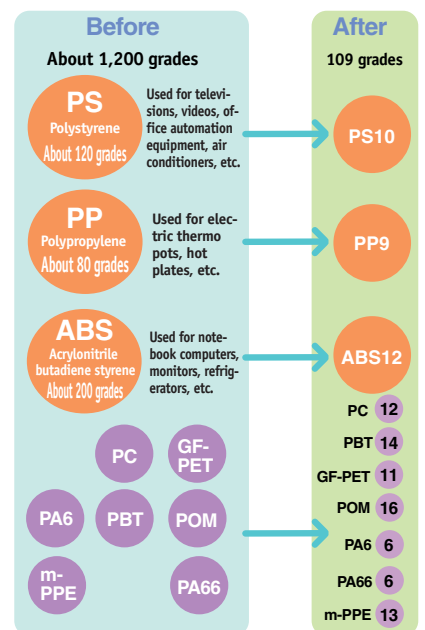
Characteristics of Magnesium



Integrating Plastic Grades to Facilitate Recycling

The nature and function of plastics can be improved with the addition of even a small amount of additive; and we had over 1,000 grades of plastics to match product functions and customer needs. However, plastics are difficult to recycle because the mixing of different grades will result in lower quality and limited usage of the recycled materials. It is desirable, therefore, to reduce the number of grades. In 1997, we set up the Matsushita Standard Grades and greatly reduced the number of grades in the four major categories of plastics including PP (polypropylene) and PS (polystyrene) etc. We further grouped the grades into 10 kinds of resin in 1998 and issued Version 2 in 1999, adding the evaluation of the environmental burden of grades.

Reduction in the Number of Main Plastic Grades

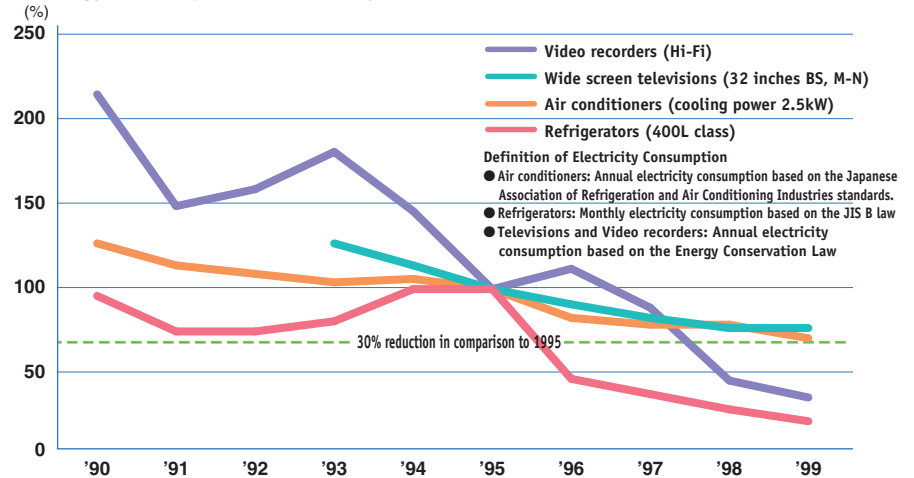


STEP3

Technological Development and Products Save (energy conservation)

Energy conservation is one of the basic product performances in which we excel over the years. Today, we are making efforts to save more energy from the perspective of environmental preservation. The current goal is to maintain our industry lead in energy conservation and to save 30% or more energy in 2000 than our 1995 levels.

Energy Consumption of Mainstay Products (1995 as base year)



Inverter Air Conditioners

The new CS-E400AH inverter air conditioner is equipped with the PAM and PWM control systems that can improve energy efficiency by 20%, enabling it to consume 12% less electricity than the conventional CS-G40Y2 model. The PAM control (pulse voltage amplitude control system) draws high power from a highly efficient scroll compressor while the PWM control (pulse width control system) enables the air conditioner to operate efficiently in low-speed when the room temperature is stabilized. Electricity consumption is 0.3 W in the standby mode.

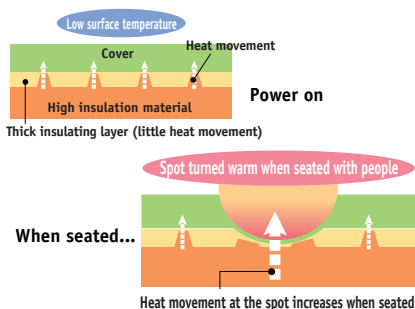
Comparison of Electricity Consumption

Energy efficiency (COP)	Electricity consumption during period
3.52	Conventional model (CS-G40Y2) 1,835kWh
4.22	New model (CS-E400AH) 1,617kWh

Electric Carpets

In addition to a room temperature sensor, the new DC-2KG electric carpet contains a layer of protruded insulating material that concentrates heat at areas where people are seated. Such structure minimizes heat loss into the air, enabling it to save 65% or more energy than the conventional DC-2KB model.

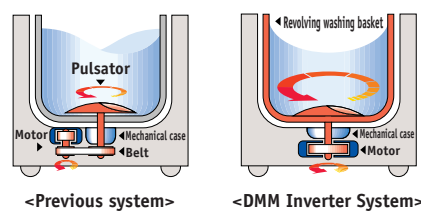
Electric Carpet with Protruded Insulation Material



Centrifugal Force Washing Machines

The new NA-F802P centrifugal force washing machine has a direct mechanism motor (DMM) inverter drive system that spins the washing basket. Besides the fact that it does not damage clothing, it also saves water and detergent, consumes no electricity in standby mode, and saves 59% more electricity than the NA-F70AP model, which has no DMM. In addition, we have developed an excellent detergent, the "Enshinyoku (centrifugal force) 21", exclusively for this washing machine. Because the detergent requires only short rinsing, it saves water and energy.

Cross-section Comparison of Washing Machine Operation

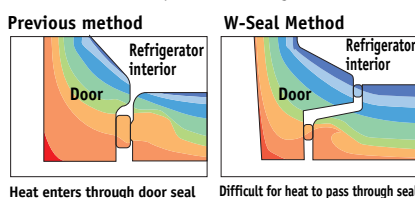


Refrigerators

The new NR-E46W1 model saves space and uses 54% less energy than the conventional NR-D47A1 model, made possible by the double-insulation W-Seal door sealing and SKIT* Freezing System.

*Abbreviation for Super Kelvin Integrated Technology, a technology developed by Matsushita and is the world's first application to home-use refrigerators

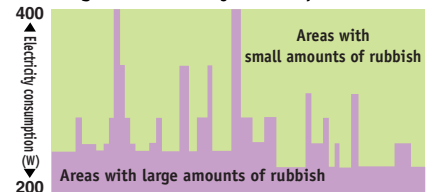
Cross-section Comparison of Refrigerator Door Seals



Vacuum Cleaners

The new MC-V270 vacuum cleaner is equipped with an infrared sensor that automatically controls vacuuming power by detecting the quantity of rubbish and the type of floor surface. Compared to the conventional MC-S260 model that does not have the infrared rubbish signal technology, the new model consumes an average of 32% less electricity. The use of an "exhaust circulation method" and smaller and lighter motor cord reel also reduce the weight of the vacuum cleaner's main body by 31%.

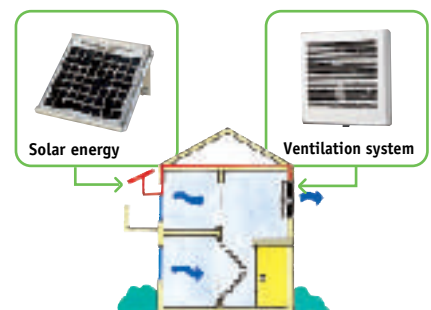
Changes in Electricity Consumption



Solar Ventilation Systems

The new FY-13PD6FW model is a hybrid ventilation system that utilizes both solar energy and home-use AC power supplied by the electric company. An automatic control, which switches to solar energy during daytime and AC power at night and during bad weather, helps to cut electricity consumption by 40% as compared to the conventional FY-13PD6 model.

Solar Ventilation System

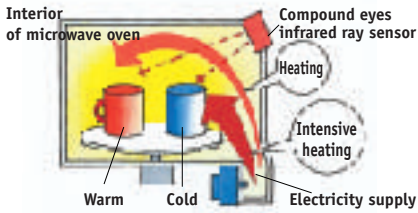


Energy Conservation Award: The energy-saving refrigerator series equipped with the SKIT (W cooling) system is commended the award of the Director-General of the Agency of Natural Resources and Energy, and the CS-E400AH series air conditioner and the Pa-look Ball YOU fluorescent light bulb are commended the awards of Chairman of the Energy Conservation Center, Japan.

Microwave Ovens

The new NE-JW2 model is equipped with two functions: a "compound eyes infrared ray sensor" that detects the position of food and its temperature differences, and a mechanism that concentrates heating at the low temperature areas, thus resulting in energy saving of 13% compared to the conventional NE-J1 model.

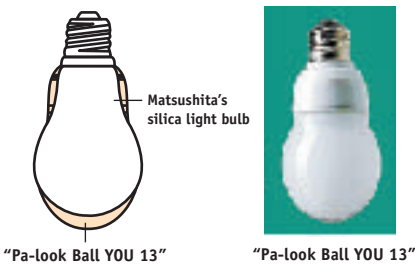
Heating by Compound Eyes Infrared Ray Sensor



Compact Fluorescent Bulbs

Compact fluorescent bulbs are extremely energy-efficient. Although they deliver similar level of brightness as silica electric light bulbs, they consume only 1/4 of the electricity, not to mention that the product life is about 6 to 8 times longer. The "Pa-look Ball YOU 13," for example, is compact in size and can be used for many products including airtight appliances.

Comparison with Silica Electric Light Bulb



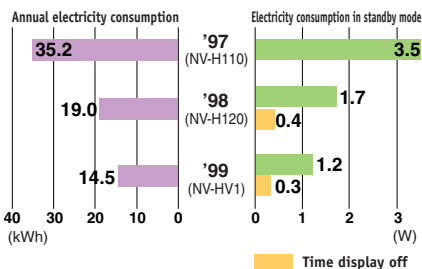
"Pa-look Ball YOU 13"

"Pa-look Ball YOU 13"

Video Recorders

The new NV-HV1 model has a power supply unit that is controlled by a microprocessor. It helps to lower electricity consumption by 30% as compared to the conventional NV-H120 model. In standby mode, it only consumes 1.2 W (0.3 W when clock display is off). Thanks to the use of high efficiency power supply circuit and well-regulated motor-driven voltage, the annual electricity consumption is reduced by 24%.

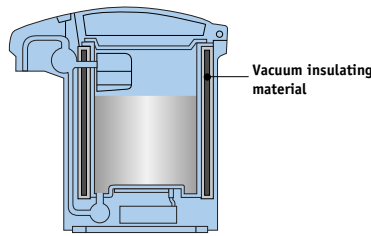
Changes in Electricity Consumption of Video Recorders



Electric Thermo Pots

The new NC-JC30 electric thermo pot uses a vacuum insulation material with insulation efficiency approximately 6 times that of glass wool. Combining with preset timing and temperature functions, it saves 35% more electricity at stabilized temperatures than the conventional NC-GA33 model, which does not contain any vacuum insulation material.

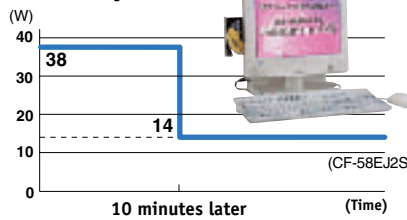
Cross-section of Electric Thermo Pot



LCD Combined PCs

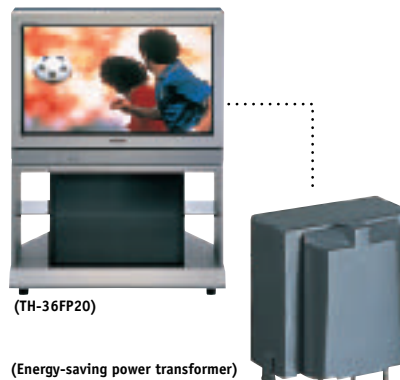
Compared to the conventional CF-55M5M8AJ model, the new CF-58EJ2S LCD combined PC uses only about 14 W of electricity in standby mode, thanks to its energy-saving parts and components. Its one-touch command can automatically save data on the hard drive and switch off the computer by itself.

Electricity Consumption in Standby Mode



Televisions

The new TH-36FP20 television employs a high efficiency power supply transformer and a microprocessor specially designed for standby operation. It uses 0.1 W in standby mode, thus reducing electricity consumption by 75% compared to the conventional TH-36FP10 model.



(TH-36FP20)

(Energy-saving power transformer)

Dishwashers

The new NP-33S2 dishwasher is equipped with a water-saving nozzle and tank-like pipes, leading to a reduction of energy consumption by 28%, water 22% and main body mass 21% as compared to the conventional NP-830 model.

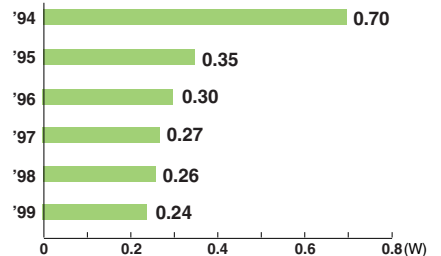


(NP-33S2)

Cellular Phones

With the installation of energy efficient parts such as liquid crystal panel, speaker, and vibrating motor, a cellular phone in operation consumes only 1/3 of the electricity as that of previous models. Thanks to our resource conservation measures, we have also become the industry leader in lightweight cellular phones.

Electricity Consumption of Cellular Phones



Digital Copier

By combining the functions of a copier, fax, printer, and scanner into one unit, the DP-2500 digital copier saves substantial resources. The use of toner with low melting point also reduces electricity consumption by about 44% as compared to the conventional FP-D250 model.



(DP-2500)

TOPICS

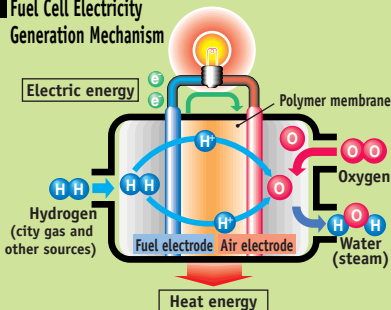
Developing Technology for New Energy Resources

Cogeneration Systems using Fuel Cells

Unlike the dry batteries that store electricity, fuel cells are "power generators" that generate electricity and water from hydrogen and oxygen. When electricity is used to dissolve water, hydrogen and oxygen are produced. The fuel cells make use of the reverse principle to obtain electricity and water by causing hydrogen to react chemically with the oxygen in the air.

W. Grove, a British scientist, invented the fuel cells in 1839. They are used to supply power to space shuttles, and serve as cogeneration systems (systems that generate heat and electricity simultaneously) at factories and buildings because the heat energy produced at the time of power generation can be utilized effectively. Fuel cells are classified into four types. The polymer electrolyte type fuel cells, in particular, operate efficiently at low temperatures of less than 100°C (others operate between 200 to 1000°C) and can be turned on/off frequently, making them a highly efficient and low cost product ideal for commercialization. With the increasing use of polymer electrolyte type fuel cells in automobile, we plan to develop them into small cogeneration systems for home use. In April 1999, we gathered engineers from our Group companies and founded a virtual organization, the FC Laboratory, for developing the systems. We started the testing of a 1.5 kW cogeneration system in January 2000, and will continue research to prepare for its launch in 2004.

Fuel Cell Electricity Generation Mechanism



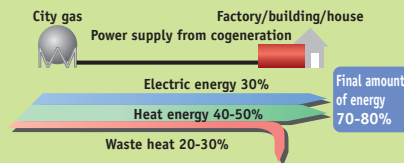
Hydrogen, sent in as fuel, is dissolved into hydrogen ions and electrons. The hydrogen ions then move to the electrode on the opposite side through a polymer membrane and bond with the oxygen. The electricity and heat produced as a result of this process is utilized.

Polymer Electrolyte Type Fuel Cell

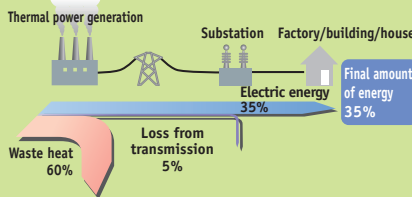


Comparison of Energy Efficiency

Power generation using cogeneration system



Power generation using conventional method

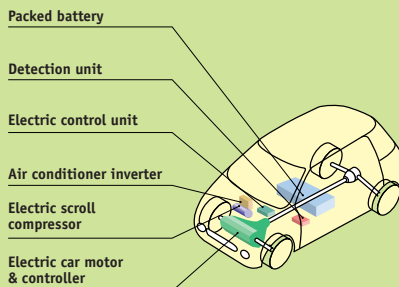


Cogeneration System for Home Use

Products Related to Pure Electric and Hybrid Vehicles

Electric and hybrid vehicles are drawing great attention as environmentally conscious cars. The hybrid electric vehicles (HEV), for example, emit less NOx and CO₂ than gasoline cars

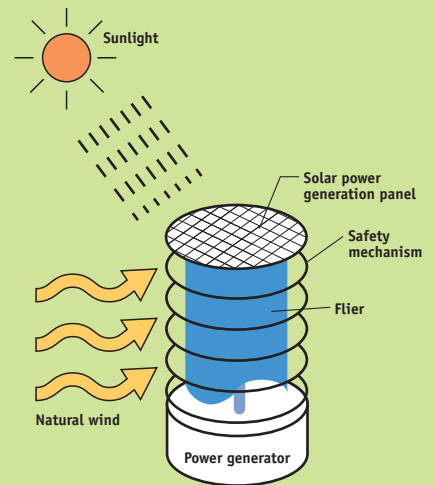
Components for Electric Vehicles and Hybrid Cars



Wind Power Generation System for Urban Use

We are using natural energy (wind and sunlight) to develop clean power supply. Equipped with fliers, the "Sabonyusu" system can generate power with wind from any direction if the velocity is above 2.5 m per second. Compared to the other models, it is ideal for installation in urban areas because it makes less noise and can be guarded with safety mechanism. We are currently developing three types of this system that can generate electricity at 300W, 500W, and 1kW (velocity at 12 m/second). Photovoltaic panel is also installed on the top of the system's main body, providing hybrid power generation as an alternative source of power supply.

Hybrid Model Wind Power Generation System



and consume less fuel. The pure electric vehicles (PEV) emit no exhaust gas at all. Together with these products, we are also developing components including nickel hydrogen batteries, lead batteries, motors, air conditioners and control systems for electric vehicles (EV).



The photo shows a new rectangular nickel hydrogen battery for hybrid cars. It has 150% more power than the conventional batteries and is light and small in size.

STEP4

Packaging, Printing, and Physical Distribution

Reducing and Recycling Packaging Materials

By getting back to the very basics of packaging, which is to “ensure product quality,” we seek a rational packaging approach that will match the characteristics of products. Pursuing the themes of Elimination, Drastic Reduction, Reuse, and Re-conversion to raw materials, we have successfully worked to reduce the use of raw materials (effective use of resources), reduce energy use for transportation (decrease in transport expenses), reduce the volume of waste, and reduce the number of packing man-hour. In 1999, for example, we introduced specially designed cardboard boxes for packing air conditioners (indoor machine) and electric fans so as to rationalize packaging and improve business efficiency. For air conditions alone, we have saved a total of 125 tons of materials per year (equivalent to the packaging materials for 120,000 units). New technologies such as lightweight packaging material for fluorescent light “Pa-look” and “clear pack” for audio equipment are also delivering satisfactory results.

Examples of Reducing and Recycling Packaging Materials

Elimination

Cardboard boxes eliminate buffer materials for packing air conditioners “Clear pack” packaging for radios and headphone stereos



Drastic reduction

Lightweight packaging material for fluorescent light Conventional product New product See-through packaging for washing machines



Cut weight by 40%

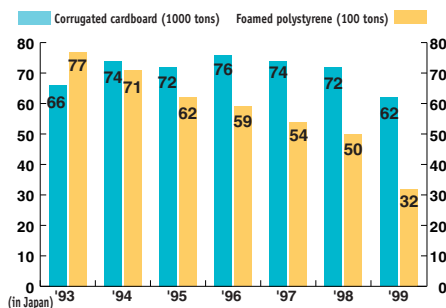
Cut down on side cardboards

Reuse

Reusing packaging materials for parts



Change in the volumes of main packaging materials



Soy Ink Printing Reduces Environmental Burden

In 1997, we began using soy ink, with soybean oil as its principal ingredient, for the printing of packages, operation manuals, and product catalogs.

Soy ink has the merits of (1) using less volatile organic compound for the printing process compared to the conventional ink that uses petroleum oil-based solvents, (2) easy de-inking, and (3) excellent biodegradability. It is currently used for printing packaging and operational materials of air conditioners and audio products, and a range of product catalogues.



This mark can be seen on printed matters of soy ink.

Measures for Implementing the Container and Packaging Recycling Law

The Container and Packaging Recycling Law (Law for Promotion of Sorted Collection and Recycling of Containers and Packaging) is a law to help create an effective system for the recycling of packaging materials, which account for 60% of home garbage, into resources. This law has been extended to include many more items since April 2000. Matsushita has taken measures to respond to this law at an early stage; we have also applied to be a government specified business in this area.

Modal Shift to Railroads

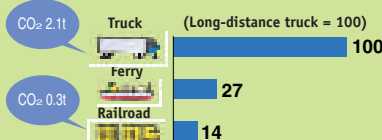
Trucks are the major transportation means in physical distribution today. Since 1998, however, we have shifted to using railroads for the transportation of bulk cargo over distances of 500 km. This saves energy, cuts CO₂ emissions, and reduces expenses. The Ministry of Transport and the Ministry of Agriculture have been promoting modal shift as part of the environmental measures to reduce CO₂ emissions to 1/7 and nitrogen oxide to 1/17 of truck transportation.

In 1998, Matsushita's railroad cargo was 1,735 containers in 5 ton containers. It increased to 4,594 containers in 1999 for 12 product items including televisions, telephones, video recorders, batteries, magnetic tapes, etc. This increase in railroad cargo, when converted to 10 ton-

truck, is equivalent to a decrease of 1,400-truck loads, representing 3% of our domestic transport (1.4% in 1998). For example, our Recording Media Division is planning to use railroads

CO₂ Emissions by Transport Mode

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



Truck: 10 tons x 1,200(km) x 48 (g-c) x 44/12 (convert to CO₂) = 2,112,000(g)

Railroad: A. Railroad 10 tons x 1,180(km) x 6 (g-c) x 44/12 (convert to CO₂) = 259,600(g)

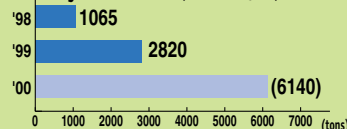
B. Collection & delivery 10 tons x 20(km) x 48 (g-c) x 44/12 (convert to CO₂) = 35,200(g)

A+B=294,800(g)

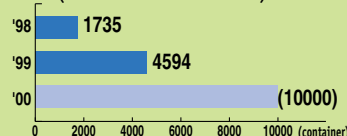
(Data quoted from materials for the joint council meeting on the Japan's measures for global warming)

for 20% of its transport (9% in 1999). Thanks to the modal shift, we have reduced the distribution cost by about 200 million yen in 1999.

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



No. of Railroad Containers Used (Converted to 5-ton containers)



Air conditioners CS-E400AH series was commended the World Packaging Organization's WorldStar Award in the WorldStar competition, and the energy-saving clear pack for small audio products was commended the Asian Packaging Federation's AsiaStar Award in the AsiaStar competition.

The energy-saving clear pack for small audio products was commended the Japan Star Award (Director General, Environmental Protection and Industrial Location Bureau, Ministry of International Trade and Industry Award), and air conditioners CS-E400AH series were commended the Japan Star Award (the President of Japan Chamber of Commerce and Industry Award) at the Japan Packaging Contest.

The Air Conditioner Division was commended the Excellence Award for developing special packages for air conditioners; Kyushu Matsushita Electric Co., Ltd. was commended for offering renovated line-to-line packaging and distribution that meet customer needs, both in the All Japan Packaging Research Conference.

STEPS

Sales Disclosure of Product Information

While developing Green Products, we also inform customers of the products' with environmental considerations using mainly environmental characteristics stickers for household electrical appliances and AV equipment, and catalogs for other products and electronic parts.

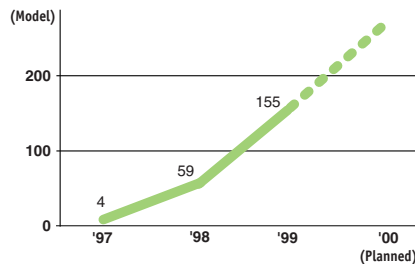
Environmental Characteristics Stickers

These stickers provide specific visual information on the products' environmental considerations. Since 1997, we have used these stickers on household electrical appliances and information equipment that fulfilled our corporate required standards. As of the end of FY 1999, there are 155 models of 25 product items that have received these stickers.

Samples of the Environmental Characteristics Sticker



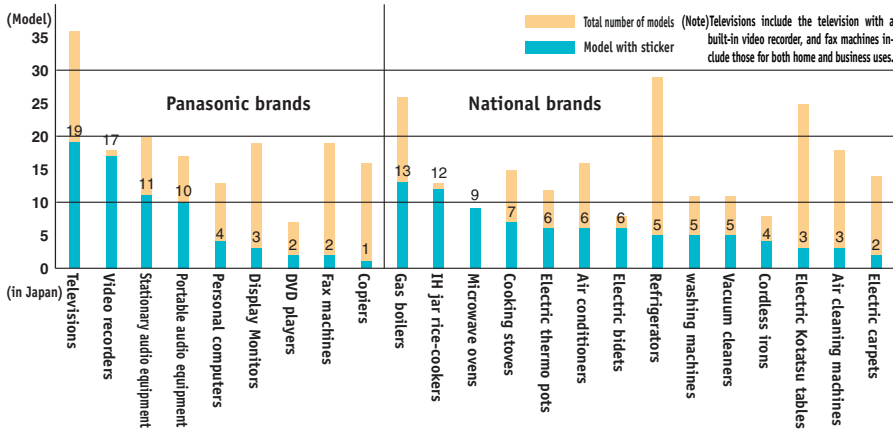
Use of Environmental Characteristics Stickers



Newspaper Advertisement of Environmental Characteristics Stickers



Use of Environmental Characteristics Stickers (as of March 2000)



Introducing Environmental Measures in Catalog

To provide information on electronic components and materials for industrial use, we have published a catalog detailing environmental considerations of components and materials.

Panasonic Catalog for Environmentally Conscious Electronic Components and Devices



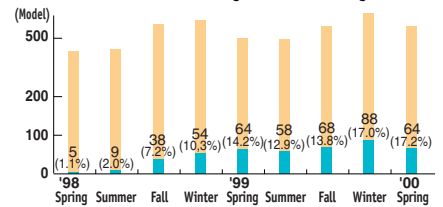
URL <http://www.mec.panasonic.co.jp/guide/eco/lead-free/e-index.html>

Good Living Selection Catalog

The Good Living Selection Catalog is a publication that sales agents use to inform customers of Matsushita's recommended products, among which, the percentage of products with environmental characteristics stickers has gradually increased. Our goal is to make all recommended products qualified for the Environmental Characteristics Stickers.



Models of Products with Environmental Characteristics Stickers in the Good Living Selection Catalog

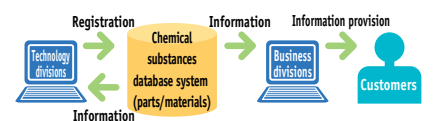


National Brand Energy Conservation Catalog



Energy conservation information of National brand products is published in the National Energy Conservation Catalog and on our site "All About Energy Conservation" in the Internet, with also a small corner on how to use products efficiently.

Chemical Substances Database System



It is a company-wide database system that allows all divisions to register and find the types and quantities of chemical substances contained in the parts and materials. This database system also serves as an important tool for the technology divisions to develop products and for the sales divisions to furnish product information to customers.

STEP6

Customer Usage

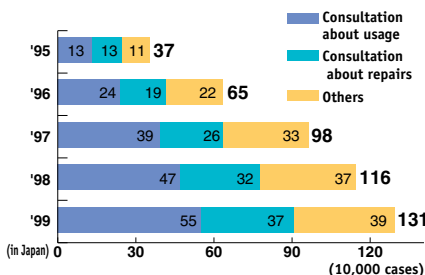
Services and Repairs

It takes correct usage, proper maintenance and repairs to obtain long product life. To that end, Matsushita is taking various measures to provide full-fledged services and repairs to customers.

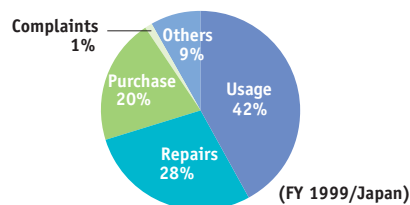
Customer Service Center to Provide Year-round Services

All inquiries regarding repairs and handling are basically handled by the retailers; however, to better serve our customers, we have also operated a year-round Customer Service Center since 1966. Input from the customers is reflected in our business management, product development, services, and sales activities, etc.

No. of Customer Consultation



Contents of Customer Consultation



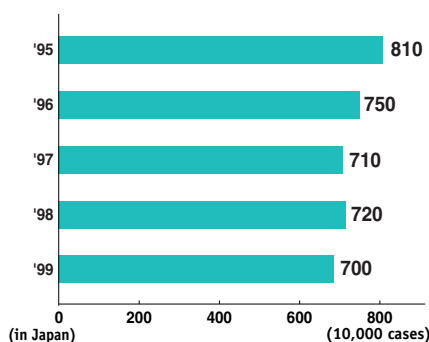
Seminars for Consumers

To help customers use electrical appliances properly, we have stationed customer services personnel at 8 regions in the country and have organized educational seminars since 1972. In 1999, we held 1,642 seminars, which were attended by many consumers.

Repair Services

To ensure that our products can be used for a long time, we are offering many kinds of repair services. In 1999, we repaired about 7 million products at our national sales outlets (about 20,000) and at our repair/service centers (about 600). The number of repairs has decreased in recent years due to the following reasons. (1) The product quality has improved. (2) Low price and the energy-saving function have prompted customers to choose new products over repairs.

Number of Repairs



Matsushita has made every effort to ensure long product life by making available more than 1.1 million types of parts for repairs and keeping them in stock for long periods of time. These parts are designed so that they can be used for a variety of products. We have also set up community repair centers and introduced partly automated repair plants. We will continue to make long-lasting products that match customers' lifestyles, as well as make improvements to our repair services.

Average No. of Years Using Electrical Appliances (for reference)

Refrigerators	10.6
Televisions	9.9
Washing machines	9.0
Air conditioners	8.8
Vacuum cleaners	7.9
Video cameras	7.9
Video recorders	7.6

(Years)

Quoted from the Economic Planning Agency's "Survey of Consumer Behavior," March 1999

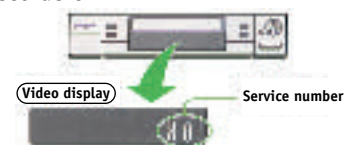
Shortening Repair Time

Besides developing products that are easy for repair, we have also held campaigns to upgrade repair services shortening repair time since 1989. Compared to 1995, the average repair time for the mainstay products is down by 20% in 1998. In 1995, only 48% of products could be repaired within 30 minutes, but in 1998, the percentage was improved to 61%. Since cutting down on repair man-hour means shorter repair time and lower repair cost, we set our goal to lower the ratio to 80% in 2001.

Self-diagnosis Function in Products

For higher repair efficiency, more and more products are equipped with a self-diagnosis function to detect the cause of malfunctions. The nature of a malfunction is shown in symbols on the liquid crystal screen with "U" indicating malfunction that can be fixed by the customers themselves, "H" by the retailers, and "F" by the repair centers. For example, customers can refer to the symbols in the operation manual to treat the problems on their own. Since its start in 1994, about 70% of the household electrical appliances have self-diagnosis functions installed.

Self-diagnosis Functions in Video Recorders



Service Design Review

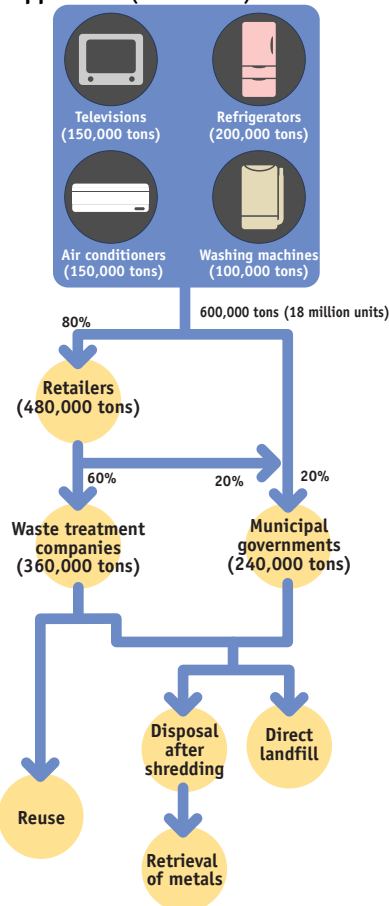
Since 1993, we have set up the "Service Design Review", gathering representatives from the repair divisions, customer service centers, product planning, design, manufacturing, quality control, and the service divisions to review comments and requests from the customers and retailers, so that we can make long-lasting and easy-to-repair products. In 1999, 16 business units have held such activity.

STEP 7

Recycling System for Used Products

Waste disposal has become an increasingly serious problem given the shortage of final disposal sites. To find a solution, we must redefine the concept of waste and build a society with a sustainable economy. It is important to develop products that are easy to recycle, technologies and systems that can properly and effectively recycle used products, and a social infrastructure that can support these activities. We have conducted research in these areas. With the enactment of The Law for Recycling of Specified Kinds of Consumer Electric Goods (Japan), we will step up efforts to establish a recycling system for used household electrical appliances, and to further reduce the environmental burden of our products.

Status of Used Household Electrical Appliances (for reference)



Basic Policies for The Law for Recycling of Specified Kinds of Consumer Electric Goods

1 Building a Flexible Operating System

The Law for Recycling of Specified Kinds of Consumer Electric Goods also aims at reducing total cost through market competition. At present, the Law is only targeted at the four mainstay product categories of television, refrigerator, air conditioner, and washing machine; it is expected to include all electrical appliances in the future. Since Matsushita manufactures a great variety of products, we must design a system flexible enough to accommodate other products. In order to build an integrated system that can handle different issues ranging from discharges and collection of used products, to recycling, to waste treatment, we must build a network that involves also the recycling companies and material suppliers to work towards our zero-dust goal for the final disposal. Besides fulfilling the requirements of the Law, we consider it our mission to become an industry leader in establishing an operation system acceptable to the society and to our business partners.

2 Minimizing Recycling Cost and Decentralizing Recycling Facilities

The Law requires that manufacturers set up facilities to collect and recycle used electrical appliances. From the viewpoint of minimizing recycling cost, we plan to set up an effective system that can utilize our present infrastructure of recycling and transportation companies in different regions for the collection and recycling activities.

Charges for Recycling (excluding tax)

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

Notes: (1) The cost for disposing a used product is the total of 1. fees paid to a company or municipal government for collecting and transporting the used product, and 2. fees paid to a manufacturer for recycling the scrapped materials into new products. (2) The cost is calculated per product basis.

3 Formulating and Communicating Environmental Strategy and Policies

Matsushita established the Matsushita Eco-Technology Center in April 2000 not only for recycling scrapped materials into new products, but also for the research and development of recycling technology to make easily recyclable products.

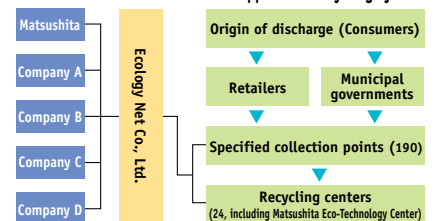
Establishment of the Matsushita Eco Technology Center Co., Ltd.

The Matsushita Eco Technology Center Co., Ltd. (slated for opening in April 2001) is established to carry out the legal obligation of reusing scrapped materials to produce new products; it also plays an active role in accelerating the development of recycling technology. Operating under the basic principle of “from product to product”, the center will conduct research and development for easily-recyclable products, and experiments on technologies and facilities for recycling used products, making it the center for disseminating practical recycling technology to the nation. The Ecology Net Co., Ltd. (Chuo-ku, Osaka), established in September 2000, will undertake all recycling-related operations for the manufacturers participating in our network that links the existing infrastructure, including 24 recycling centers and 190 collection points serving retailers.



Matsushita Eco Technology Center Co., Ltd.
Address: Yashiro-cho, Kato-gun, Hyogo Prefecture
Units of recycled products: 4 product items totaling 400,000 units in 2001 (maximum capacity: 1 million units/year), 50 employees

Matsushita Household Electric Appliances Recycling System



The Law for Recycling of Specified Kinds of Consumer Electric Goods

Schedule	Scheduled for implementation on April 1, 2001
Products subject to law	Televisions, refrigerators, air conditioners, and washing machines
Outline	<ul style="list-style-type: none"> : Obligation of the disposing party to transfer properly, and pay all collection, transportation, and recycling costs : Obligation of the retailer to pick up from the disposing party, and transfer to the manufacturer : Obligation of the manufacturer to pick up, recycle into products, and undertake proper treatment of the used product. : Recycling rate by product: air conditioner 60%, television 55%, refrigerator 50%, and washing machine 50%

(for reference)

Research on Recycling Technology

From March 1998 to December 1999, we carried out joint experiments with Sunny Metal Co., Ltd. for the recycling of four mainstay products. The experiments aimed at increasing the recycling ratio, lowering recycling cost, and developing proper processing methods. The following gives a brief introduction of our research activities.



Experiments on used televisions at Sunny Metal Co., Ltd.

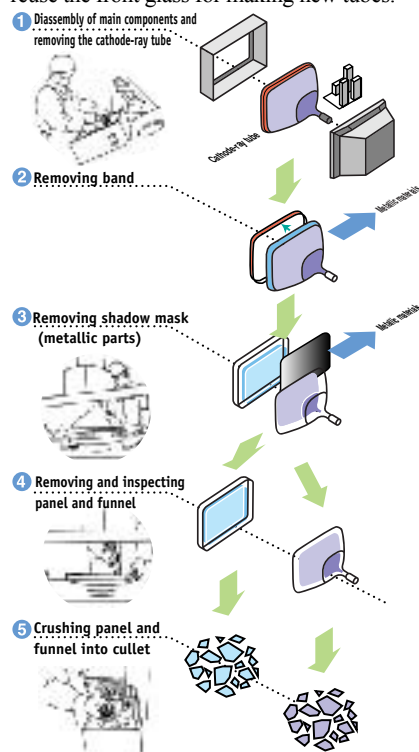
1 Recycling of Insulating Material (refrigerators)

Hard urethane foam is an insulating material for refrigerators, which is difficult to recycle. Thanks to the development of new technology, it can now be reused as the main ingredient for making vacuum insulating material for refrigerators and houses, because its heat-insulating power is 2.5 times that of the conventional foaming urethane.



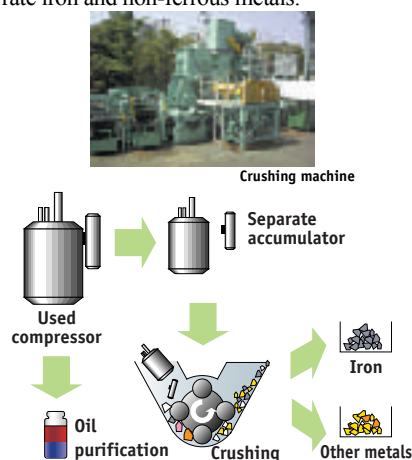
2 Disassembly and Cleansing of Television Cathode-ray Tubes

The cathode-ray tube accounts for 60% of the television's gross weight. It is not suitable for recycling because the rear of the glass section contains lead. We have thus developed the technology to separate the front and rear glass sections, making it possible to reuse the front glass for making new tubes.



3 Dismantling of Motors and Compressors

The dismantling and recycling of motors from various electrical and electronic equipment and compressors from refrigerators and air conditioners are difficult tasks due to the degree of hardness of these components. Matsushita has developed and conducted experiments on the technology to crush motors and compressors and to separate iron and non-ferrous metals.



4 Separate Collection of Plastics

5 Collection of Insulating CFCs from Refrigerators

6 Collection of refrigerant from Air Conditioners and Refrigerators

7 Separate collection of Printed Circuit Boards

TOPICS

Reduce and Reuse

Our society has used and produced household electrical appliances on the premise that they will be used to their full product life. However, with rapid technological renovation and the lower cost of new products, efforts to reduce the amount of waste and to reuse used products are facing major difficulties.

To bring recycling a step further in order to reduce the environmental burden of waste products, we gathered together our production, R&D, distribution, and service divisions in May 1999 to set up the Reduce and Reuse Study Committee.

The committee's first activity in 1999 was to collect information regarding the use, repair and disposal status of products. Our data shows that about half of the discarded prod-

ucts, for example, refrigerators and air conditioners, are still in operating conditions. The fact that these products were not used to their full product life is explained by a move, or a change in lifestyle or family constitution. In line with our product development policy, we pursue not only "recycling" in Green Products, but also "reduction" and "reuse" by stepping up efforts to save energy, design modular components, extend product life, and develop products easy for disassembly. To facilitate future maintenance, repairs and reuse, we have installed microcomputers in some products to record its operation history. The product design divisions place environmental emphasis on their design for long product life. The physical distribution and services divisions are also examining measures to support these products made with the reduction and reuse goals. In view of shift from the possession of a product to the uti-

lization of its functions, there are still many issues that challenge the way we conduct business. We are committed to building an environmentally conscious business model for the 21st century.

Refrigerator Designed for Long-term Use (NR-W500)



(NR-W500)

● Voice message and malfunction warning function

A built-in microcomputer that records operation data and voices warning like "the door is left open." The operation data also serves as reference in the case of malfunction

● Wood-finished handle and refined door surface

A classic design that will not go out of style

A Study of 2010 Eco Life

Since establishing the Eco Design Policy in April 1999, Matsushita's Design divisions have strived to achieve both reduced environmental burden and enhanced design value. To promote eco-design activities with a long-term perspective, a design study was conducted to envision changes in lifestyle based on anticipated environmental problems and technological innovations. The study is targeted at 2010, when transformation of the society, business, and lifestyle into those based on sustainable growth is thought to become a reality. One of the main points of this study is the material aspect of eco life. Concepts gained through the study are further reviewed from a realistic point of view for application in future product design and development.

Another point is the information aspect of eco life. Taking advantage of information technology (IT), we will continue to propose activities that link new lifestyles with business.

Concepts of Our Living Environment

In the future...

Restrictions on household waste Increase in household energy consumption
 Increased burden of environmental tax and recycling costs

Reduction of environmental burden Improvement of quality of life
 To realize both

with
IT&Net

Change in consumer awareness

Selection of eco goods

Save
 Clean
 Reduce
 Recycle

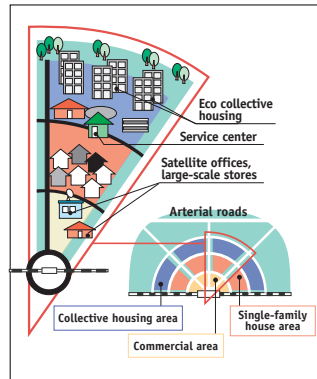
Key words

Eco-conscious life patterns

Dematerialization
 Service
 Reuse
 Full use

Living Environment Settings

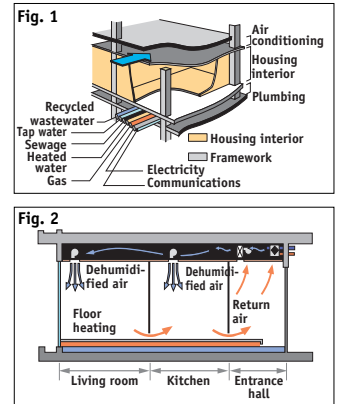
Area setting – Eco Town



■ Living in Eco Town is one of the trends toward reduced environmental burden through community efforts.

- Streamlined traffic – Park and ride system, automatic bus
- Main mode of transportation within the area – bicycle and walking
- Efficient transport – concentrated commercial zone, decentralized stations for delivery
- Information sharing – Community network
- Shared environmental responsibility – Treatment of household waste within the area

House construction setting – Eco collective housing



■ The setting is life in an eco collective housing designed to reduce environmental impact through community efforts.

- Housing construction flexibly responds to lifestyle changes (Fig. 1)
- Efficient use of water – circulation of recycled wastewater
- Efficient use of energy – ceiling dehumidifier, air conditioning (Fig. 2)

Lifestyle Settings

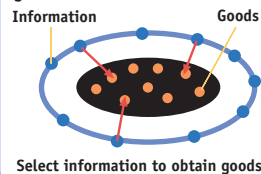
The MONO family – baby boomer generation
 Materialistic eco life

Family members

Husband (age 60), wife (age 55), daughter (age 30)

Values

- Judgment based on material goods and actual experience
- Practice eco life by using tools
- Gain satisfaction by possession of goods



Attitude

- High environmental awareness, abundant knowledge
- Strong motivation to participate in conservation of the global environment

Behavior patterns

- **Diet**
 Choose natural and organic foods; discriminating palate; favor cuisine with natural goodness of ingredients
- **Material**
 Cherish quality goods; unable to dispose and accumulate goods
- **Living environment**
 Choose home with priority on the living environment and health; selective in interior materials; furniture and facilities that flexibly respond to aging and changes of family members

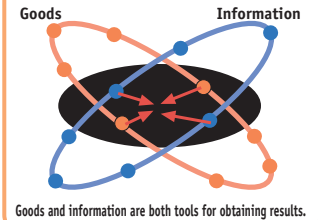
The KOTO family – second-generation baby boomers
 Information-oriented eco life

Family members

Husband (age 37), Wife (age 34), son (age 7), daughter (age 5)

Values

- Values formed through education and information
- Judgment based on information
- Bi-polar culture of real life and leisure life
- Practice eco life by using various services



Attitude

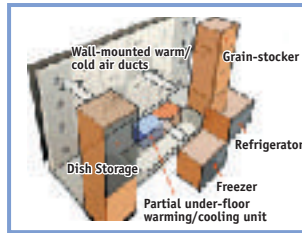
- Not particularly eco-conscious and behave at their free will, but unconsciously avoid improper behavior that may harm environment because it seems unstylish.

Behavior patterns

- **Diet**
 Not particular about food or taste; foods are acceptable as long as they are safe; fond of HMR (home meal replacement)
- **Material**
 Not materialistic, satisfied as long as needs are met (for example, prefer net recycled artwork instead of jewelry)
- **Living environment**
 Priority on location; favor open space, without excessive goods; easy-going lifestyle

By 2010, as a result of earnest efforts by humankind to overcome the serious problems of environmental destruction, we are able to regain a society in harmony with nature, and cherish community and family relationships. Technological innovations are appropriately adopted to realize an eco-conscious lifestyle in each community and household.

The MONO family lifestyle in 2010



Optimum storage of foodstuffs

Food storage system

Labels: Cupboard, Refrigerator 1, Refrigerator 2, Grain stocker, Heating cabinet, Freezer, Underfloor cabinet.

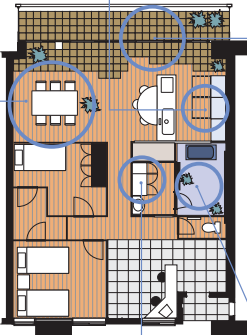
- Improved production efficiency by unitization
- Energy saving by food control at optimum temperature

Cleaning air by wind power

Dust ventilation system

Labels: Forced exhaust utilizing wind, Dust, particles, Forced air intake.

- Energy saving by less frequent vacuuming
- Removal of indoor pollutants, such as dust, particles, and harmful matters



Taking advantage of nature's blessings - summer breeze, winter sunny spot

Solar-operated shutter window, cooling-balcony system

Solar-operated shutter window

- Summer: Natural cool breeze on open deck, a shutter blind shields sunlight and recharges at the same time.
- Winter: Light from the south side provides warmth of a sunny spot

Cooling- balcony system

- Recycled wastewater circulating inside the balustrade cools passing wind.

Shopping without waste

Shopping system

Labels: Automatic cashiers, Motor-assisted shopping carts, Bottles for sale by measure.

- Information on purchase record, contents, environmental tax
- Cut down wasteful purchase
- Reduced waste by eliminating packages

Washing clothes without polluting water

Washer/dryer closet

Labels: Hangers.

- Use of recycled wastewater, purification of waste water
- Energy-saving soak & wash
- Dryer using exhaust heat

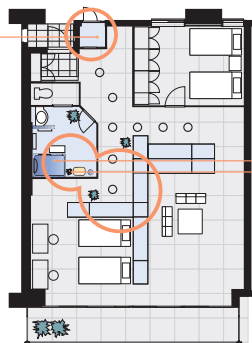
Relaxing bath time with natural materials

Clean bath system

Labels: Liquid crystal shutter window, Circulatory chair-type shower, Heated water circulating bath, Auto-cleaning ceramic bathtub.

- Bio-ceramic bathtub, floor, and wall eliminate need for mold remover.
- Water-purifying ceramic floor
- Heated water circulating bath for saving water
- Use of recycled wastewater

The KOTO family lifestyle in 2010



Taking advantage of functions

Rental equipment and facilities

Labels: Rental full automatic washer/dryer (3 kg capacity), Rental cordless vacuum cleaner, Rental shower.

- Required functions can be accessed whenever needed, eliminating need to own equipment.
- Flexibility according to family growth eliminates waste.
- Rental company has disposal responsibility.

Centralized cooking for elimination of waste

HMR* service system

Labels: Automatic cooking microwave oven, Returnable individual trays.

- Left figure: HMRs cooked by an automatic cooking microwave oven
- Right figure: Automatically cooked according to individual menu and taste

*HMR: Home Meal Replacement

Efficient housework with professional skills

Comprehensive housework service

- Professional household equipment not owned by individuals
- Efficient cleaning with minimum energy
- Extended life of houses by professional services
- Advice on efficient housekeeping

Community laundry for shared use

Comprehensive clothing maintenance service

Labels: Drum-type washer/dryer, Garment storage counter, Suspended-type washer/dryer, Garment compactor, Net viewer.

- Offer information on reuse of clothing
- Individuals do not own washing machines.
- Efficient washing with minimum energy
- Extended life of clothes by professional cleaning

This design study is prepared based on a model of an eco life in the near future. We intend to continue studying lifestyles that harmonizes with the global environment.

Clean Factories (pollutant-free factories)

Concept of Clean Factories

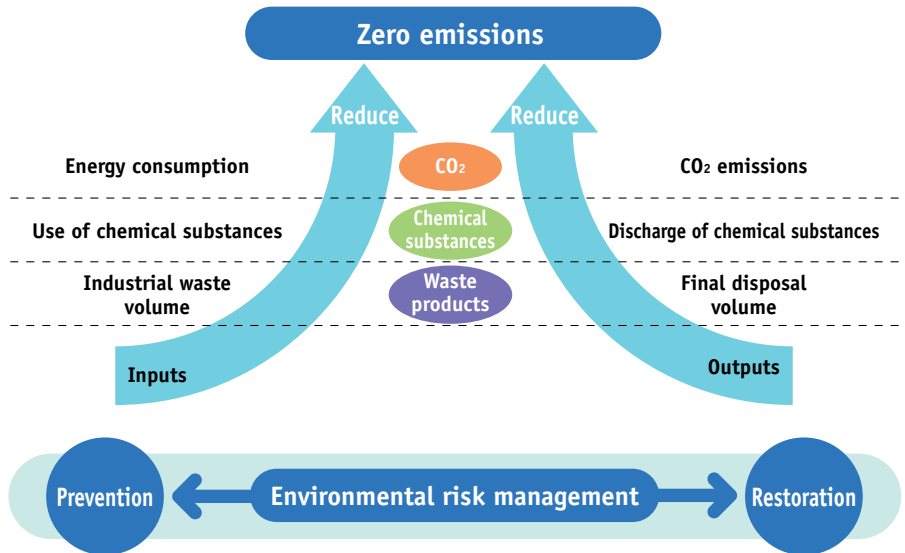
Based on the concept of Clean Factories, Matsushita has established a policy of minimizing environmental impact through comprehensive measures.

To realize Clean Factories, it is essential to promote the concept of Zero Emissions in a broad sense. Advocated by the United Nations University 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. Construction of environmentally sound material cycles is one of the key approaches to guaranteeing not only the minimization of wastes but also increases in revenues based on innovative and productive ideas."

Following this philosophy, our challenge is to minimize all kinds of inputs and outputs at factories, with the aim of simultaneously achieving reduced environmental impacts and management efficiency.

At the basis of all these activities is environmental risk management. To this end, proper monitoring of on-site conditions is carried out for thorough prevention of environmental pollution.

Realizing Clean Factories for a Recycle-Oriented Society



Challenge No. 1: Minimizing energy consumption and CO₂ emissions

Matsushita has incorporated energy conservation activities in the basis of its business to achieve the targets set at COP3*. However, energy consumption is increasing yearly due to expansion of the high-energy consuming device business, such as semiconductors, LCDs, and others, which is expected to continue its growth in this age of digital networks.

To attain the 2010 goals of the Energy Conservation Plan for 2000, we are making company-wide efforts, centering on the four key action programs (refer to page 36).

*COP3: Third Conference of the Parties to the U.N. Framework Convention on Climate Change

Challenge No. 2: Minimizing Use and Release of Chemical Substances

Even if concentration of chemical substances is below the regulated level, as long as nondegradable man-made substances are released, it cannot be called genuine zero emission. To come as close as possible to zero emission, Matsushita is building a system for comprehensive management of chemical substances.

As similar legislation trends in are seen in the Southeast Asian nations, minimizing the use and discharge of chemical substances is an important corporate responsibility. In response, we are now implementing the 33/50 Reduction Plan on a global scale, aiming at 33% and 50% reductions by FY 2001 and 2004, respectively, compared with FY 1998.

Three Challenges for Realizing Clean Factories

Minimizing energy consumption and CO ₂ emissions	
Japan	
Reduce CO ₂ by 7% by fiscal 2010 compared with FY 1990	
Overseas	
Construct model energy-saving factory in each country starting from the Asia-Oceania region.	

Minimizing Use and Release of Chemical Substances	
Japan	
Reduce use and release/transfer of chemical substances by 50% by FY 2004 compared with FY 1998.	
Overseas	
Global introduction of the 33/50 Reduction Plan starting from the Asia-Oceania region	

Minimizing Industrial Waste and Landfill	
Japan	
Reduce landfill and incinerated waste as close as possible to zero by FY 2002 (recycling ratio of more than 98%*)	
Overseas	
Voluntary efforts according to regional and national circumstances with reference to targets in Japan	

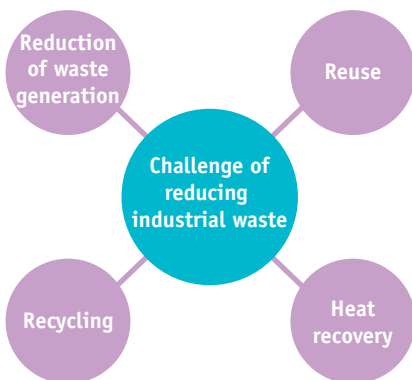
*Recycling rate (Matsushita definition) = recycled volume / (recycled volume + final disposal volume)

Challenge No. 3: Minimizing Industrial Waste and Landfill

Matsushita expects to attain the goals of the Voluntary Plan for the Environment formulated in 1993 by the end of FY 2000. Thus, in addition to existing efforts, in July 2000, new reduction targets were set to promote reduction of industrial waste per product/component.

Reduction of Waste

Wastes generated during production of electric and electronic equipment are extremely diverse and varied. Matsushita is making group-wide efforts not only to reduce waste, but also to treat them as precious resources to be reused and recycled.



Progress in Industrial Waste Reduction

Various recycling efforts resulted in a recycling rate of 89% in FY 1999 (55% in FY 1991). Following the policy to ban all internal incinerators in February 1998, 69 out of 71 incinerators have ceased operation and thorough separation and recycling of waste have been promoted. These measures have contributed to continued decline of in-house intermediate processing of waste since FY 1998.

Breakdown of Waste

Breakdown for FY 1999 is as shown at upper right. Waste plastics include component and product waste, molded waste, and expanded polystyrene. Sludge refers to inorganic and organic sludge from wastewater treatment. Liquid waste consists of waste oils, solvents, acids, and alkalis. Waste papers are office papers, newspapers, and cardboard boxes. Through efforts to minimize generation of waste and promote recycling, we are aiming at further reduction of incineration and landfill disposal.

Zero Emission Targets

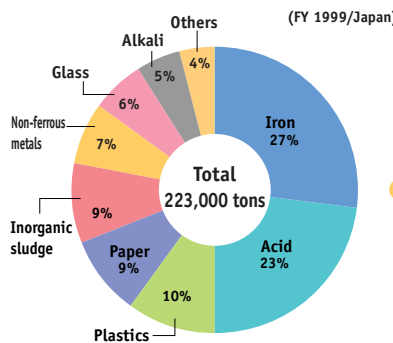
Our target has been “to reduce the ratio of industrial waste to net sales by 75% by FY 2000 compared with FY 1991 levels”. In FY 1999, a reduction rate of 74% was attained, coming close to the set target by just 1%.

Because the spaces for landfill are running out, instead of relative decreases based on the ratio of waste to net sales, reduction of the absolute volume of final disposal is being demanded. To achieve “zero emission” in total waste volume, in July 2000, a new action target was established to reduce industrial and general waste from manufac-

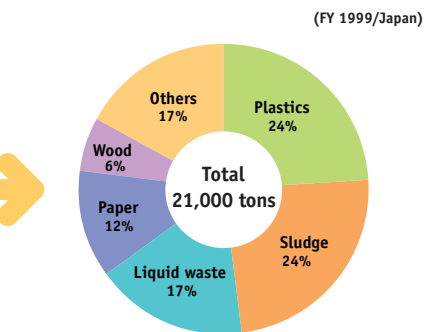
turing facilities to as close as possible to zero by the end of FY 2002. “As close as possible to zero” is defined as a recycling rate* of 98% or above. This exacting target is to be maintained for a specified period of time regardless of production fluctuations, and we are determined to achieve it by cutting material loss and minimizing final disposal waste. As it is also conducive to management efficiency and cost reduction, we hope to tackle it as a group-wide activity to bring about synergetic effects.

*Recycled volume / (recycled volume + final disposal volume)

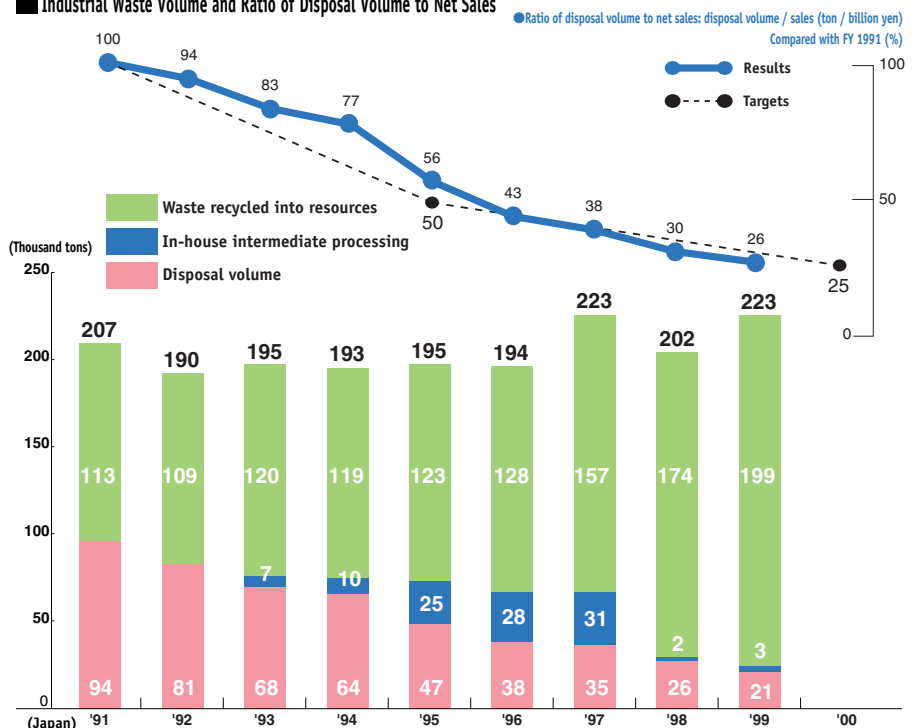
Breakdown of Industrial Waste



Breakdown of Waste Volume



Industrial Waste Volume and Ratio of Disposal Volume to Net Sales



Energy Conservation at Factories

Matsushita formulated the Environmental Voluntary Plan in 1993 and has since promoted energy conservation at its manufacturing facilities. Despite steady efforts, the target of reducing energy consumption per unit of sales by 25% by FY 2000 compared with FY 1990 was deemed unattainable. Thus, in response to COP3*1, new targets*2 were set in FY 1998 to renew efforts toward energy conservation at the factories. So far, in energy consumption per unit of production volume based on the Law concerning the Rational Use of Energy, 48 out of our 53 factories designated as Type 1 Designated Energy Management Factories have achieved the challenge target of more than 1% reduction.

*1 COP3: Third Conference of the Parties to the U.N. Framework Convention on Climate Change
 *2 The Environmental Voluntary Plan formulated in 1993 consisted of two indicators: CO₂ emissions and energy consumption per unit of sales. The target of CO₂ emissions reduction could not be attained by the 1998 deadline, and energy consumption per unit of sales was easily affected by price changes and other factors over a long term. Thus, each factory now controls energy consumption per unit of production volume in conformity with the Law concerning the Rational Use of Energy, and new group targets have been set for reduction of CO₂ emissions.

Environmental Voluntary Plan formulated in 1993	
Targets	Results
Reduce CO ₂ emission to the FY 1990 level by FY 1998	+ 4% (FY 1998)
Reduce energy consumption per unit of sales by 25% by FY 2000 compared with the FY 1990 level	+ 30% (FY 1999)

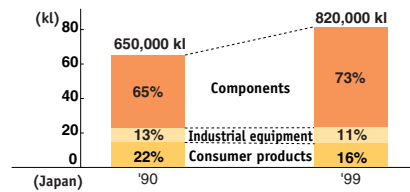
Energy Conservation Plan for 2000 formulated in 1998	
Targets	Results
Reduce CO ₂ emission to 6.5% increase by FY 1999, to the same level as FY 1990 by FY 2005, and to -7% by FY 2010 compared with the FY 1990 level	+ 6% FY 1999 (Attained)

Status of Energy Use

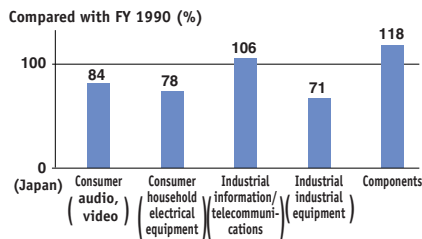
In response to the growth in telecommunications-related products, accompanied by expanding energy consumption in the component sector, such as LCDs, semiconductors, and batteries, Matsushita made group-wide efforts to implement energy-saving measures under a new promotion system in FY 1999. As a result, CO₂ emission was reduced to a 1.6% increase compared with the previous year, marking a 6% increase compared with 1990 as aimed by the new promotion plan.

While energy consumption increased by 6% and 18% in the telecommunications and component sectors, respectively, it decreased by 16-29% in the industrial equipment and consumer sectors, including audio and video products.

Energy Use by Business Sectors



CO₂ Emission by Business Sectors (FY 1999)



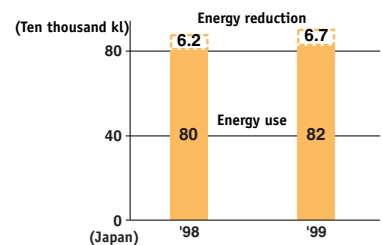
Restructuring of Energy Conservation Management System

In view of Japan's reduction targets set by COP3, and building on the voluntary targets of the industrial sectors, we established new targets in FY 1998 and have promoted activities linked with the environmental management system.

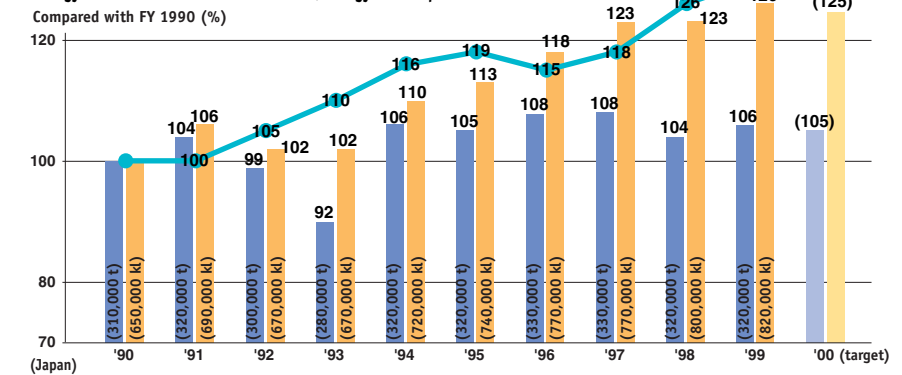
To ensure satisfactory results, targets are set based on the actual business condition of each company, then energy conservation measures and investment plans are devised for each factory, and promoted under the Energy Conservation Plan for 2000. In FY 2000, the next new mid-term plan (three years) is under examination.

Through promotion of the four key action programs to realize the plan, in two years since FY 1998, approximately 18 billion yen has been invested in energy conservation to realize approximately 6-7% energy cut each year, equivalent to 62,000 kl and 67,000 kl, respectively, in crude oil conversion.

Energy Reduction by Investment in Energy Conservation



Energy Use and CO₂ Emission of Factories, Energy Consumption Per Unit of Sales



● Energy consumption per unit of sales (Energy use / 100 million yen) ■ CO₂ emission volume ■ Energy use (crude oil conversion)

Notes: Calculation criteria of Matsushita Electric Group

1. CO₂ emission of electricity is calculated based on the actual unit output figures (kgc/kWh) of CO₂ provided by each power company every year (total of all power sources including thermal, hydraulic, and nuclear power).

2. Evaluation of CO₂ reduction by the cogeneration system is based on comparison with purchased thermal power.

3. Though crude oil conversion and CO₂ emission may be calculated at the points of power generation or power consumption, values at the point of power generation are employed here due to data sources.



Energy Conservation Awards

Ministry of International Trade and Industry Director's Award: Manufacturing Equipment Div. / Refrigerator Div., Matsushita Refrigeration Company
 Chairman's Award: Yamagata Plant, AVC Devices Div. / Vacuum Cleaner Div. / Kadoma Plant, Video Equipment Div. / Device Div., Ohita Plant, Kyushu Matsushita Electric Co., Ltd.
 Excellence Awards: Arai Plant, Matsushita Electronics Corp. / Process Development Center, Matsushita Electronics Corp. / Okayama Site, Matsushita Electronics Corp. / Okayama Plant, Video Equipment Div.

Energy Conservation Plan for 2000

Energy conservation activities are promoted through the four key action programs and a comprehensive system operation linked with the environmental management systems of all business units.

Implementation of Energy Conservation Diagnoses

To identify energy conservation issues and devise countermeasures from a technical point of view, energy conservation diagnoses are conducted by Matsushita Environment Airconditioning Eng. Co., Ltd., energy-related equipment companies within the group, and other specialized organizations and ESCOs*.

As of the end of FY 1999, diagnosis of approximately 42% of all our factories in Japan was completed, and the plan is to expand it to 50% by the end of FY 2000. Ascertaining the investment vs. energy-saving effects, issues identified are incorporated into the Energy Conservation Plan for 2000 for systematic implementation of countermeasures.

*ESCO: Energy Service Company

Training of In-House Energy Managers

The energy conservation diagnoses by outside personnel involve difficulty when conducted on the production process. Energy conservation diagnostic training therefore is being promoted with the aim of fostering in-house energy managers. Since FY 1998, over 200 diagnostic engineers have been trained. As a result, in FY 2000, diagnoses by in-house diagnostic engineers team started at AVC Company, and Matsushita Refrigeration Company, Matsushita Electronics Components Co., Ltd., and Matsushita Battery Industrial Co., Ltd. are also carrying out diagnostic training at their overseas factories.

Establishment and Management of Energy Conservation Standards

Based on the standards of the Law concerning the Rational Use of Energy, in 1995, Matsushita formulated and adopted the Energy Conservation Control Standards at all its factories. In addition, to apply the PAL Standards* for construction in the Law to factory buildings, we established the Energy Conservation Assessment Standards for Buildings to take proper energy conservation measures from the construction planning stage.

*PAL Standards: Standards for enhancing insulation performance of external walls and windows of buildings. Though not applicable to factory buildings in the Energy Conservation Act, Matsushita is employing it as in-company standards.

Implementation of energy conservation diagnoses (Identifying issues and devising countermeasures)

Energy Conservation Plan for 2000

Four Key Action Programs

Establishment and management of standards for energy conservation Standards for construction and facilities assessment

Implementation of energy conservation competitions (Accumulation and exchange of know-how)

Promotion of production facility development (Burning furnace, drying furnace, soldering furnace)
Introduction of energy-saving facilities (Cogeneration systems, etc.)

Energy Conservation Competitions

Energy conservation competitions to solicit and recognize outstanding examples of energy conservation activities are held with the aim of promoting such efforts by sharing know-how throughout the entire group. Following the first competition in FY 1998, the second competition in FY 1999 attracted 472 entries. After a year from entry, the results of 382 themes were reported. The energy saved amounted to 23,000 kl on a crude oil conversion basis, equaling approximately 3% reduction of total energy consumption by Matsushita in Japan.

All entries are compiled into a publication and distributed, and excellent examples are presented at seminars to stimulate further enhancement of these activities throughout the group.

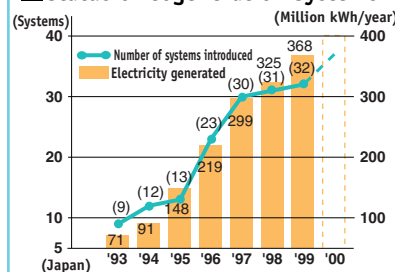
With increasing submission of such examples to other awarding programs, the number of award winners has also doubled compared with FY 1998. Recognition and evaluation of our activities by a wider audience has brought about the synergy of instilling even stronger commitment to energy conservation within Matsushita.

Introduction of Cogeneration Systems

Cogeneration systems* have been introduced mainly in device business factories for the effective use of exhaust heat for heating/cooling of air conditioning. Power generation by cogeneration is increasing yearly, accounting for 14% of all electricity used in FY 1999.

*Cogeneration system: a system for on-site power generation and effective use of exhaust heat generated during power generation.

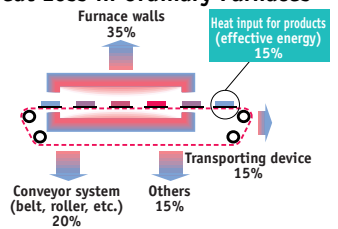
■ Status of Cogeneration Systems



Development of Energy-Saving Industrial Furnace

As a countermeasure against huge energy consumption by industrial furnaces in device business factories, energy-saving industrial furnaces are being developed. Technological innovations, such as super high-efficiency insulation materials, are employed in furnaces for production of new products since FY 1999. Development of energy-saving soldering furnaces for PCB mounting and improvement of other conventional furnaces are also under way.

■ Heat Loss in Ordinary Furnaces



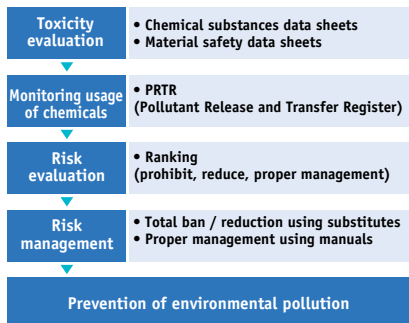
Comprehensive Management of Chemical Substances

Humankind has produced, used, and released into the natural environment nearly 100,000 kinds of chemical substances, which are today believed to cause various impact on the human body and natural ecosystems. With growing trend toward substance-specific restriction of environmental hormones (endocrine disrupters) and dioxins, and increasing public awareness and demand for information disclosure, management of chemical substances has become the most critical aspect of corporate environmental risk management.

Fundamentals of Environmental Risk Management

Matsushita has regarded comprehensive management of chemical substances as the basis for preventing environmental pollution, developing environment-friendly products, and reducing environmental risks. Though the relationship between chemical substances and their effect on the human body is not entirely clear, even without scientific evidence, we believe the fundamentals of environmental risk management are to foresee the danger of chemical substances based on existing data and take optimum actions to prevent damage. In this sense, management of chemical substances requires not only compliance to laws and regulations, but also preventive measures based on risk evaluation. We have been conducting risk assessment based on evaluation of toxicity of chemical substances and monitoring the actual usage to promote their abolition/reduction and proper management.

Comprehensive Management System of Chemical Substances



Publication of Chemical Substance Management Rank Guidelines

Based on selection of chemical substances to be controlled and results of risk evaluation of their toxicity and actual usage, chemical substances were classified in three ranks: prohibition, reduction, and proper management. In March 1999, the results were published in the Chemical Substance Management Rank Guidelines (version 1). These guidelines are not only applicable to in-company activities, but also serve as the core of the Green Procurement Standards Manual (refer to page 20), published concurrently, to gain cooperation from our materials and parts suppliers. These publications are intended to clarify our stance toward chemical substance management and to enable comprehensive monitoring and management of chemical substances. Version 2 of the Guidelines, including chemical substances specified by the relevant Law*, was published in July 2000.

*Law Concerning the Reporting of the Release into the Environment of Specific Chemical Substances and Promoting Improvements in Their Management

Selection of Designated Chemical Substances

In addition to the 245 groups (551 substances) in Version 1, chemical substances designated under the Law (Class I = 354

Rank	Substance groups	Major substances	Production process	Products
Prohibition	33	CFCs, cadmium compounds, organic chlorine compounds, hexa chromium compounds, nickel compounds, arsenic compounds, etc.	Prohibition of use	Prohibition of inclusion
Reduction	112	Toluene, xylene, HCFCs, antimony compounds, inorganic cyanide compounds, vinyl chloride, halogen flame retardants, lead, etc.	Reduction of use	Reduction of inclusion
Proper management	361	Zinc compounds, aluminum compounds, silver compounds, barium compounds, boron compounds, manganese compounds, copper compounds, organic tin compounds, etc.	Reduce release /transfer	Proper management and recycling

Ranking

In addition to rankings based on treaties, laws, and in-company criteria, we conduct toxicity evaluation (carcinogenic evaluation, etc.) and monitor actual usage (release and

Promotion of 33/50 Reduction Plan

Based on the Chemical Substance Management Rank Guidelines, specific targets are set by each factory and promoted under the 33/50 Reduction Plan.

33/50 Reduction Plan for Chemical Substances

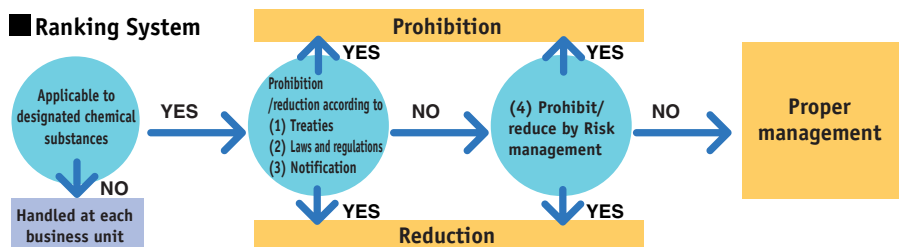
Rank	FY 2001	FY 2004
Prohibition	Immediate ban	
Reduction	33% reduction in use	50% reduction in use
Proper management	33% reduction in release/transfer	50% reduction in release/transfer

(Base year: FY 1998)

This reduction plan went into effect in October 1999, and while actual results in FY 1999 showed some reduction in release into the air and water, waste transfer increased, finishing with overall increase in release/transfer. From FY 2000 on, positive efforts will be exerted in the development of alternative materials and methods, and recovery and detoxification of chemical substances.

groups, Class II = 81 groups) were added, making the total 506 groups (1,413 substances) to be controlled.

Ranking System



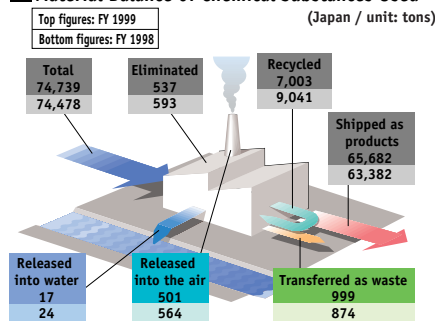
transfer surveys) of designated chemical substances to carry out risk evaluation for classification in three ranks: prohibition reduction, and proper management.

Material Balance

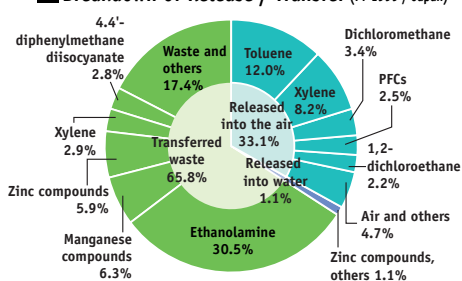
Based on PRTR surveys of the electric and electronics industries, we carry out detailed surveys of the actual usage of designated chemical substances (use of more than 1 kg/year, and all additives). In FY 1999, chemical substances (245 groups) used and released/transferred in Japan amounted to 1,517 tons, accounting for 2.03% of all substances handled.

Starting in FY 2000, following the Chemical Substance Management Rank Guidelines (version 2), a greater number of designated chemical substances are to be monitored. Also, data of FY 1998 have been reviewed to for accuracy as the base year, resulting in revision of some figures.

Material Balance of Chemical Substances Used



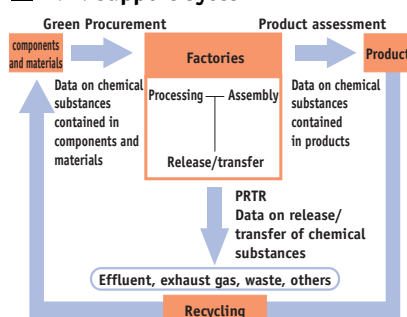
Breakdown of Release / Transfer (FY 1999 / Japan)



Development of PRTR Support System

While Pollutant Release and Transfer Register (PRTR) is only for raw materials, we have coordinated PRTR with Green Procurement to build a system for monitoring all chemical substances, including those contained in purchased components. Efforts are made to grasp not only release and transfer of chemical substances from factories, but also substances contained in products.

PRTR Support System



PRTR Survey Results in Japan (FY 1999 / ton)

Substance groups	Total	Releases and transfers				Elimination	Recycled volume	Consumption (Shipped as products)
		Released into water	Released into air	Waste	Subtotal			
Ethanolamine, monoethanolamine	616.133	0.717	2.406	462.502	465.625	1.812	148.462	0.234
Toluene	807.432	0.449	182.121	33.157	215.726	406.256	181.488	3.961
Xylene	266.773	0.000	124.323	43.729	168.052	38.023	57.434	3.264
Manganese compound	9659.914	0.211	0.011	96.088	96.310	0.130	13.691	9549.783
Zinc compound	1855.706	3.528	0.120	89.590	93.238	0.626	94.197	1667.645
Dichloromethane, methylene dichloride	73.729	0.000	52.126	0.003	52.129	0.000	21.600	0.000
4,4'-diphenylmethane diisocyanate	3092.035	0.000	0.000	42.642	42.642	2.700	0.000	3046.693
Halogen flame-retardants	465.122	0.000	0.000	40.986	40.986	0.000	2.700	421.436
PFCs	55.825	0.000	38.327	0.417	38.744	4.086	0.000	12.995
1,2-dichloroethane, ethylene dichloride	46.304	0.000	32.704	0.000	32.704	0.000	13.600	0.000
Hydrogen chloride (gas)	42.582	2.520	29.324	0.182	32.026	10.291	0.000	0.265
Silicon carbide	23.315	0.000	0.000	22.708	22.708	0.000	0.600	0.007
Zirconium	32.136	0.000	0.004	20.454	20.458	0.045	4.561	7.072
N,N-dimethylformamide	17.542	0.270	0.184	16.065	16.519	0.972	0.048	0.003
Styrene, styrene monomer	108.810	0.000	4.958	10.935	15.893	0.000	0.001	92.916
HCFCs	1097.639	0.000	12.044	2.209	14.253	0.000	0.142	1083.244
PVC, PVC compounds	404.660	0.000	0.000	13.949	13.949	14.194	9.310	367.207
HFCs	169.008	0.000	13.004	0.129	13.133	0.034	0.000	155.841
Lead compounds	285.549	0.067	0.002	12.209	12.278	0.000	19.684	253.587
Aluminum chloride hexahydrate	2951.151	0.045	0.000	12.040	12.084	17.760	2921.306	0.001
Antimony, antimony compounds	322.747	0.020	0.009	11.277	11.306	0.827	20.414	290.200
Nickel compounds	3297.900	0.096	0.090	10.706	10.892	1.117	771.335	2514.556
Di-n-butyl phthalate	97.754	0.000	0.157	9.729	9.886	0.000	0.005	87.862
Lead solder	753.558	0.040	0.004	7.505	7.550	0.000	178.675	567.335
Cadmium, cadmium compounds	3365.948	0.002	0.010	7.127	7.139	0.000	385.048	2973.761
2-ethoxyethyl acetate	20.827	0.000	1.079	4.935	6.014	0.009	14.804	0.000
Barium	91.153	0.021	0.005	5.503	5.529	0.224	0.911	84.489
Boric acid	28.824	1.532	0.093	2.299	3.924	1.157	5.895	17.847
Lead	42901.098	0.011	0.329	3.251	3.591	0.000	1791.877	41105.630
Fluorine	5.732	3.480	0.020	0.000	3.500	0.000	2.224	0.008
Others (50 substance groups)	1782.140	3.647	7.616	16.257	27.720	36.961	343.015	1374.443
Total	74739.044	16.655	501.269	998.584	1516.508	537.224	7003.026	65682.284

Substances "shipped as products" refer to the volume of PRTR substances that changed into other substances through reaction and those contained in or accompanied products shipped out of the factories. Elimination of substances refers to the volume of PRTR substances that changed into other substances through neutralization, decomposition, or reaction treatments.

Conservation of Soil and Ground Water

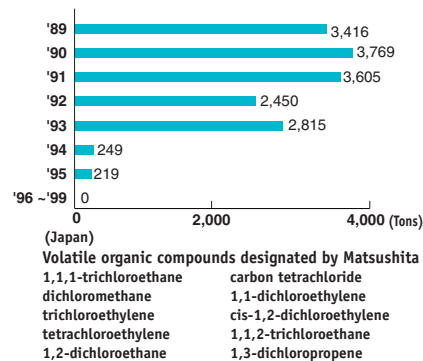
Total Elimination of Volatile Organic Compounds

Volatile organic compounds have been used in factories worldwide since the 1950s and rapidly spread especially during the 1970s as a superior cleaning agent featuring excellent oil solvency, relatively low cost, nondegradable stable properties, and nonflammability. Matsushita, too, had used them for cleaning components, however, with growing concern over their toxicity and carcinogenic properties in the 1980s, we began efforts to prevent contamination and reduce use for the purpose of environmental risk management. In 1989, thorough prevention of ground water infiltration was implemented, and in 1991, Manuals for Preventing Contamination of Ground Water and Water Pollution were prepared to share the know-how throughout the Matsushita Electric group. Targets for elimination of the use of volatile organic compounds as cleaning agents were set in FY 1993 and were attained in Japan by the end of FY 1995.

Changes in Cleaning Methods and Alternative Agents

Cleaning components and materials	Alternative agents and method changes
Press oils for power supplies and printer components (metal)	Carbon hydrogen-based agents
IC components flux	Alcohol/water cleaning
PCB flux	Non-wash flux (no cleaning required)
Processing oils for aluminum die cast	Water-soluble oils, water cleaning
PC components oils	Alkali water cleaning
Press oils for press components	Lubricating steel plates (no cleaning required)

Use of Volatile Organic Compounds for Cleaning



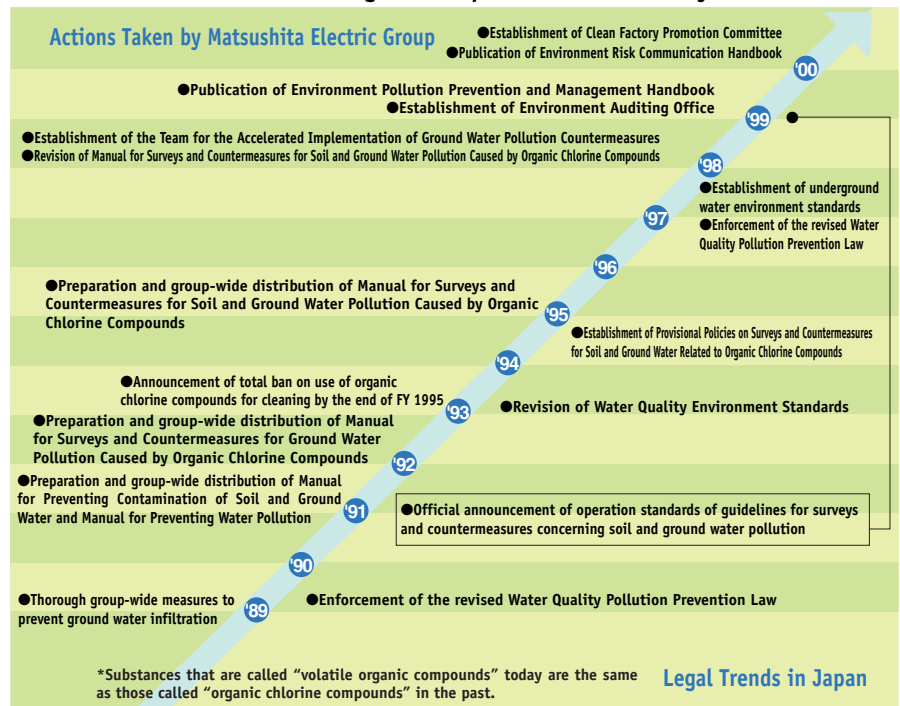
Restoration Activities of Facilities Exceeding Environmental Standards

According to current laws in Japan, reporting an incident of contamination to local authorities is not mandatory. However, our factories with contamination level exceeding the environmental standards have voluntarily reported the facts to relevant government agencies and taken measures accordingly. In June 1998, it was discovered that the ground water had been contaminated within our factory sites by volatile organic compounds to levels exceeding the environmental standards, and the news was made public by the local authorities that received the report. To take drastic actions, the Team for Accelerated Implementation of Underground Water Pollution Countermeasures was immediately organized at the headquarters and each factory to expedite thorough investigation and correction. Investigation included examination of documents and surveys of surface gas, soil, and ground water, based on steps prescribed in the tentative guidelines of the Environment Agency of Japan. Factories exceeding the standard values have promptly reported to respective agencies and undertaken purification and restoration measures under government supervision. Such surveys are also conducted at overseas business sites that used volatile organic compounds in the past.

Thorough Environmental Risk Management

In many cases, volatile organic compounds that penetrate the ground accumulate above the clay layer without dissolving and evaporate only slightly, requiring five to ten years, or more depending on the situation, to remedy the soil condition. Without any restriction and awareness, at the time of the use, that volatile organic compounds might cause pollution, inadequate handling is thought to be the cause of contamination. Even if a chemical substance is through to be harmless now, its toxicity may be discovered in the future. Along with thorough risk management, our policy is to avoid use of substances that may be harmful based on the Chemical Substance Management Rank Guidelines, and make full use of past experience to prepare for any emergency situation. In addition, when changing land use or reconstructing buildings, we intend to conduct further examination of the site and implement any necessary restoration measures, while maintaining proper communication with the local community and residents.

Revision of Laws on Volatile Organic Compounds and Actions by Matsushita



Conservation of Air and Water Quality

Self-Management of Hazardous Air Pollutants

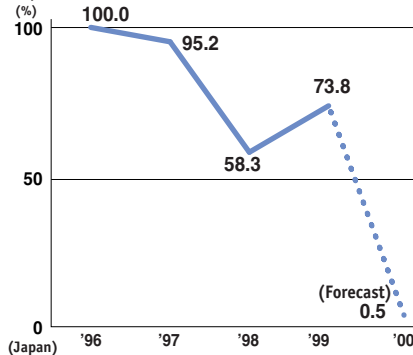
In response to the Guidelines for Promotion of Voluntary Management of Hazardous Air Pollutants by Business Entities announced by the Ministry of International Trade and Industries in 1996, the electric and electronics industries prepared the Voluntary Management Plan for Hazardous Air Pollutants. Based on this plan, Matsushita collects data on the use and emission of hazardous air pollutants to promote restriction. In FY 1999, we fully discontinued the use of organic chlorine solvents for coating, which had accounted for 99% of hazardous air pollutants, and in FY 2000, the total emission is estimated to be less than one ton.

Emission of Hazardous Air Pollutants (FY 1999/Japan/tons)

Substance	Volume
Acrylonitrile	0.000
Acetic aldehyde	0.100
Vinyl chloride monomer	0.000
Chloroform	0.000
1,2-dichloroethane*	32.704
Dichloromethane*	52.126
Tetrachloroethylene	0.000
Trichloroethylene	0.000
1,3-butadiene	0.000
Benzene	0.009
Formaldehyde	0.340
Disulfide nickel	0.000
Nickel sulfate	0.002

*For coating use only; those for cleaning purposes were banned in FY 1995.

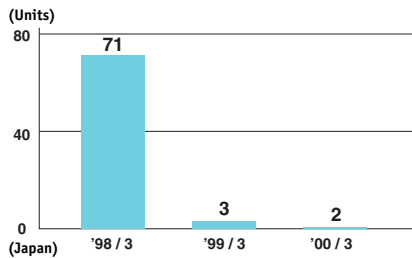
Changes in Hazardous Air Pollutant Emission (Compared with FY 1996)



Abolishment of Incineration

Though many in-house incinerators have been used to reduce the volume and weight of waste, with increasing concern over the danger of dioxin pollution, in February 1998, we announced the policy of discontinuing the use of all in-house incinerators and promoting separation and recycling of waste to aim at zero emissions. As of the end of FY 1999, of the 71 in-house incinerators used in Japan, 69 ceased operation, and the remaining 2 facilities have been remodeled to reduce pollution risks and for thermal recycling.

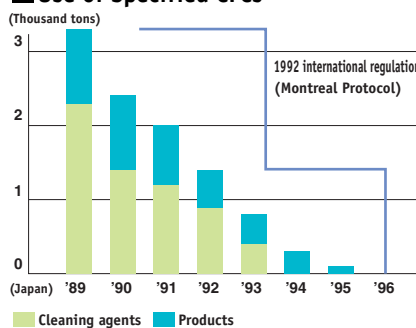
Number of Incinerators (Units)



Ozone Layer Protection by Total Elimination of Specified CFCs

Due to technological development of non-wash PCBs and substitutes such as water-based cleaning agents, specified CFCs, used as a cleaning agent, was eliminated by the end of FY 1993. At the end of FY 1995, use of 1,1,1-trichloroethane for cleaning and specified CFCs for products was also discontinued. CFCs for cooling and halon for fire extinguishers are being switched to non-fluorocarbons and non-halon materials at time of renewal of facilities and equipment.

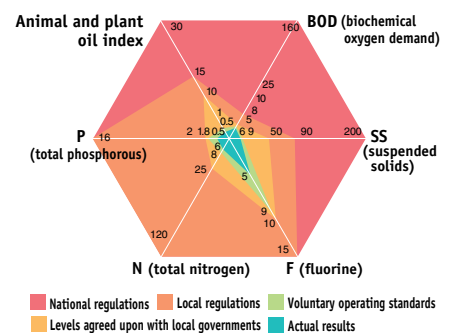
Use of Specified CFCs (Thousand tons)



Conservation of Water Quality by Voluntary Standards

Effluent from our factories is under control according to the Matsushita Product Assessment (refer to page 18), through the evaluation of production processes from the end-of-pipe to upstream, based on the voluntary standards that are more stringent than laws and regulations. In particular, at semiconductor manufacturing facilities, wastewater is thoroughly treated and controlled under strict voluntary standards.

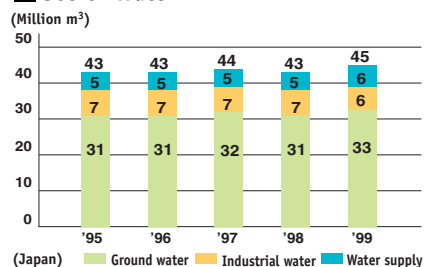
An Example of Water Quality Management Standards and Actual Results (ppm)



Effective Use of Water

In spite of expansion and restructuring of businesses, factories are restricting the increasing use of water by promoting reuse and repeated treatment of wastewater from the cleaning process. For example, while the Capacitor Division of Matsushita Electronics Components Co., Ltd. uses approximately one-third of the total water supplied in Uji City in Kyoto Prefecture, approximately 7,700 m³/day is efficiently used by reusing cooling water and wastewater an average of 5.5 times. On the other hand, water-saving activities are promoted at offices as well, reusing wastewater and rainwater for toilets and watering plants.

Use of Water (Million m³)



Long-Term Maintenance of Facilities

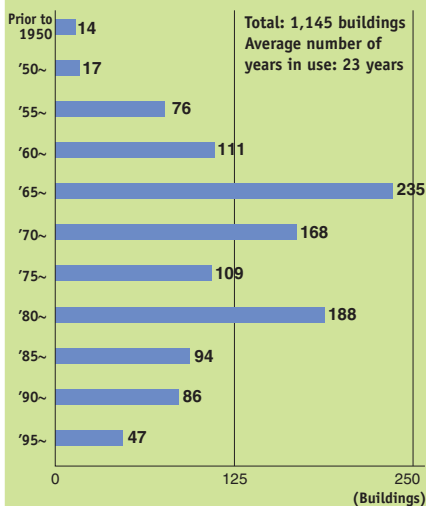
Prolonged Use of Facilities and Environmental Consideration

The Matsushita Electric group factories are located at 121 production sites throughout Japan, comprising approximately 1,100 buildings. As the average age of existing buildings in use is 23 years, we are taking measures to preserve, remodel, and make the most of our properties for prolonged use.

With 71 facilities established during the period of rapid economic growth in the 1960s and 1970s, more than half of our facilities are well over 30 years old, approaching time for renewal and repair. To extend the life of these buildings and facilities, redevelopment of these sites is being promoted.

Furthermore, as a great deal of environmental impact is involved in the construction and dismantlement of facilities, we are simultaneously developing methods with consideration toward the environment.

■ Number of Buildings Owned by Matsushita Electric Group (More than 500 m²)



An Example of Environmentally Conscious Dismantlement

Located within the former headquarters area in Kadoma City, Osaka Prefecture, are the former residence of Konosuke Matsushita and the House of History, making the area the most historically and culturally significant place since Matsushita Electric expanded to Kadoma in 1933. As part of a redevelopment project of the Kadoma area in 1999, under the theme of "protecting and creating the environment," old laboratory facilities were dismantled and the area was redeveloped as the historical and cultural zone.

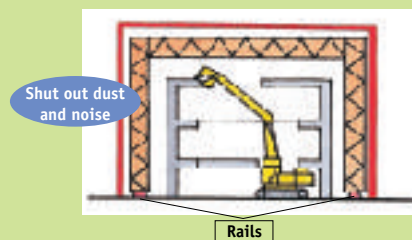
1 Reduced noise and dust

Under the theme "earth-friendly dismantlement," we implemented work with utmost environmental consideration. By adopting the new Eco Canopy method, noise and dust were greatly reduced compared to conventional methods.

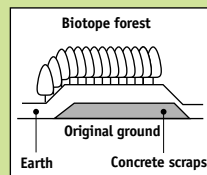
■ Comparison of Conventional Methods and Eco Canopy
Conventional methods ▶ Enclosure around a building



Eco Canopy ▶ Movable roof enclosure



■ Reutilization of dismantled scraps (historical and cultural zone development plan)



2 Recycling Scraps from Dismantled Buildings

Scraps of dismantled buildings were separated accordingly, and concrete scraps accounting for 94% of all scraps were all turned into regenerated gravel and used as paving materials within the site. Remaining scraps, such as metal, non-metal, and wood scraps, were processed into valuable materials and sold for reuse, and glass and fluorescent lamps were separated and handed over to disposal companies. As a result, we were able to achieve a recycling rate of 98%, compared with 4% of conventional methods. Reuse of scraps within the site not only helped save energy for transportation and disposal, but also brought down the total cost by approximately 5% compared with conventional methods.

■ Comparison of Conventional and New Dismantling Methods

	Conventional methods	Current method (with environmental consideration)	New method
Recycling rate of scraps	4%	80%	98%
Number of vehicles for transporting scraps (Truckloads)	Approx. 6,200	Approx. 1,300	Approx. 150
CO ₂ emission by transportation of scraps	16.1t	3.4t	0.4t

3 Landscape gardening utilizing scraps

In the green zone of the site after removal of old structures, concrete scraps were piled into a hill, then covered with earth, and approximately 500 medium to tall trees and 1,500 bushes were planted to create a "biotope" forest.

Stone flooring materials from the dismantled headquarters were used as stepping-stones, and pillars as benches and stools, making use of scraps wherever possible.

Global Environmental Preservation Activities

Matsushita has established environmental divisions at its holding and support companies in four regions around the world: North and Latin Americas, Europe, Asia and Oceania, and China. They formulate and implement environmental policies by coordinating with the environmental division of each business unit and taking into consideration the respective regional characteristics. Environmental managers and officers from each business unit participate in regional conferences several times a year and make use of in-company intranet for sharing information and enhancing knowledge.

Regional Environmental Divisions

North America
Corporate Environmental Dept., Matsushita Electric Corporation of America
Europe
Environment Office, Matsushita Europe Ltd.
Asia and Oceania
Environmental Protection Group, Productivity Support Center, Asia Matsushita Electric (S) Pte. Ltd.
China
Environmental Conservation Office, Development and Business Promotion Department, Matsushita Electric (China) Co., Ltd

Global Conference for the Environment

In June every year, the Global Conference for the Environment is held to update each other on activities and new trends throughout the world and to facilitate coordination between related business units. In FY 1999, approximately 120 representatives from all regions gathered to present summary reports of activities during the past year and hold a panel discussion on the theme of development of Green Products.



Global Conference for the Environment

Collection of Overseas Environmental Data

At Matsushita, yearly environmental activities at each business unit are surveyed through the Environmental Performance Reports (refer to page 13). This survey was targeted at only Japan until FY 1994, and other countries were using different types of monitoring systems; for example, the North American region had developed and introduced a management tool called Facility Profile. Thus, to grasp the environmental impact of the Matsushita group as a whole, since FY 1998, we have included all manufacturing facilities and key non-manufacturing sites throughout the world in the survey. In FY 1999, approximately 130 facilities, including overseas manufacturing and non-manufacturing sites, were surveyed mainly in the three areas of waste, energy, and chemical substances, and we were able to collect useful information from approximately 120 facilities.

Each region differs greatly in terms of culture, history, and economy. In regions in the developing stage, such as Southeast Asia and China, all indicators are rising, while no major fluctuations were observed in advanced nations in Europe and North America.

Matsushita upholds the concept of Zero Emissions for improvement of the factory environment. To make full use of the Environmental Performance Report, which serves as a tool for scientific, quantitative analysis and evaluation, in FY 2000, we plan to improve the reliability of data even further.

Key Environmental Data of Overseas Manufacturing Facilities (FY 1999)

Europe		
Energy	Electricity consumption (14)	125,233,000 kWh
	City gas consumption (14)	18,645,000 m ³
Waste	Industrial waste (11)	16,000 tons
	Recycled materials (11)	12,000 tons
Chemical substances	Total volume (4)	6,019 tons
	Release and transfer (4)	1 ton
Water (17)		1,700,000 m ³
Environmental Accounting	Facility investment (16)	100 million yen
	Expenditure (16)	500 million yen
	Reductions (16)	100 million yen

China		
Energy	Electricity consumption (22)	296,649,000 kWh
	City gas consumption (22)	4,427,000 m ³
Waste	Industrial waste (25)	34,000 tons
	Recycled materials (25)	26,000 tons
Chemical substances	Total volume (15)	14,563 tons
	Release and transfer (15)	171 tons
Water (23)		3,710,000 m ³
Environmental Accounting	Facility investment (36)	100 million yen
	Expenditure (36)	500 million yen
	Reductions (36)	200 million yen

Asia and Oceania		
Energy	Electricity consumption (32)	822,614,000 kWh
	City gas consumption (32)	20,673,000 m ³
Waste	Industrial waste (41)	181,000 tons
	Recycled materials (41)	75,000 tons
Chemical substances	Total volume (28)	90,019 tons
	Release and transfer (28)	695 tons
Water (46)		6,520,000 m ³
Environmental Accounting	Facility investment (51)	900 million yen
	Expenditure (51)	1,700 million yen
	Reductions (51)	300 million yen

North and Latin Americas		
Energy	Electricity consumption (22)	573,147,000 kWh
	City gas consumption (22)	85,992,000 m ³
Waste	Industrial waste (19)	40,000 tons
	Recycled materials (19)	31,000 tons
Chemical substances	Total volume (17)	26,483 tons
	Release and transfer (17)	293 tons
Water (24)		5,800,000 m ³
Environmental Accounting	Facility investment (28)	1,800 million yen
	Expenditure (28)	2,000 million yen
	Reductions (28)	900 million yen

Note: Figures in parentheses indicate the number of manufacturing sites surveyed.

North America

Owing to experience in soil contamination by high-tech industries and other environmental damage, the U.S. has well-established, stringent laws and regulations for environment. In particular, the Emergency Planning and Community Right-to-Know Act (EPCRA) strongly demands information disclosure and accountability of enterprises.

In the North American region, priority has been placed on observance of environment-related laws and regulations. Since 1993, the United States Environmental Compliance Handbook has been prepared and distributed to the management and environmental divisions of each facility. Seminars for environmental managers are also held regularly to help them observe major laws and regulations, such as Toxic Substances Control Act (TSCA) and Toxics Release Inventory (TRI). Furthermore, since 1992, the North American Facility Profile has been voluntarily prepared to better understand and analyze the environmental performance of each manufacturing facility.




An Example of a Facility Profile

Manufacturing in Accordance with environmental regulations

North American laws and regulations concerning the environment cover water discharge, exhaust, reporting use of hazardous chemical substances, and protection of natural resources. In response, our manufacturing facilities have introduced the latest pollution prevention equipment and cut down the use of substances that may harm or contaminate the environment, which have been replaced with other substances wherever possible. In addition, based on Matsushita Product Assessment, we aim at producing products with minimum environmental burden.

Honored Again by the Energy Star Program

Matsushita participates in the Energy Star Program sponsored by the U.S. Environmental Protection Agency (EPA) for promotion of energy-efficient equipment. In FY 1999, we marketed approximately 400 models of energy-saving products (approx. 240 models in FY 1998). For recognition of our achievements in selling the greatest number of energy-saving products in all 11 product categories, and our positive support for this program, Matsushita received the 2000 Energy Star Partner of the Year Award in the Home Electronics category, making us the award winner for two consecutive years.

 http://www.panasonic.com/energy/energy_star.html



Energy Star Program awarding ceremony

Matsushita's Astro Vision announcing the news (Times Square, New York City, U.S.A.)



Mexico Factory Awarded

Matsushita's manufacturing facility in Tijuana in Mexico was awarded in the Industrial category at the Expo Ambiente for recognition of its outstanding environmental performance. Our Eco Tijuana event also received awards from the local and provincial governments.

Matsushita's booth at Eco Tijuana



Recycling System of Used Products

Matsushita is promoting the Electronics Equipment Recycling Program advocated by the State of Minnesota. In cooperation with the state government, we are building a collection system for electronics equipment, such as TVs and VCRs, and carrying out an experimental study for recycling. In 1999, approximately 700 tons of electric and electronics equipment were collected and recycled in a period of three months.



Experimental study for recycling in Minnesota

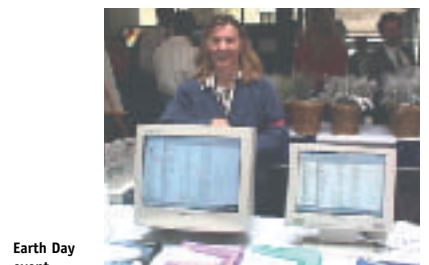
Matsushita was also instrumental in establishing the Rechargeable Battery Recycling Corporation (RBRC) in 1994, for collection and recycling of rechargeable batteries (Ni-Cd batteries and others) in the U.S. and Canada. RBRC has attracted wide attention and been highly evaluated as a model recycling program for rechargeable batteries in North America.



RBRC logo

Human Resource Training and Information Sharing

On April 22 every year, we organize the Earth Day event. Also, to provide the latest information on global environmental issues and Matsushita's environmental activities, our in-company intranet has delivered since 1989 the corporate policy, most recent presentations and speeches by corporate representatives, and a directory of environment-related contacts.



Earth Day event

Latin America

Central and South Americas have been deeply involved in global environmental conservation through the 1992 Earth Summit (The United Nations Conference on Environment and Development) in Brazil and The Fourth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP4) in 1998 in Argentina. At the time Matsushita started building an environmental management system, there was no ISO14001 certification institutions in Peru and Costa Rica, forcing some facilities to apply for certification outside the country. Under these circumstances, in November 1998, Matsushita Electric Industrial del Peru S.A. became the third enterprise in Peru (the first among local electric and electronic industries) to obtain ISO14001, followed by certification of all six manufacturing facilities by the end of March 1999.

Battery Recycling in Brazil

In July 1999, collection and recycling of used lead-based batteries and Ni-Cd batteries became mandatory in Brazil. To cooperate with the San Paulo Industrial Association, Matsushita ensured that customers and retailers are notified of the recycling methods of our batteries, by attaching recycling marks and notes to battery packages, instruction manuals of products with built-in batteries, and advertisements by July 2000.

Support Activities in Peru

As one of the few companies with ISO14001 certification in Peru, Matsushita Electric Industrial del Peru S.A. has offered support to CONAM, a committee in charge of promoting environmental management in Peru. CONAM members are invited to Matsushita factories to observe our environmental management system. Also, CEMAPE, Matsushita's education and training center, offered the Special Environment Course in 1998 for training of personnel. Those who have completed the courses are working actively as environmental management specialists at various enterprises.

Europe

As European nations share rivers and boundaries with adjoining countries and have long faced pollution problems since its industrialization, efforts in environmental conservation are more advanced than other regions. Environmental laws concerning packing materials, battery collection and recycling, environmental management systems, prevention of global warming, collection and recycling of used products, and strengthened control of chemical substances have been steadily established not only in each nation, but also within EU as a whole. The fundamental policy of EU towards environmental conservation is as laid down in Article 174 of the Amsterdam Treaty; to maintain, protect, and improve the quality of the environment, to protect the health of human beings, and to utilize natural resources in a careful and rational manner.

Matsushita Environmental Activities in Europe

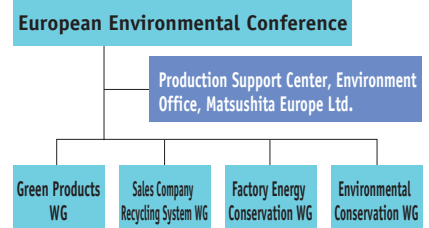
Matsushita has appointed environmental management officers at all manufacturing and sales companies throughout Europe to tackle environmental problems. In 1999, the European Environmental Conference was founded to respond promptly to rapidly expanding environmental problems. The president of Matsushita Europe Ltd. chairs the conference, and all managing directors within Europe meet to build strategies for resolving environmental issues in Europe.



European Environmental Conference

Four working groups are set up under the European Environmental Conference to undertake various activities; for example, the Green Products Working Group organized the first European Lead Free Solder Promotion Meeting in July 2000.

European Environmental Conference Working Groups



The first European Non-Lead Soldering Promotion Meeting



External Activities

Matsushita plays a large role in the electronic equipment industry in Europe and actively participates in many environment-related committees in Europe. Since 1984, we have participated in the Environmental Working Group of ZVEI (German electrical and electronic manufacturers' association), since 1996 in the Environmental Affairs Committee of *EACEM and the Environment Committee of *ECTEL and contributed to finding practical solutions to environmental problems.

*1: European Association of Consumer Electronics Manufacturers
*2: European Telecommunications and Professional Electronics Industries Association

Telephone Recycling in the U.K.

Matsushita Communication Industrial U.K. Ltd., along with major cellular phone manufacturers, established a joint activity for collection and recycling of used telephones. Through retail shops in support of this purpose, telephones are collected and transported to the recycling factory. So far, more than 50,000 units and over 10 tons of accessories have been recycled. Presently, we are aiming at increasing the number of units collected and improving cost efficiency.



Collected used cellular phones



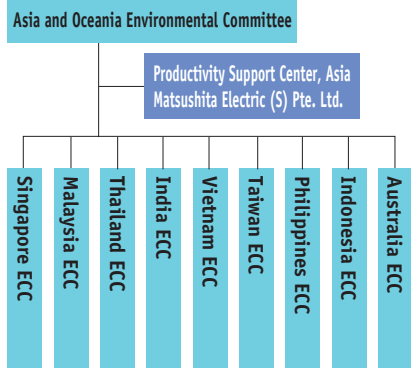
Premier Award for Environmental Excellence: Matsushita Communication Industrial U.K. Ltd.
District Award for Environmental Achievement in the Community: Matsushita Communication Industrial U.K. Ltd.
Wales Environment Award: Kyushu Matsushita Electric (U.K.) Co., Ltd.

Asia and Oceania

The Asia-Oceania region, from the Far East to West Asia, is made up of diverse nations with various ethnic groups, religions, and languages. With 56 manufacturing subsidiaries, it represents Matsushita's largest overseas production base.

In 1995, Matsushita set up an Environmental Control Committee in each country for responding to specific local issues. Currently, committee meetings are held several times a year in each of the 9 countries to maintain and improve the environmental management system and undertake new issues. In addition, the Asia-Oceania Environmental Conference involving the entire region is held twice a year.

Asia and Oceania Environmental Committee and Environmental Control Committees



Note: ECC: Environmental Control Committee

Construction of Environment Management Systems

In this region, several governments have established pilot programs for introducing the ISO14001 certification system. Matsushita Refrigeration Industries (S) Pte. Ltd., Matsushita Electric Co., (Malaysia) Bhd., and Matsushita Television Co., (Malaysia) Sdn. Bhd. were designated to take part in the pilot programs and promptly obtained certification in FY 1996. They have transferred the know-how gained through the program to other companies in the region, thus contributing as leading companies in the field of environmental conservation in each country.

Mutual Internal Audits and Human Resource Training

Matsushita offers environmental awareness and environmental management cultivation programs for human resource training. In FY 1999, mutual internal audits were conducted to enhance the capability of auditors in Malaysia, Philippines, Thailand, India, and Indonesia. In Singapore, study meetings were held to stimulate information exchange between companies and improve environmental performance.

To raise the expertise of employees, study meetings on various themes, such as environmental pollution and energy conservation, are also held from time to time.



A study meeting in Singapore

Mutual internal audit in Thailand

Recycling of Home Electric Appliances in Taiwan

In Taiwan, Matsushita has played a central role in the establishment of E&E Recycling Inc., jointly founded by 12 manufacturers of home electric appliances. In September 1999, the first plant commenced operation with a monthly capacity of processing approximately 210,000 units of TVs, refrigerators, air conditioners, and washing machines.



E&E Recycling Inc. (Taiwan)

Transportation Project in Indonesia

P.T. National Gobel and P.T. Matsushita Kotobuki Electronics Industries Indonesia participated in the Clean and Lean Transportation Initiative by the Jakarta Environmental Impact Management Agency and Mine and Energy Department. The project aims to raise awareness toward energy conservation among transporting companies and their user companies to realize a clean and healthy environment.

China

With a population of over 1.2 billion, rapid industrial growth has accelerated environmental pollution, causing serious water pollution, acid rain, and air pollution due to coal burning.

Responding quickly to the need for environmental conservation, the Chinese Government convened the first National Environmental Conservation Conference in 1973. The government has adopted a strict environmental policy, enforcing design, installation, and operation of environmental conservation equipment simultaneously with the main equipment for all projects with potential environmental impact. Several thousands of polluting factories have also been forced to cease operation or relocate.

Building an Environmental Management System

The first Matsushita Electric (China) Environmental Control Conference was held in Beijing in November 1996, marking the official start of ISO14001 certification activities. Matsushita was designated by the Chinese Government to take part in the primary pilot program for ISO14001 certification, and in December 1996, Beijing Matsushita Color CRT Co., Ltd. obtained certification. To date, all 33 manufacturing facilities have received certification.



Matsushita Electric Group environmental auditing



Matsushita Electric (China) ECC

Social Report

Businesses and the society are interdependent in that a company carries out productive activities in the context of the society. The society is made up of people, and people form the basis of all business activities. Matsushita has long declared that it is a company that developing employees, serving people and making contributions to the society before making products. By the same token, the basis for all Matsushita's environmental activities is also to serve people and to make contributions to the society.



Love the Earth Citizens' Campaign

It is crucial for corporations, governments, and citizens to participate in seeking solutions to the global environmental problems; and reform is necessary even in personal lifestyles. Matsushita has promoted environmental activities not only on the corporate level, but also on the personal level, launching the Love the Earth (LE) Citizens' Campaign in February 1998 to encourage employees and their families to actively take part in environmental activities. We believe that changing the environmental awareness and behavior of individuals, and encouraging others to do so, will have a ripple effect in promoting environmental activities at homes and in communities, thereby strengthening the trust between the company and the local society.

As part of the campaign, Matsushita and its labor union have worked together to set up various environmental programs. With the establishment of LE Offices at every operating unit in 1999 and the appointment of 120 employees to take charge of LE activities, we hope to further expand our environmental activities.



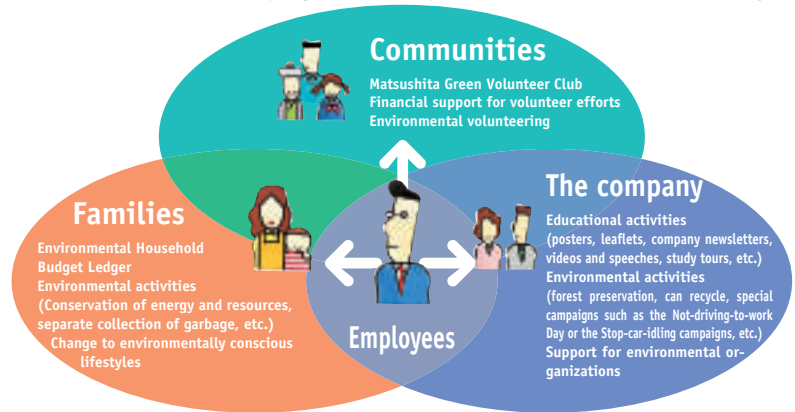
LE Conference for LE Promoters

On November 12, 1999, we sponsored the first LE Conference for about 200 promoters from across the Matsushita Electric Group. It featured presentations on corporate environmental policies, lectures by external environmental specialists, reports by employees active in environmental activities, panel discussions, and lively deliberations on future action plans.



LE Conference

Love the Earth Citizens' Campaign at the Corporate, Domestic, and Community Levels



Improving Lifestyles Using the Environmental Household Budget Ledger

Matsushita has established an LE Family program for employees and their families, who have high environmental consciousness and are interested in adopting more eco-friendly lifestyles. The program started in April 1998 with 3,300 registered LE families in 1998 and increased to 4,000 in 1999. These families used the Matsushita original Environmental Household Budget Ledger to evaluate and improve lifestyles.



Environmental Household Budget Ledger

The Environmental Household Budget Ledger calculates the volume of water, electricity, gas, and gasoline used in the household and the corresponding amount of carbon dioxide discharged. Comparing these data with those of the previous month or the same month in the previous year helps to monitor the levels of energy consumption and CO₂ emissions, making it easier to promote eco-friendly ways of living.

Voices from LE Families Using the Environmental Household Budget Ledger

- "There is obvious reduction in electricity, gas, and water consumption."
- "By using the Environmental Household Budget Ledger, we know for the first time how much energy we consume in a year. We look forward to reducing it next year."
- "We will have more incentive to save energy if we can see the actual figures of reduction."
- "I am surprised to find out that gasoline consumption accounts for half the total volume of CO₂ emissions."
- "There is more communication between family members in talking about whether our CO₂ emissions have increased or decreased during the month."
- "If we use the Environmental Household Budget Ledger for at least five years, we will see a clear improvement in the environment."

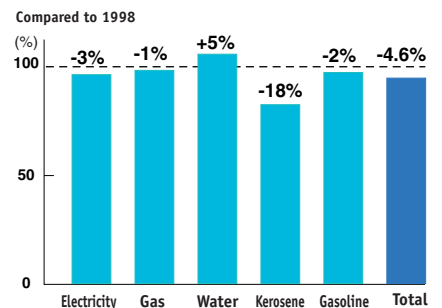
Cutting CO₂ Emissions by 4.6%

Compared to previous year, our LE families achieved a 4.6% reduction of CO₂ emissions in 1999 (see graph below). Analysis shows that the reduction is mainly due to lower kerosene consumption by LE families residing in the Hokuriku area. Average per household annual reduction of CO₂ emissions is 120 Kg-C, which is equivalent*, when all Matsushita employees are mobilized, to planting 1.27 km² of trees.

With 20,000 employees registered as LE families in 2000, we aim to achieve five times more reduction in CO₂ emissions than in 1999. We also plan to extend the Matsushita LE family program to local communities so that we can reduce the environmental burden of the society as a whole.

*Bases for calculation
: Volume of CO₂ accumulation in the forest: 0.312t-C/m²
: Time required for trees to grow into a forest: 30 years (estimate)
: CO₂ absorption rate of forest: 0.312/30=0.0104t-C/m²/year
(The forest of 1m² absorbs 10.4 kg of CO₂ emissions in a year)
: 110,000 Employee families x 120 kg-C/0.0104=1.27km²

CO₂ Emissions of LE Families (FY 1999)



(Note) 1998 and 1999 comparison, with random choice of 300 LE families

Matsushita Green Volunteer (MGV) Club

The MGV Club was formed in November 1993 as an environmental volunteer organization to carry out nature preservation activities, with funds donated by approximately 70,000 Matsushita Group employees, union members, and retired personnel. In support of this activity, Matsushita also donated a matching gift of similar amount.

The MGV Club organized a wide range of activities including nature orientation, forest conservation, the cleanup of natural areas and communities, nature observation trips, environmental lectures, photo contests, and other such events. Participation in recent years has surged to include family members and friends of employees and retired personnel, with the total number of participants exceeded 8,000 in 1999.

Principal MGV Club Activities in FY 1999

Sakura watching
It is an annual event that surveys the periods when cherry blossoms bloom around the country as a measure to monitor climate changes and their impact on the natural environment. There are 93 trees in different regions of the country specified for the survey.
Cleanups
Frequent cleanup of parks, roads, rivers, and shores near operating sites and homes are organized around the country.
Forest conservation
Volunteers participate in planting trees and thinning out forests while enjoying nature in different seasonal colors.
Nature observation trips
These trips to learn more about the nature are popular with both adults and children.
Recycle activities
The recycling of aluminum cans and old newspapers, as well as the sponsoring of flea markets help to nurture a sense of respect for nature's scarce resources.

Weeding, one of the forest conservation activities, took place at Minami Ashigara in Kanagawa Prefecture



Nature preservation activity at the Osaka Tsurumi Green Land Park



Financial Support for Volunteer Efforts

Matsushita has long supported employee volunteer activities by offering special holidays for such activities, and sponsoring programs in cooperation with the labor union. In April 1998, we introduced the Volunteer Activity Financial Support System to promote greater employee involvement in social contribution activities. This system provides funding to social activities and non-profit organizations (NPOs) in which Matsushita employees and their spouses, and retired personnel participate on a long-term basis. Among the 82 applications in 1999, we extended funds to 76 of them, with 8 in the environmental area (approximately 1.7 million yen). About half of the cases supported were of our employees, and the rest were applied by the spouses and retired personnel.

Volunteer Activity Financial Support System

Description
<ul style="list-style-type: none"> : It is a system that provides funds to volunteer activities in which employees, their spouses, and retired personnel participate on a long-term basis : The funds provided must be allocated for part of the general activity expenses.
Amount of funds
<ul style="list-style-type: none"> : Application is accepted four times a year, and the maximum amount is 250,000 yen per activity. : Each organization can receive funds once a year, and not more than 5 times in total. : A total of 100 cases are supported annually.
Eligibility
<ul style="list-style-type: none"> : Full-time employees, employees' spouses, and Matsushita's retired personnel

Supporting Environmental Organizations

Realizing the interdependency of business and society, Matsushita has conducted many social contribution activities. In 1964, we started by offering financial support to orphans of car accidents, and donated a pedestrian flyover in front of the Osaka Station to prevent car accidents. In the same year, we established a social contribution division, known as the Corporate Citizenship Department today. Environmental preservation has become one of our major support areas, among art and culture, and social welfare. Besides undertaking environmental activities on our own, we also support environmental programs through NPOs.

 Matsushita Electric Group's social contribution activities
<http://www.matsushita.co.jp/ccd/socia2-e.htm>

Environmental Activities Supported by Matsushita in 1999

Hanamaki Citizens' Society for Protection of Beech Forests (Iwate) Preserving virgin beech forests
The Green Trust Utsunomiya (Tochigi) Planting and preserving trees
Soft Energy Project (Kanagawa) Introducing and promoting the use of solar power and wind power
Forest Mate Club Hiroshima (Hiroshima) Promoting forestation
Nigawa Association for Nature Consideration (Hyogo) Surveying and preserving local natural environments
Kansai Clean-up Office (Osaka) Cleaning up shores and making environmental improvement proposals  http://www.page.sannet.ne.jp/m_terui/index_e.html
Milky Way Beautification Club (Osaka) Beautifying the environment through river cleanup activities
Restoring White Sand and Green Pines to Shingu Club (Wakayama) Preserving a healthy and rich nature for the next generation through recycling and restoration activities

Hanamaki Citizens' Society for Protection of Beech Forests



To preserve a rich nature for our children, the Society started preservation of the 2,000 ha of virgin beech forest in west Hanamaki in 1989. Today, with membership rose to 400, it continues to offer activities including nature observation trips, water quality surveys with primary schoolchildren, eco-club activities with kindergarten pupils, nature exhibitions, etc. The Society's long years of contribution was recognized and it was commended the Local Environment Conservation Contributor's Award of the Director General of Environment Agency Award.

Organizations Supported by Matsushita in FY 1999

Japan Committee of the World Wildlife Fund (WWF)
Japan Environmental Association
Japan Society for Nature Conservation
Ecosystem Conservation Society-Japan
Japan National Trust
Japan Wild Bird Society
Japan Tree-Planting Center
Foundation of Osaka Green Trust
Keidanren Conference on Nature Preservation Fund Management
Organization for Promoting Tree Planting on National Lands
Japan Environmental Education Forum
General Energy Promotion Committee
CCC Nature and Culture Creative Forum/ Factories, etc.

Education and Awareness

Employees must be well informed in order to address the wide-ranging environmental problems effectively. Based on our environmental management system, Matsushita provides a range of education at each operating sites, covering subjects from general environmental awareness to special training.

Environmental Education

- 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
- Managers**
 - : Management study session (environmental theme)
 - : Regular reporting session (environmental theme)
- General staff**
 - : Global environmental seminars

Environmental Rally

Matsushita holds an Environmental Rally in June every year. In 1999, 630 people including 185 directors and managers of business units attended the convention, where corporate environmental policies were presented. Through internal satellite broadcasting, 2,500 employees were able to watch the convention live from 81 locations in Japan.



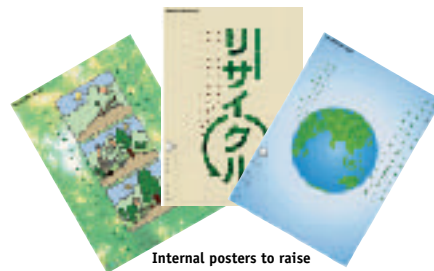
June 1999 Environmental Rally

Environmental Exhibition to Share Group Environmental Information

Coincide with the Environmental Rally, an Environmental Exhibition is also held each June to present Matsushita Electric Group's environmental measures, technological development, Matsushita companies' campaigns, and award-winning environmental activities, etc. In 1999, 1,600 employees visited and got access to information of other factories and companies in the Group. We opened the exhibition to the public for the first time in August 2000 to disseminate information and ask people's opinions on our environmental activities.

Environmental Slogans

As part of the environmental education, we recruit environmental slogans from employees. Among the 35,000 slogans submitted in 1999 (12,000 in 1998), we made posters of the outstanding slogans to help raise environmental awareness at the workplace.



Internal posters to raise environmental awareness

Environment Contribution Award

Matsushita established the Environment Contribution Award System in 1993 for recognizing outstanding environmental conservation efforts. As our environmental activities have gained recognition from external organizations in recent years, and we also would like to raise our activities to a higher level, we abolished the domestic categories of this award system in 1999 (although the Overseas Award for Overseas sites is still available). We will utilize the external commendation systems more in the future.

Effective Use of Intranet

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

Group Environmental Newsletter

The company newsletter Eco Echo (formerly known as the Environmental Innovation) is published quarterly to share information of the latest environmental trends with environmental officers in the world (700 copies in Japanese, 400 in English). Environmental reports are also published regularly around the world for information exchange.

Featuring Environment-related Articles in Group PR Publications

Environmental policies and trends are introduced in Group PR publications to raise the environmental consciousness of Group employees. Publications include the bi-weekly PanaNEWS and the quarterly SHOFU magazine, which features leading articles on environmental issues.

Overseas Environmental Contribution Award recipients

Clean Factories Category

- Matsushita Refrigeration Industries (S) Pte. Ltd.
- P.T. National Gobel
- Matsushita Communication Industrial Corporation of the Philippines
- Matsushita Electric Philippines Corporation
- China Hualu Matsushita AVC Co., Ltd.
- Matsushita Industrial Corporation Sdn. Bhd.
- Kyushu Matsushita Electric (U.K.) Ltd.
- Matsushita Kotobuki Electronics Industries of America Inc.

Green Products Category

- Matsushita Electric Corporation of America.
- Matsushita Electric (Taiwan) Co., Ltd.
- Matsushita Electric Co., (M) Bhd.

Health and Safety at Workplace

Building a Safe and Pleasant Workplace

It is important to have a safe and pleasant work environment. In accordance with our Basic Business Philosophy “to devote ourselves to the progress and development of society and the well-being of people through our business activities,” we, the Matsushita Electric Group and all employees, have strived to build a safe and pleasant workplace. We formulated the Matsushita Electric health and safety at workplace Charter, consisting of the Declaration and the Guidelines for the health and safety at workplace.

■ The Matsushita Electric health and safety at workplace Charter

Declaration of health and safety at workplace

We will continue to strive 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 at workplace management systems
4. Clarifying responsibilities and authority and the establishment of an organizational structure
5. Eliminating and reducing dangerous or harmful factors
6. Setting goals, making and implementing plans
7. Auditing and management review and correction
8. Education and training

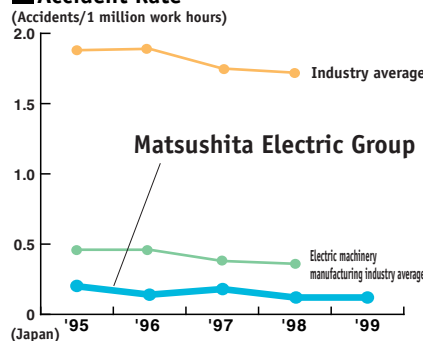
Conducting Safety and Health Activities

We established voluntary internal standards to carry out safety and health activities, in addition to complying with the requirements of the Labor Standards Act and the Industrial Safety Health Law.

1 Safety Management

Our long years of efforts in preventing accidents have resulted in our industry low accident rate per million work hours. To realize our zero-accident goal, we are taking further measures to reduce risk by undertaking risk assessment of our manufacturing facilities. Operation manuals are prepared even for non-routine operations such as switching over high-risk equipment to other machinery and changes in work procedures. Each operation unit is also educating its employees on labor safety. It is by raising the overall awareness for industrial safety can accidents be prevented.

■ Accident Rate



2 Health Management

Matsushita has taken voluntary measures to create an agreeable work environment, not to mention to appropriately control harmful substances and the use of energy. Special attention is made to ensure the safe operation of equipment when it is first installed, together with risk assessment to evaluate the risk factors of the equipment from a health perspective.

Our main task in 2000 is to prevent noise pollution by collecting and sharing information on relevant technologies for improvement and through case studies. Improvement of the workplace using ergonomics is also made to lessen the fatigue from work.

Introduction of the health and safety at workplace Management System

This system is introduced to ensure the continual implementation of the “plan-do-check-action” processes so as to reduce any latent risk of accidents and improve the safety and health levels of the workplace. It is being established in Matsushita after the publication of guidelines by the Ministry of Labor in 1999. Specifically, the company-wide guidelines were laid out in 1999; and in 2000, following the establishment of the corporate education system, the occupational health and safety management system are being introduced to our operation units around the world.

In September 1999, AV Kadoma Site was the first in the Matsushita Electric Group to receive the “Occupational Health and Safety Management System” certification from the Japan Audit and Certification Organization for Environment and Quality (JACO).

Total Health Promotion (T. H. P.)

Realizing the increasing need for maintaining employees’ health, we actively advocate the Total Health Promotion to employees with the support of industrial medical specialists.

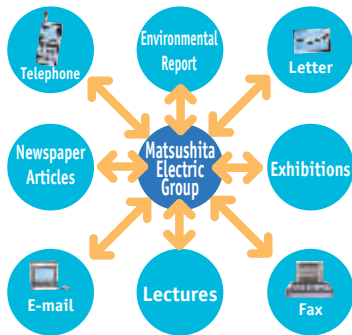
From the viewpoint of preventing lifestyle-related diseases, for example, we offer advice on improvement in nutrition, rest, habits, as well as personal exercise programs. Caring for the mental health has become important in recent years. We are working to set up a counseling system and also hold seminars to inform and educate managers for better handling of situations at the workplace.

Maintaining and improving health depends mainly on the efforts of individuals. As a company, we believe it is important to provide correct knowledge and information to help employees develop a healthy lifestyle.

Information Disclosure

We present information on environmental conservation activities by various means. Not only with the "Environmental Report", an important medium to inform our stakeholders of our activities, but also through our web site, newspaper advertisements, exhibitions, and lectures, our information is made public. We also have prepared a system for replying to comments and questions sent by e-mail, letter, telephone, or fax and are working toward establishing two-way communications.

Various Communication Tools



Environmental Web Site Management

We have established an environmental web site, "Matsushita Electric Group's Environmental Preservation Activities," (Japanese and English) within our corporate web site, carrying Environmental Reports, the outline of green procurement and other information. We have roughly 5,000 interested visitors watching our performance every month.

Matsushita Electric Group's Environmental Preservation Activities Top Page



<http://www.matsushita.co.jp/environment/>

Participating in Exhibitions and Lectures

Our various sections participate in exhibitions and lectures in all regions of the world and explain our activities. In FY 1999, our Corporate Environmental Affairs Division alone participated in 14 exhibitions and 49 lectures (both of outside sponsorship).

Examples of Exhibitions



Eco-Products 1999
(December 10 - 12, 1999, Tokyo Big Site)
Exhibited in three categories of "Eco-Products for Daily Life," "Industrial Eco-Products," and "Product Manufacturing" under the theme of "Changing With You: Working for the Future of the Globe!"

Examples of Lectures



International Symposium on Industrial Waste in Asia
(December 3, 1999, International House, Osaka)
Lectures and panel discussions on reduction of waste.

Environmental Advertisements in Newspapers

In order to reach as many people as possible, we have periodically taken out newspaper advertisements on our environmental activities.

Example of a Newspaper Advertisement (FY1999)



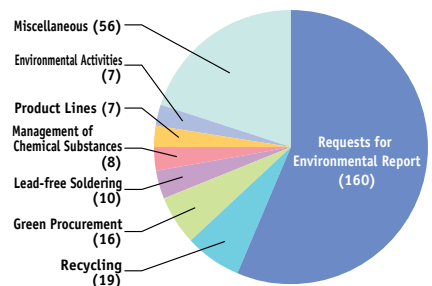
Acquisition of ISO14001 Certification

Television with Magnesium Alloy Cabinet (I, too, am a donor.)

Opinions or questions to Matsushita

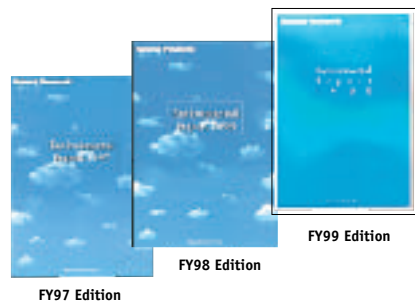
In FY 1999, we received 283 inquiries (40 from overseas) mostly through our web site. About half the requests were for a copy of our Environmental Report, but there were several other questions as well. As a general rule, we try to respond to all requests within 24 hours. Furthermore, we have taken into account the opinions expressed in our survey attached to last year's Environmental Report and are applying them through our activities.

Breakdown of Requests (FY1999)



Publication of the Environmental Report

After the first publication of the FY1997 edition, we have published the Environmental Report every year. Compilation centers on selecting the most important efforts from the wide range of our environmental activities and trying to summarize them in terms easy for non-specialists to understand.



History of Publication of the Environmental Report

Publication Date	Japanese Version	English Version	Number of Pages
February 1998	17,000 copies	8,000 copies	24 pages
March 1999	10,000 copies	5,000 copies	28 pages
September 1999	18,000 copies	5,000 copies	40 pages



Environmental Report Award: Environment Agency's Director's Award: Matsushita Electric Group FY 1999 Environmental Report
Green Reporting Award: The Third Prize: Matsushita Electric Group FY 1999 Environmental Report
Newspaper Advertisement Category, Environmental Advertisement Competition "Special Award": Magnesium Alloy Television Newspaper Advertisement (I, too, am a donor.)

Messages from Our Stakeholders

We received these messages from people involved in environmental efforts in various ways.

(Interview Period: July 10 -26, 1999, Interview Method: e-mail or fax)

I would really like to see you continue product development for the green consumer. A company is a collection of citizens. I would like to see you take the lead in aiming for a 1/10 reduction in energy (Factor 10) based on our personal wishes to live in harmony with the earth.

Junko Hayakawa (Housewife, Shizuoka City)



I propose that an objective measurement of the importance of a company places on "bads" (environment) vs. "goods" (products) be carried out. This weighting can be done through use of an improved DEA and then calculating an actual weight for a company from the company's own activity data. It will be possible to measure the progress of the consideration a company gives the environment through a comparison of values from previous years. I expect that Matsushita will apply world's optimizing models. Furthermore, not only the results of CO₂ reduction as decided at CO₂, but also its importance for the company can be measured.

Shunsuke Managi (Ph.D. Candidate, Environmental Economics, Rhode Island University, the U.S.)



I would like to see Environmental Reports become an effective means of communication to provide customers with the information they want, i.e. information disclosure, rather than having just the contents of predetermined categories. For example, it would be nice if Matsushita could report on concrete, practical information such as shops that would repair Matsushita products or dealers that would recycle items not required by laws.

Takeshi Narazaki (President, EMS Chief Auditor, TNS Ltd., Tokyo)



Global current is changing from an "Environmental Report" approach to a "Sustainability Report" approach. As a responsibility of a company publishing a "Sustainability Report," I would like to see Matsushita put into effect their efforts for a sustainable society. It needs the participation of customers in the development of environmentally conscious product concepts. Keys are product durability and low cost repair, and recycling responsibility. Also, as a world leader in home electronics, I hope to see a positive effort in the complete recovery of CFCs. Grasping the obvious trend of extended responsibility of producers, I would like to see product designers take their responsibility based on indirect impact assessment and fulfill their role as fellow passengers on Spaceship Earth.

Sokichi Kodatsu (Tokyo metropolitan environmental educator, Ota Ward, Tokyo)

It is common knowledge that current environmental problems ranging from deforestation, to weather extremes, and to water scarcity, can lead to "food crisis". As a top company in public welfare, I hope that you will establish the "Agricultural Division" for environmental conservation and food security of the families of your employees. "Changing the world starts with Matsushita." I would like to see a miracle like the one you showed us by eliminating CFCs. By the way, I made this suggestion to my company's Facilities Division, but they wouldn't even listen.

Yasuhiro Nakajima (employee of a computer manufacturer, Yokohama City)



Currently in Europe, national policies to reduce resource consumption to 1/10 of current levels are being promoted. I would like to see your company, as a leader of the industry, develop technologies and social contribution that can help us rethink Japan's mass production, mass consumption, and mass disposal way of life.

Kozo Tsukihara (Gardener, Itabashi Ward, Tokyo)



It seems that Matsushita is making great efforts in the repair of home electronic products, but I've heard that requests from customers for repairs has decreased. If consumers continue to want new products, the environmental awareness of corporations and their efforts for repairs and recycling won't matter and we will never be able to break away from the mass production, mass consumption, and mass disposal society. The most important thing is that consumers themselves are environmentally aware. We consumers will try to change, but it would be good if Matsushita could help us raise our environmental awareness through advertising publicity on repair and recycling.

Akihiro Suzuka (Student, Nara City)



I hope to see you become a corporate model of environmental and social consideration for other corporations to follow. I have made a product proposal to your company in the past and received a pleasant response. You were open to listening to the "demands of the customer." The kindness of one employee captured the heart of a customer. I would like to see this spirit continue to be fostered. I hope you continue to communicate your spirit as a company with great heart.

Saeko Ebata (Representative, Global Environmental Forum-Moriguchi, Moriguchi City)



In Sweden, environmentalism started out as a countermovement against corporate activities, to politicians establishing environmental regulations, and is now generally accepted as changing one's own lifestyle. Ultimately, it is the individual that holds the key, and the environmental report is an important tool connecting the corporation to the individual. I hope that the Matsushita Electric Group will take the initiative in establishing a sustainability vision for the future and to surpass Swedish corporations in meeting lofty goals.

Sachiko Takami (President, Natural Step Japan, Katsushika Ward, Tokyo)



A company built on Yes-men will fall. Please continue in your corporate philosophy to listen to even harshest words you may receive. To do this, you should create a Liaison Group of other industry workers, students, housewives, and others as a place where ideas can be freely expressed. I'm expecting more of Matsushita Electric Group that has been a leader of this era.

Hikaru Shibuya (Housewife, Osaka)



Life without electronics is unthinkable in modern society, and I believe this will continue. However, to accept the responsibility to future generations and as a presenter of living environments, I would like to see the Matsushita Group be, not an electronics maker, but an environmental maker.

Yasuichiro Yako (Accountant, President, Farm Co., Ltd., Kobe City)



Matsushita has a wonderful doctrine called "Tap Water Philosophy." However, in a different era, the interpretation would also be different. Today, it is necessary to shut off faucets in order to conserve water, and to find and eliminate the cause of a dripping faucet rather than using a bucket. I hope that Matsushita can continue with the "Tap Water Philosophy" as a "philosophy of making everybody happy."

Yuji Tateyama (President, Kokoraji Management Research Center, Amagasaki City)



Interest in issues that affect our lives and futures such as environment and health will increase worldwide. The people who understand the situation and are doing what they can are called "green consumers," and environmental NGOs are currently increasing these numbers through education. I would like to see Matsushita take the vanguard as a green company, support environmental NGOs and answer the demands of green consumers to consider life, safety, and the future. This is how a company will lead in the 21st century.

Takehiko Uemura (Instructor, Nara University, Nara City)



In the natural world, plants and animals have a life cycle based on the rhythms of the seasons, and after death, they return to the soil and become fertilizer for new life. But, this circle has now been broken. It is necessary to create cycles where even inorganic materials are given new life. I hope that you can return to basics and learn from the natural rules to help regain this important natural cycle.

Shigeru Harada (Vegetable Section, Aino-kai, Kumamoto Prefecture)

I heard the other day that in Sweden there was a train that ran completely on natural energy (wind generated power). People demanded the electric power companies to increase natural energy use and realized this contract. Can't we also make a contract with electric power companies to provide natural energy for electronics factories? I think that the environment that a product is manufactured will become an important consideration when choosing a product to buy.

Hirofumi Watanabe (Staff member of an organization, Osaka City)



Thank you for your valuable opinions.

Our Founder and the Environment

Our founder, Konosuke Matsushita, was born in Wakayama in 1894. He started Matsushita Electric as a small business in 1918 and then built the foundation of the Matsushita Electric Group, making “National/Panasonic” into a world-wide brand.

The Founder died in 1989 at the age of 94 and seldom had to face grave global environmental problems as we do today for most of his life. However, there are many hints in his way of living and thinking that can help our environmental activities, reaching beyond his time. We hope that everyone can learn something from some of his more important thoughts.



The Founder, Konosuke Matsushita, inquiring into the truth of nature in the garden of his Shinshin-an, Kyoto

Corporate Activities Yield True Prosperity and Happiness for People

Mr. Matsushita once remarked, “If the development of industry destroys nature and damages human happiness, it has lost its original objective.” We must reconfirm the basic principle that corporate activities exist for all natural ecosystems, which include humans, and seriously consider how corporations can progress in the development of society. He also expressed strong opinions on environmental conservation such as “If a problem arises, investigate and research to find solutions of the problem. If there are appropriate measures in place, do not hesitate to take decisive and prompt steps. If there are no measures, you might need to consider even operation shutdown or factory closedown” and “Even if the financial burden for a company increases, even if there are difficulties in working out a solution, serious efforts must be made to eliminate pollution.”

During Mr. Matsushita’s era, the most important environmental issue was prevention of regional pollution, but his philosophy can be applied as a foundation for all current global environmental issues.

Coexistence and Mutual Prosperity

Society is made up of countless things that are interlinking with each other; one thing or person cannot prosper alone, the prosperity will only be temporary and cannot endure. If all things do not prosper together and exist together, then it is not possible to have true development and prosperity. In this law of nature, the natural environment and human society must coexist and mutually prosper. This was the Matsushita Electric management philosophy that Mr. Matsushita consistently emphasized.

We declared in our “Environmental Statement” (see page 6) that we are aware of our responsibility for “coexisting” with all. This philosophy can also be seen in our basic principle for our current environmental activities, “Coexistence with the Global Environment.”



“Kongen-Sha (Shrine of the Ultimate Source)” – established to express gratitude and for a prayer for the Laws of Nature (On the grounds of the Matsushita Electric Headquarters)



Matsushita Electric House of History: <http://www.matsushita.co.jp/corp/rekishikan/english/>
Matsushita Library: http://www.matsushita.co.jp/library/index_e.html

Tap Water Philosophy

On May 5, 1932, Mr. Matsushita called all of the employees to the Osaka Central Electric Club and clearly indicated the true mission of the Company. Mr. Matsushita laid out the "Tap Water Philosophy (Principle of accessibility)" saying, "The mission of industry is the conquest of poverty. For this, we must build wealth by producing hosts of goods. You won't accuse someone drinking your water if it is tap water. This is because there is plenty of water and it is inexpensive. The mission of industrialists is to also be like providing tap water, to supply inexhaustible cheap products, and to build paradise." He also announced the "250-Year Plan" to fulfill this mission and we have established this day as "Foundation Day" to mark the anniversary of the true founding of our company. Tap water runs back into the rivers and out into the sea, and eventually evaporates and becomes clouds to rain down on all life. While we continue to delve into the true meaning of the "Tap Water Philosophy," we feel that we have entered an era where we should search for a new kind of industry that, like water, can continue in its cycles endlessly.

Corporations are Public Entity

Corporations use the people, land, money, and resources that are all our society's common assets, to continue operations. Because of this, corporate management is not a private matter. A private corporation is a public entity. Mr. Matsushita based his management viewpoints on this belief. If you believe that you are "entrusted to manage a public entity," then you will make decision by examining whether your decision would be beneficial for both your company and society. Mr. Matsushita said that it was then that fair and disinterested management of a business would naturally occur. Since we use important resources and energy in the making of products, we are strongly committed to environmental preservation as we wish to contribute to society using those energy and resources effectively.



Matsushita's first product, "Improved Attachment Plug." The base uses recycled parts to lower costs and enjoyed a good reputation.

After word ...

We tried to introduce the Matsushita Electric Group in as few pages as possible, and yet this report has exceeded 50 pages. We believe that this trend of increasing information and pages is a problem. We have decided not to include a "Third Party Statement" in this year's report. This report is an important step in our corporate communications and we vow that there are no falsehoods included. But what is the "reliability" in an environmental report that society seeks? We believe that the environmental reports can be reliable if the communication through them will truly lead to monitoring and improvement of our corporate activities. So, in order to make this report meaningful, please continue to send your comments and opinions to us. It will require time and effort, but we will progress one step at a time.

Translator: Siubing Nagata, Carl McBee, Chiraru Azuma Coordinator: Junko Edahiro, Mariko Tsuji, Yukiko Hirano

Social Responsibility of Corporations

If Mr. Matsushita were to break down the social responsibility of corporations, he would have divided it into these 3 items.

1. Through their operations, contribute to the improvement of society and human happiness. This is the basic mission of corporations. It is also a major social responsibility of corporations if they are manufacturers to control the environmental impact caused by the manufacture of products.
2. Yield appropriate profits from business activities, and these should be returned to society through various means. Making profits and returning them to society through taxes are essential for improving the welfare of the public.
3. Finally, the process of corporate activities should be in harmony with society. "Harmony with society" is maintaining harmony with the global environment, the nation, local society, industry, suppliers, vendors, and foreign countries involved with the business activities. These concepts are important elements for everything not just environmental activities.



Osaka Station Pedestrian Bridge, donated for the prevention of traffic accidents in 1964, out of compassion for children orphaned by a traffic accident

Appreciation for Strict Customers

When you sell something, there are customers who have strict demands and those who do not. Mr. Matsushita said, "Matsushita Electric exists as it is today because we had difficult customers that closely examine each of our products and told us in detail what was wrong. If there had been many customers that did not examine our products closely and simply accepted what was given, we would have been happy then, but then we would have lost the ability to learn." We are awaiting your strict comments on our environmental activities. Through your comments, the efforts of the corporation will go to a higher level and progress toward improvement will begin.

Issuing Officer: Kazuhiro Mori, Managing Director, Corporate Environmental Affairs Division
Opinions or questions regarding this report can be sent to the following:
Corporate Environmental Affairs Division, Matsushita Electric Industrial Co., Ltd. (Officer in charge: Yoshiaki Arai, Planning Group)
1006 Kadoma, Kadoma-city, Osaka 571-8501, Japan
Tel: 81-6-6908-1243 Fax: 81-6-6908-1247
E-mail: pex00131@pas.mei.co.jp
Publication Support: Cre-en Co., Ltd. / Studio esquisse

Matsushita Electric Web Site: <http://www.matsushita.co.jp/>

This is the photograph of an indigo-dyed fabric by Juichi Ueda of the Kyoto Ohara Kobo and the plants to the left are dried indigo.

Indigo, or Ai called in Japanese, is a natural dye used by the Japanese since ancient times. It expresses a harmony between the nature and man-made creation.



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