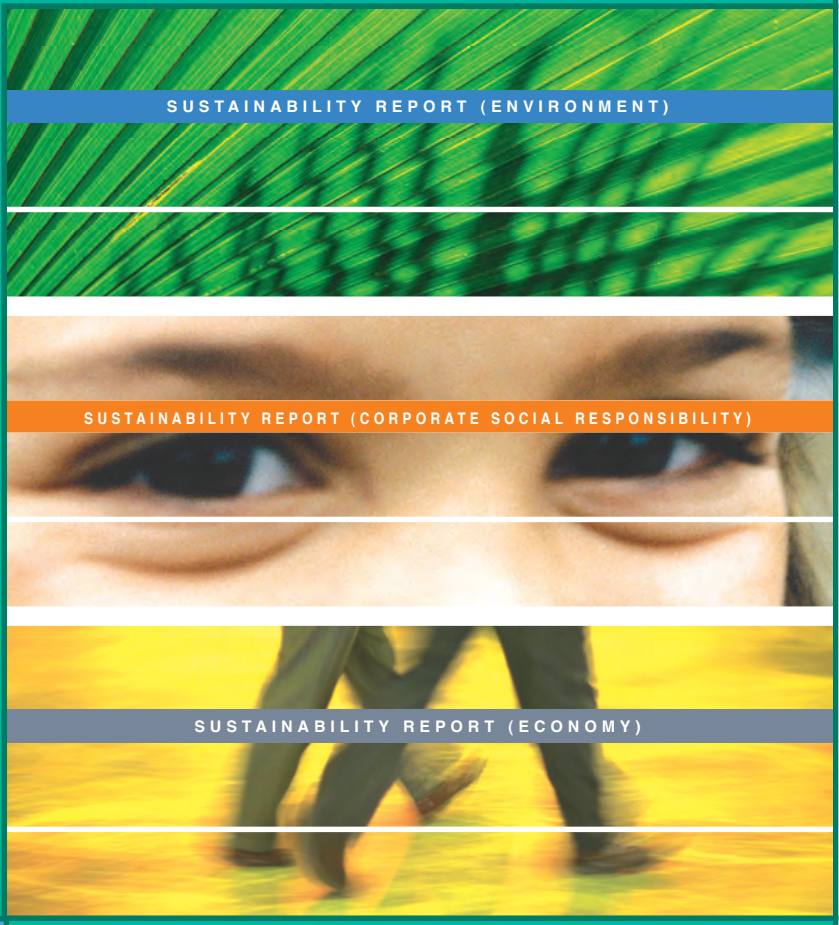
RICOH
Image Communication

RICOH GROUP SUSTAINABILITY REPORT (ENVIRONMENT) 2004

Earning the public's trust; Activity reports from 3 perspectives— "environment" "corporate social responsibility" and "economy"

Being a good corporate citizen means striving to be a valued and respected member of society by contributing to its sustainable growth. To this end, the Ricoh Group believes in being outstanding in all areas of the environment, the economy, and corporate social responsibility as well as openly communicating its activities.

From this year the Ricoh Group begins publishing information on its activities in reports written from three different perspectives: the environment, the economy, and corporate social responsibility.
This report provides our shareholders, customers, and other stakeholders with information on our sustainable environmental management policies and performance in fiscal 2003, to facilitate a better understanding of what we do and how we work.



How to Obtain Ricoh's Corporate Information:

- Environmental conservation
  http://www.ricoh.com/environment/index.html
- Corporate social responsibility
  http://www.ricoh.com/about/csr.html
- IR (for shareholders and investors)
  http://www.ricoh.com/IR/
- Social contribution (Japanese language only)
  http://www.ricoh.co.jp/kouken/

Sustainability Report (Environment)

- Concept of sustainable environmental management
- Basis for sustainable environmental management
- Improving our products
- Improvements made at business sites
- Social contribution of environmental conservation/Environmental communication

Sustainability Report (Corporate Social Responsibility)

- Concept of CSR
- Ricoh Group CSR Charter/ Code of Conduct
- Integrity in corporate activities
- Respect for people
- Harmony with society
- Harmony with the environment

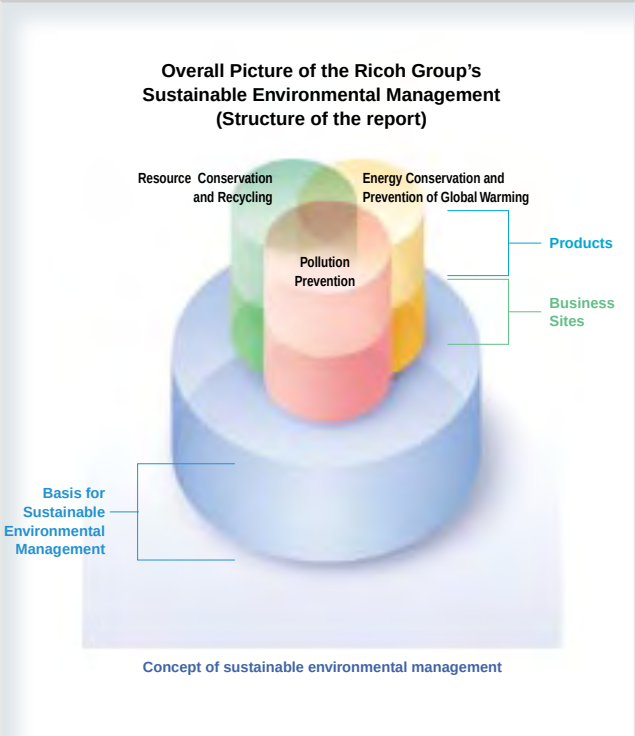
Annual Report

- Management policy
- Management results
- Financial status

http://www.ricoh.com/IR/

Sustainability Report (Environment) and Other Reports

The Ricoh Group discloses information on the concepts behind, the basis of, and examples of its sustainable environmental management in line with the overall picture.



◎ Editorial policy of the Ricoh Group Sustainability Report (Environment) 2004

The Ricoh Group aims to promote sustainable environmental management that contributes to environmental conservation while generating profits. This report provides information on the concept of, and specific measures and activities for, sustainable environmental management as well as on environmental accounting in an easy-to-understand manner in order to facilitate communication with society and to earn its trust.

● Target readers

This report is prepared for all present and future stakeholders of the Ricoh Group's sustainable environmental management. Activities in which readers might be interested are explained in a new column FOCUS for effective communication.

● Policy for information disclosure

Disclosing information worldwide

Environmental problems are a global issue, and therefore it is very important to act in close concert with the individual countries and communities in which the Ricoh Group operates in tackling environmental issues. This report describes the Ricoh Group's sustainable environmental management activities that are based on global partnerships.

Disclosing financial information

To successfully carry out sustainable environmental management, the Ricoh Group endeavors to improve its management system by looking at all aspects of management from an environmentally-conscious point of view. The Ricoh Group identifies the effects and economic benefits of environmental conservation for each business unit and for the entire Ricoh Group and discloses relevant information through its environmental accounting.

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Profile of Organization/ Targeted Period and Scope of This Report

Ricoh Co., Ltd. was established in Japan on February 6, 1936. The Ricoh Group consists of Ricoh Co., Ltd., 360 subsidiaries, and 21 affiliates*. The Ricoh Group engages in activities on a global scale that include the development, production, marketing, after-sales services, and recycling of office equipment including copiers and printers in five regions around the world (Japan, the Americas, Europe, China, and the Asia-Pacific region). The Group has more than 73,000 employees.

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* The definition of an affiliate follows the U.S. Generally Accepted Accounting Principles (U.S. GAAP), which differ slightly from the definition given in Japan's GAAP.

Ricoh Group Brands

The Ricoh Group markets products under its own brand name "RICOH" as well as the following.

Brand logos

RICOH
savin
nashuatec
Rex-Rotary
Gestetner
LANIER

■ Targeted Period/Scope of This Report

This report describes the sustainable environmental management activities of the Ricoh Group in fiscal 2003 (April 1, 2003 to March 31, 2004).

Environmental impact and environmental acounting data: fiscal 2003 data Descriptions in articles and chronological tables: fiscal 2003 data (in principle)

The environmental impact and environmental accounting data are taken from the Ricoh Group's major business sites in five (5) regions—Japan, the Americas, Europe, China, and the Asia-Pacific region—and as such, may differ from Ricoh Group data presented elsewhere in this report, e.g., in the organization profile and global network. The name Ricoh refers to "Ricoh Co., Ltd," and not the "Ricoh Group" as a whole.

● Important Organizational Changes Made During the Report Period

In December 2003, 85.5% of the total shares of Taiwan Ricoh Co., Ltd. (Taiwan) were transferred to Asia Optical Co., Inc.

In March 2004, a basic agreement for a stock transfer was signed with Hitachi Ltd. All of the shares of Hitachi Printing Solutions Ltd. (sales: approx. 60 billion yen, consolidated number of employees: 2,200), which is a wholly-owned subsidiary of Hitachi Ltd., will be transferred to Ricoh. The agreement will become effective in October 2004.

● Penalties and fines related to environmental issues (The Ricoh Group)

	Fiscal 2001	Fiscal 2002	Fiscal 2003
Number of cases	0	0	0
Amount	0	0	0

● Past and Future Reports

The Ricoh Group has published annual environmental reports every year since 1997, which covered fiscal 1996. The 2004 Report in Japanese was issued in June 2004. The 2005 Report in Japanese will be issued in June 2005.

● Data Collection

Environmental impact and environmental accounting data are collected from Ricoh's production and non-production sites and Ricoh Group companies that have established their own sustainable management systems.

● Scope of Collection of Environmental Impact and Environmental Accounting Data

Japan

Ricoh production sites:
Atsugi Plant, Hatano Plant, Numazu Plant, Gotemba Plant, Fukui Plant, Ikeda Plant, Yashiro Plant

Ricoh nonproduction sites:
Aoyama Head Office, Ohmori Office, Ohmori Office No. 2, Ginza Office, Ricoh System Center, Shin-Yokohama Office, Ricoh Service Parts Center, Research and Development Center, Software Research Center, Toda Technical Center, Applied Electronics Laboratory

Ricoh Group major manufacturing subsidiaries:
Tohoku Ricoh Co., Ltd.; Hasama Ricoh, Inc.; Ricoh Unitechno Co., Ltd.; Ricoh Optical Industries Co., Ltd.; Ricoh Keiki Co., Ltd.; Ricoh Microelectronics Co., Ltd.; Ricoh Elemex Corporation

Ricoh Group major nonmanufacturing subsidiaries:
Ricoh Logistics System Co., Ltd.; Ricoh Techno Systems Co., Ltd.; 50 sales companies; and NBS Ricoh Co., Ltd.
Part Component System Co., Ltd.[1]
Ricoh Leasing Company, Ltd.[2]

The Americas

Manufacturing company:
Ricoh Electronics, Inc. (U.S.A.)

Nonmanufacturing companies:
Ricoh Corporation (U.S.A.) and two sales companies

Europe

Manufacturing companies:
Ricoh UK Products Ltd. (U.K.)
Ricoh Industrie France S.A. (France)

Nonmanufacturing companies:
Ricoh Europe B.V. (the Netherlands) and 16 sales companies in the region

China

Manufacturing company:
Ricoh Asia Industry (Shenzhen) Ltd. (China)

Asia-Pacific Region

Manufacturing company:
Taiwan Ricoh Co., Ltd. (Taiwan)[3]

Nonmanufacturing companies:
Ricoh Asia Pacific Pte. Ltd. (Singapore)
Ricoh Hong Kong Ltd. (Hong Kong)

1. Environmental accounting data only
2. Part of environmental impact data only
3. First half of fiscal 2003 only

■ Principles of the Environmental Reporting

In fiscal 2001, Ricoh established principles of environmental reporting, which comprise requisites for providing information useful to stakeholders when they make their decisions on sustainable environmental management. The environmental reporting is based on corporate accounting principles as no official principles or terminology have been developed for sustainable reporting.

Principles of the Environmental Reporting

1. The environmental reporting must contain true statements about companies' state of sustainable environmental management [1].
2. The environmental reporting must fairly represent the results of all the sustainable environmental management activities [2].
3. The environmental reporting must clearly represent the facts necessary for stakeholders not to misjudge the environmental impact of companies [3 and 4].
4. The environmental reporting must continuously reflect the principles and procedures of basic data processing and representation methods every fiscal year and may not change those principles, procedures, and representation methods without good reason [5].

Notes:

1. "Companies" refer to the Ricoh Group as a whole, Group companies, and/or their business sites, depending on the coverage and level of the report.
2. The avoidance of disclosing negative information shall not be regarded as a fair representation of all information.
3. The state of companies' environmental risk management shall be included in the information stakeholders use in decision making.
4. Significant subsequent events shall be described in the report. Subsequent events refer to events that occur during the period from the day after the reporting period ends to the date the report is completed. Such events may influence the state of companies' sustainable environmental management from the next fiscal year onward.

   Examples of significant subsequent events are as follows:
   a) Critical damage caused by environmental pollutants and similar causes
   b) The announcement and implementation of large environment-related investment projects
   c) The assignment and transfer of significant environment-oriented business transactions
   d) Significant, controversial environment-related cases that arose or were solved
   e) The announcement of significant development in environment-oriented technologies

   Subsequent events disclosed as notes are useful as supplemental information to determine the state of companies for future sustainable environmental management.
5. Ongoing applications may be cancelled only if there is good reason and it has been determined that environmental reporting would be more rational if it followed procedure or if there were changes in representation. "Good reason" includes significant changes in company management policies, business reorganization, drastic technological innovation, and amendments in and the abolition of relevant laws, regulations, and standards.

■ Major Product Lines of the Ricoh Group

[OFFICE EQUIPMENT]

Imaging solutions

● Digital imaging equipment:
Digital copiers, color copiers, printers, facsimiles, related supplies and maintenance services, others

● Other imaging equipment:
Analog copiers, diazo copiers, related supplies and maintenance services, thermal paper, others

Network Input/Output (I/O) systems

● Printing systems:
Multifunctional printers (MFPs), laser printers, related supplies and maintenance services, related software, others

● Other I/O systems:
Optical-disk products, systems, scanners, others

Network system solutions

Personal computers, servers, network devices, networking software, applications, services and support, others

[OTHERS]

Other businesses

Digital cameras, semiconductors, others


imagio Neo C385it


IPSiO G707

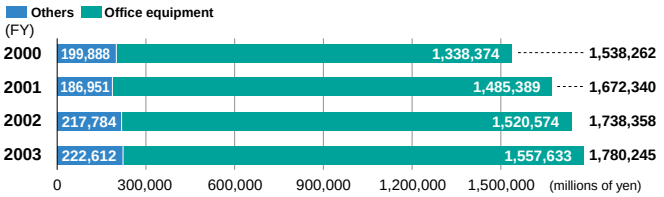
Market Evaluation Results and Economic Performance

In 2003, Ricoh held the largest share of the office-use black-and-white copier market and the second largest share of the color copier market in Japan. In the same year, the Ricoh Group held the second largest share of the office-use black-and-white copier market and the largest share in the color copier market in the United States[1]. In the office-use black-and-white copier market in Europe[2], the Group held the largest share for the seventh year in a row. Consolidated sales for the Ricoh Group rose for the 10th consecutive year, and net income increased for the 12th consecutive year (10th largest increase in a row)[3].

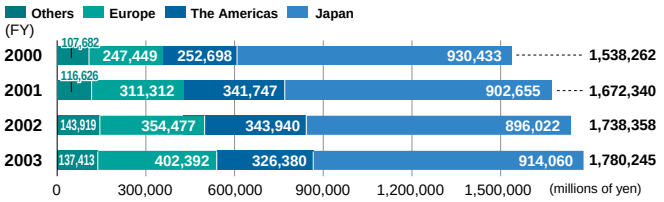
1. Total number of products marketed under the Ricoh, Savin, Gestetner, and Lanier brand names (excluding the segment for up to 10 ppm copiers)
2. Including products marketed under the Ricoh, Gestetner, Nashuatec, Rex-Rotary, and Lanier brand names as well as OEM products (excluding the segment for personal copiers)
3. For details, see the IR section of Ricoh's website. (http://www.ricoh.com/IR/)

Source: Gartner Dataquest, February 2004, GJ04229 (Data for Japan and the United States)
Infosource S.A. (Data for Europe)

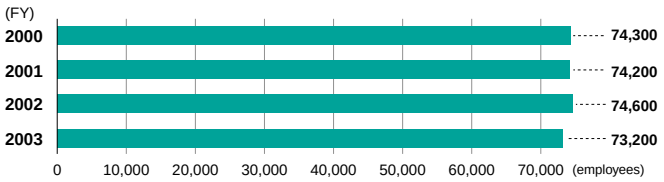
The Ricoh Group's Sales Classified by Business



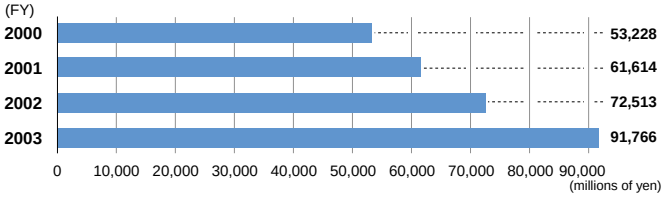
The Ricoh Group's Sales Classified by Region



The Number of the Ricoh Group's Employees



The Ricoh Group's Net Income



* Figures are from the Ricoh Group's securities report and, accordingly, may differ from those of the environmental impact data due to a difference in the scope of data collection.

The Ricoh Group's corporate philosophy—"The Spirit of Three Loves"—was established by its founder, Kiyoshi Ichimura. He explained the philosophy as follows: Everyone at least loves himself/herself. As time passes, however, this feeling of love grows and expands to include all people, plants, and animals in the world. This philosophy drives the Ricoh Group toward better sustainable environmental management.

Corporate Philosophy

–The Spirit of Three Loves–

Love your neighbor
Love your country
Love your work

Ricoh's management philosophy was formally introduced in 1986 based on the corporate philosophy of "The Spirit of Three Loves" in order to establish and nurture the corporate culture and system to ensure survival in a time filled with increasing change, information-oriented societies, diverse values, and more intense competition.

Management Philosophy

Our Purpose

To constantly create new value
for the world at the interface of people
and information

Our Goal

To be a good global corporate citizen
with reliability and appeal

Our Principles

To think as an entrepreneur
To put ourselves in the other person's place
To find personal value in our work

Ricoh introduced the Ricoh General Principles on the Environment, which are based on its management philosophy, in 1992 and revised them in 1998. These principles show Ricoh's commitment to sustainable environmental management and are widely disclosed to the public through various media, including Web sites. Based on these principles, Ricoh Group companies have independently established and managed their own rules regarding the environment according to their business type.

Ricoh General Principles on the Environment

Basic Policy

Based on our management principles, we recognize environmental conservation as one of the most important missions given to mankind, and we regard environmental conservation as an integral element in all our business activities. We, therefore, assume responsibility for environmental conservation and approach this on a companywide basis.

Action Guideline

1. Not only do we comply with all domestic and overseas environmental regulations, but we also set our own targets to reduce stress on the environment in consideration of social expectations, and we endeavor to attain our targets.
2. We strive to promote technological innovation while at the same time maintaining and improving our environmental conservation systems.
3. In development, design and operation of factory facilities, we always consider their impact on the environment, and we strive to prevent pollution, to utilize energy and resources effectively, and to reduce and dispose of waste products in a responsible manner.
4. At every stage, from planning, development, design, procurement and production to sales, logistics, use, recycling and disposal, we offer products and services which have minimal environmental impact and give maximum consideration to safety.
5. Through environmental education, we strive to raise awareness of all our employees in order to develop a social viewpoint that enables them to conduct environmental activities under their own responsibility.
6. In every country and region where we conduct our business, we maintain close ties with the local communities and we contribute to society by publicizing our activities and assisting environmental conservation activities.

To fulfill its mission as a global citizen, the Ricoh Group has taken it upon itself to contribute to the development of a sustainable society by promoting global environmental conservation.

Our mission is to conserve the global environment

The rich resources of our planet Earth have given birth to many forms of life and have supported the wide-ranging and ambitious activities of mankind. Nevertheless, recent activities have exceeded the life-sustaining abilities of the Earth. This poses a threat not only to our coexistence with other forms of life on this planet, but also to the future of the human race itself. Global environmental conservation is the most urgent issue that the whole of mankind faces. We must restore the Earth to its full capacity, and pass this on to future generations. To achieve this, we need to be more aware of the importance of the Earth in our personal lives, not just in our businesses, and strive to continuously modify our corporate activities and lifestyles in order to reduce the impact our society as a whole has on the global environment to a level that the ability of the planet to recover can cope with. In recent years, people have been showing more interest in the environment. The Ricoh Group has long been working toward better sustainable environmental management by adopting environmental conservation as its mission, and with the idea that environmental conservation activities will be able to effectively restore the health of this planet if they are conducted on a continuous basis with the participation of more people.

Continuous environmental conservation activities

Based on this idea, the Ricoh Group takes it upon itself as a global citizen to conduct environmental conservation activities on a continuous basis. Companies can continue an activity only if they themselves survive, grow, and develop. We therefore need to gain new economic values through environmental conservation activities. We define sustainable environmental management as the management of a company that contributes to environmental conservation and generates economic values for that company. All Ricoh Group employees are engaged in environmental conservation activities while pursuing profitability based on the concept of the Ricoh Group's definition of sustainable environmental management.

Commitment to sustainable environmental management

To improve sustainable environmental management, we have incorporated our "environmental viewpoint" into all aspects of our management. Also, to limit the environmental impact of our corporate activities to a level that the self-recovery capabilities of the Earth can deal with, we are conducting environmental management and improvement activities on a daily basis. We market environmentally-friendly products to the public aggressively based on the development of environment-related technologies, and thus, potentially reduce our environmental impact indirectly through our customers. Moreover, we have developed our own environmental accounting system to quantify all reductions in environmental impact and increases in economic values to improve the profitability and efficiency of our environmental activities. Through these measures, the Ricoh Group is committed to continuous environmental conservation activities to improve sustainable environmental management.

Activities conducted by all employees

Environmental conservation activities should not only be conducted by employees in development and manufacturing departments. All our employees, including those in business planning and marketing, have some impact on the natural environment as a result of their work. Thus the Ricoh Group encourages all employees to participate in environmental conservation activities. Specifically, employees are encouraged to develop and provide environmentally-friendly products and services and to organize their workplaces to have less impact on the environment.

These activities are expected to spread to business partners, customers, and employees' families. With this in mind, the Ricoh Group is strongly supporting the environmental conservation activities of its employees.

Commitment to forest conservation

To recover and maintain the life-sustaining ability of the planet, it is of course not enough to simply reduce the environmental impact of our business activities. The Earth's life-sustaining ability has been found to depend mainly on its recycling-based ecosystems. In recent years, due to the destruction of the forests that provide habitat for a wide variety of creatures, the planet's vital link to its ecosystems has been damaged. To help solve this, the Ricoh Group is doing its best to conserve forest ecosystems in cooperation with NPOs and local communities all over the world.

Towards a sustainable society with a long-term perspective

In order to limit the environmental impact we have on the Earth to a level that the abilities of the natural environment to recover can deal with, what kind of changes should we make in our attitudes and actions? All global citizens, including national and local governments, companies, citizen groups, and individuals need to be aware of their own environmental impact. Moreover, it is important to discuss the ideal society we pursue and aggressively reduce our environmental impact by cooperating with and learning from each other to realize our ideals. The Ricoh Group describes its long-term vision of the ideal society as a "Three P's Balance". After understanding what needs to be done to move closer to the ideal, concrete goals and action plans for promoting sustainable environmental management will be established. The Ricoh Group lends its weight to the development of a sustainable society by demonstrating through its own actions that a company can conduct environmental conservation activities continuously through sustainable environmental management and by encouraging more people around the world to participate in developing a sustainable society.

To our readers

Sustainability Report 2004 outlines the activities that the Ricoh Group is conducting on a global scale to contribute to the development of a sustainable society through sustainable environmental management and by solving global environmental problems involving all people around the world. We want to discuss global environmental problems with many people throughout the world and we hope that this report will help as many of you as possible to discover the breadth of the Ricoh Group's concepts for environmental measures. We welcome your feedback to further improve our sustainable environmental management in terms of quality and effectiveness.

Masamitsu Sakurai
President, Chief Executive Officer and Chief Operating Officer

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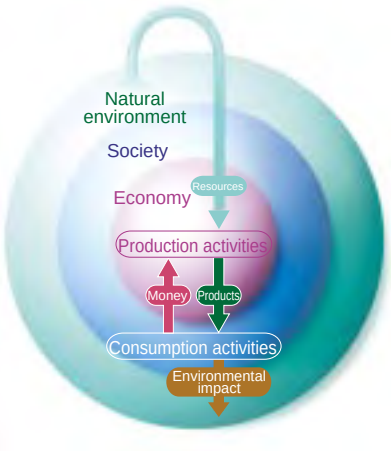
We need to reduce the environmental impact of society to a level that the Earth's abilities to recover can deal with.

Three P's Balance™: Representing the Relationship between the Global Environment and Society

1



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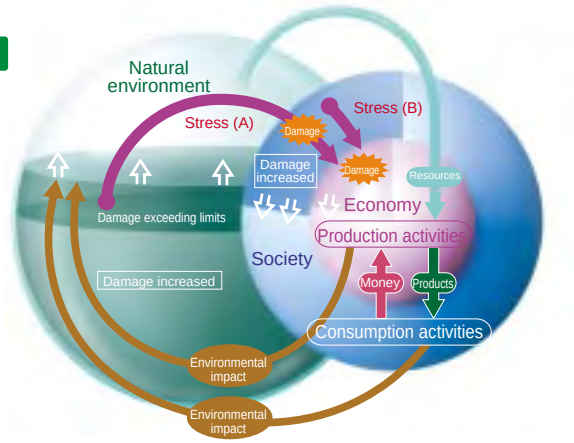


Until now, the environmental impact of economic activities has been small enough for the natural environment to recover unaided. However, our societies' impact on the environment has grown rapidly and steadily since the Industrial Revolution. Companies hold the key to restoring the environment to health. The reason companies should be more serious about environmental conservation becomes clear if we consider how the three P's (planet, people, and profit) in environmental, social, and economic activities have changed over time since the Industrial Revolution. In doing this, the kind of world we should pursue becomes clear as well.

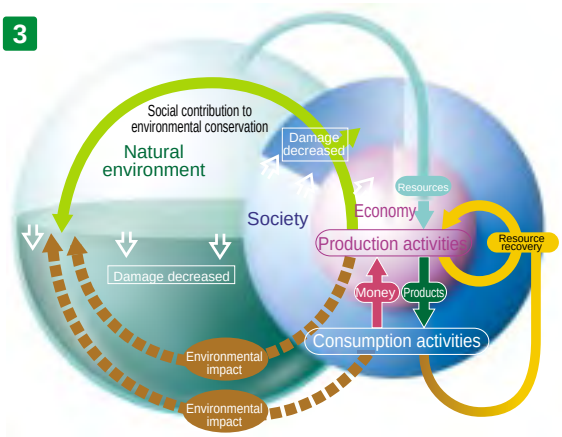
1 Environmental impact was smaller before the Industrial Revolution.

The environmental impact of economic activities was smaller before the Industrial Revolution and small enough for the natural environment to recover from unaided.

2 Since the Industrial Revolution, damage to the natural environment has continued to increase.

The Industrial Revolution, which began in the United Kingdom, quickly spread throughout the rest of the world and opened an era of mass production, mass consumption, and mass disposal. As shown in Figure 2, people began acting as if they were not a part of the natural environment, and the damage caused by society to the natural environment drastically increased. In recent years, the environmental impact of human activity has increased beyond the Earth's ability to recover, and that has led to global warming, the depletion of the ozone layer, the submersion of land due to the rising sea level, epidemic diseases making their way northward from southern regions, and an increase in the number of people suffering skin cancer caused by strong ultraviolet light. These problems placed stress (A) on society and the economy, and society at a standstill, in turn, placed stress (B) on the economy. Currently, environmental conservation is a global issue, and companies, which are major economic players in society, are required to be serious in their commitment to environmental conservation. Without showing commitment to environmental conservation, companies will not be able to gain support from society at large.

3

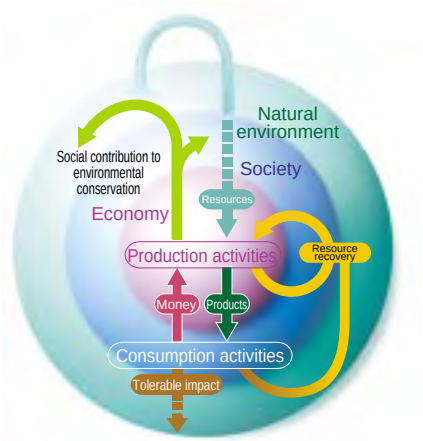


3 At present, the establishment of a resource-recirculating society is underway and being carried out in phases.

People are paying more attention to activities that reduce the amount of damage being done to the natural environment, including the sorting of waste, recycling, and energy conservation. Reducing the amount or resources consumed and the amount of waste discharged is possible if we endeavor to recycle resources instead of disposing of them. There is a growing need for manufacturers to promote energy conservation, resource recycling, and smaller products with longer lifecycles to provide the maximum benefit to society and companies with minimum resources. Not only are global companies asked to take into account social responsibilities in the countries and regions where they engage in business activities, but they are also asked to support and promote the awareness of environmental conservation activities of companies and regions that are expected to make significant economic progress in the future and to achieve their goals with minimum environmental impact. In addition, it is important to improve the self-recovery capability of the natural environment with such efforts as improving forest ecosystem conservation.

Pursuing the Ideal Society

4



4 Our aim is to build a society whose environmental impact is within the abilities of the natural environment to restore itself.

To preserve the global environment for future generations, people need to recognize that they are part of nature and should strictly limit their environmental impact to a level that is within the abilities of the natural environment to restore itself. It is therefore important to set clearer goals to prevent global warming and pollution and to save resources. The Ricoh Group will establish “the Year 2010 Long-Term Environmental Goals*” as a milestone on the path to its long-term vision of the ideal sustainable society. We need to face new challenges with a totally new recognition in order to overcome the most serious threats to our own existence.

* See page 13.

Concept of Recycling-based Society (The Comet Circle™)

The Ricoh Group contributes to the development of a sustainable society that recirculates resources based on the Comet Circle concept.

Comet Circle

The Comet Circle represents a sustainable society that recirculates resources, the kind of society we pursue. The circles in the diagram represent the partners in that recycling-based society. The upper route represents the arteries of the system, and the lower route the veins of the system. Resources taken from the natural environment by materials suppliers shown at the upper right are processed into products, moving from right to left along the upper route, and are finally delivered to users (customers). The economic values of these resources increase in the process and are highest when the final products are delivered to users. The end-of-life products move from left to right along the lower route. To achieve a sustainable society that recirculates resources, it is necessary to recycle products through the inner loops of the Comet Circle and promote recirculation that is highly economical and causes less environmental impact. Partnerships among the partners represented by the circles are also important. The Ricoh Group contributes to the development of a recycling-based society by emphasizing the following five activities that make the Comet Circle more effective.

(1) Determine and Reduce Environmental Impact at All Stages

A society that recirculates resources must minimize the total environmental impact it causes by reducing it at all stages, including the transportation stage (the entity represented by a sphere in the Comet Circle diagram). For this reason, the Ricoh Group, suppliers, customers, and recycling companies must first determine the degree of environmental impact at all stages, including the transportation stage, by using an sustainable environmental management information system and then reducing it by using the latest environmental conservation technologies and promoting recycling and collection systems all over the world.

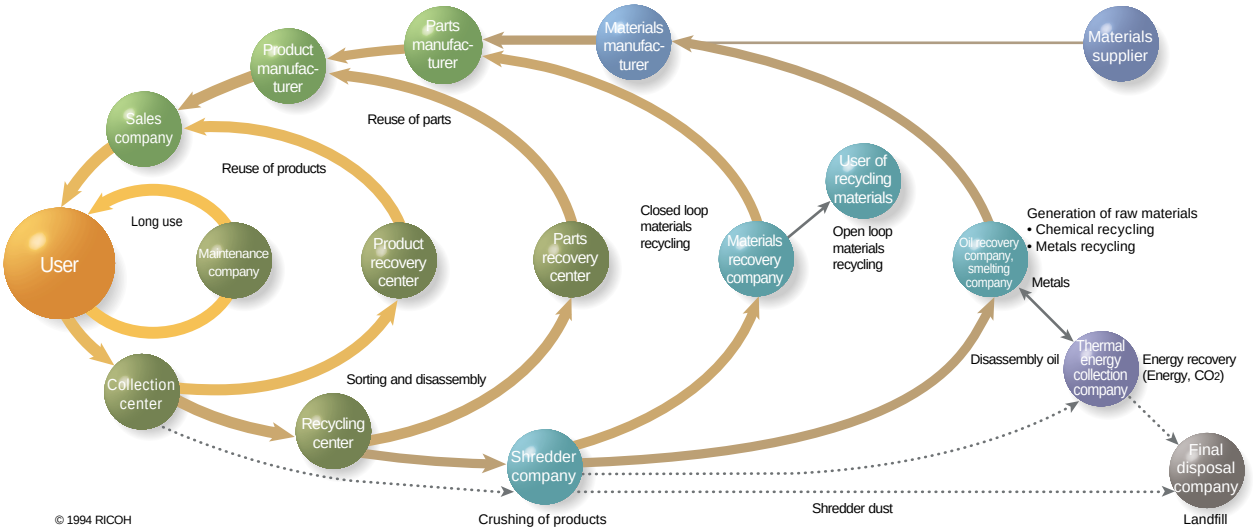
(2) Priority on Inner Loop Recycling

Resources have the highest economic value when they are manufactured into products and used by customers. The Ricoh Group puts priority on reducing, reusing, and recycling products on the inner loops of the Comet Circle, aiming at minimizing the resources, cost, and energy needed to return used products to their highest economic value.

(3) Promoting a Multitiered Recycling System

Repeated recycling to the greatest extent possible (i.e., multitiered recycling) reduces the consumption of new resources and the generation of waste. The Ricoh Group is promoting the effective use of resources by establishing a system in which products recovered from the market are supplied to the market again.

Concept for Realizing a Society that Recirculates Resources: The Comet Circle™



(4) More Economically Rational Recycling

A society that recirculates resources must also establish a recycling system in which products and money flow in opposite directions in both post-product-use stages and original production and marketing stages. The Ricoh Group, making use of an upgraded design, is promoting a more economically rational recycling system in partnership with recycling companies. At the same time, it is important to establish a social system that helps people to be aware of environment-friendly business activities and buy products with less environmental impact.

(5) Partnership at Every Stage

The Ricoh Group is limited in what it can do to reduce the environmental impact at each stage of production. In order to reduce the environmental impact effectively, partnerships are essential. The Ricoh Group can effectively reduce the environmental impact from all its business areas just by decreasing the amounts of chemical substances it uses in cooperation with materials and parts manufacturers. It also urges its customers to use products that have less environmental impact, and to use those products in ways that produce less environmental impact. Improving efficiency when transporting products to their markets, as well as when transporting used products, and reducing recycling costs and the environmental impact generated by recycling are also important. Thus, environmental impact can be reduced effectively in an economically rational way by forming partnerships at every stage. Also, the Ricoh Group helps reduce the environmental impact caused by society as a whole by disseminating and sharing the information and know-how it has obtained through its activities in the community.

Year 2010 Long-Term Environmental Goals and Promotion of Sustainable Environmental Management

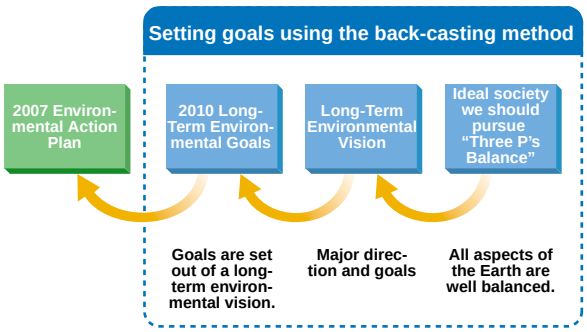
The Ricoh Group sets goals using absolute values to reduce the integrated environmental impact of its entire business activities.

Developing a Sustainable Society

To conserve the global environment and achieve a sustainable society, it is necessary to limit environmental impact to a level that is within the abilities of the natural environment to restore itself. The world has now embarked on efforts to achieve a sustainable, recycling-based society. This trend is quite evident in the adoption of the Kyoto Protocol and recent developments relating to environmental laws and regulations in Japan and Europe. However, our goal is not just to comply with these conventions and regulations. Looking ahead as far as we can and reviewing the current situation from a point in the future, we need to share our vision of the ideal society and global environment, set goals to realize our ideals, and aggressively promote environmental conservation activities. The Ricoh Group has described its long-term vision of the ideal society it pursues by its "Three P's Balance"* and will establish "the Year 2010 Long-Term Environmental Goals" by the end of fiscal 2004 as a milestone on the journey to these ideals.

* See page 9.

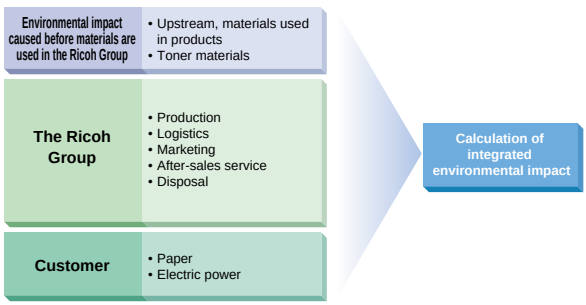
How to Set Environmental Goals



Reducing the "integrated environmental impact" of our entire business activities using "absolute values"

The first step in conserving the global environment is to comprehensively assess the impact that energy use and the use of chemical substances have on the global environment and to determine reduction goals accordingly. If reduction of CO_2 and resource conservation is promoted separately, environmental impact reduction goals might be achieved in a defined area, but the environmental impact might increase more than the amount reduced in other areas or processes. Also, relative goals set based on efficiency such as units and factors alone might not be effective for environmental conservation in practical terms. Therefore, it is necessary to set goals using "absolute values" for environmental impact as well. Above all, environmental impact should be reduced not only in the Ricoh Group but also across our entire business activities through partnerships, covering all areas of collection of re-

Reduction Areas of Environmental Impact (Eco Balance)



Considerations in Preparing an Environmental Action Plan

sources, manufacturing of parts by suppliers, manufacturing of products, transportation, marketing, use of products by customers, and recycling. Based on these ideas, the Ricoh Group will establish the Year 2010 Long-Term Environmental Goals by the end of fiscal 2004, which clearly state the reduction goals using "absolute values" for "integrated environmental impact"* that cover all environmental impact caused in all business areas. The Environmental Action Plan that forms part of the medium-term management plans for fiscal 2005 through 2007 will be prepared based on the Year 2010 Long-Term Environmental Goals.

* Integrated environmental impact is obtained by integrating all environmental impact caused by CO_2 emissions, use of chemical substances, etc. Currently, the Ricoh Group is calculating the integrated environmental impact using EPS, which is an integrated analysis method developed in Sweden. The unit is the ELU. (See page 29.) The integrated analysis method used is subject to change as necessary.

Sustainable Environmental Management of the Ricoh Group From Passive Stage to Proactive Stage and Responsible Stage

To continue its efforts to reduce environmental impact from a long-term perspective, the Ricoh Group needs to continue business and grow as a company by promoting sustainable environmental management that generates economic values through environmental activities. In its past environmental conservation efforts, there were three stages. The Ricoh Group first went through a Passive Stage, and then a Proactive Stage, and now it is in the Responsible Stage of sustainable environmental management. In the Passive Stage, the Ricoh Group coped with social pressures by dealing with laws and regulations and competing with other companies. In the Proactive Stage, however, it began to take voluntary actions to reduce the environmental impact of its business activities and products with a sense of mission as a global citizen. In the current Responsible Stage, the Ricoh Group aims to achieve continuous environmental conservation by pursuing economic values while aggressively reducing the environmental impact of its business activities.

Working towards the ideal society

To move closer to the ideal society, the Ricoh Group has improved the level of sustainable environmental management by developing environmental technologies and encouraging all employees to participate in environmental activities. Each employee in the Group is encouraged to have a strong environmental awareness and set higher goals voluntarily. The Ricoh Group will continue to work to realize the ideal society it is pursuing by aggressively developing environmental technologies, encouraging all employees to participate in environmental activities, and providing customers around the world with products and services with less environmental impact.

Three Steps in Environmental Conservation Activities (From Passive Stage to Proactive Stage and Responsible Stage)

	Passive Stage	Proactive Stage	Responsible Stage
Purpose	Coping with social pressures • Laws and regulations • Competition • Customers	Carrying out its mission as a global citizen • Self-imposed responsibility • Voluntary planning • Voluntary activities	Simultaneously achieving environmental conservation and profits
Activities	Passive measures to meet laws and regulations, competing with other companies, and satisfying customer needs	1. High-aiming, aggressive activities to reduce environmental impact • Energy conservation • Resource conservation and recycling • Pollution prevention 2. Improved awareness of all employees	Environmental conservation activities ≒ QCD activities* Ex.: Reduced number of parts Reduced number of process steps Improved yield and operation rate
Tools		1. ISO 14001 2. LCA 3. Training program for environmental volunteer leaders	1. Strategic goal management system 2. Environmental accounting 3. Sustainable environmental management information system

*Activities to improve quality, control costs, and manage delivery times

Fiscal 2002–2004 Environmental Action Plan and Fiscal 2003 Results

In fiscal 2001, the Ricoh Group compiled an environmental action plan for the period from fiscal 2002 to fiscal 2004. The plan sets 17 environmental impact reduction goals and activity targets in the following areas: improved environmental performance of products (energy conservation, prevention of global warming, resource conservation and recycling, and pollution prevention), environmental conservation activities at plants and offices (energy conservation, prevention of global warming, resource conservation and recycling, and pollution

	The Ricoh Group's Environmental Action Plan (FY 2002–2004)
1. Improving environmentally-friendly functions and promoting technological development*	1) Promote the use of energy-saving technologies in products. (* See page 39) • Achieve Ricoh's energy-saving goals.
	2) Promote pollution-preventing measures with regard to products. (* See page 48) • Completely eliminate the use of environmentally-sensitive substances (i.e., lead, hexavalent chromium, polyvinyl chloride, and cadmium) in products. • Reduce noise levels by at least 2 dB (weighted average value for the number of units sold out of the number of units marketed in fiscal 2000). • Observe Ricoh standards that cover environmentally-sensitive substances emitted by products, including styrene, ozone, and dust.
	3) Develop new environmental technologies. (* See page 42) • Develop practical application technologies for alternative paper and rewritable paper.
2. Increasing the resource conservation rate by improving the productivity of products and materials as well as profitability in the recycling business*	1) Improve the quantity of reusable parts used by a factor of at least 20 (compared to fiscal 2000 in Japan).
	2) Improve the collection rate of used products and toner cartridges by at least 10% in terms of the number of units collected (the Ricoh Group as a whole, compared to fiscal 2000 figures.) (* See page 43)
	3) Increase the number of resource-recirculating-type products marketed by a factor of at least 20 (in Japan, compared to fiscal 2000 figures).
	4) Improve the resource recovery rate for used products and toner cartridges. (* See page 43) • The resource recovery rate for equipment and toner cartridges rises to 98% (in Japan). • The resource recovery rate for equipment and toner cartridges rises to 85% (in Europe). • The resource recovery rate for equipment rises to 95% and that of toner cartridges to 100% (in the Americas). • The resource recovery rate for equipment rises to 85% and that of toner cartridges to 85% (in the Asia-Pacific region).
3. Environmental conservation activities at plants and offices*	1) Reduce the amount of energy used. (* See page 53) • Reduce CO_2 emissions at plants and offices by 62% in terms of CO_2 emissions per sales unit and by 13% in terms of total amount emitted (Ricoh in Japan, compared to fiscal 1990 figures). • Reduce CO_2 emissions by 20% per sales unit (all Ricoh business sites in Japan, compared to fiscal 2000 figures). • Reduce CO_2 emissions by 2% (the Ricoh Group in Japan, compared to fiscal 2000 figures). • Reduce CO_2 emissions by 2% (Ricoh Group manufacturing subsidiaries outside of Japan, compared to fiscal 2000 figures).
	2) Promote pollution prevention. (* See page 61) • Reduce environmentally-sensitive substances (Ricoh Group's target substances to be reduced) to 8% of those used and 50% of those emitted (Ricoh and Ricoh Group manufacturing subsidiaries in Japan and Ricoh Group manufacturing subsidiaries outside of Japan, compared to fiscal 2000 figures). • Completely eliminate the use of dichloromethane (Ricoh and Ricoh Group manufacturing subsidiaries in Japan and Ricoh Group manufacturing subsidiaries outside of Japan). • Restrict the increase in greenhouse gas emissions to a maximum of 1% (Ricoh and Ricoh Group manufacturing subsidiaries in Japan and Ricoh Group manufacturing subsidiaries outside of Japan, compared to fiscal 2000 figures). • Reduce emissions of ozone-depleting substances by 60% (Ricoh and Ricoh Group manufacturing subsidiaries in Japan and Ricoh Group manufacturing subsidiaries outside of Japan, compared to fiscal 2000 figures).
	3) Promote resource conservation and recycling. (* See page 57) • Reduce generated waste by at least 13% (Ricoh and Ricoh Group manufacturing subsidiaries in Japan and Ricoh Group manufacturing subsidiaries outside of Japan, compared to fiscal 2000 figures). • Improve the waste recycling rate to at least 90% (Ricoh Group non-manufacturing subsidiaries in Japan). • Reduce water consumption by at least 10% (Ricoh and Ricoh Group manufacturing subsidiaries in Japan and Ricoh Group manufacturing subsidiaries outside of Japan, compared to fiscal 2000 figures). • Reduce paper purchase by at least 10% (Ricoh and Ricoh Group manufacturing and non-manufacturing subsidiaries in Japan, Ricoh Group manufacturing subsidiaries outside of Japan, compared to fiscal 2000 figures).
4. Promoting Green Partnerships to increase the number of customers and reduce costs*	1) Promote green marketing. (* See page 26) • Improve the recycled pulp use rate for paper products to 60% (in Japan).
	2) Promote green procurement. (* See page 50) • Identify the environmental impact at suppliers' sites to set goals for reducing that impact (Ricoh Group purchasing divisions). • Completely eliminate designated environmentally-sensitive substances in the suppliers' manufacturing process (Ricoh Group purchasing divisions).
	3) Promote green purchasing. • Improve the green purchasing rate (for office supplies) to 100% (the Ricoh Group in Japan).
5. Improving the sustainable environmental management system	1) Establish an environmental management indicator. (* See page 32)
	2) Construct a companywide audit system.
	3) Construct an environmental management information system. (* See page 27)
6. Promoting environment-conscious social contribution activities	1) Promote forest conservation activities to preserve the ecosystem (the Ricoh Group). (* See page 65)

* Results for items 1 through 4 were reviewed by a third party.

prevention), promotion of Green Partnerships, improved sustainable environmental management system, and further contributions to the environment-conscious social contribution activities. This plan is regarded as the Ricoh Group's commitment to its employees and society at large.

Progress (FY 2003 Performance)

▶ The imagio Neo 752/602 series of high-speed multifunctional digital copiers (with a copying productivity of 60/75 pages per minute) equipped with improved energy conservation technologies and highest energy consumption efficiency were put on the market.

▶ For products marketed in fiscal 2003, the volume of lead, hexavalent chromium, polyvinyl chloride (PVC), and cadmium was further reduced. Products in which lead, hexavalent chromium, PVC, and cadmium are completely eliminated are scheduled to be marketed from fiscal 2004.
▶ The level of noise emitted from color copiers during operation and while on standby was reduced 1.6 dB and 8.6 dB, respectively.
▶ All 81 models of copiers, facsimiles, and printers marketed in fiscal 2003 follow Ricoh's standards concerning styrene, ozone, and dust.

▶ The RECO-View™ IC tag sheet, which enables information recorded on IC tags to be displayed and rewritten, was developed and put on the market.

▶ Quantity of reusable parts used reached 2.3 times that used in fiscal 2000.

▶ Collection rates of used products (compared to those in fiscal 2000)
• Increased 28% in Japan; 92% in Europe; 26% in the Americas; and 35% in the Asia and Pacific region.

▶ Thanks to an expanded lineup, the number of resource-recirculating-type products marketed increased steadily, reaching 10.4 times that in fiscal 2000.

▶ Current status of resource recovery rate
• Equipment: 99.2%; toner cartridges: 99.6% (Japan)
• Equipment: 95.5%; toner cartridges: 94.7% (Europe)
• Equipment: 95.0%; toner cartridges: 100% (the Americas)
• Equipment: 84.6%; toner cartridges: 97.0% (Asia and Pacific)

▶ Current status of CO_2 emissions
• Ricoh in Japan: Reduced 29.1% per sales unit and 8.3 % in terms of total amount emitted (compared to fiscal 1990 figures).
• Ricoh in Japan: Reduced 0.8% per sales unit (compared to fiscal 2000 figures).
• Ricoh and Ricoh Group manufacturing subsidiaries in Japan: Reduced 0.6% in terms of total amount emitted (compared to fiscal 2000 figures).
Ricoh Group non-manufacturing subsidiaries in Japan: Reduced 9.8- 19.7 % in terms of total amount emitted (except Ricoh Leasing Company: increased 3.3%) (compared to fiscal 2000 figures; each subsidiary's goal was 2.0%).
• Ricoh Group manufacturing subsidiaries outside of Japan: Reduced 1.5 % in terms of total amount emitted (compared to fiscal 2000 figures).

▶ Progress in pollution prevention (compared to fiscal 2000 figures)
• Environmentally sensitive substances used were reduced 37% and those emitted 73%.
• Efforts were made to replace the dichloromethane used in Organic Photo Conductor (OPC) with a substitute.
• Greenhouse gas emissions other than CO_2 were reduced 4%.
• The emissions of ozone depleting substances were reduced 80%.

▶ Progress in resource conservation and recycling (compared to fiscal 2000)
• The amount of waste generated was reduced 6.8%.
•The waste recycling rate went up to 77.9%–97.5%.
• Water consumption was reduced 1.8%.
• Paper purchase was reduced 15.1%.

▶ The recycled paper use rate for paper products improved to 52% (mass ratio).

▶ A trial method for calculating environmental impact in the processing of parts was chosen.
▶ Out of 754 domestic Group suppliers, 407 submitted certificates indicating the nonuse of chloric organic solvents.

▶ The green purchasing rate in fiscal 2003 was 96% in terms of money value.

▶ A trial evaluation using sustainable environmental management indicators was conducted on designated products.

▶ Some of the issues that were identified in the sustainable environmental management system will be the basis for another action plan to improve performance and streamline the process.

▶ A data collection system necessary for the evaluation using sustainable environmental management indicators was developed at the Group's overseas business sites.

▶ Regional headquarters took part in forest preservation projects, which were expanded to regional sales companies and their plants.
• Europe: 1 (started in fiscal 2002) • The Americas: 1 (started in fiscal 2003 in cooperation with Ricoh Latin America, Inc.)
• Former Asia-Pacific region[1]: 1 (started in fiscal 2002 in cooperation with Ricoh Australia Pty, Ltd.) • Former China region[2]: 1 (started in fiscal 2001)
• Japan: 8 (started in fiscal 1999-2001), 3 (started in fiscal 1999-2001 and has now ended)

1. Asia (except Japan, China, Hong Kong, and Taiwan) and Oceania
2. China, Hong Kong, and Taiwan
* Number of projects driven by regional headquarters

Major Awards Ricoh Received in Fiscal 2003

The Grand Prize at the 12th Global Environment Awards

In recognition of its global leadership in environmental conservation activities such as Zero-Waste-to-Landfill, prevention of global warming, and social contribution, as well as its endeavors to improve public environmental awareness, Ricoh received the Grand Prize at the 12th Global Environment Awards.

The Energy Conservation Chairman's Prize at the 14th Energy-Saving Awards

The imagio Neo752/602 series copiers won the Energy Conservation Chairman's Prize at the 14th Energy-Saving Awards sponsored by the Energy Conservation Center, Japan. imagio Neo752 series are equipped with capacitors that are attracting attention in the industry as next-generation electrical storage devices. This is the third time for Ricoh to receive the Energy-Saving Award after the imagio Neo350 series and the imagio Neo220/270 series won the Award.

* See page 41 for details of imagio Neo 752/602

The Minister of Economy, Trade and Industry Prize at the 6th Green Purchasing Awards

Ricoh was awarded the Minister of Economy, Trade and Industry Prize at the 6th Green Purchasing Awards sponsored by the Green Purchasing Network for its Green Partnerships (green procurement, green purchasing, and green marketing).

Ricoh wins the 2003 WEC Gold Medal.

In recognition of its concept of sustainable environmental management and global leadership, Ricoh won 2003 WEC Gold Medal. This award is granted every year to a company chosen by the World Environment Center (WEC) from companies around the world that have made a great contribution to sustainable development. Ricoh is the first company in Asia to receive this award.

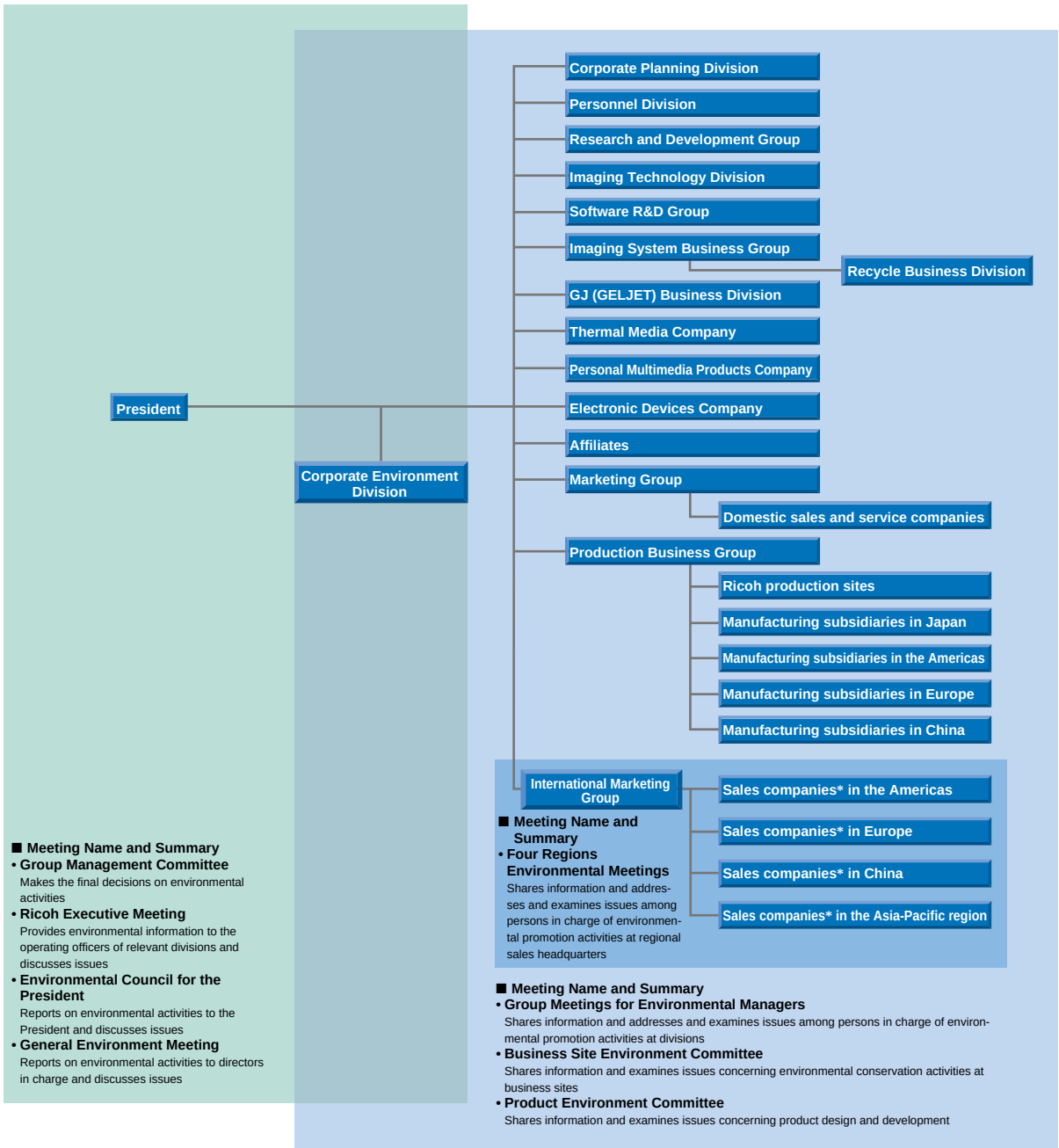
Ricoh is included in corporate social responsibility indices.

In fiscal 2003, Ricoh continued to be included in the Dow Jones Sustainability Indexes (DJSI). Ricoh was given high marks on items such as environmental performance, sustainable management, human resource development, and information disclosure. In March 2004, Ricoh was also included in the FTSE4 Good index of FTSE International Ltd., a joint venture between the UK Financial Times and the London Stock Exchange. Moreover, the Morningstar Socially Responsible Investment Index, which started in Japan in 2003, includes Ricoh.

The Ricoh Group has integrated the management of environmental activities into business operations in the Group as a whole.

The Ricoh Group aims to promote sustainable environmental management that generates economic values through environmental conservation activities. Sustainable environmental management is promoted, not by a special organization or framework, but through activities integrated into business operations at each group company and each business division. Since fiscal 2002, the management of environmental conservation activities has been integrated into the business promotion system, accelerating sustainable environmental management in the Group as a whole.

Organizational Chart for the Ricoh Group's Sustainable Environmental Management System



* The United States, Canada, and Latin America are covered by sales companies in the Americas;
Europe, the Middle East, and Africa are covered by sales companies in Europe;
China is covered by sales companies in China;
and Asia (excluding Japan and China, but including Hong Kong and Taiwan) and Oceania are covered by sales companies in the Asia-Pacific region.

We are promoting participatory sustainable management by all employees based on the Plan-Do-Check-Action (PDCA) cycle for the entire Group, including each business site and division.

The Ricoh Group's environmental management system (EMS) is an important tool in facilitating sustainable environmental management on a global scale. The Ricoh group as a whole, and each of its business sites and division, is promoting participatory sustainable environmental management by all employees based on the PDCA cycle. The achievements of the environmental action plan prepared by each business site or division are evaluated in management reviews* using environmental accounting. Furthermore, based on the Group-wide Strategic Management by Objectives (SMO), which takes an environmental conservation perspective, the Ricoh Group continually evaluates the business performance of its divisions. Recently, all sales companies in Japan, Asia, and Europe have developed and are now promoting their own programs to evaluate sustainable environmental management performance.

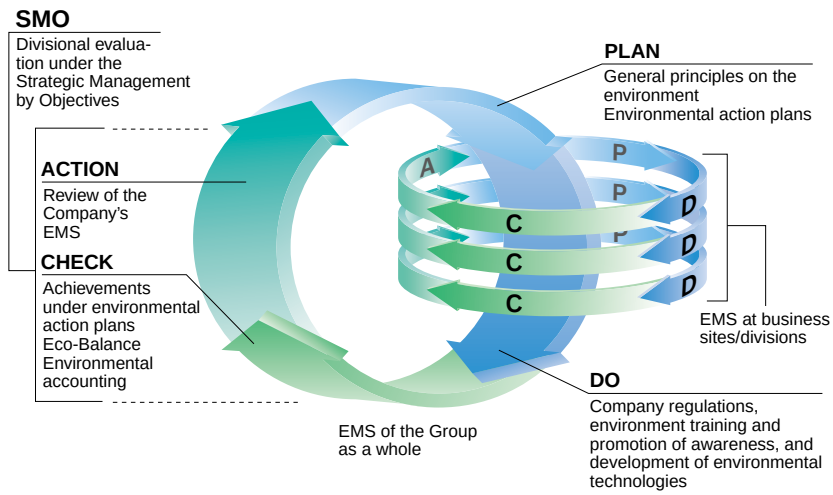
* The review is conducted by management to ensure the appropriateness and efficiency of EMS.

Participatory Approach by All Employees

The Ricoh Group is making an effort to improve sustainable management based on a "all-employee participatory approach." This "all-employee participatory approach" means that all employees in all divisions, such as R&D, product design, materials procurement, manufacturing, transportation, sales, maintenance/services and collection and recycling, participate in environmental activities. These activities are regarded as just as important as "QCD activities,"* which involve pursuing profitability. To improve environmental activities, internal benchmarks and know-how are provided to all employees from time to time to make them more environmentally aware.

* QCD means activities to improve the management of Quality, Cost, and Delivery.

EMS of the Ricoh Group



Sustainable Environmental Management Activities Participated in by All Employees

Research and Development
- **Setting of high environmental goals**
  - Developing environment-friendly technologies, including energy conservation technologies, recycling technologies, and new energy technologies

Product Design
- **Practical application of environmental assessment of products and environment-friendly technologies**
  - Reducing the number of parts, sharing parts, and using parts longer
  - Reducing the use of environmentally sensitive substances
  - Creating energy conservation designs and recyclable designs and improving productivity with duplex copying

Procurement
- **Green procurement and green partnership**
  - Procuring materials and parts with less environmental impact
  - Supporting suppliers in constructing EMS

Manufacturing
- **Increased environmental efficiency through improved manufacturing processes**
  - Downsizing manufacturing facilities
  - Improving yields and operation rates
  - Implementing resource conservation and recycling activities
  - Reducing environmentally sensitive chemical substances

Transportation
- **Promotion of recycling-based logistics**
  - Providing direct delivery, from the plant to the customer
  - Improving packaging (recyclable eco-packaging and reusable racks)
  - Transporting products with less environmental impact

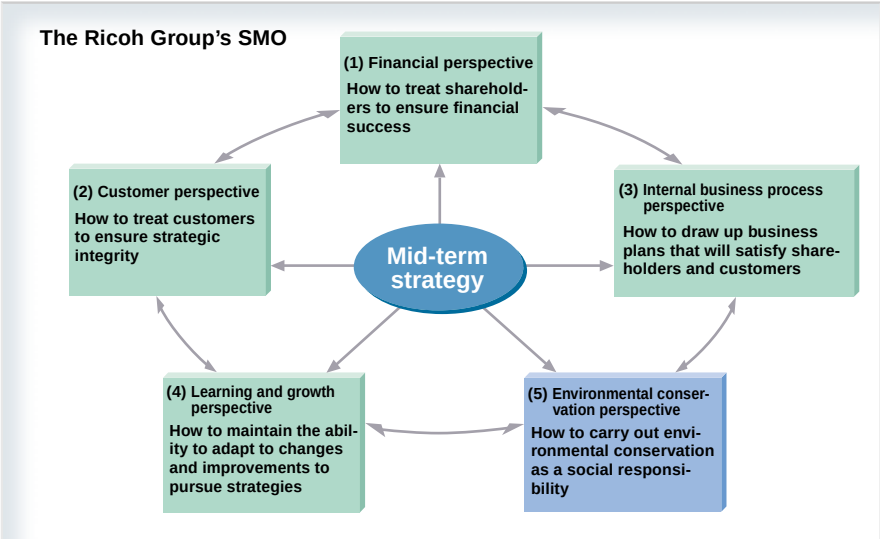
Marketing
- **Green marketing and environmental communication**
  - Marketing products and proposing systems that have less environmental impact
  - Implementing environmental conservation activities at Ricoh offices
  - Providing accurate information to customers on the Ricoh Group's environmental activities

Maintenance and Services
- **Improved office environment through maintenance and services**
  - Contributing to the improvement of the customer's environment
  - Recycling used replacement parts

Collection and Recycling
- **Recycling business**
  - Implementing a recycling information system
  - Increasing the number and quality of collected items
  - Improving the resource recovery rate
  - Getting feedback on recyclable designs

Strategic Management by Objectives (SMO)

Ricoh introduced SMO in 1999 to clarify evaluation standards for environmental conservation activities that are used in divisional performance evaluations. This system is based on the Balanced Scorecard system, a performance management system developed in the 1990s in the United States and characterized by the use of four perspectives. Ricoh has added a specific environmental conservation perspective to the system and is promoting SMO for global sustainable environmental management.



Acquisition of ISO 14001 Certification

To realize sustainable environmental management, the Ricoh Group has been making every effort to establish its Environmental Management System. Starting with Ricoh Gotemba Plant, which received ISO/DIS 14001 certification in 1995, all the major production sites in the world were ISO 14001 certified as of March 2000. In 2001, the domestic sales group as a whole was ISO 14001 certified. Sales companies other than those in Japan are also making every effort to acquire ISO 14001 certification. As of the end of fiscal 2003, 78 bases and 939 sites are ISO 14001 certified. Those companies and sites that have newly joined the Ricoh Group are aiming at acquiring ISO 14001 certification within three years. The Ricoh Group has clarified the standards by size of organization to promote companywide activities for the acquisition of ISO 14001 certification.

* For a list of companies and sites that have acquired ISO 14001 certification, please refer to the Ricoh Group Web site. (http://www.ricoh.com/environment/system/iso.html)

Environmental Auditing

The Ricoh Group has internal environmental auditors who carry out the environmental accounting at the Ricoh Group's business sites and report the results to the heads of the sites to help them improve their environmental activities through more effective PDCA cycles.

Risk Management

In October 2003, the Ricoh Group established the Basic Regulations of Ricoh Group's Business Process Risk Management. In accordance with these regulations, the following PDCA cycle-based management steps are undertaken: Establishment of Basic Objectives and Targets; Establishment of Measures to Prevent the Occurrence of Crises and Initial Responses; Implementation of Measures to Prevent the Occurrence of Crises and Initial Responses; Evaluation of Effectiveness of Measures to Prevent the Occurrence of Crises; Initial Responses; Risk management System, and Establishment of Corrective Measures; Implementation of Corrective Measures. As for Initial Responses to Be Taken in the Event of a Crisis, the Ricoh Group has clarified those units that are responsible for reporting the occurrence of the crisis. If a risk of natural disaster or an accident (risk of earthquake, typhoon, fire, or explosion), or a financial risk (risk of investment or asset management), or an enterprise risk (risk at management strategy level) should occur, appropriate responses will be taken and a report will be made to senior management.

Promotion of Sustainable Environmental Management by Sales Companies

All sales companies in Japan, Europe, and the Asia-Pacific region have developed, and are promoting their own programs to evaluate the performance of sustainable environmental management based on the PDCA cycle. European and Asia-Pacific sales companies have been implementing the Sustainability Self-Assessment Program (SSAP*) and the Sustainable Environmental Management Evaluation, respectively, since fiscal 2002. In fiscal 2003, sales companies in Japan conducted evaluations based on the Sustainable Environmental Management Improvement Evaluation System. The evaluation results of these sales companies are disclosed to all companies and sites in the Ricoh Group so that their benchmarking may be easily made and their sustainable environmental management improved.

* See page 21.

RICOH EUROPE B.V.
Mitsuo Tanaka
General Manager, Environmental Management Office

Promotion of Sustainable Environmental Management

European sales companies are making an effort to improve sustainable environmental management based on the Sustainability Self-Assessment Program.

RICOH EUROPE B.V. as regional sales headquarters for Europe developed SSAP[1] in fiscal 2002 to promote sustainable environmental management by sales companies. This is a tool by which sales companies make self-assessments of sustainable environmental management from various categories and realize improvements. In fiscal 2003, 28 sales companies conducted such self-assessments. After the results of the self-assessment were compiled, the strengths and weaknesses of each sales company were analyzed and outstanding activities were shared by all companies and sites in the Ricoh Group. All sales companies in Europe are implementing the PDCA[2] by effectively utilizing the program.

1. SSAP: Sustainability Self Assessment Program for Environmental Area
2. PDCA: Plan-Do-Check-Action

Q "What is SSAP?"

A SSAP is a self-assessment program that consists of 12 categories and 38 items (sub categories), as shown in the table on the right. For the item of Environmental Management System (EMS) or recycling, the level of activity may be assessed. In addition, each sales company can determine whether their activities lead to an increase in corporate value, such as an improvement in sales or recognition.

Q Why does the implementation of SSAP promote sustainable environmental management?

A Sustainable environmental management means that enterprises continue to conduct environmental conservation activities. Therefore, enterprises need to develop business by generating profit through environmental conservation activities. SSAP is not a relative assessment program, but an absolute assessment program, through which each sales company can determine their current level by comparing with an "ideal sustainable environmental management." Sales companies can objectively understand their "strengths and weaknesses" through conducting SSAP. As a result, they can establish appropriate targets to achieve the most effective forms of sustainable environmental management.

<Examples of improvements through implementing SSAP>

■ Ricoh Italia S.p.A.
In February 2004, the company began to assist in a major canal cleaning project (the Pelican Project) in Venice. This is an achievement resulting from efforts that were made following the results of self-assessment in fiscal 2002, revealing the rating of category 9—"social contribution"—was low. Throughout the year, a number of boats collect waste floating on the large canal from Rome Square to St. Mark's Square for about five hours each day. This activity contributes to an improvement in awareness of Ricoh for the 15 million tourists a year and the citizens of Venice, as they observe these boats in action. The results of this cleaning project are reported in the Web sites of Ricoh Italia and the city of Venice.

■ Ricoh Italia S.p.A.
In fiscal 2003, Ricoh Italia was given a special prize in the sixth Eco High-Tech Awards. This award is sponsored by the Ministry of Environment and the Ministry of Industry in Italy, the WWF, and other organizations. Ricoh Italia's activities to "collect and dispose of used machines and toner cartridges" were highly evaluated as advanced activities for a manufacturer and as excellent activities that exceed expectations of the Italian Environment Law. This achievement led to an improvement in the rating of category 3—Collection and Recycling.

■ Ricoh Hungary Kft
In August 2003, the Aficio 2035/2045 acquired Hungary's Type I environmental label for the first time for office equipment. Ricoh Hungary has cooperated in the establishment of certification standards for environmental labeling. This activity led to an improvement in the rating of Item 7—Green Solution Marketing.

Q What are essential points to achieve excellent results?

A The most essential point is to share the self-assessment results with all sales companies implementing the program. Ricoh Europe B.V. not only compiles and analyzes the results of self-assessments of all sales companies, but also introduces the excellent cases for each item that should be used as benchmarks for all sales companies. Therefore, sales companies don't need to think of ways to realize improvements from scratch. Since these sales companies belong to the same group, they can disclose detailed information to their counterparts.

Q How will you utilize SSAP in the future?

A We will improve the range of the program to ensure that each sales company may upgrade its sustainable environmental management by effectively implementing SSAP. We will continue to review the contents of the program to meet changes in social conditions and legal regulations while ensuring changes in the results of self-assessment may be continuously grasped. To make the program a more effective tool for management and managerial staff to promote sustainable environmental management, we will develop a system to analyze the results of self-assessment more rapidly and in more detail. We will also build a system to encourage more sales companies to participate in the program. We also believe that if the program is modified slightly, production sites may be able to utilize the program.

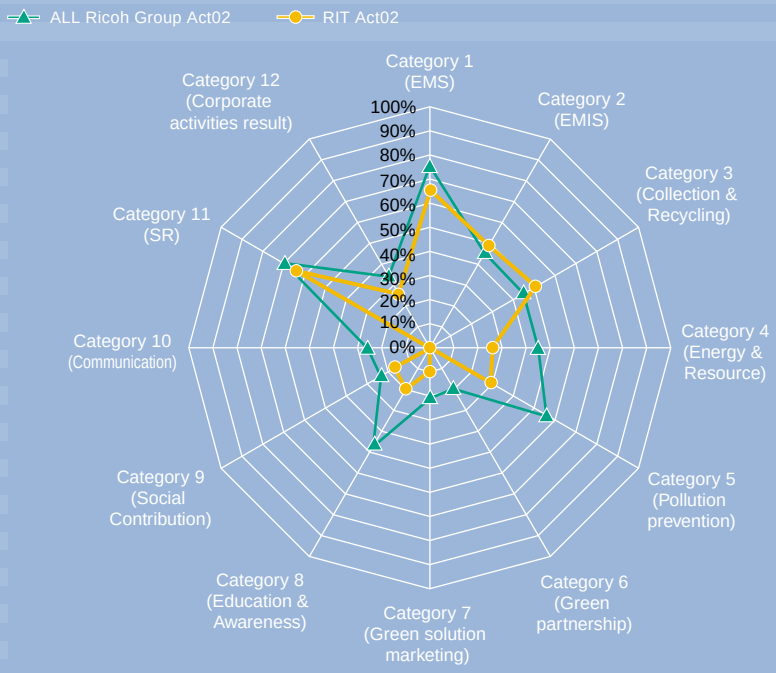
● SSAP (Sustainability Self-Assessment Program) Categories

1. EMS
2. Environmental management information system
3. Collection and recycling
4. Energy/resource conservation
5. Pollution prevention
6. Green partnership
7. Green solution marketing
8. Environmental education and awareness building
9. Social contribution
10. Environmental communication
11. Social responsibility
12. Corporate activities' results

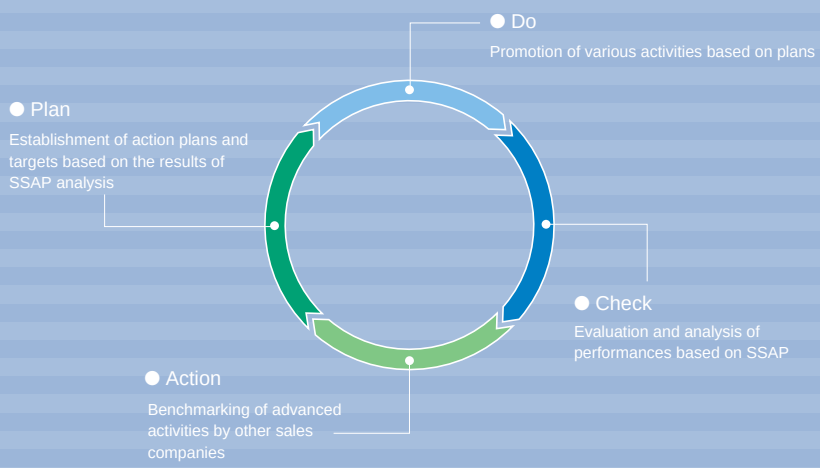
● Example of self-assessment

<Ricoh Italia (RIT)>

SSAP Analysis (Achieving Raito) for RIT (FY 2002 Result: Total 42%, RIT: 33%)



● PDCA for sustainable environmental management by each sales company



We are conducting awareness-building activities for our employees so that they can perform duties as global citizens and promote their individual sustainable environmental management.

To make all-employee participatory sustainable environmental management really effective, not only is the commitment of senior management and the active efforts of all divisions essential, but so is the awareness building of employees essential. Although sustainable environmental management concerns corporate activities, these activities are the accumulation of the actions of individual employees. The Ricoh Group has about 73,000 employees throughout the world. The results of sustainable environmental management will widely differ depending on the awareness of individual employees. Therefore, we are conducting education and awareness building activities for our employees so that they may grow as "global citizens", "employees of the Ricoh Group", and "specialists in promoting sustainable environmental management".

Awareness Building for Employees as Global Citizens

Development of Voluntary Environmental Leaders
<Ricoh Group/Japan>

To improve the awareness of employees, the Voluntary Environmental Leader Development Program* has been running to assist in voluntary environmental activities by employees since 1999.

* See page 69.

Awareness Building Using Environmental Household Accounts
<Ricoh's Marketing Group, Sales Companies, etc./Japan>

Based on a desire that "employees not only promote sustainable environmental management in the office, but also conduct environmental conservation activities at home," Ricoh's Marketing Group, in cooperation with sales companies in Japan, has been making an effort to encourage the use of environmental household accounts. This effort is called Eco Life Note. The contents of Eco Life Note are input to the company's database, which enables the exchange of information among participants. As of the end of fiscal 2003, 400 or more households had participated in these activities.

Database of environmental household accounts titled Eco Life Note

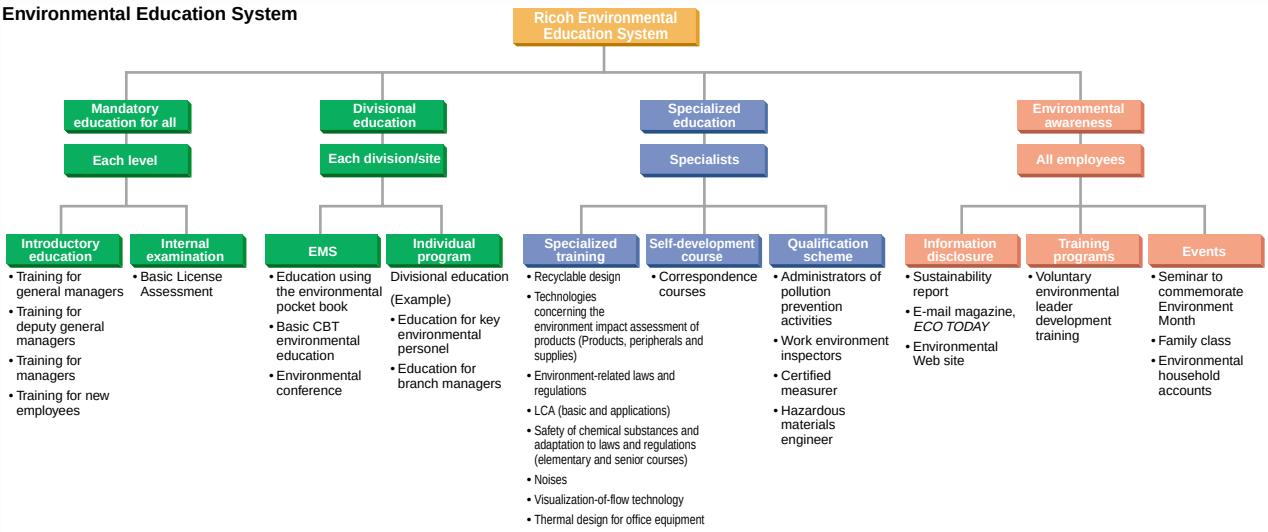
Seminar to Commemorate Environment Month
<Ricoh Group/Japan>

To improve the awareness of Group employees, a seminar to commemorate Environment Month has been held since fiscal 2001. In fiscal 2003, Mr. Kuniharu Miyagi, Director of the International Relations Center, College of Global and Regional Culture, Okinawa International University, and Professor Kevin MacEwen Short of the Environmental Information Course, Tokyo University of Information Sciences, were invited to deliver keynote speeches under the theme of Current Conditions and Recovery of Native Nature and Accessible Nature. Not only employees but also non-employees attended the seminar.

Awareness Improvement concerning Recycling Activities
<Ricoh Corporation/U.S.A.>

On Recycling Day (November 15) in the U.S.A., Ricoh Corporation, as the Americas Regional Sales Headquarters, collected used home electronics equipment from its employees. This was then recycled at the recycling center for the Ricoh Group. This awareness-building activity, which has been conducted since fiscal 2002, was reported in the local newspaper.

Environmental Education System



Education and Awareness Building for Ricoh Group's Employees

Ricoh Group's Environmental Conference

<Ricoh Group/Global>

In February 2004, Ricoh Group's 10th Environmental Conference was held at the Ohmori Office, Tokyo. At the conference, held to promote all-employee participatory sustainable environmental management for the Ricoh Group as a whole and attended by Group employees from various regions, Haruo Kamimoto, deputy president of Ricoh delivered a speech, and panel discussions were conducted. A commendation ceremony for the 2nd Ricoh Sustainable Development Award was also held during the conference.

Representatives of the RS (Reprographic Supply) Products Division who were given the Ricoh Sustainable Development Award, and Masamitsu Sakurai, president of Ricoh (second from right)

Acquisition of ISO 14001 Certification and Zero-waste-to-landfill Activities

<Ricoh Group/Global>

At Ricoh Group, not only main production sites in the world but also non-production sites are making efforts to acquire ISO 14001 certification. The introduction of the Environmental Management System enables employees to learn about the effects of their operations and work on the environment and enhance their awareness of the environment through various efforts to improve it. Zero-waste-to-landfill activities* are not only promoted at production sites but also at non-production sites. Since the target of zero-waste-to-landfill cannot be achieved without the participation of all employees, these activities are very effective for enhancing the awareness of all employees.

* See page 59.

Intra-Group E-mail Magazine *ECO TODAY*

<Ricoh Group/Global>

The e-mail magazine titled *ECO TODAY*, which contains environmental information, is periodically issued internally. The magazine introduces sustainable environmental management activities by each division and opinions of external persons, such as those of environmental NPOs, to help enhance the awareness of all employees for the environment.

Earth Connection Tour

<Ricoh Electronics, Inc./U.S.A.>

Ricoh Electronics, Inc. (REI), a U.S. production company, has been implementing the Earth Connection Tour to help enhance the environmental awareness of its employees and promote all-employee participatory sustainable environmental management. The tour is attended by responsible persons, including its president. In the tour, participants inspect job sites and benchmark the best practices for improving sustainable environmental management activities. The participants present information concerning environmental targets, current performance of such targets, problems and cases of operational improvements proposed by employees. In fiscal 2003, REI put 174 improvement proposals into practice, and could save more than 580,000 kWh of electricity and more than 100 kg of paper. The successful results of improvement proposals are fed back to all divisions by participants. Participants of the Earth Connection Tour make two kinds of comments concerning each job site that made improvements; namely, comments on excellent activities and those on activities to be further improved. Thus, all job sites are encouraged to make further improvements.

Education and Awareness Building for Persons in Charge of the Promotion of Environment-Related Operations

Ricoh Sustainable Development Award

<Ricoh Group/Global>

The Ricoh Sustainable Development Award has been presented since fiscal 2002. This award has two categories. One is the Award for Environmental Management Improvement Activities, presented for routine all-employee participatory activities. The other is the Award for Environmental Management Technology, presented in recognition of efforts to develop environmental technologies. These two awards are presented based on evaluations of activities from two perspectives: namely, environmental conservation effects and generated economic profit. In fiscal 2003, 31 entries were made by various divisions and sites across the world. The RS (Reprographic Supply) Products Division was given the Award for Environmental Management Improvement Activities for its improvement of the toner production process with the On-Demand Toner Filling Machine.* No party was given the Award for Environmental Management Technology in this fiscal year.

* See page 54.

Organization of Environment-Related Courses

<Ricoh Group/Japan>

To develop personnel who can manufacture environment-friendly products or manage chemical substances properly, environment-related courses, such as LCA and recyclable design, are organized for employees.

Environment-related Courses (Number of participants)

Name of course	Number of participants in fiscal 2003
Recyclable Design	36
Technologies for the Environment Impact Assessment of Products (machines, peripherals and supplies)	47
Environment-Related Laws and Regulations	67
LCA (basic)	25
LCA (application)	7
Safety of Chemical Substances and Adaptation to Laws and Regulations (elementary class)	32
Safety of Chemical Substances and Adaptation to Laws and Regulations (senior class)	12
Noise	31
Visualization-of-Flow Technology	15
Thermal Design for Office Equipment	16
Total	288

We have organized green partnerships to continue to promote effective environmental conservation.

To promote effective environmental conservation, it is important to make an effort in reducing the environmental impacts caused by "overall operations" through partnerships with suppliers and customers. For this purpose, it is necessary to establish, maintain, and improve partnerships that are beneficial to all parties. To contribute to the creation of a sustainable recycle-oriented society, we regard all parties involved in the operations of the Ricoh Group as green partners, and we, together with these green partners, are promoting effective environmental conservation.

Suppliers of Materials and Parts

Development of Environmentally Conscious Products

Based on the concept of manufacturing shared with suppliers, the Ricoh Group is promoting activities to reduce chemical substances with serious environmental impact. We are promoting the joint development of parts with less environmental impacts, and commend excellent cases at the Green Procurement Convention.

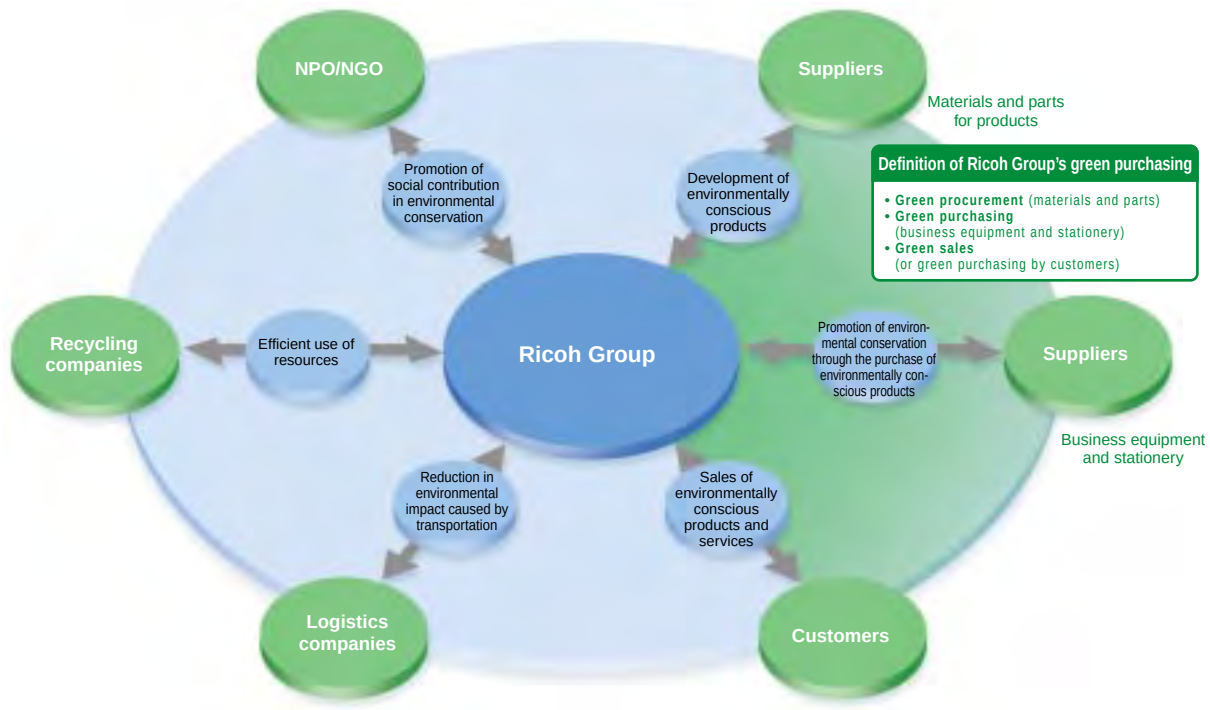
* See page 51.

Suppliers of Business Equipment and Stationery

Promotion of Environmental Conservation through Green Purchase of Environmentally Conscious Products

As users of paper, stationery, and business equipment, we are promoting "green purchasing," which means that environmentally conscious products are used on a priority basis. In April 2002, the Ricoh Group established the Green Purchasing Guidelines for eight categories: paper, stationery, business equipment, OA equipment, home appliances, work gloves, working clothes, and lighting. These guidelines aim to enhance the awareness of employees. In addition, we established the Green Purchasing System, under which equipment and stationery that comply with the provisions of the Green Purchase Law may be easily procured. Collective purchasing of products by the Ricoh Group has led to cost reductions.

Ricoh Group's Green Partnerships



Customers

Promotion of Environmentally Conscious Products and Services

Paperless Office

<Tsu office of Mie Ricoh Co., Ltd. and other offices/Japan>

Paper in offices is the most serious cause of environmental impact. Domestic sales companies have created paperless offices by utilizing Ricoh's document solution system, which is sold by them, and other means. These sales companies provide customers with know-how on the creation and operation of paperless offices by allowing customers to visit their offices. Since the establishment in February 2002, more than 700 customers have visited the Tsu office of Mie Ricoh. This office was introduced on the Web site* of Mie Prefectural Government. Ricoh MA (Major Account) Marketing Division that has customers such as sales companies, including Aichi Ricoh Co., Ltd. and Kanagawa Ricoh Co., Ltd., public agencies and major companies, has created a paperless office.

* http://www.eco.pref.mie.jp/news/interview/inter183/index.htm (Interview with Enterprises, April 9, 2003) (Japanese language only)

The paperless office of Tsu office of Mie Ricoh

Green Promotion

<Ricoh Chubu Area Sales Group/ Japan>

The Ricoh Chubu Area Sales Group, which is in charge of sales in the Chubu area, is conducting green promotion activities that connect sales activities and social contribution in environmental conservation to the area. In these green promotion activities, those customers who purchased Ricoh's environmentally conscious products provide their eco cards to Ricoh Chubu Area Sales Group. Based on the number of such cards, Ricoh Chubu Area Sales Group provides NPOs with financial assistance. NPOs operating in the Chubu area submit proposals on activities. Then, the NPOs are short-listed by the votes of customers and Ricoh's employees. Finally, the NPOs entitled to receive financial assistance are determined at the screening committee attended by representatives from NPOs, government organizations and educational institutions, and representatives from other companies engaged in social contribution. One of the screening standards is that 'employees of the Ricoh Group can participate in NPO's activities.'

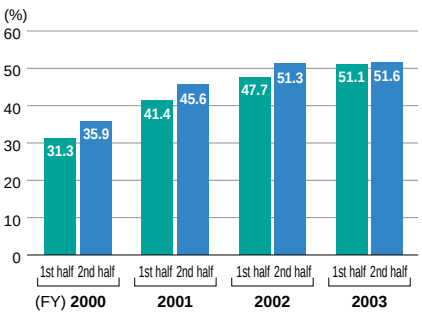
A Screening Committee selects NPOs entitled to receive financial assistance

Promotion of Paper Recycling

<Ricoh Group/Japan>

To contribute to the creation of a recycle-based society, the Ricoh Group has prepared a plan to raise the using rate of used paper (paper products, including printing papers) to 60% by fiscal 2004. In fiscal 2003, the using rate of used papers increased as expected. NBS Ricoh, which sells paper products etc., and all sales companies of the Ricoh Group are promoting Office Used Papers Recycling Services with the object of collecting used paper from customers, recycling it, and selling it on to customers.

❶ The Ratio of Recycled Pulp to Total Paper Sales (Comparison by weight)



Logistics Companies

Reduction in Environmental Impact Caused by Transportation

To reduce the environmental impact caused by transportation, the Ricoh Group is promoting a modal shift (shift of transportation by trucks to that by sea and/or rail) in cooperation with various logistics companies.

* For details, refer to page 56.

Recycling Companies

Efficient Use of Resources

In cooperation with recycling companies as "partners in creating a resource recirculating society," the Ricoh Group is making an effort to recycle used products and enhance "zero-waste-to-landfill" activities.

* For the recycling of products, refer to page 43.
For recycling activities made by offices and sites, refer to page 57.

NPO/NGO

Promotion of Social Contribution in Environmental Conservation

The Ricoh Group is promoting effective social contribution in environmental conservation on a global level in cooperation with "frontrunners in environmental conservation," such as NPOs and NGOs.

* For details, refer to page 65.

The Sustainable Environmental Management Information System supports the decision-making process concerning sustainable environmental management, and promotes LCA-based design.

The Sustainable Environmental Management Information System is intended to identify and promote the progress of sustainable environmental management. The system comprises the Environmental Impact Information System to collect and process data about environmental impact, and the Environmental Accounting System to collect and process data on environmental costs and effects. Collected and processed data is used for decision-making concerning sustainable environmental management, the promotion of LCA-based designs,* improvement activities by each division, and disclosure to society.

*** See page 36.**

Environmental Impact Information System

This system collects and processes data on environmental impacts caused by each operational process and by our overall operations. Based on this data, the Eco Balance[1] of overall operations is identified, and this Eco Balance is used for establishing environmental action plans.[2] Thus, improvement work is conducted on a priority basis for processes with larger environmental impacts. Since particular data may be extracted or may be used with other data, this system is used for environmental improvement activities by each site, and for activities to reduce the use of chemical substances with serious environmental impact.

1. See page 29. 2. See page 15.

Environmental Accounting System

This system enables Corporate Environmental Accounting"[1] in a timely manner by collecting data on environmental conservation effects obtained from the Environmental Impact Information System and environmental cost data obtained from the accounting system, and processing this into sustainable environmental management indicators.[2]

1. See page 33. 2. See page 32.

Sustainable Environmental Management Information System

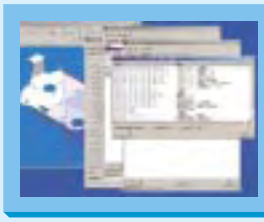
Environmental Impact Information System

Procurement

This is a system to promote green procurement in tandem with environmental action plans and information on laws and regulations. This system collects information on weight, component substances, and chemical substances in raw materials and parts by utilizing the network with suppliers. In fiscal 2003, this system also started operation in China.*

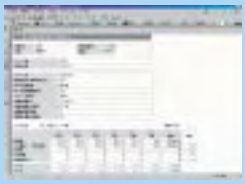
* See page 51.

Design



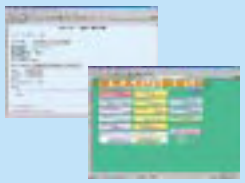
This is a system to select the most suitable materials and parts from the viewpoint of environmental conservation and costs in order to promote LCA-based design. This CAD system works in tandem with the procurement management system and the chemical substance management system.

Manufacturing



This is a system to identify environmental impacts caused by operations. This system collects data concerning power consumption, and the quantity of chemical substances used, CO_2 emissions, and waste discharged by all offices and sites, including production sites and non-production offices including Ricoh Head Office, using the intra-group network.

Transportation and Sales

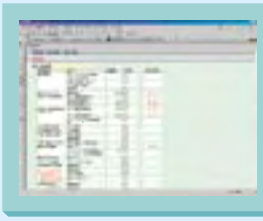


This is a system to collect data concerning power consumption, and the quantity of gasoline used and waste generated in order to reduce the environmental impact caused by logistics sites, transportation processes, and sales sites. This system begins to collect data as soon as a site establishes an EMS.

Use

This is a system to share data about environmental performances by product (power consumption, duplex copying productivity, recyclable design, etc.) and use such data for LCA-based design and information disclosure in catalogs. This system compiles environmental impact information by product based on design data.

Maintenance and Services



This is a system to identify and analyze environmental impacts caused by maintenance work on products. This system collects related information from the database of product maintenance records and the database of power and gasoline consumed in the maintenance sites.

Collection and Recycling

This system provides information infrastructure to utilize recycle plans that were prepared when products were designed for reuse or for the recycling of collected products, and stores detailed information on the recycling process of products. In fiscal 2003, this system was introduced on a global basis.

Information collected

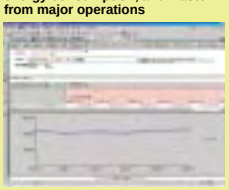
Integrated database

Information collected

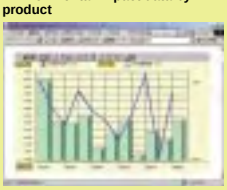
The mechanism of collecting data needed for distribution is established.

- Number of units produced (by process)
- Weight of products
- Value of sales
- Relationship between divisions/facilities and products

Data on chemical substances, energy consumption, and waste from major operations

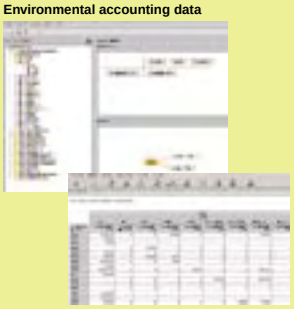


Environmental impact data by product

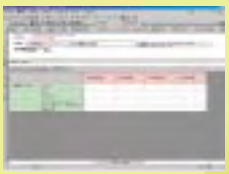


Environmental impact data by division

Environmental accounting data



Recycling data



Analysis of information / Processing of information

Information needed for promoting PDCA (Plan-Do-Check-Action)* is output.

* See page 19.

Identifying Eco Balance

See page 29.

Preparing and managing environmental action plans

See page 15.

Sustainable environmental management indicators

See page 32.

Environmentally conscious design

See page 35.

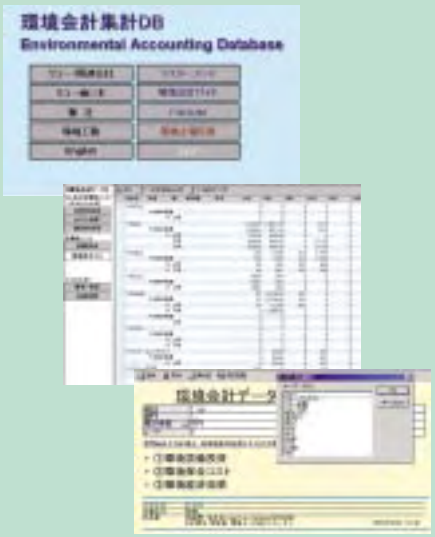
Environmental Accounting System

Accounting system

Environmental expenses

Environmental capital investment

Environmental accounting database



The Eco Balance data on environmental impacts caused by overall business activities are utilized for establishing long-term targets and action plans.

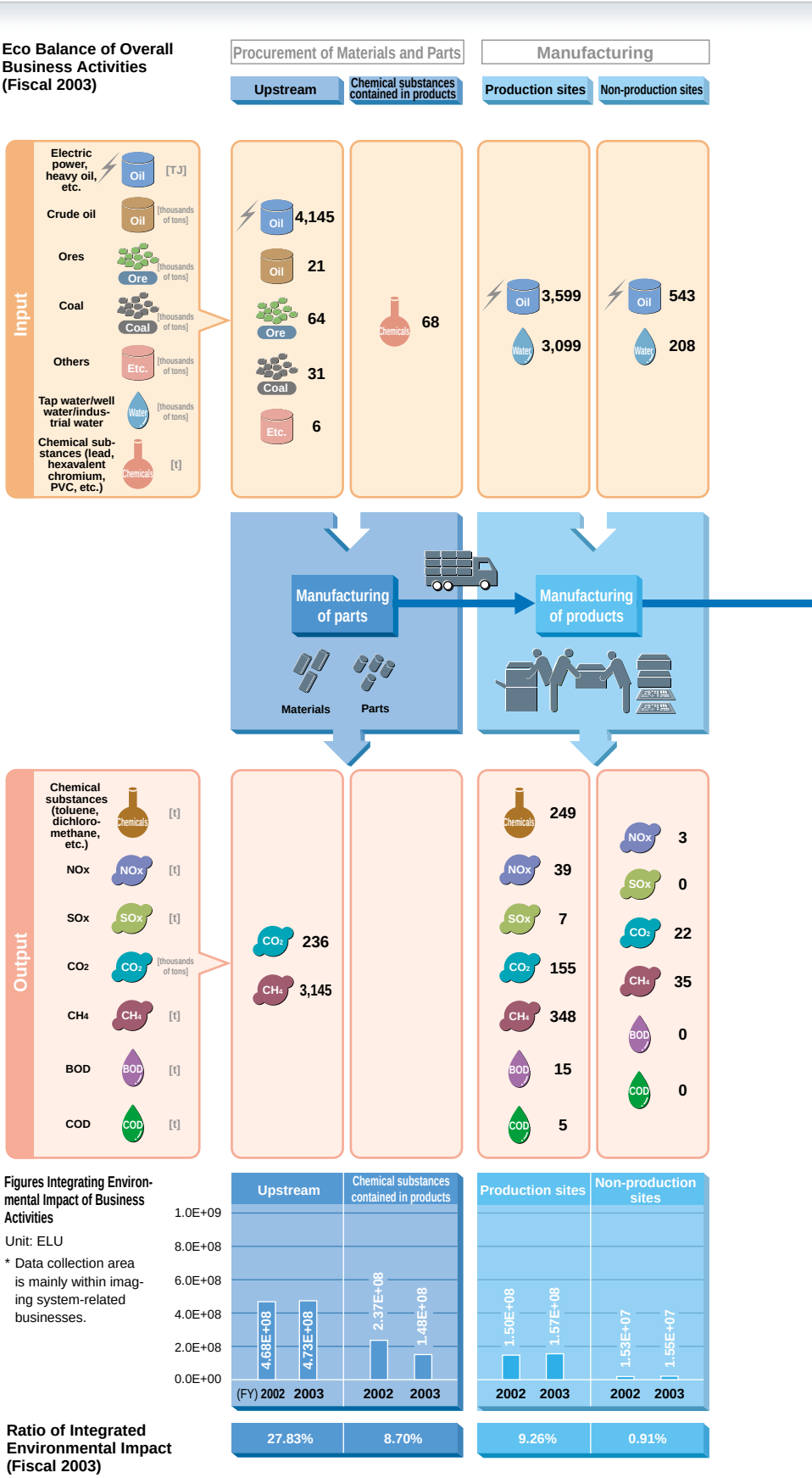
To effectively reduce the impact of processes with larger environmental impacts on a priority basis, the Ricoh Group identifies the environmental impacts of overall business activities and per process using Eco Balance.[1] Eco Balance shows the numerical data of all environmental impacts caused by business activities, such as effects on human health, resource depletion and effects on the ecosystem. These numerical data were obtained by applying the integrated analysis method[2] of the data collected by the Sustainable Environmental Management Information System.[3] Based on the evaluation of the "integrated environmental impact" that was identified by "the Eco Balance", "the Year 2010 Long-Term Environmental Goals"[4] and "the Environmental Action Plan"[5] are estalished.

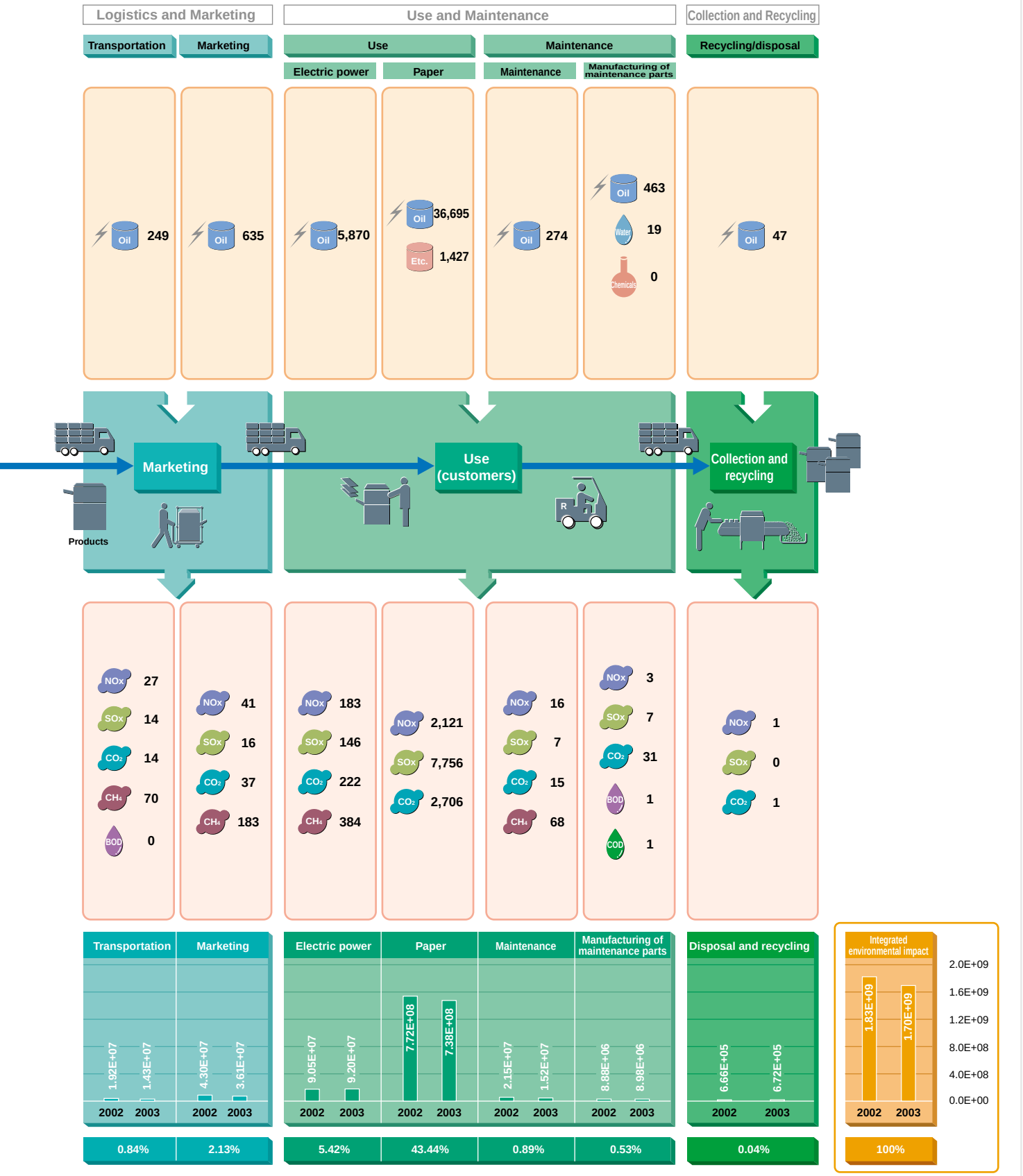
1. Eco Balance means the preparation of a list of input and output data on environmental impact to identify, quantitatively measure, and report environmental impacts caused by companies; or such a list itself.
2. Environmental Priority Strategies for Product Design (EPS), developed by the Swedish Environmental Research Institute (IVL) to calculate LCA of products, is used in calculating the Eco Balance of business activities. Under EPS, damage caused by environmental impact on human health, the ecosystem, non-living resources, and biodiversity is converted into financial values using ELU (Environmental Load Unit) as unified indicators (CO_2=0.108 ELU/kg, NOx=2.13 ELU/kg, SOx=3.27 ELU/kg, BOD=0.002 ELU/kg, etc.).

3. See page 27. 4. See page 13. 5. See page 15.

Review of Fiscal 2003

As for Eco Balance in image system-related businesses, integrated environmental impact as a whole decreased approximately 5% from that in the previous fiscal year. This is mainly due to further reductions in environmentally sensitive substances (lead, hexavalent chromium, PVC, etc.) contained in products and progress made in the use of natural-gas vehicles during product transportation. However, because environmental impact caused by the production and use of resources is increasing, measures to reduce such impact are currently underway.



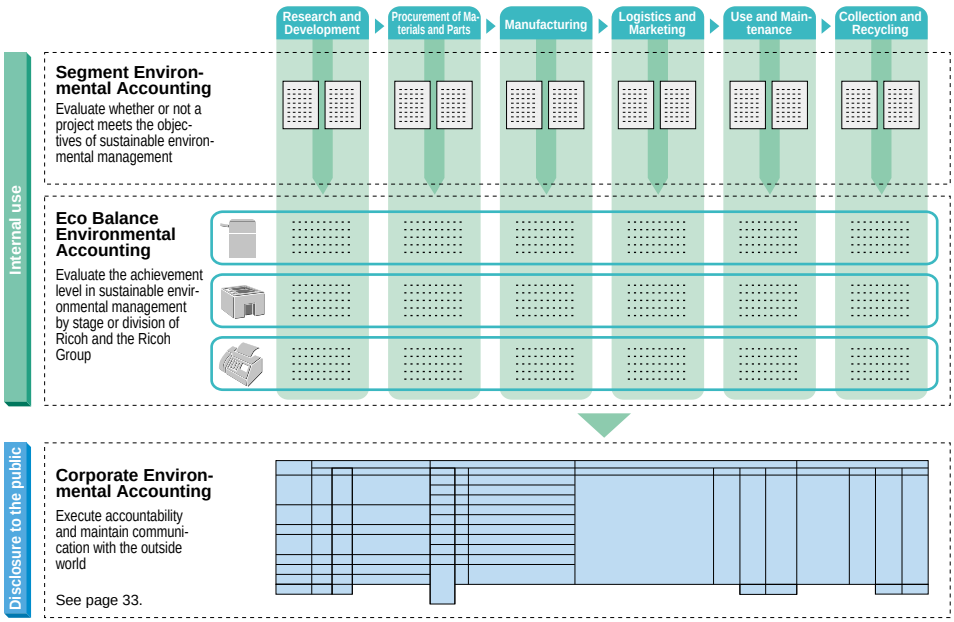


"E+n" means "× 10^n"
(Example) 1.45E+08 = 1.45 × 10^8

We aim to establish an environmental accounting system to evaluate sustainable environmental management and support managerial decision making.

Thanks to its environmental accounting system, which was disclosed for the first time in 1999, the Ricoh Group has built up a good reputation. However, it is necessary to further improve this environmental accounting system as a managerial decision-making tool. We will internally utilize the Segment Environmental Accounting and the Eco Balance Environmental Accounting System to promote sustainable environmental management. From now on, we will make an effort to improve and enhance the environmental accounting system so that the system may be used as a sustainable environmental management indicator to accurately evaluate environmental conservation activities.

Environmental Accounting in the Ricoh Group



Ricoh Group's Corporate Environmental Accounting

Guidelines of the Ministry of the Environment		Ricoh's System	
Cost	**Effect**		**Indicator**
Environmental conservation cost (environmental cost and environmental investment)	Effect on environmental conservation (amount)	Consolidation of environmental impact Reduction in social costs calculated in terms of money value (converted amount) EPS ver. 2000	Sustainable environmental management indicator (See right page.)
	Economic benefits (in terms of money value) Substantial effect	Calculation of expected effects Calculation of incidental effects (See page 34.)	

Segment Environmental Accounting

This is an internal environmental accounting tool to select an investment activity, or a project, related to environmental conservation from among all processes of operations, and to evaluate environmental effects for a certain period. The effect of investment on environmental conservation will be calculated based on the concept of "Return on Investment" (ROI). The calculation result is used internally for decision making in sustainable environmental management. Ricoh Group companies and divisions, such as its recycling business division, increasingly utilize segment environmental accounting for their operations.

* For cases of segment environmental accounting, refer to pages 39, 43, 53 ,57, and 61.

Eco Balance Environmental Accounting

This is an internal environmental accounting tool to support PDCA for sustainable environmental management activities. The Ricoh Group conducts environmental accounting for each process and overall operations based on environmental impact data on each process, as obtained from "the Sustainable Environmental Management Information System."[1] Now, we are examining the applicability of the results of this Eco Balance Environmental Accounting to performance evaluation by division, as well as the utilization of these results in establishing and controlling the progress of "the Year 2010 Long-Term Environmental Goals"[2] and "the Environmental Action Plan."[3]

1. See page 27. 2. See page 13. 3. See page 15.

Corporate Environmental Accounting

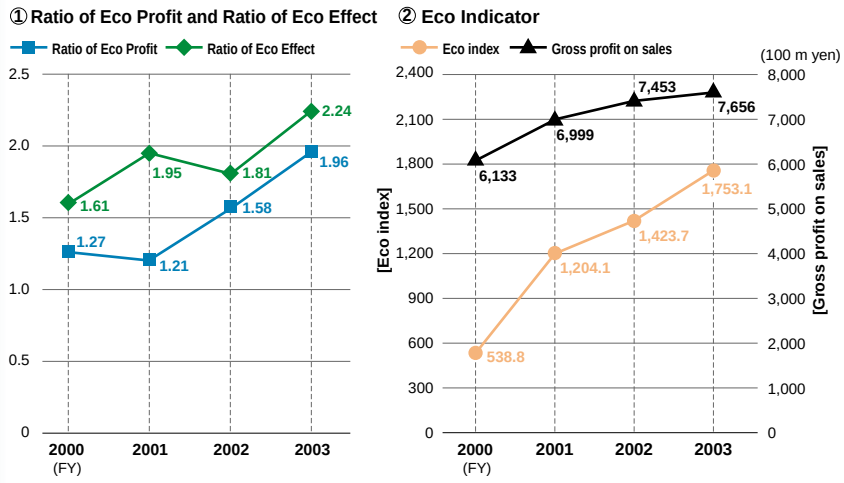
This is a tool to inform the public of relevant information compiled in accordance with the Environmental Accounting Guidelines of Japan's Ministry of the Environment. The Ricoh Group takes the necessary portion from the Eco Balance environmental accounting data, and calculates the cost and effect (in quantity and monetary value) of its environmental conservation activities based on its own formulas and indicators. The calculated results are disclosed to the public after being verified by a third party organization. We will continue to improve the accuracy of the information to be disclosed and will make a positive effort to make it comparable to already-standardized documents, such as financial statements.

Review of Corporate Environmental Accounting in Fiscal 2003

Review of Corporate Environmental Accounting

The ratio of eco effect, an important indicator measuring the effect on cost in environmental conservation activities, was substantially improved in fiscal 2003 (see graph ①). This improvement is attributable to significant growth in sales of recycled products and other environmentally conscious products. The environmental conservation cost, however, is at the same level as that in fiscal 2002. The ratio of eco profit remained stable, growing 20–30% every year since the current environmental action plan started in fiscal 2002 (see graph ①). By the end of fiscal 2004 (the year the plan ends), this percentage is predicted to be approximately twice that of when the action plan started. The fiscal 2003 Eco-Index, which indicates the level of sustainable environmental management for the entire business, jumped 46% from that in fiscal 2001 thanks to an approximate 30% reduction in environmental impact through Groupwide zero-waste and chemical substance reducing activities. Gross profit on sales grew approximately 10% from that in fiscal 2001 (see graph ②). Like the ratio of eco profit, gross profit on sales is predicted to be twice that in fiscal 2001. An overview of the corporate environmental accounting data (see next page) shows that the Ricoh Group's total environmental conservation cost increased only slightly since the previous year. This proves, however, that more environmental conservation costs were incurred for environmental activities involved in products and social contribution toward environmental conservation than in environmental activities done by business sites because product recycling costs and social activity costs increased while costs from business areas and environmental management activities decreased. The economic benefits on environmental conservation cost improved in almost all items. The effect on cost for product recycling in particular improved significantly, resulting in a surplus. The amount to profit by R&D on products increased to roughly 1.5 times that in fiscal 2002. This is believed to be the result of the emphasis that the Ricoh Group has placed on the development of environmentally conscious products over the past several years. In addition, although environmental conservation effects significantly improved in terms of the amount of final waste disposed and chemical substances emitted, CO_2 emissions fell only slightly and remain a challenging issue in the prevention of global warming in the future.

Changes in Ricoh Group's Sustainable Environmental Management Indicators



Ricoh Group's Sustainable Environmental Management Indicators

Sustainable environmental management indicators	Results in fiscal 2003	Calculation formula
REP : Ratio of Eco Profit	1.96	Total economic benefit (30.29) /Total environmental conservation cost (15.43)
REE : Ratio of Eco Effect	2.24	{Total economic benefit (30.29) + Amount of reduction in social costs (1.24+3.07)}/Total environmental conservation cost (15.43)
Eco Index	1,753.1	Gross profit on sales (¥765,600,000 thousand) /Total environmental impact (436,703)
RPS : Ratio of Profit to Social cost	122.4	Gross profit on sales (765.6) /Total social cost (6.256)

* Monetary units are indicated in billions of yen unless otherwise indicated.

Ricoh Group's Corporate Environmental Accounting in fiscal 2003

Environmental conservation costs are classified by seven types of operations in accordance with classifications defined in "The fiscal 2002 Environmental Accounting Guidelines from the Ministry of the Environment."

Costs refer to expenditure on environmental conservation activities (in a broad sense), and consist of environmental investments and environmental costs (in a narrow sense).

● Environmental investments
These investments correspond to "investments in fixed assets" in financial accounting. The amount of environmental investments is distributed as environmental costs over the service life of fixed assets in accordance with depreciation procedures.

● Environmental costs
These environmental costs correspond to the "period cost" in financial accounting. (Depreciation cost of envi-ronmental investments is included.)

Monetary unit: ¥100 million (Exchange rate: $1 = ¥113.09 €1 = ¥132.65)

Item	Costs: Environmental Investments	Costs: Environmental Costs	Costs: Main Costs	Economic Benefits: Monetary Effects	Economic Benefits: Category	Economic Benefits: Item
Business area costs	4.8	20.7	Pollution prevention cost ····· ¥471 million Global environmental conservation cost ····· ¥347 million Resource circulation cost ····¥1,248 million	15.0	a	Energy savings and improved waste processing efficiency
				39.7	b	Contribution to value-added production
				86.9	c	Avoidance of risk in restoring environments and avoidance of lawsuits
Upstream/ Downstream costs	0.5	74.5	Cost of collecting, disassembling, and recycling used products	85.4	a	Sales of recycled products, etc.
				[23.8]	S	Reduction in society's waste disposal cost
Administration costs	0.6	35.9	Cost generated by the division in charge of environmental conservation; cost to establish and maintain an environmental management system	13.2	b	Effects of media coverage and environmental education
Research and development costs	0.8	11.7	Research and development costs for environmental impact reduction	54.3	a	Contribution to gross margin through environmental research and development
				[6.9]	S	Reduction in user's electricity expenses thanks to an improved energy saving function and product performance
Social activity costs	0.1	9.9	Costs of preparing environmental reports and advertisements	8.4	b	Publicity from environmental advertisements, etc.
Environmental remediation costs	0.6	1.4	Costs of restoring soil and environment-related reconciliation	—	—	None
Other costs	0.0	0.2	Other costs for environmental conservation			
Total	7.4	154.3		302.9	Sum of a:154.7, b:61.3, and c:86.9.	
				[30.7]	Total S's	

a: Substantial effect
b: Expected effect
c: Incidental effect
S: Social effect
(Customer benefits)

• **Environmental investment rate: 1.9%**
[= environmental investment (7.4) /total capital investment (390.6)]

• **Environmental R&D cost rate: 1.3%**
[= Total environmental R&D cost (11.7) /Total R&D cost (925)]

Economic benefits refer to benefits that were obtained by environmental conservation activities and which contributed to the profits of the Ricoh Group in some form. Economic benefits are classified into four categories as follows:

● Substantial effect (a)
This means economic benefits that fall into either of the following two cases:

1) Cash or cash equivalent is received as a benefit. This corresponds to "realized gain" in financial accounting.
2) The amount of savings in such costs that would have occurred if environmental conservation activities had not been conducted. This amount is not recognized in financial accounting.

● Expected effect (b)
The expected amount of contribution in the case that expenditure on environmental conservation activities is assumed to have contributed to profits for the Ricoh Group. If environmental conservation costs are assumed to be costs that are indispensable for the Ricoh Group to conduct its operations, for example, it can be safely said that such cost contributed to profit in some form. In practice, the expected effect is computed by a certain formula for each item.

● Incidental effect (c)
Expenditure on environmental conservation activities can help avoid the occurrence of environmental impacts. Therefore, it can be safely said that the expenditure contributed to the avoidance of such damage of environmental impact that would have taken place without the expenditure. In practice, the incidental effect is computed by multiplying the expected amount of damage by an occurrence coefficient and impact coefficient.

● Social effect (S)
Social effect means such effect that is generated by expenditure on environmental conservation activities not for the Ricoh Group but for society. In practice, social effect means the amount of reduction in the expense of electric power and waste disposition that is enabled through environmentally conscious products for customers.

* For the computation formulas, see page on the right.

Effect on environmental conservation means the effect of activities to prevent and control the occurrence of environmental impacts and to eliminate and remove such environmental impacts. The Ricoh Group reports the amount of reduction in the emission of substances with serious environmental impacts for the current year as compared with the previous year (emissions in the previous year – emissions in the current year).

This is the quantity of substances with environmental impacts that were emitted by the Ricoh Group in the current fiscal year.

● Conversion Coefficient
This is a weighting coefficient that is used in identifying environmental impact by totaling and weighting various types of environmental impact expressed in different units (CO_2 = 1). Values of coefficients are based on the Swedish EPS method.

● Converted Quantity of Reduction/Converted Value of Impact
Converted quantity of reduction is obtained by multiplying environmental impact reduction by conversion coefficients and converted value of impact by multiplying total environmental impact by the coefficients. In other words, these values refer to the degree of seriousness of such environmental impact reduction and total environmental impact that are converted into figures in t-CO_2.

● Social Cost Reduction Values/Social Costs
Social cost reduction values represent financial figures obtained by converting the converted quantity of reduction into money and social costs by converting the converted value of impact into money. Computations are made using the factor of 108 Euro/t-CO_2 of EPS Ver2000.

Effect on Environmental Conservation				Environmental Impact			
Environmental Impact Reduction (t)	Conversion Coefficient	Converted Quantity of Reduction	Social Cost Reduction Values	Total (t)	Conversion Coefficient	Converted Value of Impact	Social Costs
Environmental impact reduction at business sites							
CO_2 426.7	1.0	427	0.06	CO_2 285,771	1.0	285,771	40.94
NO_x 7.4	19.7	146	0.02	NO_x 181	19.7	3,570	0.51
SO_x 5.0	30.3	151	0.02	SO_x 9	30.3	271	0.04
BOD –9.8	0.02	–0	–0.00	BOD 32	0.02	1	0.00
Final waste disposal amount 646.6	104.0	67,250	9.63	Final waste disposal amount 843	104.0	87,705	12.56
PRTR substance emissions (Ricoh standards per substance)		18,825	2.70	PRTR substance emissions (Ricoh standards per substance)		59,385	8.51
Environmental impact reduction through products CO_2 10,758.4 (t) NO_x 8.8 (t) SO_x 7.0 (t) Final waste disposal amount 29,228.0 (t) Calculation for companies in Japan only							
		86,799	12.43			436,703	62.56

Data coverage
- **Companies: 89 Ricoh Group companies (refer to page 4).**
- **Period: From April 1, 2003 to March 31, 2004 (for costs and total environmental impact).**

* Social cost is calculated using the factor of 108 Euro/t-CO_2 (14,326 yen/t-CO_2).

* Environmental impact reduction represents the difference between figures in fiscal 2002 and fiscal 2003.

(1) Formula of Substantial Effect

Reduction in heat, light, and water cost	Heat, light, and water expenses in the previous year – heat, light, and water expense in the current year
Reduction in waste disposal cost	Waste disposal expenses in the previous year – waste disposal expenses in the current year
Sales value of valuable materials	Sales value of valuable materials sorted from waste
Sales of recycled products and parts	Sales of recycled products and parts
Subsidies	Environmental subsidies from the government, etc.
R&D profit contribution amount	Product gross margin × gross margin contribution rate calculated using environmentally conscious points

(2) Formula of Expected Effects

Contribution to value-added production	(Production output – raw material costs) × business area cost/manufacturing costs
Effects on media coverage	Area of newspaper advertisement/newspaper page area × advertisement cost per page
Effects of environmental education	Number of people attending internal environmental education seminars × seminar fee for outside participants
Publicity from environmental advertisements	Number of visitors to environmental Web site × unit price of the sustainability report

(3) Formula of Incidental Effects

Amount of incidental effects	Standard amount × occurrence coefficient × impact coefficient
Items to be calculated	Areas of improvement to prevent pollution
Standard amount	Amount set aside for lawsuits, suspension of operations, and restoration
Coefficient	Occurrence coefficient and impact coefficient to be set according to occurrence frequency and affected extent

(4) Formula of Social Effects (customers' economic benefits from using products)

Total electric power	Electric power consumption of a product × number of products sold
Electric power cost reduction effect	(Total electric power for old models – total electric power for new models) × electric power unit cost
Waste disposal cost reduction effect	(Weight of collected products – weight of final waste) × outside disposal unit cost

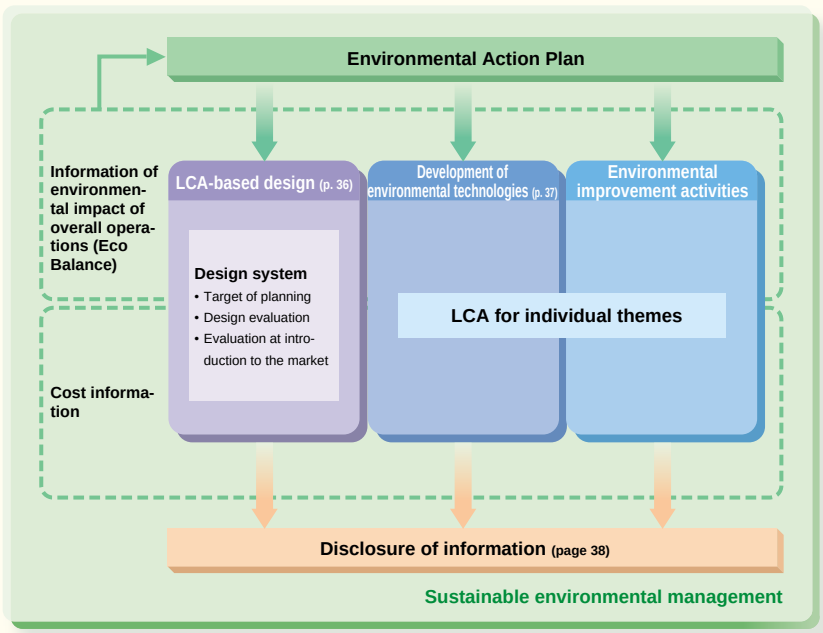
We promote LCA-based design and the development of environmental technologies to reduce the “integrated environmental impact” of all products during their life cycles.

● Concept of Product Development

The Ricoh Group’s approach to improving the environmental performance of its products has advanced from an approach to realize improvements under individual themes, such as energy conservation, resource conservation, or chemical substances, to an approach to reduce the “integrated environmental impact” of all products during their life cycles. Based on the concept of the “Comet Circle”[1], we now place a priority on LCA-based design[2] and the “development of environmental technologiesl,” with the target of keeping the integrated environmental impact of all products in their life cycles (exploitation of resources, manufacturing of parts by suppliers, manufacturing of products, transportation, sales, use by customers, and recycling) below the limit which global environment is sustainable.

1. See page 11.
2. See page right.

Position of LCA in Sustainable Environmental Management



● History of Improving the Environmental Performance of Products

In the 1980s, the Ricoh Group began to develop products to meet individual standards, such as noise, the chemicals contained in the products, and energy conservation. In 1990, various committees were established to reduce environmental impact through an integrated approach. These committees began studies to improve the environmental performance of all products throughout their life cycles. In 1994, the LCA study group was established. In 1998, the Ricoh Group began activities to identify the environmental impact of its overall operations using Eco Balance*, and to reduce the environmental impact of processes with larger environmental impacts on a priority basis. In 2002, the Ricoh Group established an environmental action plan based on the evaluation of integrated environmental impacts. In 2003, the Group began to further improve various tools to promote LCA-based design.

* See page 29.

	Activities
1980s–	• The Ricoh Group begins to establish individual criteria, such as those for noise, chemicals contained in its products, and energy conservation.
1990	• Product Design Committee, Environmental Technology Committee and Eco Mark Committee established.
1994	• The concept of the “Comet Circle” completed. • LCA Study Group established. • LCA activities under individual themes to reduce the environmental impact of each product and overall operations promoted.
1998	• The concept of Eco Balance[1] introduced. • Environmental Action Plan based on the Eco Balance prepared. • The Ricoh Group starts to build the Environmental Impact Information System.[2]
2000	• The Environmental Impact Information System completed. • The Ricoh Group begins to disclose information on environmental impact of products that was compiled based on the LCA (Type III Environmental Declaration). • The Ricoh Group begins to integrate data on environmental impacts caused by each product and by overall operations.
2002	• Environmental Action Plan prepared based on integrated environmental impacts.
2003	• The Ricoh Group clarifies the concept of LCA-based design, and begins to improve the system and tools to promote the concept.

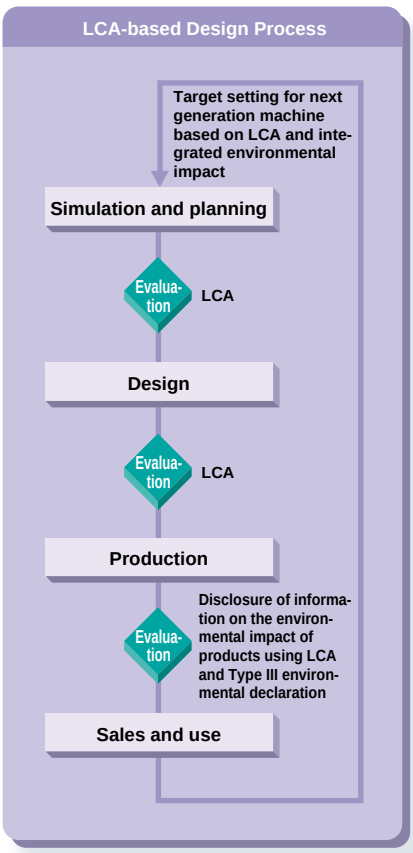
1. See page 29. 2. See page 27.

Life Cycle Assessment (LCA)

LCA means quantitatively identifying which and how much environmental impact exists in the life cycle of a product, from the gathering of resources for the production of raw materials to manufacturing, transportation, marketing, use, maintenance, collection, recycling, and disposal. LCA may also be applied to part of the above cycle.

Promotion of LCA-based Design

LCA-based design is not a simple process of designing from the viewpoint of LCA, but is a process where the LCA of a former machine is conducted and the results are utilized for setting targets to reduce the environmental impact for a next generation machine. Thus, LCA-based design is a process where environmental impacts are reduced based on PDCA. To effectively reduce the environmental impacts of all its products, the Ricoh Group places an importance on "the integrated environmental impact" of all products throughout their life cycles, and has established numerical targets for reduction. Thus, the Ricoh Group is making an effort to establish an LCA-based design process based on PDCA.



● Tool for LCA-based Design

The Design Division Utilizes the Database of Chemical Substances Common Database

The Ricoh Group maintains a database of environmentally sensitive chemical substances, which is shared by all employees. The database is a tool to support activities, on which the Ricoh Group concentrates its efforts, to totally eliminate environmentally sensitive chemical substances that were found to be contained in products through Eco Balance[1] evaluations. The database collectively maintains information on the activities of the Total Elimination Working Group.[2] including information on suppliers' plans to totally eliminate environmentally sensitive chemical substances, information on the progress and performances of responses within the Ricoh Group, and information on problems resolved during the design process. At various forums, the key persons in charge for total elimination (appointed for each specific component) exchange opinions. The database is jointly used by persons in charge of products, materials or design from various divisions in the Ricoh Group. Thus, the database contributes to the management of information on those environmentally sensitive chemical substances.

1. See page 29.
2. See page 49.

CAD System Linked to Information on Materials

In the case of parts for which the Ricoh Group designates the materials to be used, it is essential to submit precise information in the form of drawings to suppliers that process parts. For this purpose, a CAD system is operated to avoid the erroneous designations of materials the environmental safety of which has not been verified, or those materials that do not conform to the recycling plan, in a drawing prepared by a person in charge of design. The material selection standards are prepared by reflecting not only costs and quality but also information on environmental conservation, such as the results of evaluations on environmental safety (avoidance of substances that are prohibited by the Ricoh Group) and recyclability. Thus, the CAD system is an environmentally conscious design tool that is indispensable to persons with responsibilities for design.

Assessment of Recyclable Design

More efficient reuse and recycling can be realized by simplifying the disassembly and sorting of products collected after use and choosing materials that contain less chemical substances and are easily recyclable. In 1993, Ricoh announced its "policy on recyclable design" aimed at significantly reducing the time and cost of recycling (e.g., fewer screws used in machines and standardizing plastic materials). Ricoh also applied "recyclable design" and a "product assessment system" to its entire line of copiers, facsimiles, laser printers, and multifunctional copiers. In fiscal 2003, Ricoh established and implemented level 6 of its recyclable design policy.

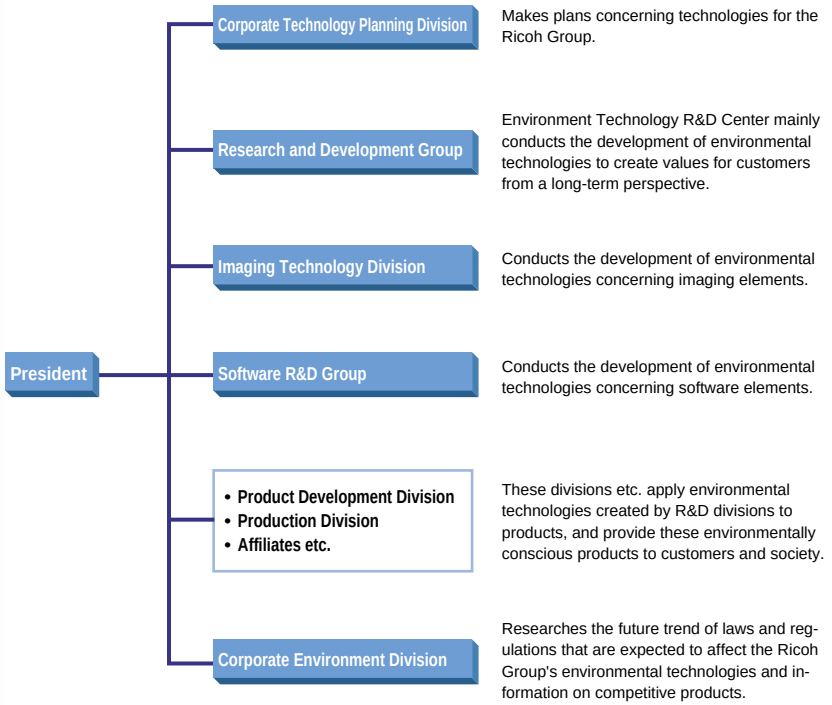
Assessment Tool for LCA-based Design

Ricoh has established an operational system/tool for implementing LCA by compiling life cycle data on products that are collected by the sustainable environmental management information system. At present, the operation system/tool is used for preparing EcoLeaf environmental labels to disclose LCA information, and for environmental impact assessments by unit and by part. We are making efforts to further improve the accuracy of the operation system/tool to enable simulations from the stage of design, and to achieve the reduction target for the environmental impact of each product.

Promotion of Development of Environmental Technologies

The development of environmental technologies is one of the most important efforts to realize sustainable environmental management. It is the basis for providing customers with "products that contribute to a reduction in environmental impact while customers use them without paying attention to environmental conservation," and for simultaneously realizing both a reduction in environmental impact and the creation of economic value. The Ricoh Group has established mid- and long-term plans for the four fields, namely, "energy conservation," "resource conservation and recycling," "pollution prevention," and "reduction in paper use in printing/ copying." Not only the R&D Division but also all Business Divisions and related companies are engaged in developing environmental technologies and products. In 2002, Ricoh established the Environment Technology R&D Center that works as technological driving force for realizing sustainable environmental management.

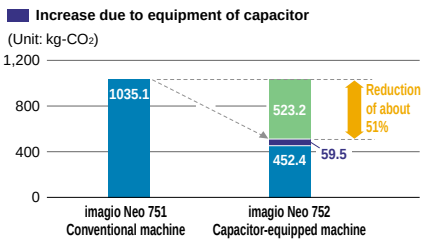
Structure to Develop Environmental Technologies



LCA of Capacitor-Equipped Machines

High-speed multifunctional digital copiers (imagio Neo 752 series*) that are equipped with a new generation electrical storage device, a Capacitor, have significantly improved their energy conservation performance. According to LCA, the capacitor will itself create a new environmental impact. However, it was found that the amount of reduction in environmental impact by the improvement of energy conservation performance greatly exceeds the amount of environmental impact that is newly caused by the capacitor. * See pages 40 and 41.

LCA Comparison of Capacitor-equipped Machine and Conventional Machine (CO_2 emissions)



Scope of LCA: Environmental impact of materials used in capacitor, "manufacturing" and "transportation" is converted into CO_2 emissions.

Paper Feed Simulation Technology

The Eco Balance evaluation shows that papers used by customers cause the largest environmental impact during the life cycle of products. Paper Feed Simulation Technology is a technology to simulate how paper moves within a designed product. With this technology, Ricoh has developed the duplex copying function that can realize fewer paper jams and use paper more economically. Since problems can be detected and solved even before making a test model, this technology contributes to a reduction in environmental impact during the design/experimental production process.

Studies on Fuel Cells

As new business, Ricoh promotes the development of new energy technologies, such as "fuel cells, jointly working with Tohoku University and Nagaoka University of Technology." Ricoh is engaged in R&D on fuel cells that do not use fossil fuels but use ethanol, which can be manufactured from a biomass.

Disclosure of Environmental Information of Products

The main purpose of disclosing environmental information of products is to inform customers of the excellent environmental performance of Ricoh's products. In addition, it is also important to inform society of Ricoh's environmental conservation activities and their results, and disclose environmental information in a positive manner. For this purpose, Ricoh is firmly committed to publicizing the results of LCA studies, technology development, and evaluation methods at academic societies and conferences. Furthermore, Ricoh is contributing to the formation of various environmental labeling in the world, and is making an effort to acquire various certifications.

● Publication of Information at Academic Societies and Conferences

Method to Identify the Contribution of Environmentally Conscious Products to Corporate Profit

To promote sustainable environmental management, it is essential to quantitatively identify how R&D efforts to reduce environmental impact can contribute to an increase in corporate profit. Ricoh has studied methods to calculate the amount of contribution made by an improvement in environmental performance of products to corporate profit based on LCA data on products and the results of questionnaire surveys on customers' buying motives. This study showed that an effort to reduce environmental impact of a product by 1% would increase profit of the product by about 0.29%. This result is close to the result of the joint analysis that was made earlier and the result of the trial calculation made based on customer satisfaction surveys. Thus, it can be determined that these figures are reasonable.

Method to Inspect Used Roller Parts

It is clear from LCA that the "reuse" of used parts of products will more greatly contribute to a reduction in environmental impact than the case of material recycling. Before reusing the roller parts from copiers or printers, however, it is necessary to inspect these parts in a proper manner. Ricoh has developed a method to detect defects in used rollers using light reflected by the used rollers. We will continue studies to put this method to practical use.

● Disclosure of Information using Environmental Labels

Type I Environmental Labels

Type I environmental labels have been established in countries and regions pursuant to ISO 14024 standards. These labels, which are placed on products and shown in brochures, help customers decide which products to buy. Ricoh's criteria for product design used to promote global green marketing are actually more severe than those set by the international Type I environmental label. Moreover, Ricoh actively contributes to establishing Type I environmental labeling criteria in many countries. In fiscal 2003, Ricoh Hungary contributed to the establishment of Environmentally Friendly Label Standards in Hungary, and acquired a certification for the first time for OA equipment.

Type II Environmental Labels

Type II environmental labels are given to products that satisfy standards independently set by each company. The Ricoh Group has defined the Recycle Label, and has set its own standards for recyclable designs, reuse rate of parts, and environmental safety.

Recycle

* For details, refer to the following Web site.
http://www.ricoh.com/environment/label/type2/index.html

Type III Environmental Declaration

As green purchasing is increasingly popular at present, the timely and global disclosure of information is increasingly important, not only for the selection of products by customers but also for sustainable environmental management by the Ricoh Group. The Ricoh Group, following the Type III Environmental Declaration, continuously endeavors to quantify the environmental impact of products using LCA and disclose this information. In addition, the Ricoh Group is making efforts to promote the Type III Environmental Declaration.

* For details, refer to the following Web site.
http://www.ricoh.com/environment/label/type3/index.html

International Environmental Labels for which the Ricoh Group Qualifies

http://www.ricoh.com/environment/label/type1/index.html

* Type I Environmental Labels

● Eco Mark*/Japan

An example of the Eco Mark on an imagio Neo 752 series model (certification no. 01117032)

● Green Label*/Thailand

● International Energy Star Mark/Japan, the United States, Europe, etc.

● Blue Angel Mark* (BAM)/Germany

● Environmental Choice Program (ECP) Mark*/Canada

● Environmentally Friendly Label*/Hungary

● Energy Efficiency Labeling Scheme (EELS)/Hong Kong

Development of User-Friendly and Energy-Saving Technologies

● Concept

Products that are not easy to use will not be chosen by consumers, even if their energy-saving performance is good. Such products can neither contribute to energy conservation nor help prevent global warming. Ricoh constantly strives to improve its user-friendly and energy-saving technology, QSU[1], and introduce it into various products. Also, the company is highly committed to reducing environmental impact caused by paper consumption, which is the largest cause of environmental impact[2] related to Ricoh's business activities. Ricoh helps decrease environmental impacts caused by consumers' paper consumption by offering a duplex copying function, promoting the use of electronic paper, and aggressively marketing recycled paper[3].

1. Energy-saving technology developed originally by Ricoh that enables machines to recover quickly from energy-saving mode (off/sleep mode).
2. See page 29.
3. See page 26.

● Targets for Fiscal 2004

◎ Achieve Ricoh's energy-saving goals.

◎ Develop practical application technologies for alternative paper and rewritable paper.

● Review of Fiscal 2003

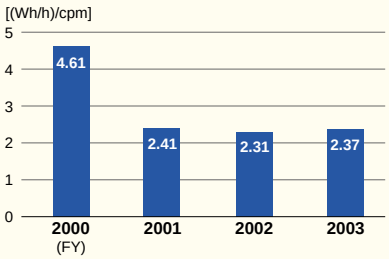
Ricoh enriched its black-and-white energy-saving product line by marketing the black-and-white high-speed digital multifunctional copier that achieved the highest energy consumption efficiency among products of the same class. Reduction in CO_2 emissions through the use of QSU technology amounted to approximately 15,000 tons in fiscal 2003 (see graph❺). Regarding the application of alternative paper, Ricoh marketed a product to which the integrated technology of an IC tag and rewritable medium has been introduced.

<Japan>

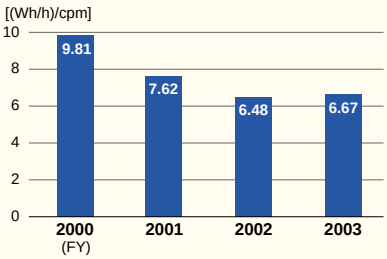
Changes in Energy Consumption

❶ Black-and-White Copiers and Multifunctional Copiers

Black-and-white plain-paper copiers, excluding those that accommodate wide-format paper



❷ Color Copiers and Multifunctional Copiers

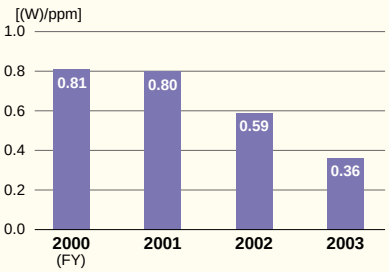


◎ Energy conservation values for copiers are calculated as follows:
Σ [<Energy consumption efficiency (Wh/h)>[1]/<copying speed[2]> × the number of units marketed]/
Σ the number of units marketed

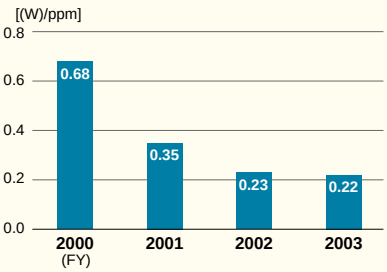
1. Energy consumption efficiency was measured in accordance with the Ministry of Economy, Trade and Industry's Law in Japan Concerning the Rational Use of Energy.
2. Copying speed = copies per minute (cpm)

Data for multifunction black-and-white copiers, color copiers and multifunction copiers are pursuant to the measurement standard for energy consumption efficiency of the Law Concerning the Rational Use of Energy.

❸ Black-and-white and Color Printers



❹ Facsimiles (Including Multifunctional Copiers)



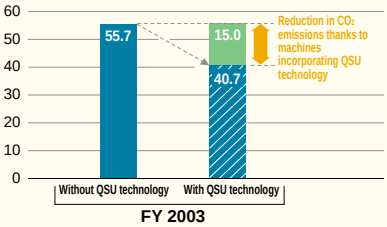
◎ Energy conservation values for facsimiles and printers are calculated as follows:
Σ [<Energy Star energy consumption in standby mode[3] (W)>/<printing speed[4]> × the number of units marketed]/Σ the number of units marketed

3. Energy Star energy consumption in standby mode = energy consumption in standby mode pursuant to the standards of the International Energy Star Program.
4. Printing speed = print per minute (ppm)

* Data for the four graphs above are calculated based on the number of units marketed in Japan.

<Global>

❺ Reduction in CO_2 Emissions through the Use of QSU Technology



● Future Activities

Ricoh will promote the introduction of user-friendly and energy-saving technologies to color copiers by improving the QSU technology and developing new energy-saving technologies.

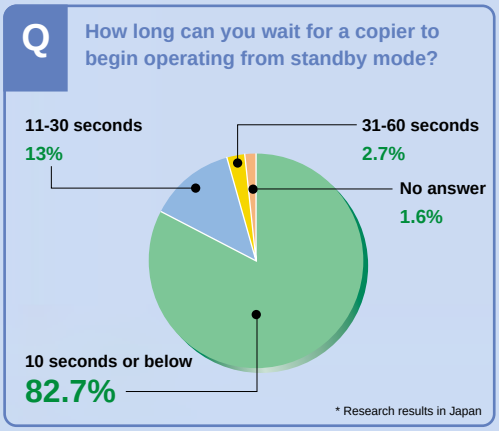
Segment Environmental Accounting of Product Energy Conservation (Benefit on cost in QSU product development)

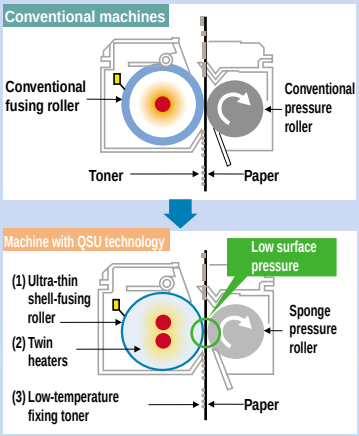
Costs			Effects		
			Economic benefits		Effect on environmental conservation
Item	Main costs	Costs	Internal benefits	Customer benefits	
R&D cost	Cost of developing energy-saving units	400 millon yen	Amount of profit contribution 2,305 million yen	Reduction in payment for consumed power supply 918 million yen	Reduction in CO_2 emissions 15,046 (t)
	Cost of molds, jigs, parts, etc.	512 millon yen			

* The reduction in payment for consumed power supply and CO_2 emissions is the annual benefit brought from eight hours of operation per day, 20 days of operation a month. Internal benefits refer to benefits on gross profits in sales results in fiscal 2003.

QSU, Energy-Saving Technology that Realizes Energy-Saving in Standby Mode and Quick Recovery from Energy-Saving Mode

According to Ricoh's market research, most consumers prefer copiers that recover from energy-saving mode in a shorter time (see pie chart). It also shows that many users of machines that need a longer time to recover from energy-saving mode do not utilize an energy-saving function and many users of products to which QSU technology is introduced make use of the function. If it takes too long to recover from the energy-saving mode, consumers will not use the function because they cannot make copies whenever they need to. That is, a copier/printer that takes longer time to recover from standby mode consumes extra energy in the mode. Users of products to which QSU technology is introduced seem to be free from stress and practice energy conservation unconsciously.





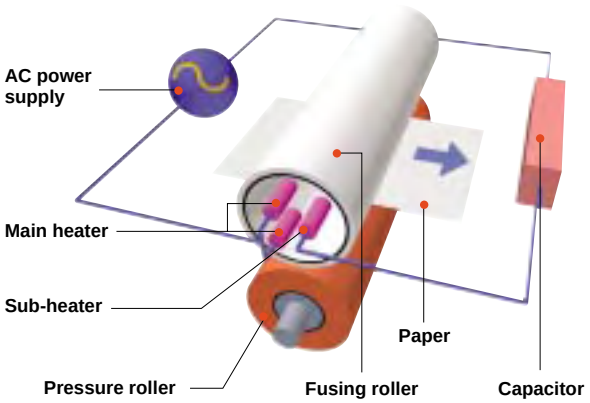
● QSU technology incorporated in Aficio (imagio Neo) series

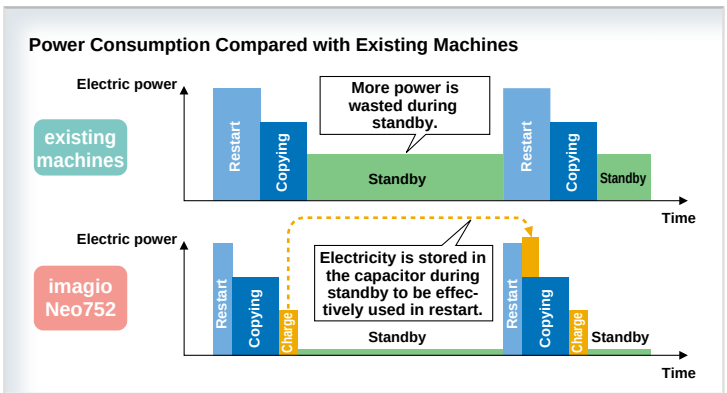
(1) Ultra-thin shell-fusing roller
In order to realize quick start-up, the fusing roller was thinned as much as possible to shorten the temperature rise time.
(2) Twin heaters
Because a thin roller is apt to get cold, the temperature is carefully and effectively adjusted by using two separately controlled heaters.
(3) Low-temperature fixing toner
This toner ensures a fixity that is equal to or higher than that of conventional toner even at low temperatures and supports both energy saving and the quick startup function.

Hybrid QSU: Energy Saving for High-Speed Machines

Hybrid QSU, which is incorporated into the imagio Neo 752 series, is the industry's first hybrid heat source. Hybrid QSU is an integration of a next-generation electrical storage device; capacitor and Ricoh's quick start-up (QSU) technology. QSU technology makes use of an ultrathin-shell fusing roller, which is essential for a quick restart, to enable high-speed printing of 75 pages/min. Unfortunately, the heat of the fusing roller is easily transferred to the paper, which deteriorates printing quality and speed. To solve this problem, sufficient heat needs to be supplied to the fusing roller. Ricoh therefore decided to use its quick charging and discharging capacitor technology. During standby, the capacitor stored power then restores heat to the fusing roller after the heat is transferred to the paper during printing. The machines is therefore able to maintain productivity at 75 pages/min. while requiring only 30 seconds to warm up (1/10 the time of existing machines) and has an energy consumption efficiency of 117 Wh/h (about 1/2 that of existing machines), which is the best performance in the high-speed machine category.

* Capacitors are incorporated only in the 100v machines marketed in Japan.





Enrichment of Energy-Saving Product Lines

In fiscal 2000, Ricoh marketed user-friendly and energy-saving products, the Aficio 1035/1045 (imagio Neo350/450) series, in which its original energy-saving technology, QSU was used. Since then, Ricoh has positively promoted the introduction of such technology to its copiers and printers. In fiscal 2003, Ricoh marketed the imagio Neo752/602 series, high-speed multifunctional digital copiers in which QSU technology was used, and completed a wide-ranging energy-saving product lineup comprising various machines with productivities of between 22 and 75 copies/min. Hybrid QSU, the advanced QSU technology, is used in the imagio Neo 752 series with a copying productivity of 75 copies/min. The imagio Neo752/602 series received the Energy Conservation Chairman's Prize at the 14th Energy Conservation Grand Prize competition.

imagio Neo752 model with optional SR33V finisher, Z-fold unit type N12 and RT39 PPC tray

Lineup of Products with QSU Technology

	Products	Printing speed (/min.)	Time required to recover from energy-saving mode	Electric power consumption in standby mode	Energy consumption efficiency
Copier	imagio Neo221	22 pages	10 seconds	6W	29Wh/h
	imagio Neo271	27 pages	10 seconds	6W	29Wh/h
	imagio Neo352	35 pages	10 seconds	4.5W	33Wh/h
	imagio Neo452	45 pages	15 seconds	4.5W	48Wh/h
	imagio Neo602	60 pages	30 seconds	5.5W	57Wh/h
	imagio Neo752	75 pages	30 seconds	10.7W	117Wh/h
Printer	IPSiO NX650S	22 pages	10 seconds	5W	—
	IPSiO NX750	28 pages	12 seconds	5W	—
	IPSiO NX850	32 pages	12 seconds	5W	—
	IPSiO NX920	45 pages	15 seconds	7W	—

User-Friendly Duplex Copying Function

To provide more consumers with user-friendly duplex and n-up copying functions (copying multiple pages on one sheet of paper), and to reduce the environmental impact caused by the use of paper, Ricoh has developed higher-speed duplex and n-up copying technologies that are more user friendly. The imagio Neo752/602 series, in which a single-path system is used, simultaneously reads both sides of a two-sided document with a single scan by two scanning sections and realizes higher-speed duplex copying of two-sided documents (equal to the speed of single-sided document copying). The series also achieves 100% duplex copying productivity* while in continuous operation. Many of our multifunctional digital copiers also achieve 100% duplex copying productivity while in continuous operation.

* Duplex copying productivity (%) = (Time spent on simplex → duplex copying)/(Time spent on simplex → simplex copying) × 100. The time is measured from the moment the desired number of copies is entered and the "Copy" button is pressed to the moment the copier is ready for the next batch of copying.

Duplex Copying Function of the Gel Jet Printer

The electrostatic absorption belt technology used in laser printers was applied to the Gel Jet BT paper carriage system of the IPSiO G Gel Jet printer series marketed in fiscal 2003. A wide head for high-speed writing and quick-drying pigment ink to shorten the waiting time for drying-up are used in the series to realize faster duplex printing than any other machine of the same class and to heighten the efficiency of duplex printing. Also, a zero-waste dual tank system to completely use up the contents of a cartridge is incorporated in the series to reduce environmental impacts.

IPSiO G707

Reducing Paper Consumption through Printing Solutions

Ricoh provides its customers with printing solutions to realize an ideal printing environment suitable for each customer's business requirements. In addition, Ricoh provides customers with a document solution to scan and digitize paper documents and display them on networked PC screens so that they may be shared.

Development of Practical Application Technologies for Alternative Paper

To reduce paper consumption, Ricoh is committed to the development of paperless technologies. Ricoh is developing practical application technologies for a rewritable media/system by using thermal media and photochromic compounds.

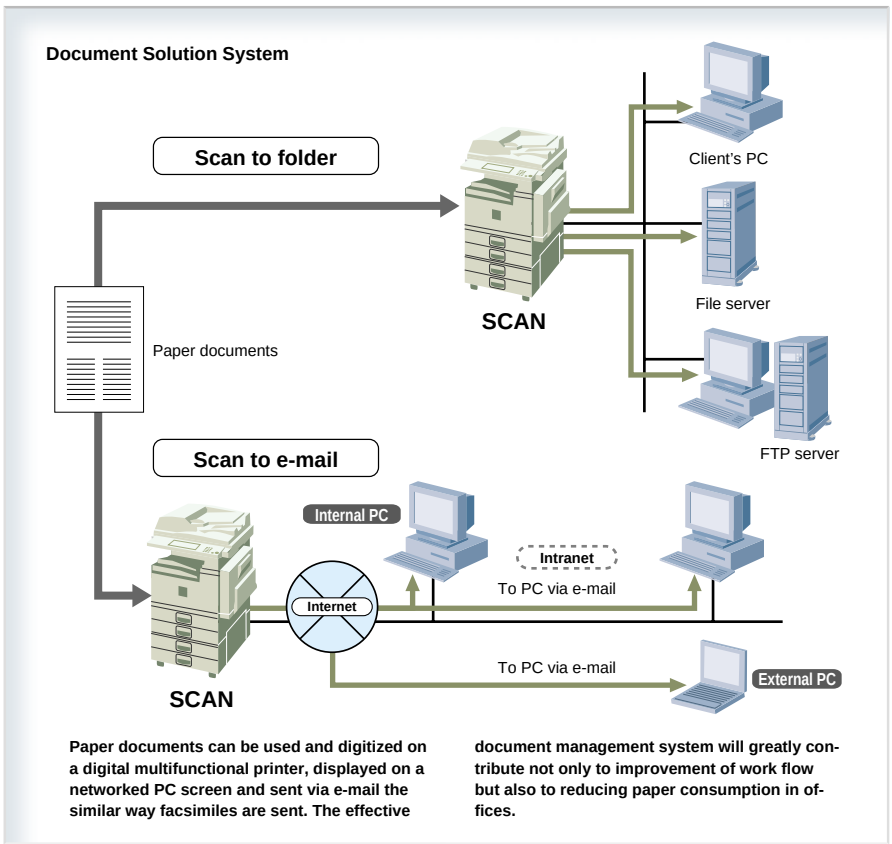
Practical Application of Rewritable IC Tag Sheet

Rewritable IC tags that record the latest inventory, production capacity, etc. are now used for information management in various industrial fields, such as production and distribution. However, they have the drawback that the recorded data is invisible. In order to solve this problem, Ricoh developed the RECO-View™ IC tag sheet, which makes it possible to display and rewrite data recorded on IC tags by using thermal media technology. With this technology, data recorded on IC tags and the content to be printed can be rewritten at the same time. These IC tags were tested at the Ricoh Numazu Plant and marketed in December 2003.

Printer for IC tag sheet

RECO-View™ IC tag sheet

Rewritable printer and paper



Paper documents can be used and digitized on a digital multifunctional printer, displayed on a networked PC screen and sent via e-mail the similar way facsimiles are sent. The effective document management system will greatly contribute not only to improvement of work flow but also to reducing paper consumption in offices.

Development of Rewritable Paper Printer

Only 30% of the paper used in offices is stored for a long time after being printed on. That is, 70% will never be used again. Ricoh, by introducing thermal media to printers, is promoting the development of a rewritable paper printer to make it possible to reprint an ordinary document more than 200 times. Ricoh is making efforts to realize higher-speed, energy-saving, and small-sized systems for office use.

Development of Color Rewritable Media

Ricoh, using a photochromic compound, has developed a new medium to control color development with light. When light is applied to the photochromic compound, its state changes and the wave length of the absorbed light changes. That is, color development can be controlled by changing the light being applied. This technology may lead to the development of media such as papers and films on which color images can be rewritten several times. Rewritable media may reduce paper consumption by a significant margin.

Global Promotion of Sales of Recycled Copiers Based on the “Comet Circle”

● Concept

The Ricoh Group, based on the concept of the “Comet Circle,” “Priority on Inner Loop Recycling,”* is committed to recycling of materials with less environmental impact and high economic efficiency. Ricoh, with recognition that the flow from collection to the recycling of materials is one business unit, is making efforts to improve profitability in the recycling business on a global scale. Improvement of profitability will make continuous activities to reduce environmental impact possible. Since fiscal 2002, Ricoh has set concrete yearly goals for sales of recycled products.

* See page 11.

● Targets for Fiscal 2004

◎ Improve the quantity of reusable parts used by a factor of at least 20 (compared to fiscal 2000, in Japan)

◎ Improve the collection rate of used products and toner cartridges by at least 10% in terms of the number of units collected (the Ricoh Group as a whole, compared to fiscal 2000 figures)

◎ Increase the number of resource-recirculating-type products marketed by a factor of at least 20 (in Japan, compared to fiscal 2000 figures)

◎ Improve the resource recovery rate for used products and toner cartridges.

Products

Japan: 98%, Europe: 85%,
The Americas: 95%,
Asia-Pacific: Over 85%

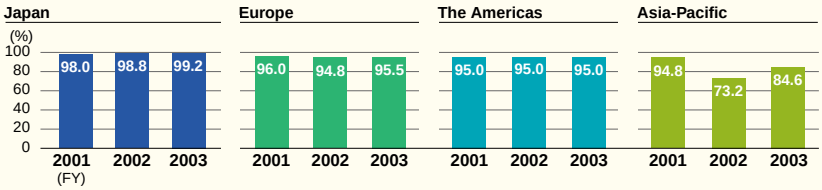
Toner cartridges

Japan: 98%, Europe: 85%,
The Americas: 100%,
Asia-Pacific: 85%

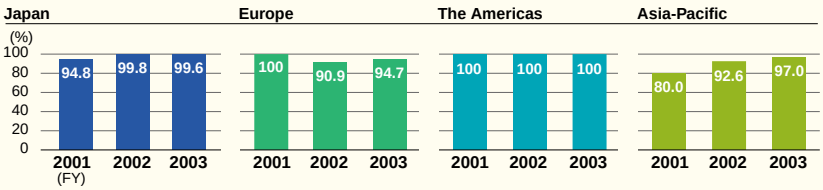
<Global>

Resource Recovery Rate

❶ Copiers

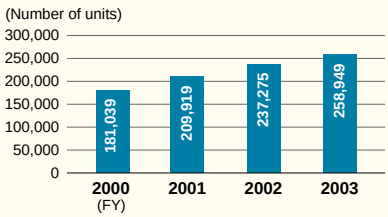


❷ Toner Cartridges

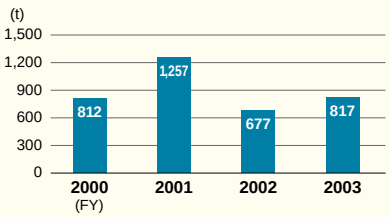


Collection Results

❸ Number of Copiers Collected



❹ Amount of Toner Cartridges Collected*



* Up to fiscal 2001, the amount of collected toner cartridges included the weight of the remaining toner inside the cartridges. In fiscal 2002, however, the calculation method was improved so that only the weight of the toner cartridges is included.

Segment Environmental Accounting of the Product Recycling Business (Japan)

Costs		Effects			
		Economic benefits		Effect on environmental conservation	
Items	Costs	Items	Benefits		
Product recycling cost	716 million yen	Sales	2,237 million yen	Amount of resource recovery: 29,228 t Up 2,806 t from that in the previous year	Amount of final disposal: 23.4 t Down 40 t from that in the previous year
Collection/resource recovery cost	2,929 million yen				
Total cost	3,645 million yen	Social effect	2,338 million yen		

* Social effect refers to the cost of waste disposal that customers no longer have to pay.

● Review of Fiscal 2003

The number of used products and toner cartridges collected and the resource recovery rate are increasing steadily. (see graphs ❶ to ❹) Ricoh will promote highly efficient collection and resource recovery. Although the number of resource-recirculating-type products being marketed increased by a large margin, it has not reached the goal. Therefore, sales will be further promoted.

● Future Activities

In an effort to improve profitability in the recycling business, Ricoh will promote an improvement of the collection rate, the quality of collection, and the recovery process of used products. The company will also make efforts to improve recyclable design levels and offer recycled products of low environmental impact and cost.

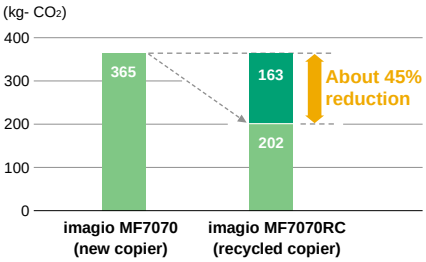
Expansion of the Number of Recycled Copier Models Available

<Ricoh/Japan>

Since December 2001 when Ricoh marketed the imagio MF6550RC recycled digital copiers, it has expanded the number of models available. It completed the lineup of recycled machines by marketing the imagio MF3570RC/4570RC in fiscal 2002 and imagio MF5570RC/7070RC in fiscal 2003. These machines with copying productivity ranging from 35 pages/min. to 70 pages/min. can satisfy various customer requirements. Because recycled machines contain more than 87% (mass ratio) reused parts, it can be calculated that about 1,800 tons of resources have been saved.

Imagio MF7070RC, a recycled digital copier

❺ LCA Comparison Between a New Machine and Recycled Copier (CO_2 Emissions)



* A comparison is made by calculating the annual environmental impact of new and recycled copier over a five-year-period and ten-year period, respectively.
* Figures for CO_2 emissions while being in operation at customer sites were not included in the calculation of the data.

Improvement of the Quality of Material Recycling

<Ricoh Group/Japan>

Recycling centers in Japan have already achieved a 99% resource recovery rate. However, in order to reduce both environmental impact and costs, it is necessary to promote higher-quality recycling. In fiscal 2003, more than 92% (mass ratio) of collected parts were recycled for raw materials by thoroughly disassembling collected machines and sorting out unusable materials such as plastic and metal parts. Some recycled plastics are used for Ricoh products manufactured in Japan and China.

Production of Toner Cartridges Containing Reused Parts

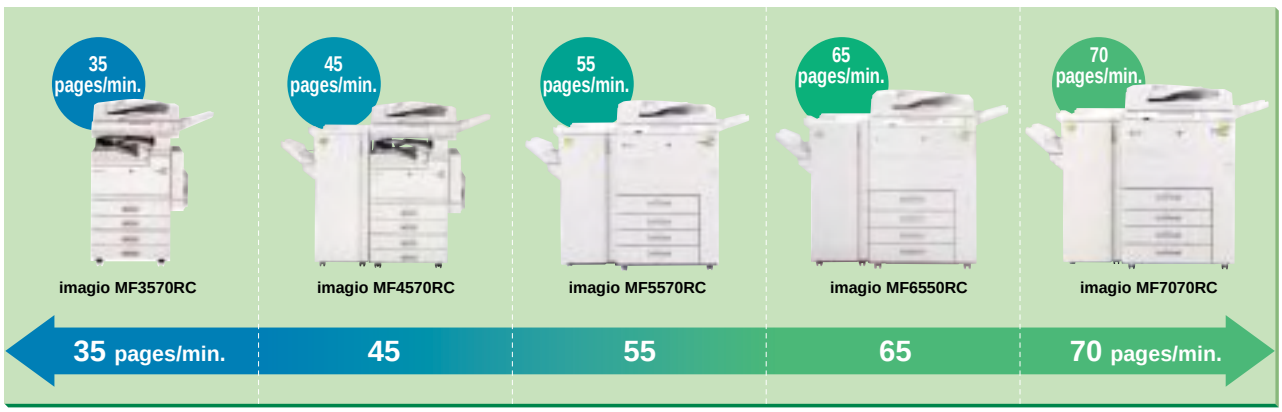
<Ricoh/Japan>

Ricoh started full-scale recycling of toner cartridges in 1998, and has been committed to improving collection, recovery, and recycling rates. In fiscal 2003, the collection rate* of used toner cartridges exceeded 70% and the total number of toner cartridges containing reused parts shipped exceeded one million. The total amount of reused parts used in those cartridges was about 721 tons, which was equivalent to about 55% of the total amount of parts used in one million cartridges. Toner cartridges containing reused parts are also manufactured in Europe and the Americas.

* Collection rate = current number of collected cartridges/current sales

Toner cartridge containing reused parts

Recycled Copier Lines of Ricoh



Continuous copying/copying productivity (cpm/ppm)

Nationwide Recycling System

<Ricoh Group/Japan>

A nationwide infrastructure is needed to efficiently collect, recover, and recycle Ricoh products used throughout the country. Ricoh has begun collaborating with green centers (collection centers), and recovery and recycling centers to establish a nationwide network that will facilitate more economically efficient and high-quality recovery and recycling of used products, toner cartridges and parts.

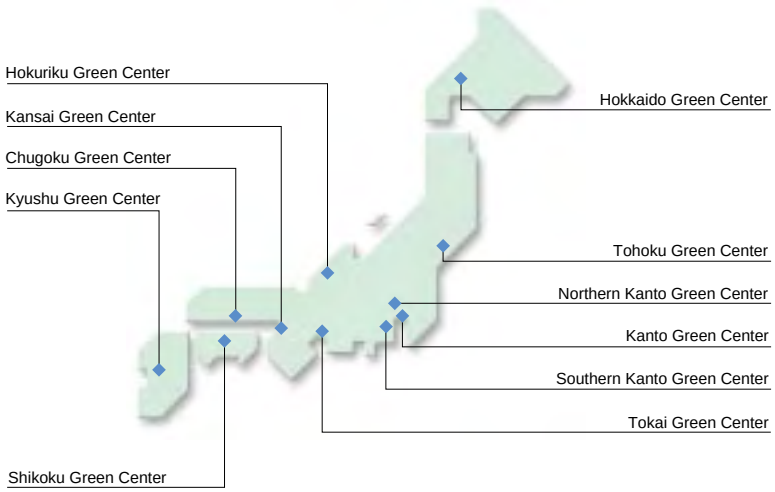
Improvement of Packaging

<Ricoh Group/Japan>

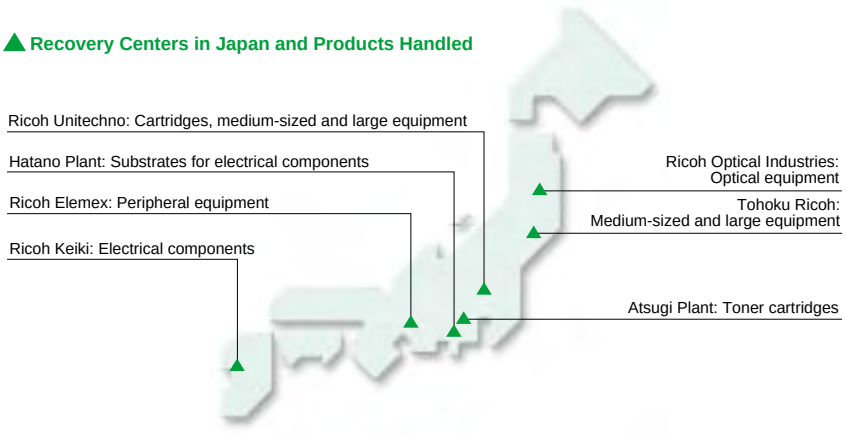
To reduce environmental impact from the viewpoint of distribution, Ricoh is committed to reducing packaging materials. The reusable resource-recirculating eco-packaging developed in 2000 has been revised in design and used for various models. In fiscal 2003, Ricoh developed racks for large-sized products with a capacitor for a quick startup. At present, more than 50% of the products for domestic use manufactured at the Gotemba Plant, which is a major copier manufacturing plant, were shipped in resource-recirculating eco-packaging. Furthermore, as an approach to realize product shipment without packaging, Ricoh is promoting a system, Internal Kitting System, to attach optional devices to products and make their adjustments in the production plant, and then ship the machines directly to customers. This system has various advantages including a reduction in packaging materials and a reduction in energy consumption by shortening the transportation process.

Resource-recirculating eco-packaging (right)

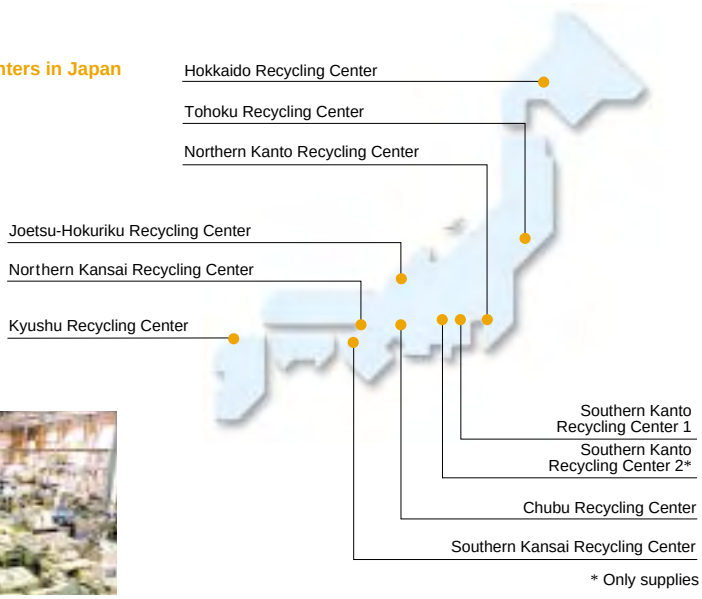
◆Major Green Centers (Collection Centers) in Japan



▲Recovery Centers in Japan and Products Handled

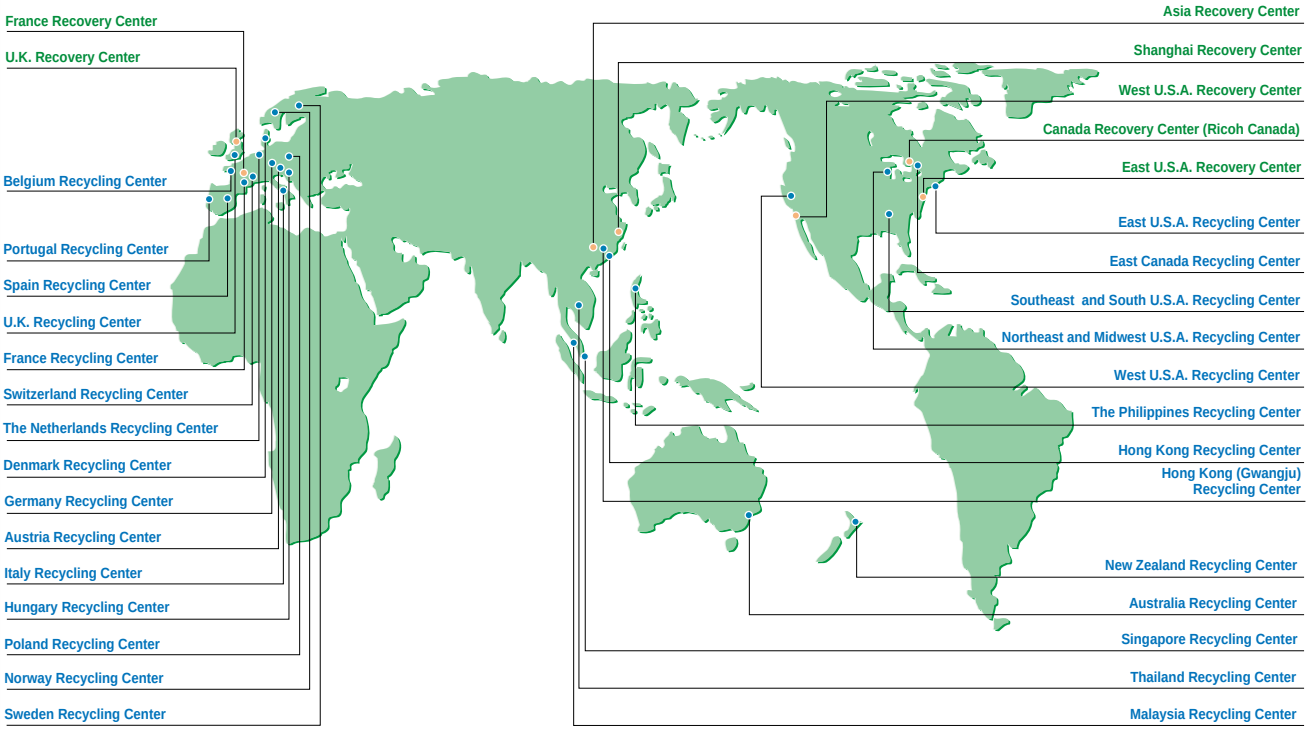


●Recycling Centers in Japan



Kyushu Recycling Center

Recovery and Recycling Centers around the World



*** Ricoh Group recycling centers are working with reliable business partners for further development.**

Improvement of Efficiency of Recycling with Recycling Information System

<Ricoh Corporation/U.S.A.>

In order to improve the efficiency of collection, recovery, and recycling, Ricoh Corporation, the Americas Regional Sales Headquarters, has established a database to collectively control all branches, distribution centers, carriers, and recycling companies. In this system, a slip or tag is automatically issued when a customer's request for collection is entered on a PC within Ricoh Corporation. This system improves the efficiency of distribution and recycling of collected products and reduces costs.

Improvement of Efficiency of Recovery/Recycling Process

<Lanier Italia S.p.A./Italy>

Lanier Italia S.p.A., a sales company, integrated a collection center, a recovery center, and a sorting center all on one site. This reduced the environmental impact related to transportation between centers to zero and improved work efficiency. More than 90% of the parts that are not reused are recycled.

Used product recovery line

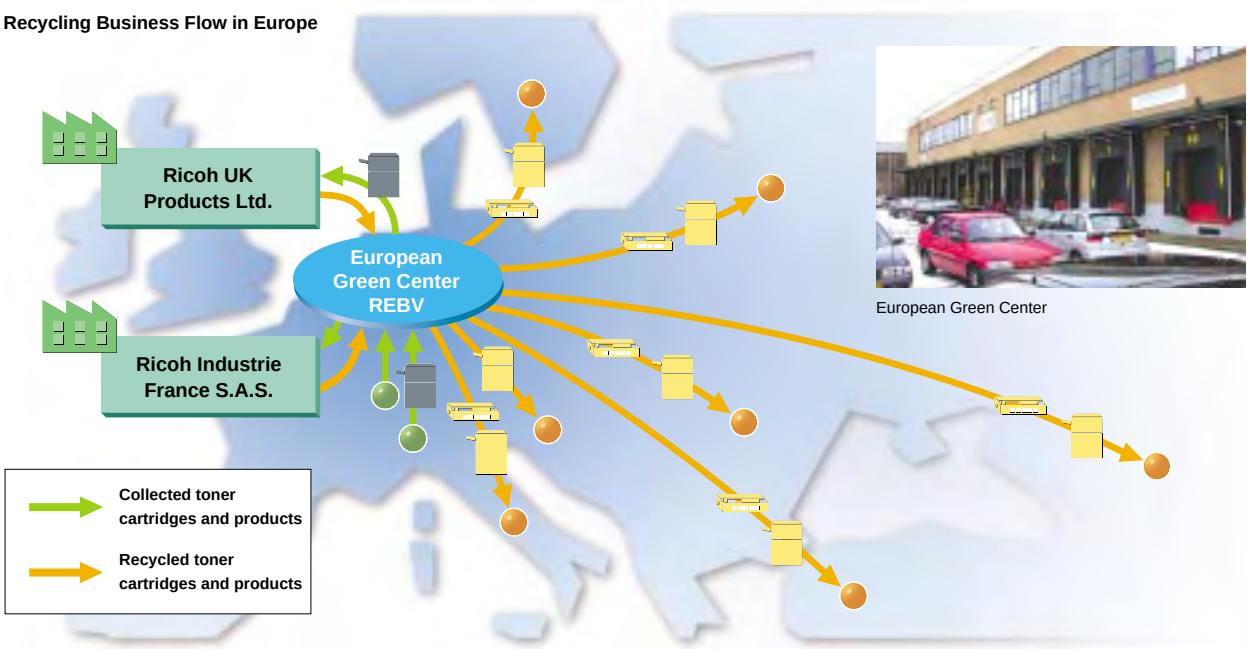
Recondition of Copiers at Sales Company

<Ricoh Thailand Ltd./Thailand>

Ricoh Thailand Ltd., a sales company, made major changes to its recovery line in order to satisfy customers' needs regarding delivery schedules and the quality of reconditioned copiers. Full-scale operations of the reformed line started in September 2003. As a result, in the latter half of fiscal 2003, the number of reconditioned copiers was twice as high as the figure for the first half of the year.

Used product reconditioned line

Recycling Business Flow in Europe



European Green Center

Expansion of Recycled Products Business and Establishment of Recycling Infrastructure in Europe

<Ricoh Europe B.V., etc./Europe and the Middle East>

Ricoh Europe B.V. (REBV), the European Regional Sales Headquarter, is committed to establishing an infrastructure to strategically promote the recycling business. In October 2003, the European Green Center, a centralized center to collect used parts and other products, was established. Collected toner cartridges and products are recycled by Ricoh UK Products Ltd. and Ricoh Industrie France S.A.S. A constant and reliable source of collected products is important for the stable supply of recycled products. This was difficult with conventional management by each country, so the European Green Center was established to collect used products and control inventory collectively. REBV, looking at the supply-demand balance in the market as a whole, supplies recycled products not only to Europe but also to the Middle East and Africa.

Manufacturing process of recycled machines at Ricoh UK Products Ltd.

President of Sales Agency in Kuwait and Customer that Purchased Recycled Machines

President of Al Alamiah, a sales agency (left), and the person in charge of sales (right)
The President of Al Alamiah, a sales agent, said, “Kuwait has hot weather, and offices here are closed environments. Therefore, people are very concerned about the ozone, noise, and odor that office equipment emits. Accordingly, we emphasize the superiority of Ricoh’s products in terms of those very concerns. I am sure that the market success of Ricoh’s products is due to the availability of high-quality products recycled at Ricoh UK Products and sold at a reasonable price.”

The Manager of the Purchasing Section of A’Ayan Leasing & Investment Co. (center)
A purchase manager of A’Ayan Leasing Investment, one of Al Alamiah’s costomers, said, “We bought eight recycled copiers in September 2003. I was uncertain whether the product quality of recycled machines would be satisfactory, but I believed that they would, knowing that they were recycled at Ricoh plants. At first, I was indifferent about how recycling contributes to environmental conservation. However, after hearing several stories, I finally understood that copiers can contribute to environmental conservation. Now I am glad that we bought environment-conscious Ricoh products.”

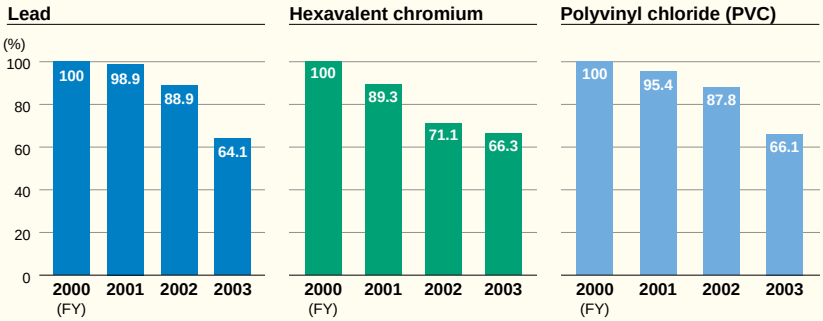
We are reducing the environmental impact that a product has during its lifecycle by reducing environmentally-sensitive substances contained in our products.

Concept

Aiming to reduce the impact on the global environment and enhance end user comfort levels, the Ricoh Group is tackling important issues, specifically reduction of environmentally-sensitive substances contained in its products and reduction of noise, ozone, dust, and styrene emissions at the end-user stage. Environmentally-sensitive substances contained in products do not affect the environment when the products are in use, but they will affect the environment when the products come to the end of their lifecycle and are improperly disposed of. An eco-balance* assessment shows that reducing the use of these substances will ultimately lessen the environmental impact a product has during its lifecycle. It will also reduce recycling costs. Accordingly, the Ricoh Group has given top priorities to these challenges. * See page 29.

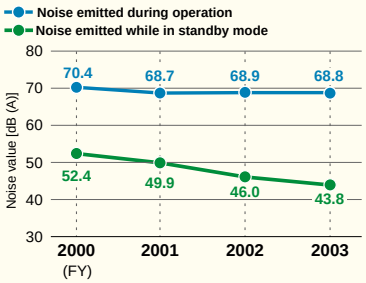
<Global>

❶ Changes in the Amount of Chemical Substances Used in One Product (Compared with those in the figures for fiscal 2000)



(Calculation method to determine the amount of chemical substances used in one product)
Σ (Amount of chemical substance contained in one product × number of products sold)/Σ number of products sold (worldwide)
* Figures for the amount of chemical substances contained in each product are not the average for all models but the amount used in a representative model. Therefore the figures are being renewed along with the progress of research.

❷ Changes in the Level of Noise Emitted by Color Copiers



* Calculations are based on the weighted number of color copiers and color printers sold and converted into a capacity of a copier that produces 50 sheets per minute for all machines.

❸ Achievement of Standards for Environmentally-sensitive Chemical Substances

	Models That Achieved the Standards[1]	Ricoh Standards (mg/m³)	Blue Angel Mark Standard[2] (mg/m³)
Ozone	81/81	0.02	0.02
Dust	81/81	0.075	0.075
Styrene	81/81	0.07	0.07

1. Figures show the number of models that achieved the standards out of 81 models (copiers, facsimiles, and printers) marketed in fiscal 2003.
2. Figures show the standard values before the revision in January 2004.

Targets for Fiscal 2004

◎ Completely eliminate the use of environmentally-sensitive substances (i,e., lead, hexavalent chromium, polyvinyl chloride, and cadmium) in products.

◎ Reduce noise levels by at least 2 dB (weighted average value for the number of units sold out of the number of units marketed in fiscal 2000).

◎ Observe Ricoh standards that cover environmentally-sensitive substances emitted by products, including styrene, ozone, and dust.

Review of Fiscal 2003

Steady progress is being made in ensuring that our products contain absolutely none of the four environmentally-sensitive substances (lead, hexavalent chromium, polyvinyl chloride, cadmium) as a result of strengthening the management system for the 14 groups of substances prohibited by Ricoh* (see graph ❶). Noise levels while in standby mode have been reduced significantly, while noise levels during operation have been reduced slightly (see graph ❷). In the meantime, all our products put on the market during fiscal 2003 satisfy the standards for ozone, dust, and styrene emissions (see table ❸).

* See page 49.

Future Activities

Efforts will be made globally to discontinue all use of the remaining four environmentally-sensitive substance groups out of the fourteen substance groups prohibited by Ricoh by supporting the establishment of chemical substance management systems at our suppliers and by joint development of alternatives under green partnerships. In addition, uses of another two substance groups, TBTO and TBT/TPT, will be prohibited by Ricoh in fiscal 2004 to strengthen its efforts. At the same time, efforts will be made to comply with Germany's Blue Angel Mark that was revised in January 2004.

Complete Elimination of Use of Environmentally-sensitive Chemical Substances

<Ricoh/Japan>

Ricoh set original standards for environmentally-sensitive substances that could be used in its products in 1993 as part of efforts to reduce these substances. In fiscal 2002, it set out a policy to completely eliminate use of the remaining four prohibited chemical substance groups out of the fourteen product groups prohibited by Ricoh, while organizing Total Elimination Working Group to stop all use. All the divisions engaged in production (the design, procurement, and manufacturing divisions) take part in the group. The group is engaged not only in research into chemical substances in products and judgments on the validity of the research results, but also in appointing key person in charge of total elimination of use of the substances for all parts, and establishing an environmental impact information database that will allow designers to check information on chemical substances contained in parts. Thus efforts are being made to build a seamless workflow and accelerated development for routine operations, aimed at eliminating all use of these chemicals.

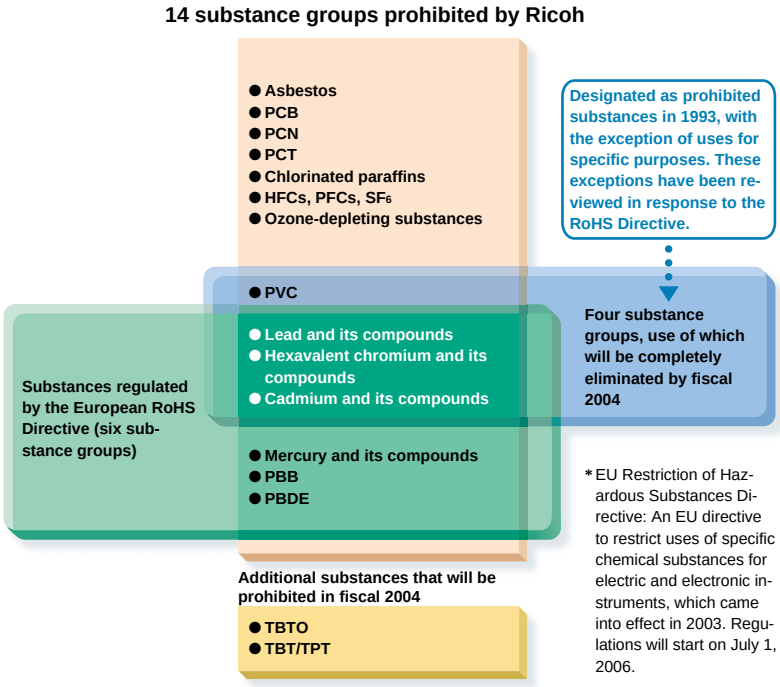
imagio Neo C385it (a color copier that can be used in a network has reduced levels of environmentally-sensitive chemical substances)

Reduction of environmentally-sensitive substances in imagio Neo C385it	
Lead-free soldering	GPN Rank* A
Use of PVC for wire coating	GPN Rank II
Percentage use of chromate-free steel plates (in parts designed by Ricoh)	About 80%

- GPN Rank A, lead-free in 50% or more
- GPN Rank II, 50% or more have been replaced with alternatives

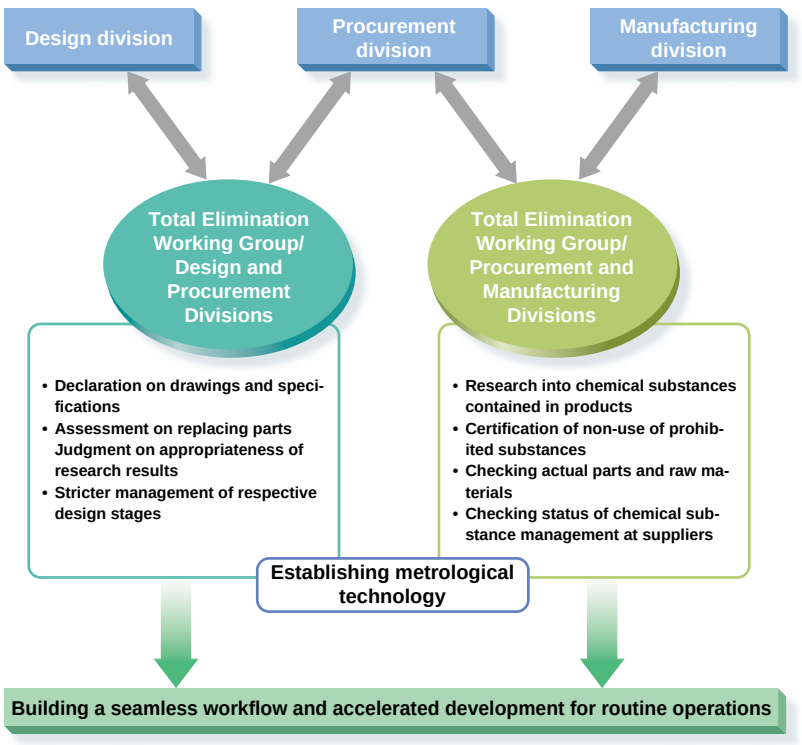
* GPN (Green Purchase Network)
http://www.gpn.jp/ (Japanese language only)

Substances Prohibited by Ricoh, Substances No Longer Used under the Action Program, RoHS Directive*



* EU Restriction of Hazardous Substances Directive: An EU directive to restrict uses of specific chemical substances for electric and electronic instruments, which came into effect in 2003. Regulations will start on July 1, 2006.

Establishing a System to Manage Chemical Substances Contained in Products



Support for Establishing EMS at Suppliers

<Ricoh Group/Global>

Partnerships with suppliers are important in providing customers with products with less environmental impact. The Ricoh Group has supported the establishment of EMS at suppliers, aimed at our preference for the use of parts with less environmental impact, manufactured at plants with less environmental impact. The group's major suppliers all over the world had put EMS into full operation by May 2003.

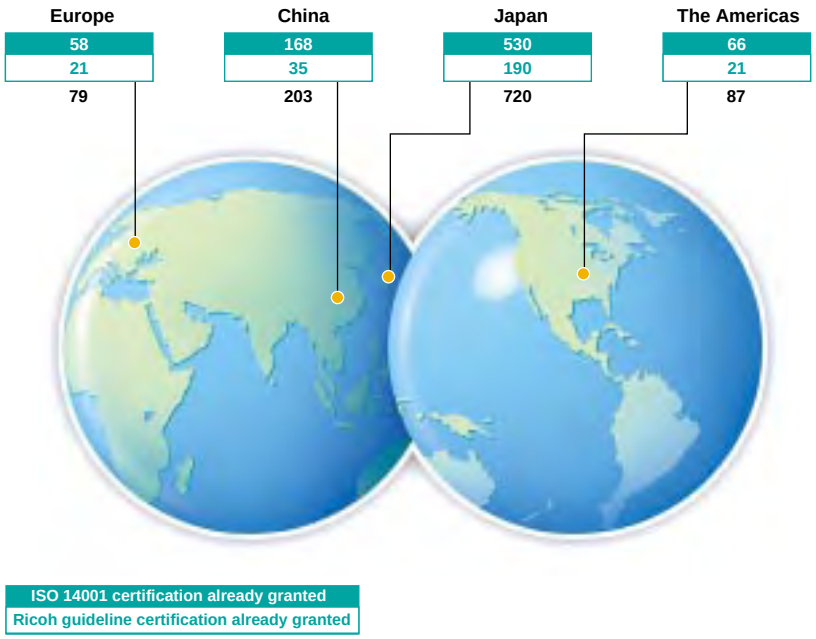
Completely Eliminating Use of Chemical Substances through Partnerships

<Ricoh Group/Global>

The Ricoh Group has been promoting activities to completely eliminate the use of four prohibited substance groups in partnership with suppliers since fiscal 2002. The Group has jointly developed alternatives that do not contain lead, hexavalent chromium, polyvinyl chloride, or cadmium, while sharing information on chemical substances contained in parts with suppliers through databases. It has also requested the presentation of a certification of non-use of prohibited substances, and supported the establishment of a system to avoid mixing prohibited substances into parts and materials or other manufacturing processes at suppliers. The Ricoh Group is introducing the know-how it has built up in Japan into production bases in China*, as well as other base worldwide, aiming at complete elimination of the use of these substances by the end of fiscal 2004. Thus we are aiming to establish a global production system ahead of the EU's RoHS.

* See page 51.

Green Procurement Across the World
(Establishment of EMS at suppliers as of May 2003—Total number of suppliers: 1,089)



Improving End User Comfort Levels

Ricoh conducts effective in-company measurement of noise, sharing the results with the design division for rapid improvements in designs, to make copiers or other machines more comfortable to use. In addition to the noise measurement laboratory which obtained certification from the NIST* in the United States in 2002, three new laboratories were established in fiscal 2003 for the measurement of VOCs.

* National Institute of Standards and Technology. The noise measurement laboratory at Ricoh's Omori Office obtained ISO/IEC 17025 certification from the NIST, which guarantees that the laboratory can provide internationally-reliable data.

Noise measurement laboratory

RICOH ASIA INDUSTRY, Purchasing Division
Minoru Matsumoto, General Manager (left)
Jing Song Mao, Minister (center)
Dan Li (right)

Green Procurement in China

We are establishing a production system in response to the European RoHS Directive in partnership with suppliers in China.

Ricoh Asia Industry (Shenzhen) Ltd. (RAI), one of the major manufacturing subsidiaries of the Ricoh Group, was established in Shen-zhen, China in May 1991. Products manufactured there are shipped not only to Japan but also to the United States, Europe, and other countries. Manufacturing of products with less environmental impact at RAI should reduce the global environmental impact. As early as January 1998, RAI acquired ISO 14001 certification. In addition, RAI has been promoting green procurement with the cooperation of suppliers since 2001. It expects to complete a production system in accordance with the European RoHS Directive* by the end of fiscal 2004.

* Restriction of Hazardous Substances Directive. This is an EU directive to restrict uses of particular chemical substances for electric and electronic equipment that came into effect in 2003. Member countries must prepare national laws by August 13, 2004 and start regulations on July 1, 2006.

Q What is important in producing products with less environmental impact?

A Green procurement activities—that is, procurement of parts with less environmental impact that are manufactured at plants with less environmental impact—are important in manufacturing a product that has less environmental impact during its lifecycle. To achieve this, it is necessary to request suppliers to establish their own EMS as well as a management system for chemical substances. It is impossible for Ricoh to manufacture products with less environmental impact on its own.

Q How were green procurement activities promoted in China?

A First of all, a briefing on Green Procurement Policies was held in August 2001, where we requested suppliers to acquire ISO 14001 certification or to establish an EMS that meets Ricoh's guidelines by March 2003. At that time, these activities were unprecedented in China. Even so, some suppliers said that environmental conservation is an inevitable trend, and that they felt fortunate to have Ricoh's support in establishing their own EMS."

Q What efforts did you make to reduce the use of chemical substances?

A A briefing on Green Procurement Standards was held in October 2002, at which we explained our plan to completely eliminate use of the four types of chemical substances (lead, hexavalent chromium, polyvinyl chloride, and cadmium). At the same time, we requested suppliers to register information on chemical substances contained in parts with our environmental impact research database and submit to us a certification of non-use of prohibited substances. In addition, we installed an analyzer in August 2003 and started checking levels of chemical substances contained in received parts.

Staff members of Green Procurement at RAI

Received parts after checkout

Q How do you plan to support suppliers in the future?

A We held a second briefing on our purchasing policies in January 2004, where our Operation Manual on Green Procurement Standards was distributed and an explanation was given to suppliers. This manual explains how to establish a system to manage chemical substances as well as methods for suppliers to manage their own suppliers. In the future, we will actually visit our suppliers to check and support the specifications of their parts, manufacturing methods, and manufacturing systems. Through these partnerships with suppliers, we will promote the manufacture of products with less environmental impact and respond to the RoHS Directive.

Suppliers of RAI

Manufacturing process for lead-free printed-circuit boards

From Assisting Suppliers with Establishing their Own EMS to Complete the Elimination of the Use of Chemical Substances

Briefing on green procurement policies held in August 2001

We requested suppliers to establish their own EMS, while preparing and distributing support manuals, showing cases where improvements have been made and the related laws and regulations. As a result of sharing information on these successful cases, many of the suppliers realized that environmental improvement would lead to a reduction in costs, which in turn would result in a speed-up for them in establishing their own EMS.

Briefing on research on environmental impact information held in April 2002

We explained the future development of green procurement, including the reduction of chemical substances contained in parts, and asked suppliers for their support.

Briefing on Green Procurement Standards at RAI

Standards for green procurement of chemical substances set up in July 2002

Ricoh Group's Green Procurement Policy (Chinese version)

Briefing on green procurement standards held in October 2002

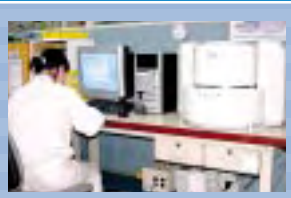
Our plan to eliminate use of four types of chemical substances by the end of fiscal 2004 was explained, and suppliers were requested to submit a certification of non-use. We also asked them to register information on the environmental impact of parts in our Environmental Impact Research Database, to speed up the collection of information on chemical substances. As of February 2004, 70 out of our 120 suppliers are using the database.

First briefing on procurement policies held in January 2003

We explained Ricoh's policies to assist with the environmental activities of suppliers, aiming to establish a win-win relationship with them.

Analyzer introduced in August 2003

Entrance management of chemical substances was strengthened by the introduction of an analyzer, which is used to measure cadmium and lead content.



Second briefing on procurement policies held in January 2004

An explanation was given again on developments in regulations for chemical substances in the world as well as on the Ricoh Group's ideas on the management of chemical substances. Suppliers were requested to ensure that they are controlling use of these chemical substances, and copies of the Operation Manual on Green Procurement Standards were given out.

Self check sheet for the management of chemical substances distributed in March 2004

In the future, we will support the establishment of a management system for chemical substances based upon the results of suppliers' own checks.

We will reduce total CO_2 emissions by 12% by the end of fiscal 2010 to help prevent global warming at a faster pace than set out in the Kyoto Protocol.

● Concept

The Ricoh Group has set goals that it wants to achieve by the end of fiscal 2010, aiming not only to attain the goals set out in the Kyoto Protocol, but also to lead the efforts to prevent global warming. Since a reduction in total CO_2 emissions is important in preventing global warming, the Ricoh Group companies in Japan have set a higher goal of reducing total emissions by 12% over the figures in fiscal 1990 by the end of fiscal 2010, compared with the goal for Japan of a 6% reduction set out in the Kyoto Protocol. Our group companies are striving to reduce global warming under this goal, which has been set in anticipation of an expansion in the scale of production. In order to attain this goal, the Ricoh Group is engaged in improving its production processes, introducing more efficient facilities, and utilizing natural energy sources. Efforts will be made to reduce greenhouse effect gases other than CO_2 by 10% over the level in fiscal 1995 by the end of fiscal 2010.

● Targets for Fiscal 2004 and Fiscal 2010

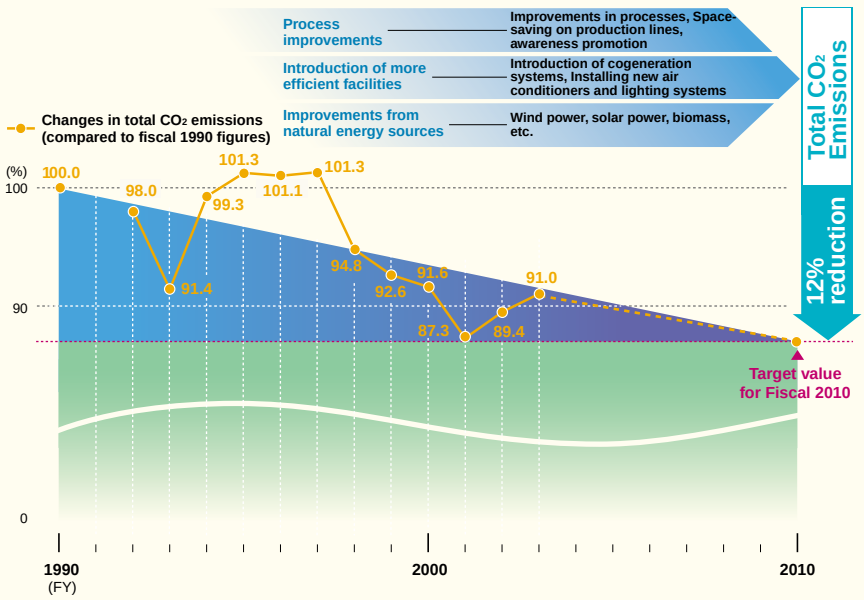
The Ricoh Group's Targets for Reducing CO_2 Emissions (Total Amount Emitted)

		Target for fiscal 2004	Target for fiscal 2010
Japan	Ricoh and Ricoh Group manufacturing subsidiaries	2% reduction (compared to fiscal 2000 figures)	12% reduction (compared to fiscal 1990 figures)
Japan	Ricoh Group non-manufacturing subsidiaries	2% reduction (company goals)	—
Outside Japan	Ricoh Group manufacturing subsidiaries	2% reduction (compared to fiscal 2000 figures)	10% reduction (compared to fiscal 1998 figures)

The Ricoh Group's Targets for Reducing Greenhouse Effect Gases Other Than CO_2 (Manufacturing, Total Amount Emitted)

	Target for fiscal 2004	Target for fiscal 2010
The Entire Ricoh Group	No more than a 1% increase (compared to fiscal 2000 figures)	10% reduction (compared to fiscal 1995 figures)

❶ Scenario for Reductions in Total CO_2 Emissions for Ricoh Group (production) in Japan up to Fiscal 2010



Segment Environmental Accounting of Energy Conservation Activities at Business Sites (The Entire Ricoh Group)

Costs			Effects			
			Economic benefits		Effect on environmental conservation	
Item	Main cost	Costs	Item	Benefits	Reduction item	Amount
Business area cost	Cost of global warming prevention	¥310.3 million	Reduction in lighting and heating expenses	¥17.5 million	CO_2 emissions	7,325.3 (t)

* The following calculation formula is used for CO_2 emissions, in consideration of the sales growth since the previous year. Reduction in CO_2 emissions in a particular year = CO_2 emissions in the previous year × (sales in that year/sales in the previous year) – CO_2 emissions in that year

● Review of Fiscal 2003

CO_2 emissions at production sites decreased over the fiscal 2000 level (decreased by 0.6% at home and by 1.5% abroad) but were larger than those for the previous fiscal year (increased by 1.8% at home and by 0.7% abroad) (see graphs ❷ and ❸). This was because the increased energy consumption due to larger production of consumable supplies more than offset the energy savings resulting from improvements in manufacturing processes, both at home and abroad. CO_2 emissions at nonproduction sites decreased by 6% over the previous fiscal year (see graph ❸). New facilities were introduced for greenhouse effect gases other than CO_2 aiming at achieving the goal.

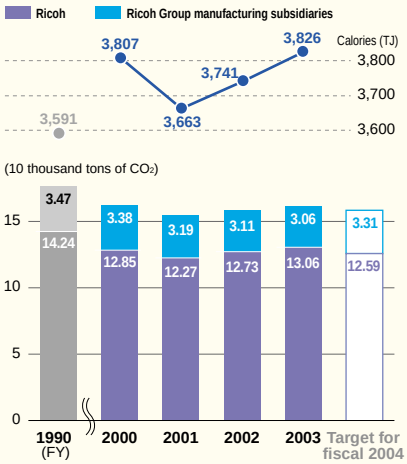
● Future Activities

At the Global Warming Prevention Scenario Committee, consisting of managers from Ricoh's major production sites in Japan, discussions were held on measures to reduce CO_2 emissions at production sites. Aiming at achieving the fiscal 2010 target, the committee agreed to promote the introduction of energy-saving facilities, including cogeneration systems, and natural energy sources, while giving priority to improving manufacturing processes. In the future, efforts will be made for large-scale revisions and improvements in manufacturing and processing.

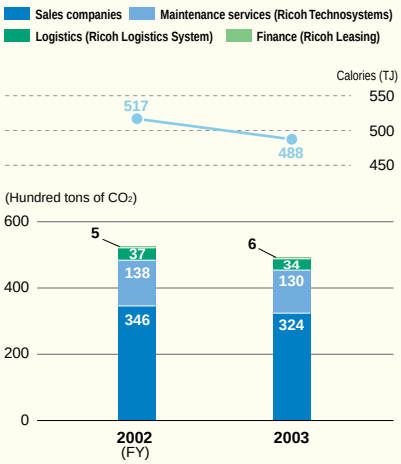
<Japan>

Energy Consumption (CO_2 conversion[1] and calories)

❷ The Ricoh Group (production)



❸ The Ricoh Group (nonproduction)



1. Calculated using a CO_2 emissions potential taken from an examination on greenhouse gas emission calculations issued by the Ministry of the Environment.

Breakdown of Major Energy Consumption

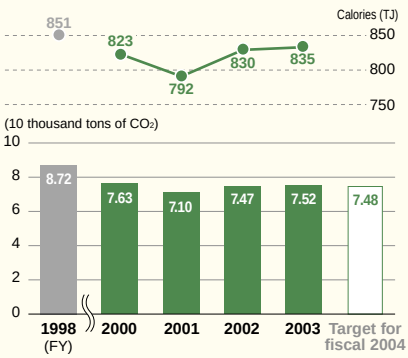
❹ The Ricoh Group (production)

	FY 2000	FY 2001	FY 2002	FY 2003
Kerosene (kℓ)	8,274	7,012	7,628	6,652
Heavy oil A (kℓ)	3,628	3,299	2,945	2,819
Town gas (1,000 m^3)	12,052	11,942	12,823	14,640
Electric power purchased (1,000 kWh)	288,589	281,175	284,554	289,770

<Outside Japan>

Energy Consumption (CO_2 conversion and calories)

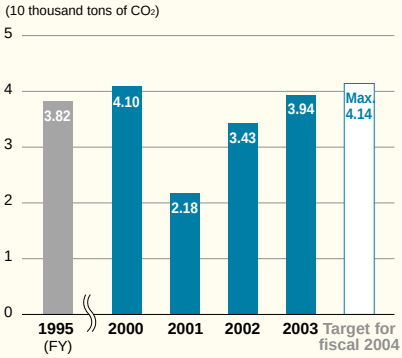
❺ The Ricoh Group (production)



<The Entire Ricoh Group>

Greenhouse Gas Emissions Other than CO_2[2] (CO_2 conversion)

❻ The Ricoh Group (production)



* The following formula was used to determine the greenhouse gas emissions.
Emission = Σ (amount emitted into the atmosphere × global warming potential)

2. NF_3 and substances that have a global warming effect and designated in the Kyoto Protocol

Improving the Toner Production Process

<Ricoh Numazu Plant and other sites/Japan>

To cope with limited production of a wide range of toner products, the Toner Production Center has developed an "On-Demand Toner Filling Machine." Compared with the conventional toner filler systems, the new machine takes only 1/40 of the time to switch between product types, requires 1/40 of the installation space, and uses 1/4 of the electricity. Introducing this toner filling machine into toner production bases and also into logistics bases and sales companies allows toner cartridges to be manufactured at and shipped from sites closer to customers in the same manner as at plants. This has resulted in a reduction in environmental impact from the transportation of cartridges collected from the market for reuse and a shorter lead time. Fifty-six new filler systems are in operation not only in Japan but also in the Americas, Europe, and China.

Conventional toner filler

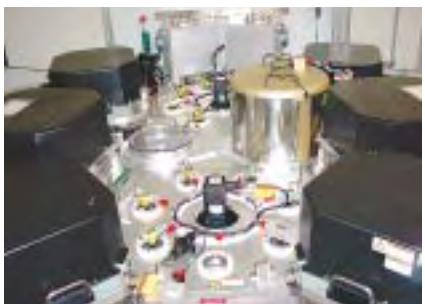
Newly-developed On-Demand Toner Filling Machine

Improvement of Semiconductor Production Process

<Ricoh Yashiro Plant/Japan>

One hundred and seventy eight pump inverter units developed by Ricoh were introduced in addition to the vacuum pumps that have been used in the semiconductor manufacturing process. Consequently, electricity consumption decreased by 50%, or about ¥20 million annually, resulting in a reduction in CO_2 emissions of about 680 tons. High vacuum is needed in the process chamber when products are processed, while a partial vacuum is sufficient when they are in standby mode. The newly-developed inverter units can control the rotation speed of pumps by unit. When attached to semiconductor manufacturing equipment with traditional pumps, the inverter units contribute to further conservation of energy.

Pump inverter unit



Process chamber

Installation of High-Efficiency Turbo Freezer

< Ricoh Numazu Plant/Japan>

At the OPC[1] Production Center, high-efficiency turbo freezers were installed for air-conditioning of the clean room in March 2004. It is necessary to maintain the temperature and humidity of the clean room at a certain level and keep the room clean to ensure high quality OPCs. Because of this, a clean room needs an air-conditioning system of a larger capacity than that needed for ordinary process chambers. In addition, the operating load differs depending upon the season. It is therefore important to find a way to operate multiple freezers in an efficient manner. As a result of the installation of high-efficiency turbo freezers, the energy efficiency of the air-conditioning has improved significantly, while CO_2 emissions during the manufacturing process have been halved. This case was acknowledged as a "Emission Trading Pilot Project" supported by the Ministry of Economy, Trade and Industry, and accordingly, subsidies are paid to Ricoh by NEDO[2].

1. Organic Photo Conductors
2. New Energy and Industrial Technology Development Organization

High-efficiency turbo freezer

Energy-Saving Air Conditioning Uses Outside Air

<Ricoh Electronics, Inc. /U.S.A.>

In December 2003, Ricoh Electronics, Inc., introduced a smart air cooling system called an "economizer," which automatically takes in outside air when the temperature of the outside air becomes lower than the inside preset temperature and humidity. The device is expected to save approximately 534,200 kWh annually and will be developed at other facilities in the future.

Introduction/Promotion of the Use of Natural Energy Systems

<Ricoh Unitechno, Tohoku Ricoh, Ricoh/Japan>

Many of the Ricoh Group's plants are preparing to introduce natural energy systems to utilize solar and wind power, as well as other natural sources. Ricoh Unitechno Co., Ltd. has reduced annual CO_2 emissions by 3 tons with a solar power generation system (10kW), while Tohoku Ricoh Co., Ltd. has achieved a 0.5-ton annual reduction in CO_2 emissions by using solar and wind power generation systems (1.5kW). In the meantime, Ricoh purchased energy produced by wind power from Japan Natural Energy Company Limited under the Green Power Certification System, reducing annual CO_2 emissions by about 357 tons. Ricoh also concluded a five-year agreement in March 2003 to purchase biomass green electricity. This will lead to a reduction in annual CO_2 emissions of about 100 tons.

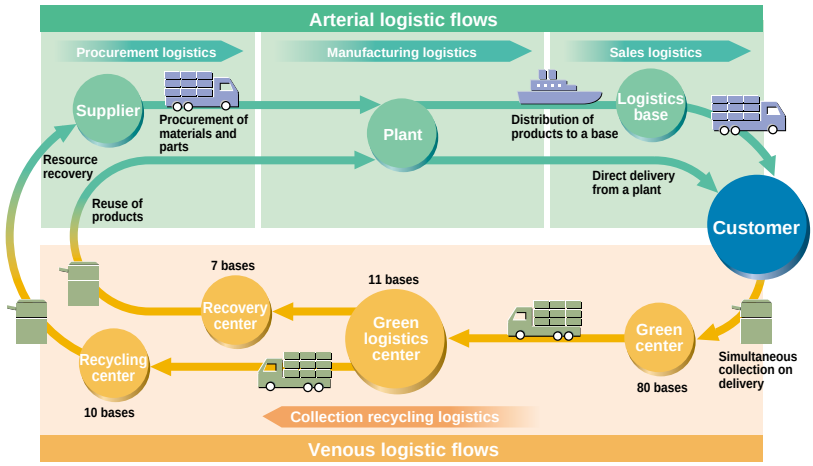
Solar power generation system at Ricoh Unitechno

Green Power certification mark

The Ricoh Group is working to establish a resource-recirculating logistics system that integrates the arteries and veins of the logistic Flow.

To achieve a sustainable resource-recirculating society, one important issue is the establishment of a logistic system for transporting products. The Ricoh Group, led by Ricoh Logistics System Co., Ltd., is striving to create a resource-recirculating logistics system that integrates the arteries and veins of the logistic flow, including a system for direct transportation to and collection from customers. Examples that are successful in Japan will be introduced around the world, aiming at establishing global supply chain management (SCM).

Resource-recirculating Logistics System that Integrates the Arteries and Veins of the Logistic Flows (Japan)



Arterial logistic flows
- Establishment of a direct transportation system from plants to customers
- Modal shift from truck to railway and marine transportation
- Uses of reusable packaging materials*

Venous logistic flows
- Establishment of a direct collection system for used products
- Expansion and improvement of infrastructure including collection centers*

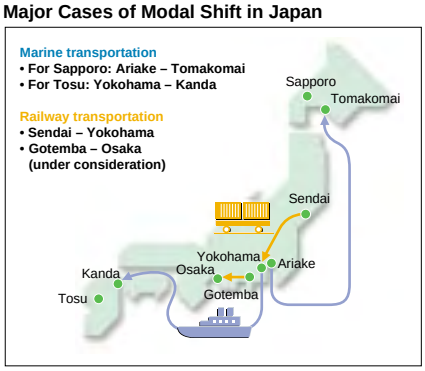
* See page 45.

Promoting Modal Shift

<Ricoh Logistics System/Japan>

Ricoh Logistics System Co., Ltd. is actively promoting a modal shift to transportation methods that have less environmental impact. In fiscal 2003, it shifted more than 90% of product transportation between Ricoh Gotemba Plant and Tosu in Kyushu to sea transportation. This has reduced CO_2 emissions by about 400 tons annually. In fiscal 2004, it will promote a modal shift in product transportation to Osaka. In addition, transportation of products shipped from Tohoku Ricoh Co., Ltd. between Sendai and Yokohama was shifted from truck to railway transportation, which has resulted in a 280-ton reduction in annual CO_2 emissions.

Major Cases of Modal Shift in Japan



Improvement in Vehicle Mileage and Introduction of Low-Emission Vehicles

<Ricoh Logistics System, etc./Japan>

Ricoh Logistics System Co., Ltd. is striving to improve vehicle mileage by utilizing digital tachometers and giving energy-conservation and safety education to drivers. By March 2004, 50% of the vehicles (127 vehicles out of a total 254) were equipped with digital tachometers. As a result of drivers recognizing their own eco-drive levels, mileage improved by from 10 to 20%. In fiscal 2004, full-scale energy-conservation and safety education is to be given not only to staff members of the company, but also at partner companies, which handle 70% of the total distribution volume on consignment. 2,459 low-emission vehicles such as hybrid cars have been introduced, some of them for use at sales companies in various parts of Japan and Ricoh Technosystems Co., Ltd.

❶ NOx and SOx Emissions in Transportation by Ricoh Logistics System

	NOx	SOx
2002	4.0 (t)	0.4 (t)
2003	2.6 (t)	0.4 (t)

Development of Logistics Know-How

<Ricoh Logistics System, Ricoh Express (S.Z.) Warehouse Ltd./China>

Ricoh Logistics System Co., Ltd. is introducing Japanese logistics know-how into other areas of the world to promote the establishment of global SCM. In China, a delivery system based upon four regional delivery centers is being established aimed at improving efficiency, and Ricoh Logistics System is offering know-how on warehouse and transportation management. At the same time, transportation routes are being revised and office work is being centralized. Trucks have traditionally been used for the transportation of products manufactured by Ricoh Asia Industry (RAI) to the port in Hong Kong for export to Japan and Europe. Currently however, Ricoh Express (S.Z.) Warehouse Ltd., which is close to RAI, handles the office work and products are shipped from a port in China, which has improved efficiency.

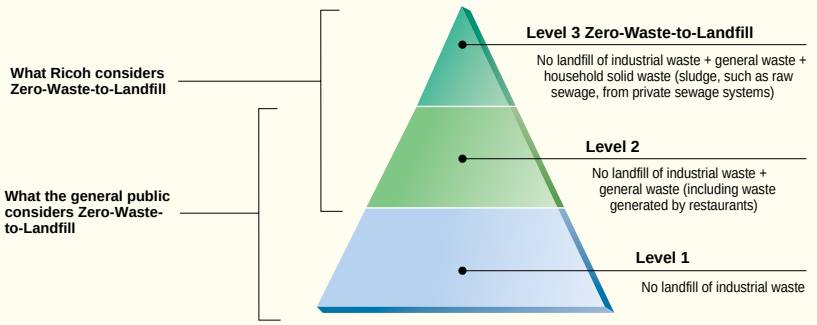
The Ricoh Group promotes Zero-Waste-to-Landfill activities at not only major production sites, but also nonproduction sites, including sales companies.

● Concept

The Ricoh Group is globally working to maximize resource productivity, primarily by limiting the production of waste, reducing water consumption, and reducing paper consumption. The Ricoh Group promotes Zero-Waste-to-Landfill* activities as a part of its sustainable environmental management system by efficiently using resources, improving production efficiency, reducing waste disposal costs, and improving corporate quality by promoting employee awareness of environmental conservation. In fiscal 2001, the Ricoh Group achieved Zero-Waste-to-Landfill at its major global production sites. These activities are also carried out at nonproduction sites. Zero-Waste-to-Landfill has been achieved at our Aoyama Head Office and some sales, maintenance and service companies.

* Zero-Waste-to-Landfill means a 100% resource recovery rate and no waste used as landfill.

Definition of Zero-Waste-to-Landfill Levels by the Ricoh Group



● Targets for Fiscal 2004

◎ Reduce generated waste by at least 13% (Ricoh and Ricoh Group manufacturing subsidiaries, compared to fiscal 2000)

◎ Improve the waste recycling rate to at least 90% (Ricoh Group non-manufacturing subsidiaries in Japan)

◎ Reduce water consumption by at least 10% (Ricoh and Ricoh Group manufacturing subsidiaries, compared to fiscal 2000)

◎ Reduce paper purchases by at least 10% (Ricoh, Ricoh Group manufacturing subsidiaries, and Ricoh Group non-manufacturing subsidiaries in Japan, compared to fiscal 2000)

● Review of Fiscal 2003

The amount of waste generated and volume of industrial water used were heightened due to the increase in production of supplies. (See graphs ❶ and ❷) The resource recovery rate is being improved, however at Ricoh Electronics, Inc., a U.S. manufacturing subsidiary, 17.3 tons of waste were disposed of as landfill due to careless management by a recycling company and it could not achieve Zero-Waste-to-Landfill. Regarding this, the recycling company has taken preventive measures such as clarifying the workflow and promoting workers' awareness of environmental conservation. Paper purchases were reduced by 15.1%.

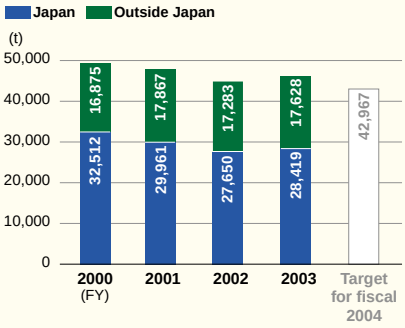
● Future Activities

The Ricoh Group will promote tightening of partnerships with recycling companies and intensive sorting of waste in order to maintain Zero-Waste-to-Landfill and improve the quality of recycling. Ricoh will also promote improvement of the production process to reduce the volume of industrial water used.

<The Entire Ricoh Group>

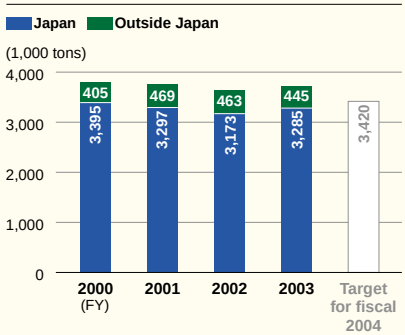
Total Amount of Waste Generated

❶ The Ricoh Group (production)



Volume of Industrial Water Used

❷ The Ricoh Group (production)



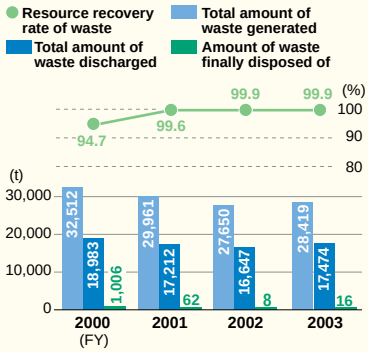
Segment Environmental Accounting of Recycling Activities at Business Sites (The Entire Ricoh Group)

Costs			Effects			
			Economic benefits		Effect on environmental conservation	
Item	Main cost	Costs	Items	Benefits	Reduction item	Amount
Business area cost	Resource circulation cost	¥757.8 million	Reduction in waste disposal expenses	¥132.6 million	Amount of waste disposed/ reduced	646.6 (t)
			Proceeds from sale of valuables	¥506.4 million		

<Japan>

Resource Recovery Rate of Waste/Total Amount of Waste Generated/Total Amount of Waste Discharged/ Amount of Waste Finally Disposed of

❸The Ricoh Group (production)



❹The Ricoh Group (nonproduction)

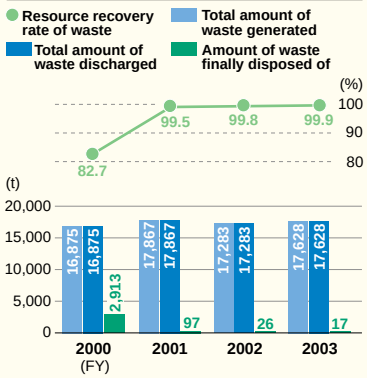
	Resource recovery rate of waste (%)	Total amount of waste discharged (t)	Amount of waste finally disposed of (t)
Sales Companies	77.9	2,381	527
Maintenance and Services (Ricoh Technosystems)	97.5	2,241	56
Logistics (Ricoh Logistics System)	95.3	4,813	227
Finance (Ricoh Leasing)	80.3	57	11

* At non-manufacturing subsidiaries, the amount of waste generated and the amount of waste discharged are the same, because waste is not processed at the business site. Therefore, only the total amount of waste discharged is listed.

<Outside Japan>

Resource Recovery Rate of Waste/Total Amount of Waste Generated/Total Amount of Waste Discharged/ Amount of Waste Finally Disposed of

❺The Ricoh Group (production)



Resource recovery rate of waste:
Amount of resource recovered/amount discharged
Total amount of waste generated:
Amount of waste generated at business sites
Total amount of waste discharged:
Amount of waste discharged outside business sites (including the waste undergoing disposal processing inside the plants)
Amount of waste finally disposed of:
Amount of discharged waste used in landfills and incinerated

* Some data, except that for fiscal 2002 in graphs 2, 3 and 5, are revised.

Appropriate Disposal of Waste and Improvement of Partnerships

<Ricoh Group/Japan>

Partnership with waste disposal companies is important to maintain Zero-Waste-to-Landfill. For appropriate waste disposal, the Ricoh Group evaluates waste disposal companies, reports the evaluation results to them, and strengthens the partnership. The Ricoh Group also records data on disposal costs, contracts, and manifests in a database used within the Group.

Waste management database

Improvement of Recycling Efficiency by an Intensive Method

<Ricoh Numazu Plant and Fukui Plant/Japan>

In fiscal 2002, Ricoh worked with Shinko-Frex Inc. to develop a method to use waste from the toner production process to make flux for steelmaking (patent obtained). Formerly, toner waste was chemically recycled, with the expenses which that involved, however flux for steelmaking can be sold to iron mills. Toner waste is now collected at the Numazu and Fukui Plants and made into flux for steelmaking. Approximately 140 tons of toner waste from both plants were processed as resources and the disposal costs are reduced by ¥7 million annually.

Zero-Waste-to-Landfill at Non-production Sites

<Ricoh Group/Japan>

Zero-Waste-to-Landfill activities that started at production sites have been extended to nonproduction sites. Ricoh achieved Zero-Waste-to-Landfill at Aoyama Head Office, Toda Technical Center, Shin-Yokohama Office, Ginza Office, Shinagawa Office (Ricoh System Center) and Ohmori Office. Among Ricoh Group companies in Japan, Ricoh Technosystems, a sales, maintenance, and service company, and Ricoh Logistics System Co., Ltd., a logistics company, are leading this effort, and more than 100 business sites have achieved Zero-Waste-to-Landfill. Sales divisions offer customers expertise in Zero-Waste-to-Landfill and the realization of paperless offices.

Explanation of Zero-Waste-to-Landfill activities to customers (Ricoh Tohoku Co., Ltd.)

Elaborate sorting corner (Ricoh Tohoku Co., Ltd.)

RICOH Fukui Plant, General Affairs Group
Chiaki Terashima, Assistant Manager (left)
Tatsunori Kitamura, Assistant Manager (center)
Tetsuo Itoh, Assistant Manager (right)

Maintenance and Quality Improvement of Zero-Waste-to-Landfill/Fukui Plant

RICOH Fukui Plant is engaged in improvement of continuous Zero-Waste-to-Landfill activities by all employees to elevate the quality of the plant to the highest level.

The Ricoh Group achieved Zero-Waste-to-Landfill at several major global production sites in 2001, in which Fukui Plant took the initiative. The plant achieved "Level 2 Zero-Waste-to-Landfill"[1] in October 1998 and "Level 3" in August 1999. Zero-Waste-to-Landfill activities are positively promoted by all employees with the recognition that these activities will lead to the realization of the ultimate goal of no energy/ resource loss and 100% yield[2].

1. For Zero-Waste-to-Landfill levels, see page 57.
2. The ratio of good products to all manufactured products

* Ricoh Fukui Plant: http://www.ricoh.co.jp/fukui-plant/ (Japanese language only)

Q Why did you start Zero-Waste-to-Landfill activities? What is the relation between realization of the highest-level production and Zero-Waste-to-Landfill?

A Originally, Zero-Waste-to-Landfill activities started as a part of our TPM* activities to avoid waste in the manufacturing process. Zero-Waste-to-Landfill means zero waste in manufacturing, in other words, zero loss in manufacturing. We are engaged in continuous improvement aiming at realizing a plant with 100% yield, zero waste of resources and energy, and zero accidents.

* Total Productive Maintenance: Production maintenance by all employees

Q What was the most important thing to achieve Zero-Waste-to-Landfill?

A The most important thing was to promote employee awareness of environmental issues. Zero-Waste-to-Landfill cannot be achieved without the participation of all employees. A strong initiative of management is also necessary to build a mechanism in which all employees can participate. The Zero-Waste-to-Landfill Committee, established in 1998 under the chairmanship of the Plant Manager, deliberated measures to realize Zero-Waste-to-Landfill and made them known to every employee, without exception. It is also important to make sorting rules that are simple for everyone and report correct results of sorting efforts to all employees. The partnership with recycling companies is also important. We secure at least two recycling routes for each waste type.

Resource sorting station within the plant

Q What kind of activities have you been engaged in since the achievement of Zero-Waste-to-Landfill?

A We have been engaged not only in the maintenance of Zero-Waste-to-Landfill, but also in improvement of the quality. In fiscal 2003, regular environmental education started. In October 2003, Sorting Navigation opened on the intranet to show the sorting method simply. Regarding improvement of quality, we are promoting restriction of waste production by improving the manufacturing process and resource recovery in a method with less environmental impact and lower costs. For example, waste from the toner production process is sorted thoroughly and sold to iron mills. Furthermore, we promote the reduction of environmental impact in the transportation process by shortening distances to recycling companies. We will be engaged in manufacturing high-quality, low-price, and low-environmental impact products through continuous TPM activities.

Waste samples displayed in the plant

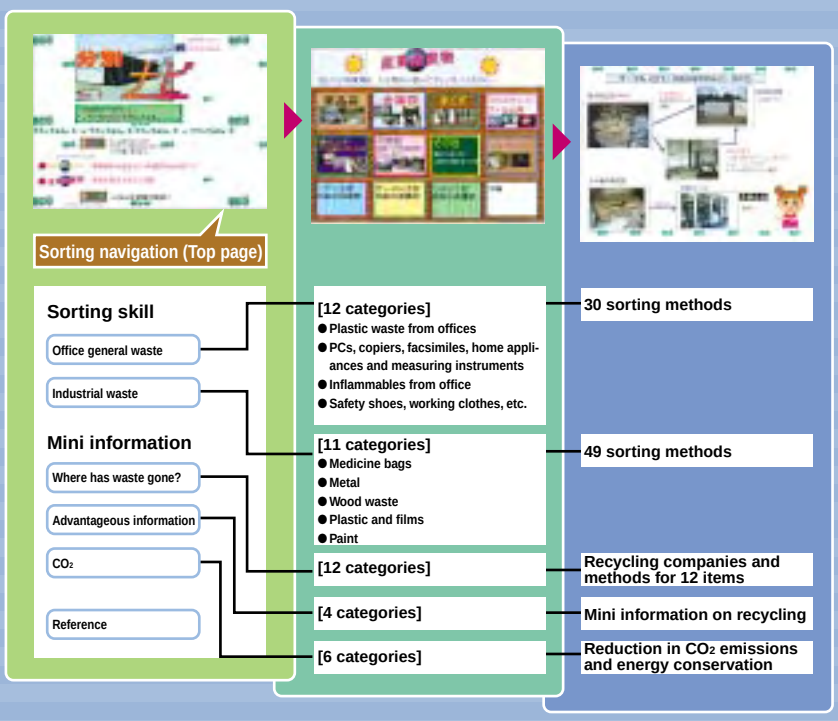
The Ricoh Group's 5Rs

1 Refuse: Avoid buying anything that may become waste.
2 Return: Return what can be returned to suppliers.
3 Reduce: Reduce waste.
4 Reuse: Reuse products.
5 Recycle: Recycle products.

● Sorting and Recycling at Fukui Plant

Level	Type of waste	Waste	After recycling
Level 3 (Industrial waste + general waste + household solid waste) / Level 2 (Industrial waste + general waste) / Level 1 (Industrial waste)	Waste paper	Coated paper	Recycled paper, toilet paper
	Wood waste	Used palettes	Particleboard
	Metal	Swarf, Canister	Recycled metal
	Sludge	Thermal waste	Material for cement
	Waste oil	Waste solvent (high purity)	Recycled solvent
		Waste solvent (low purity)	Fuel for cement → Ashes are used as material for cement
	Waste plastic	Waste toner (powder)	Oxidation reducer used for electric furnace
		Waste toner (iron)	Flux for steelmaking → Slag is recycled into macadam
		Ribbon film	Solid fuel for blast furnaces → Slag is recycled into materials for road beds
	Waste paper	Confidential documents, office paper	Toilet paper
		Newspapers, magazines, corrugated cardboard, paper cups	Corrugated cardboard
	Inflammables	PET bottles	Recycled fiber
		Leftover food	Recycled manure
		Waste cooking oil	Recycled oil and fat (liquid soap)
	Non-inflammables	Dry batteries	Recycled into metal after collection of mercury
		Fluorescent lights	Recycled into metal and glass after collection of mercury
	Sludge	Sludge in water-purifier tanks	Materials for soil improvement

● Sorting Navigation on the Intranet



The Ricoh Group is engaging not only in control and reduction of the amount of chemical substances used and discharged, but also in prevention and remediation of soil contamination.

Concept

The Ricoh Group categorizes and controls chemical substances that are regulated in various countries around the world according to whether they are to be prohibited, reduced, or controlled. As for chemical substances classified as those to be reduced, the Ricoh Group is engaged in reduction based on a concept of risk management. This is a method to reduce chemical substances whose environmental impact is serious. The environmental impact is determined by calculating the amount of chemical substances used/discharged and the environmental impact potential*. The Ricoh Group also endeavors to reduce the amount of chemicals used and emitted by setting goals to reduce dichloromethane and ozone-depleting substances. Additionally, the Group sets a standard to prevent environmental risk from occurring. Based on the standard, each business site thoroughly controls the amount of chemicals used, emitted, discharged, and disposed of in order to prevent percolation or outflow to the environment. The Group also conducts surveys on soil and underground water contamination based on the recorded use of chemical substances and restores plants where pollution occurs.

* The environmental impact potential is set by Ricoh, taking toxicity, carcinogenicity, and the possibility of ozone depletion into consideration.

<The Entire Ricoh Group>

Amount of Environmentally Sensitive Substances Used and Emitted in Fiscal 2003

❶ The Ricoh Group (production)

Units: tons

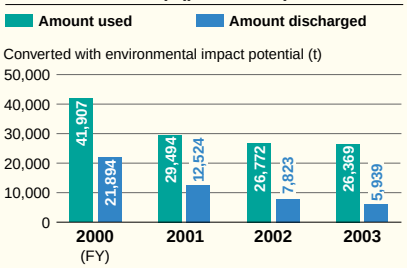
Substance	Environmental Impact Potential	Amount used[1]	Amount emitted[1]	Amount treated	Amount consumed	Amount emitted[2]	Amount transported	Amount disposed of	Amount recycled
Toluene	10	14,035	1,258	1,526.1	122.5	125.8	0.0	643.3	634.4
Dichloromethane	100	5,623	3,579	61.0	4.7	35.8	0.0	0.0	20.5
N, N-dimethylformamide	100	2,931	109	29.3	0.0	1.1	0.0	0.0	28.2
Nickel sulfate	100	242	0	5.9	3.5	0.0	0.0	0.0	2.4
Chrome trioxide	1,000	101	0	0.1	0.0	0.0	0.0	0.1	0.0
Xylene	10	99	75	9.9	0.0	7.5	0.0	0.1	2.3
Sodium cyanoacetic	1,000	97	0	0.1	0.0	0.0	0.0	0.1	0.0
Ethyl cellsolve acetate	100	50	8	0.6	0.1	0.1	0.2	0.0	0.2
Chlorodifluoromethane	100	29	29	0.3	0.0	0.3	0.0	0.0	0.0
Ethylene glycol	1	28	2	287.3	259.8	1.7	0.0	2.1	23.7
Formaldehyde	1,000	24	19	0.0	0.0	0.0	0.0	0.0	0.0
Lead chromate	1,000	18	0	0.0	0.0	0.0	0.0	0.0	0.0

* Environmentally sensitive substances that are regulated by the Ricoh Group include all substances to which PRTR is applied. Substances listed are those of large amount used per year (converted with environmental impact potential). The amount of metal compounds is converted into metal.

1. The amount of the Ricoh Group's target substances for reduction used and discharged is calculated by using the following formula.
   Amount used = Σ {(amount – amount consumed) × environmental impact potential}
   Amount discharged = Σ {(amount emitted into air + amount discharged into public water supply + amount discharged into soil) × environmental impact potential}
2. Amount emitted = amounted emitted into air + amount discharged into public water supply + amount discharged into soil

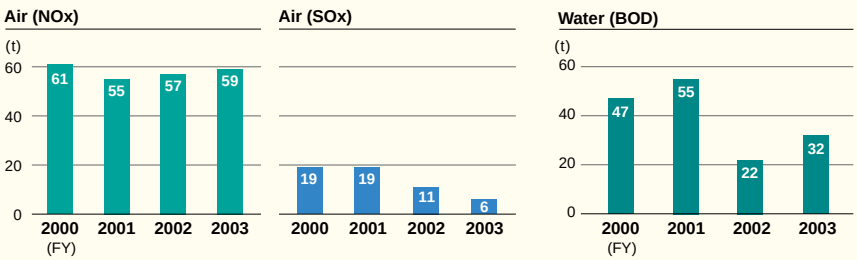
Changes in the Amount Used and Discharged of Ricoh Target Substances for Reduction

❷ The Ricoh Group (production)



Changes in the Amount of Nox, SOx and BOD

❸ The Ricoh Group (production)



* The Ricoh target substances for reduction are defined as the PRTR substances designated by four Electric/Electronic Industrial Associations in Japan between fiscal 1998 and fiscal 2000. Coverage of chemical substances by Ricoh may differ slightly from those provided by the PRTR Law.

Segment Environmental Accounting of Pollution Prevention Activities at Business Sites (The Entire Ricoh Group)

Costs			Effects			
			Economic benefits		Effect on environmental conservation	
Item	Main cost	Costs	Items	Benefits	Items	Amount
Business area cost	Pollution prevention cost	¥471.4 million	Reduction in social cost	¥274.0 million	NOx	7.4 (t)
			Amount of risk avoidance effect (incidental effect)	¥868.7 million	SOx	5.0 (t)
					BOD	–9.8 (t)
					PRTR substances (calculated with the conversion potential)	1,882.6 (t)

● Targets for Fiscal 2004

◎ Reduce environmentally sensitive substances (the Ricoh Group's target substances) to 8% of those used and 50% of those emitted (compared to fiscal 2000 figures).

◎ Completely eliminate the use of dichloromethane.

◎ Reduce emissions of ozone-depleting substances by 60% (compared to fiscal 2000 figures).

* Targets for Ricoh and the Ricoh Group's manufacturing subsidiaries in and outside Japan

● Review of Fiscal 2003

The amount of environmentally sensitive substances used was reduced by 37% as compared to fiscal 2000 figures and by about 400 tons as compared to fiscal 2002 figures[1]. The amount emitted was reduced by 73% as compared to fiscal 2000 figures and by about 1,880 tons as compared to fiscal 2002 figures[2]. (See graph ❷) The Ricoh Group also succeeded in development of a substitute solvent to eliminate the use of dichloromethane completely. Regarding ozone-depleting substances, the amount emitted was reduced by 80% as compared to fiscal 2000 figures and by 140ODP-kg as compared to fiscal 2002 figures[3]. Surveys and remediation of soil and underground water contamination were carried forward as scheduled.

1. and 2. Converted with environmental impact coefficient
3. Converted with ozone depletion potential

● Future Activities

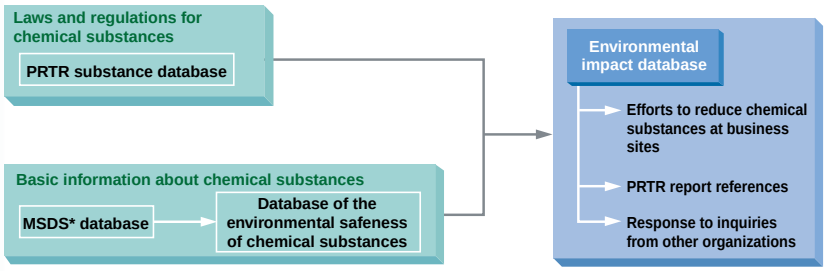
Regarding the use and emission of chemical substances, the Ricoh Group will continue to promote reduction. In order to eliminate the use of dichloromethane completely, the Ricoh Group will work to develop a production line where a substitute solvent can be used. Reduction in ozone-depleting substances emitted will continue to be carried forward. The Ricoh Group will start surveys on soil and underground water contamination of land belonging to the Group as well as its production sites.

Use of Ricoh Environmental and Chemical Safety Information System (RECSIS) and Information Disclosure

<Ricoh Group/Global>

The Ricoh Group established RECSIS to monitor data on chemical substances used, discharged, and disposed of at business sites. RECSIS is designed to promote reduction in the use of chemical substances, to prepare materials for PRTR reporting, and to speedily respond to inquiries from customers around the world, original equipment manufacturers, and citizens' groups. RECSIS, a part of the Ricoh Group's environmental impact information system, contains data on more than 2,000 types of listed chemical substances and environmental hazards.

Environmental and Chemical Safety Information System for Business Sites



* Material Safety Data Sheet

Aiming to Eliminate the Use of Dichloromethane Completely

<Ricoh Group/Global>

The Ricoh Group endeavors to eliminate the use of dichloromethane completely by the end of fiscal 2004 because it is a chemical substance whose environmental impact is one of the largest among chemical substances used in the Ricoh Group. Dichloromethane is used for manufacturing Organic Photo Conductor (OPC) for copiers. An alternative chemical substance with less environmental impact is now in use to manufacture Organic Photo Conductor (OPC) for copiers that are already on the market, however the problem was, howevers, that dichloromethane was indispensable for supplies for those copiers that had been marketed. At the end of fiscal 2003, the development of an alternative solvent was completed. The Ricoh Group will be engaged in improvement of the production process to realize complete elimination of dichloromethane. In order to reduce emission into the air, Ricoh UK Products Ltd., a manufacturing subsidiary in England, improved the dichloromethane recovery plant installed in the company to raise its efficiency. Additionally, it has reduced the amount of dichloromethane purchased by reusing collected dichloromethane.

Dichloromethane collector at Ricoh UK Products Ltd.

Reduction in Ozone Depleting Substances

<Ricoh Hatano Plant/Japan>

Ricoh Hatano Plant completely eliminated the use of an alternative CFC, H-CFC-225 which had been used in the process to assemble printed circuit boards, by introducing lead-free technology to the production process. As the result, the amount of ozone-depleting substances emitted (ozone depletion coefficient x amount emitted into air) was reduced from 46ODP-kg*/year to 1ODP-kg/year.

* Converted with ozone depletion potential

Printed Circuit Board Assembly Line at Hatano Plant

Examination and Purification of Soil and Underground water

<Ricoh Group/Japan>

Thinking it important to address the problems of soil and underground water pollution, the Ricoh Group started to examine and purify soil and underground water at our production sites in Japan in 1992. Subsequently, in 1999 a committee linking employees directly with the management teams of Ricoh and other Ricoh Group companies was established. At all production sites and R&D facilities in Japan, we looked for possible soil and underground water pollution by such substances as chlorine organic solvents and heavy metals. In locations where soil/underground water pollution was detected, we reported our findings to the relevant municipal government, submitted an improvement plan, and began purification activities. We conducted our first examination for chlorine organic solvents in 1992 to ascertain the quality of the soil and underground water and have been voluntarily conducting similar examinations ever since, including one based on guidelines published in 1999 by the former Environment Agency. For heavy metals, we voluntarily conduct field surveys on our premises that may be polluted, based on the results of examinations on the past use of heavy metals. The table below shows the results of an underground water examination conducted in April 2004. At the six production sites where pollution was detected, detailed examinations and purification activities are now conducted.

Pumping equipment developed at Tohoku Ricoh Co., Ltd. for purification purpose

❶ Survey Results of Underground Water Pollution and Purification Efforts at Ricoh Production Sites and the Ricoh Group's Manufacturing Subsidiaries in Japan (As of April 2004)

Business site	Pollutant (Japan's environmental standard)	Survey result	Measures in implementation	Measures implemented
Ricoh Hatano Plant	Chlorine organic solvents	Cleaning completed	—	Soil was removed.
	Heavy metals, etc.	No pollution		
Ricoh Numazu Plant, North Plant	Chlorine organic solvents	Cleaning completed	—	The neutralization of gas and purification of underground water were completed.
	Heavy metals, etc.	No history of use		
Ricoh Numazu Plant, South Plant	Chlorine organic solvents	Cleaning completed	—	Soil was removed.
	Heavy metals, etc.	No pollution		
Ricoh Ohmori Office	Cis 12 dichloroethylene (0.04mg/L)	0.105mg / L	• Purification of underground water • Regular monitoring	Soil was removed. The neutralization of gas and purification of underground water were completed.
	Trichloroethylene (0.03mg/L)	0.183mg / L		
	Tetrachloroethylene (0.01mg/L)	0.0227mg / L		
	Heavy metals, etc.	No pollution		
Ricoh Optical Industries	Trichloroethylene (0.03mg/L)	0.114mg / L	• Regular monitoring • Survey of pollution source	
	Heavy metals, etc.	No pollution		
Hasama Ricoh	Chlorine organic solvents	Cleaning completed	—	Soil was removed.
	Heavy metals, etc.	No pollution		
Tohoku Ricoh	Cis 12 dichloroethylene (0.04mg/L)	0.29mg / L	• Purification of underground water • Regular monitoring	Soil was removed. The neutralization of gas and purification of underground water were completed.
	Trichloroethylene (0.03mg/L)	0.48mg / L		
	Heavy metals, etc.	No pollution		
Ricoh Elemex, Okazaki Plant	Trichloroethylene (0.03mg/L)	9.2mg / L	• Containment and purification of underground water • Purification of underground water • Regular monitoring	
	Cis 12 dichloroethylene (0.04mg/L)	0.20mg / L		
	Hexavalent chromium (0.05mg/L)	4.2mg / L		
	Cadmium (0.01mg/L)	0.20mg / L		
	Lead (0.01mg/L)	0.14mg / L		
Ricoh Elemex, Ena Plant	Trichloroethylene (0.03mg/L)	4.6mg / L	• Containment and purification of underground water • Neutralization of gas, Purification of underground water • Regular monitoring	
	Cis 12 dichloroethylene (0.04mg/L)	0.54mg / L		
	Hexavalent chromium (0.05mg/L)	0.21mg / L		
Ricoh Keiki	11-dichloroethylene (0.02mg/L)	0.292mg / L	• Purification of underground water • Regular monitoring	Soil was removed.
	Heavy metals, etc.	No pollution		

• No pollution: No pollution was detected where pollutants were used.
• The areas surrounding all business sites, including the above-mentioned sites, are not affected by pollutants.
* All information, including business sites with no history of pollution, is shown on the Web site (http:/www.ricoh.com/environment/data/survey.html).

Removing polluted soil (at Ricoh Ohmori Office)

At all production sites surveyed, including the six sites mentioned above, the use of chlorine organic solvents and heavy metals had no harmful influence over the surrounding areas. As for purification activities, polluted soil, water, and/or harmful gases are removed on a case-by-case basis. When conducting thorough examinations and purification activities, production sites examine and implement rational and economic measures in cooperation with companies specialized in relevant surveys and activities. The sites are sometimes visited by municipal governments and other companies wanting to study their antipollution measures. The Ricoh Group itself developed and effectively used antipollution devices such as pumping equipment for purification. As of the end of fiscal 2003, the Ricoh Group spent approximately ¥1,050 million on examinations and purification activities in Japan, and will spend approximately ¥840 million until the completion of its purification activities.

A purification facility in the super-well-point method (at Ricoh Elemex, Okazaki Plant)

Examinations and Purifications of Soil and Underground Water

<Ricoh Group/Outside Japan>

Examinations and purification activities have been conducted starting from production sites that have a history of using harmful substances since 2001. At present, surveys and purifications are conducted at Ricoh Electronics, Inc. (U.S.A.), Ricoh UK Products Ltd. (U.K.), Ricoh Industrie France S.A.S. (France), Ricoh Asia Industry (Shenzhen) Ltd. (China) and Shanghai Ricoh Facsimile Co., Ltd. (China). The table below shows the results of the underground water examination conducted in March 2004. At sites where pollution is detected, a report is sent to the national and municipal governments and improvement plans are made and implemented.

Purification facility (Ricoh Industrie France S.A.S.)

❷Survey Results of Underground Water Pollution and Purification Efforts at the Ricoh Group's Manufacturing Subsidiaries Outside Japan (As of March 2004)

Business site	Pollutant	Survey result	Measures in implementation	Measures implemented
Ricoh Electronics Inc., Irvine Plant (U.S.A.)	Cis 12 dichloroethylene	1.6mg / L	• Purification of underground water • Regular monitoring	Soil was removed.
	Trichloroethylene	1.7mg / L		
	Tetrachloroethylene	2.9mg / L		
	Selenium	0.053mg / L		
Ricoh Electronics Inc., Tustin Plant (U.S.A.)	Chlorine organic solvents	No pollution	—	
	Heavy metals, etc.	No pollution		
Ricoh Electronics Inc., Santa Ana Plant (U.S.A.)	Chlorine organic solvents	No history of use	—	Having history of pollution caused by leakage of oil (purified)
	Heavy metals, etc.	No history of use		
Ricoh Electronics Inc., Georgia Plant (U.S.A.)	Chlorine organic solvents	No history of use	—	
	Heavy metals, etc.	No history of use		
Ricoh Industrie France S.A.S. (France)	Tetrachloroethylene	0.083mg / L	• Purification of underground water • Regular monitoring	
	Heavy metals, etc.	No history of use		
Ricoh UK Products Ltd. (U.K.)	Chlorine organic solvents	No pollution	—	
	Heavy metals, etc.	No pollution		
Ricoh Wellingborough Products Ltd. (U.K.)	Chlorine organic solvents	No pollution	—	
	Heavy metals, etc.	No pollution		
Ricoh Asia Industry (Schenzhen) Ltd. (China)	Chlorine organic solvents	No history of use	—	
	Heavy metals, etc.	No history of use		
Shanghai Ricoh Facsimile Co., Ltd. (China)	Chlorine organic solvents	No history of use	—	
	Heavy metals, etc.	No history of use		

• No pollution: No pollution was detected where pollutants were used.
• The areas surrounding all business sites, including the above-mentioned sites, are not affected by pollutants.

We are making efforts to conserve global forest ecosystems and enhance our employees' global citizen awareness.

To conserve the global environment, it is important not only to reduce environmental impact, but also to maintain and enhance the resilience of the global environment. The Ricoh Group is promoting forest ecosystem conservation projects at many places all over the world in partnership with environmental NPOs and local communities. In Japan, the Ricoh Group is implementing an Environmental Volunteer Leader Development Program to enhance each employee's global citizen awareness and support environmental conservation activities conducted by local communities.

Forest Ecosystem Conservation Projects

<Ricoh Group/Global>

On the earth, various life habitats exist and unique ecosystems are maintained in forests, grasslands, lakes and ponds, coral reefs and oceans. If these ecosystems are damaged, the possibility would be extremely high that the natural environment including water, air, climate, soil, etc. that is indispensable for maintaining the life of human beings would be harmed. Ricoh places priority on forest ecosystems with rich biodiversity and is promoting forest ecosystem conservation projects in partnership with environmental NPOs and local communities. For details, see the ECO TODAY* environmental web site.

* http://www.ricoh.co.jp/ecology/ecotoday/index_e.html

● Two Projects Completed in fiscal 2003

Restoration of Tama Hills Satoyama (Community Forests)

The community forests of Tama Hills, which extend over the suburbs of Tokyo, were left devastated after the living environment changed and these forests were not maintained. Ricoh determined that it was important to restore and conserve valuable natural environments that are left undeveloped. Ricoh has therefore support-

Ricoh Group employees who participated in volunteer activities

Ricoh Group's Forest Ecosystem Conservation Projects

Company	Country	Project		NPO	
		Name	Activity	Name	Descriptions
Ricoh Corporation	Mexico	Conservation of the Sierra Tarahumara forest, riverheads, and ecosystem	Restoration of a riverhead forest	WWF	The world's largest environmental protection NPO strives to conserve biodiversity in a variety of ways, from protecting ecosystems to preventing global warming
Ricoh Europe B.V.	United Kingdom	Participation in the virgin forest conservation campaign hosted by the Woodland Trust	Three-year support of the virgin forest conservation campaign, aiming to restore biodiversity	Woodland Trust	The Woodland Trust, the UK's leading woodland conservation charity, was established in 1972. With over 1,000 woods in its care, covering approximately 20,000 ha, the Trust is dedicated to the protection and conservation of our native woodland heritage
Ricoh Asia Pacific Pte Ltd.	Australia	Support of Earth Keeper™, an environmental education program conducted by Warrimoo Public School	A program in which children learn about ecosystems and environmental issues in Australia and plant trees	Warrimoo Public School	Teaches students about the environment through forest conservation activities, focusing on a project called Earth Keeper™, which gives children the skills to live in harmony with nature
	Hong Kong	Restoration of a riverhead forest in Sai Kung, Hong Kong	Restoration of a riverhead forest that was destroyed in a fire	Friends of the Earth Hong Kong	Enhances citizens' interests in the environment, ecology, and resources and develops activities to promote their efficient use
Ricoh Co., Ltd.	Philippines	Restoration of tropical rain forests*	Restoration of rich forests where the Philippine Eagle and other forest creatures can coexist with people	Conservation International	Develops activities using funds and human resources for the conservation of biodiversity (1,200 members in 32 countries)
	Malaysia	Restoration of tropical forests and orangutan habitats*	Expansion of the habitats of endangered species, including the orangutan	WWF	The world's largest environmental protection NPO strives to conserve biodiversity in a variety of ways, from protecting ecosystems to preventing global warming
	China	Restoration of temperate forests and giant panda habitats*	Conservation of habitats for endangered species, including 437 vertebrates, such as the giant panda, and 4,000 plants, to prevent their extinction	WWF	The world's largest environmental protection NPO strives to conserve biodiversity in a variety of ways, from protecting ecosystems to preventing global warming
	Japan	Conservation of the Afan Forest in Kurohime, Nagano*	Conservation of natural forests that have enough space and food for bears, dormice, and other animals to live and where people can feel close to nature	C.W. Nicol Afan Woodland Trust	Researches and studies the forest ecosystem as well as conducts environmental conservation activities with the idea of establishing a forest where mankind can live without harming the natural environment
	Japan	Conservation of the Yanbaru Forest in Okinawa*	Conservation of habitats of endangered species unique to the region, including Rallus okinawae	Yanbaru Forest Trust	Aims at securing trust sites for wildlife, contributing to the conservation of habitats and other natural environments in northern Okinawa, which is blessed with rich biodiversity
	Ghana	Restoration of tropical rain forests	Preservation of forests through sustainable agriculture, specifically, raising cocoa in the shades of trees so that people can live with other living things	Conservation International	Develops activities using funds and human resources for the conservation of biodiversity (1,200 members in 32 countries)
	Sri Lanka	Conservation and restoration of forests at World Heritage Sites	Preservation and expansion of forests where the Sri Lankan long-tailed fowl can live	Field Ornithology Group of Sri Lanka	Conducts research in bird ecology in Sri Lanka and develops domestic and overseas environmental conservation activities for bird habitats
	Bangladesh	Restoration of satoyama (*community forests*)	Education of children, development of afforestation activities, and raising of saplings	Bangladesh Poush	Provides environmental education especially to children and promotes afforestation activities in Sri Lanka

* For each project, flag species are mentioned in the column of activities. These projects aim at conserving not only flag species, but also all forest ecosystems in the area.

* To sustain social contribution activities, Ricoh established a social contribution reserve system. With the approval of shareholders at their general meeting, an amount equal to 1% (maximum ¥200 million) of the amount of net income after deducting the dividend is deposited in the reserve fund every year. The above-mentioned projects are financed by this reserve fund.

ed the Tama Hills community forest restoration project since fiscal 2000. Citizens of Hachioji and Hino cities, employees and officers of Ricoh, and local residents have conducted joint restoration/conservation activities. Although the project was completed in fiscal 2003, local citizens and employees of the Ricoh Group are continuing their activities.

Conservation of Virgin Mangrove Forests in Brunei

The Ricoh Group has supported the mangrove forest conservation project since fiscal 2000. The achievement of the project was reported at the October 2003 International Symposium on Conservation and Wise Use of Mangroves in Southeast Asia, held in the capital city of Brunei. Since Japanese companies and organizations have strongly emphasized the importance of conservation of these forests, the Brunei government and University Brunei Darussalam has understood the importance of conservation activities and actively began to conduct them. As Ricoh's original objective to trigger forest conservation activities was achieved and local people now routinely conduct these activities, Ricoh decided to end its support to the project.

Inspection by Ricoh employees

Support for the Promotion of Sustainable Farming <Ricoh/Ghana>

Conservation of forests leads to a better life. Many residents began to understand the benefits of forests.

The Republic of Ghana, located in the western part of Africa, is a farming country, and the export of cacao is the main support of its economy. The country's problem is that farmland expansion is accomplished by cutting down forest trees, as in the case of other developing countries, and forests are depleted. To help solve this problem, farming to grow cacao without cutting down trees was introduced. Since fiscal 2002, Ricoh has been supporting activities to promote sustainable farming in forests in partnership with environmental NPOs, with the aim of restoring rain forests in Ghana.

Support for the Promotion of New Cacao Growing in Forests

Traditionally, cacao was grown in cultivated fields that were developed by cutting down forest trees, however the problem was that continued monoculture led to soil degradation. Crops were vulnerable to diseases and bugs, sustainable farming on the same fields became impossible, and new fields had to be developed by cutting down more forest trees. As the population increased, forest trees were cut down on a large scale. As a result, forest creatures such as forest elephants and Diana monkeys were about to become extinguished. A new method to grow cacao in forests, without cutting down forest trees, was therefore introduced. One type of cacao grows in the shade. The local communities that grew this kind of cacao in forests could increase their income and became better off than before. Those residents who realized that forest conservation leads to a better life began to understand the benefits of forests more fully than before. At present, about 350 residents in eight communities use this method to grow cacao. In the future, Ricoh will ask agricultural cooperatives in Ghana to introduce the use of this method for sustainable cacao growing to other communities. Ricoh would like to introduce this method to other tropical countries.

Riverhead Forest Conservation

<Ricoh Corporation/Mexico>

In February 2004, Ricoh Corporation, the regional sales headquarters for the Americas, began supporting the conservation of the Sierra Tarahumara forest in Mexico with the World Wide Fund for Nature (WWF). The forest covers 60,000 square kilometers and is the source of several rivers. It is the habitat of pine and oak trees indigenous to the area. The aim of the forest conservation is to protect precious riverheads that supply water to the entire North Mexico region of 1.5 million residents and 600,000 hectares of agricultural land.

Ricoh Corporation employees and the WWF afforestation team visiting the Sierra Tarahumara

Ricoh Corporation employees in the Sierra Tarahumara

Supporting the Corporate Afforestation Scheme

<Ricoh Hong Kong/Hong Kong>

Since 2001, Ricoh Hong Kong Ltd. has worked with Friends of the Earth (FoE) in the Corporate Afforestation Scheme in support of the Hong Kong Special Administrative Region Government's initiatives in restoring the woodland in Sai Kung, Hong Kong, that was destroyed in a fire. On December 7, 2003, 197 employees and their families re-visited the woodland and took care of the saplings they had planted.

Ricoh Hong Kong employees and their families who took care of saplings

Supporting an Environmental Education Program for Children

<Ricoh Australia/Australia>

Since March 2003, Ricoh Australia Pty, Ltd., a sales company, has supported Earth Keeper™, an environmental education program conducted by Warrimoo Public School in a suburb of Sydney. The program is for five- and six-year-olds and designed to teach them about ecosystems and environmental issues in Australia. On July 25, School's Tree Day, Ricoh Australia provided funds to purchase 260 saplings, and the company's employees helped school children plant the saplings and developed a rapport with them.

Ricoh Australia helped these children to plant saplings

Promoting Children's Awareness through Afforestation Activities

<Ricoh Asia Pacific and Ricoh Singapore/Singapore>

Ricoh Asia Pacific Pte. Ltd., the regional sales headquarters for the Asia-Pacific Region, and Ricoh Singapore Pte. Ltd., a sales company, worked together with the Singapore Environment Council and National Parks & The Green Volunteer Network to plant saplings at a park on November 8. They planted 100 trees with the help of more than 200 children. At the program, events were held to promote environmental awareness, such as a nature art contest and an environmental trivia quiz.

Employees of Ricoh Asia Pacific and Ricoh Singapore plant saplings

Sample Activities in Japan

Afforestation
<Ricoh Malaysia/Malaysia>

On March 20, Ricoh Malaysia Sdn. Bhd., a sales company, participated in an afforestation project at a botanical garden at the Forest Research Institute Malaysia. The company donated RM10,000 for this project, and 76 employees and their families helped the institute's staff plant 100 trees.

Employees of Ricoh Malaysia after planting saplings

Afforestation
<Ricoh Asia Industry (Shenzhen)/China>

Ricoh Asia Industry (Shenzhen) Ltd., a manufacturing company in Shenzhen, China, joined in the afforestation activity on December 27 at the World Horti-Expo Garden, where 40 cities and 12 countries participated in the horticultural exhibitions. Thirty-seven employees volunteered to plant 20 trees as a way to contribute to green expansion.

Employees of Ricoh Asia Industry plant saplings

Mt. Kannon Environmental Improvement Volunteer Activities
<Saitama Ricoh Co., Ltd.>

On June 29, 2003, 12 employees of Saitama Ricoh participated in environmental improvement activities organized by the Saitama Council of Nature Conservation Instructors, The Nature Conservation Society of Japan. They conducted activities to conserve Nikko Kisuge (a kind of daylily), Katakuri (dogtooth violet), and Wasurenagusa (forget-me-not) habitats.

Volunteer activities by Saitama Ricoh employees

Planting of Buna (Japanese beech) at Tomeyama, Hachimori-machi
<Akita Ricoh Co., Ltd.>

176 employees (about 95% of all employees) of Akita Ricoh belong to the Akita Ricoh Environmental Conservation Club. Contributions from club members and matching funds from Akita Ricoh are provided to environmental groups. The club members participate in forest conservation activities. On September 5, 2003, the club members participated in tree-planting activities organized by the Shirakami Nature Association.

Citizens' Forest Project in Nagano City
<Nagano Ricoh Co., Ltd.>

Employees of Nagano Ricoh participated in the citizens' forest creation project implemented under Nagano City's Agenda 21 Nagano Environmental Action Plan. They are promoting activities with citizens to create a forest that will be a place of play, relaxation, recreation, and learning.

Employees of Nagano Ricoh and their family members participated in the project

Activities to Conserve Fureai-no Mori
<Ricoh Kyushu Co., Ltd.>

Together with local residents, employees of Ricoh Kyushu are promoting activities to conserve the national forest named Fureai-no Mori, which is located in Sefuri village, Saga Prefecture. They improved footpaths and cut down dead trees. They plan to organize a nature seminar for local children in the future.

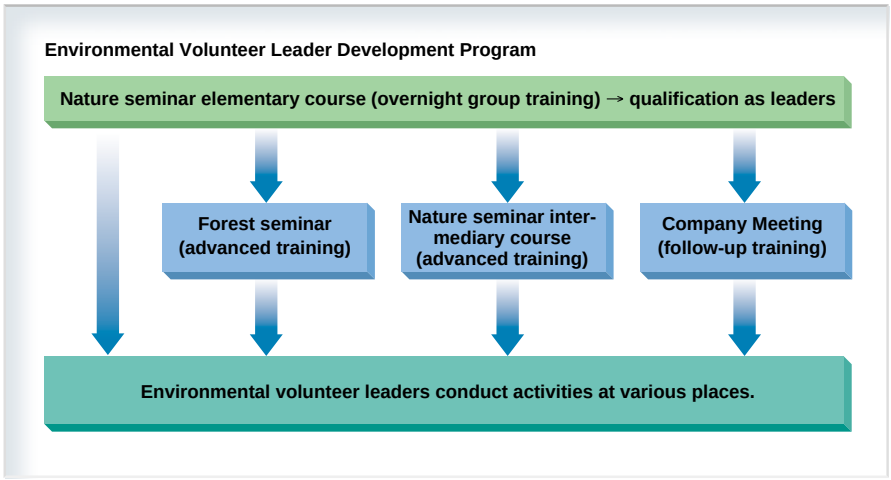
Employees of Ricoh Kyushu participated in activities to improve forest conditions

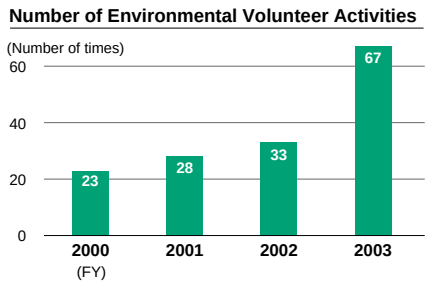
Club members and their family members planted Buna (Japanese beech)

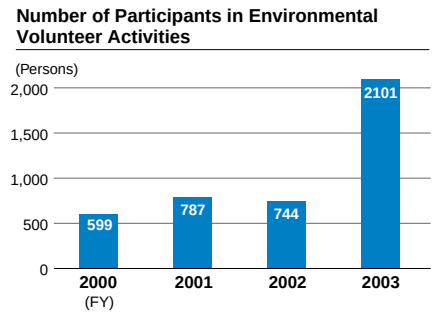
Environmental Volunteer Leader Development Program

<Ricoh Group/Japan>

To conserve the global environment, it is important for each employee to volunteer for both company-run and outside environmental conservation activities as a global citizen. However, at present, in comparison with the United States or Europe, very few people in Japan participate in citizens' groups or volunteer activities. To encourage employees to participate in such volunteer activities, it is important, among other things, that companies enhance the environmental awareness of their employees. It is also effective to seek assistance from environmental conservation NPOs, which are pioneers in environmental conservation, in order to conduct training programs that can motivate employees and continually remind them to preserve nature. In June 1999, the Ricoh Group launched an Environmental Volunteer Leader Development Program as part of its employee training program. In fiscal 2001, the program was expanded to include Ricoh Group employees and retirees. By the end of fiscal 2003, as many as 245 persons, including executives, became environmental volunteer leaders. The leadership-training program consists of the elementary and intermediary courses at Ricoh nature seminars, forest seminars and Ricoh Company Meetings for Environmental Volunteer Leaders. Actual environmental activities of these leaders will be followed up after they have attended the training program. Following the elementary course, each leader will develop environmental volunteer activities in close cooperation with their divisions or local communities.



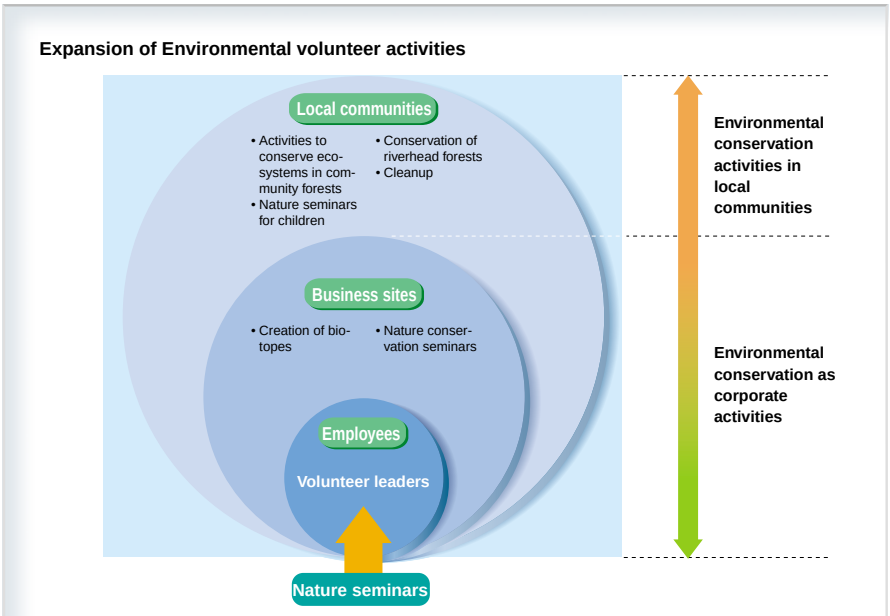




Expansion of Environmental Volunteer Activities

<Ricoh Group/Japan>

Activities of environmental volunteer leaders have increasingly expanded from those of employees and their family members/friends to those of these persons and local communities, including children. Sales companies now conduct volunteer activities that production sites across the country began.



Environmental Volunteer Activities

Activities for Which Business Sites are Opened

Nature seminar/Ricoh Fukui Plant
On May 21, 2003, the biotope was opened to 29 children of nearby Higashijugo Kindergarten. They observed butterflies and dragonflies living in the area.

School of nature/Ricoh Gotemba Plant
On April 19, 2003, a school of nature was organized for children. Fifty-eight persons, including family members of Ricoh employees, enjoyed making things from bamboo.

Natural Environment Seminar/ Ricoh Keiki Co., Ltd.
On June 28, 2003, a seminar on natural environment and rearing of stag beetles was organized for elementary school children and their parents (about 30 in total) in Kanzaki town, Kanzaki-gun, Saga Prefecture.

Activities for Local Communities

Children's Eco Club National Festival/Tohoku Ricoh Co., Ltd.
At the Children's Eco Club National Festival in Sendai, held on March 28, 2003, a mock eco road* was demonstrated.

* Abandoned wooden pallets are crushed into wood chips, and these wood chips were spread on a green space to make a footpath.

Conservation of the Green Zone in Shishigaya City
On November 8, 2003, activities to weed out goldenrod were conducted to conserve the green zone in Shishigaya City's citizens' forest.

Beach Cleaning at Kamakura
On September 15, 2003, the fifth Kamakura Zaimokuza beach clean-up & sand craft was organized, and employees and their family members (about 160 in total) participated in this event.

Cleaning Up Around the Office/ Ricoh Atsugi Plant
On September 17, 2003, 45 employees participated in activities to clean up roads around Atsugi Plant and Matsura Park.

Cleaning Up Around the Office/ Ricoh Toda Technical Center
On October 24, 2003, 20 persons from Toda Office and affiliated companies participated, for the fourth time, in activities to clean up areas around the office.

Thicket Conservation at Lake Shinsei in Hatano City
On April 26, 2003, employees and their family (17 in total) conducted the 20th survey of thicket vegetation.

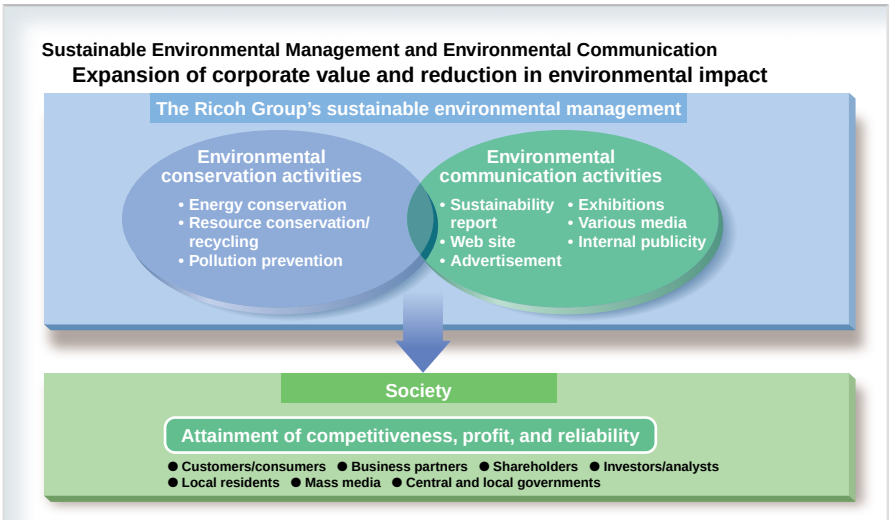
Yadoriki Shinboku Group
On August 30, 2003, 11 members of the Yadoriki Shinboku Group participated in Tsurumi Riverside Kawakaze Festa 2003 and enjoyed bamboo flute making with children.

Green Conductor/Ricoh Electronic Devices Company
September 20, 2003, 12 employees participated in thicket conservation activities held by Satsukiyama Green Echo in Ikeda, Osaka Prefecture.

Cleaning Up of Sand Dunes/ Ricoh Tottori Group
On September 28, 2003, employees of Ricoh Tottori Group participated in the autumn Tottori Sand Dunes cleaning operation.

Contributing to the Creation of A Resource-Recirculating Society Through the Promotion of Communications in Good Faith

To be a going concern that is favorably rated by society, it is important to not only promote environmental conservation activities, but also to make an effort to inform as many people as possible of our philosophy and activities so that we may win public confidence. The active disclosure of information to internal and external stakeholders will contribute to the further activation of activities and the creation of a resource-recirculating society. With the firm belief that environmental communication and conservation activities are the two wheels of sustainable environmental management, the Ricoh Group is promoting communications in good faith.



Sustainability Reports (Environment)

The Ricoh Group's environmental report has been issued annually since its first publication in April 1998, which disclosed fiscal 1996 data. Starting with the year 2002 edition, published in July 2002 under the new name, "Sustainability Report," the Ricoh Group has presented the concepts and performance of its sustainable environmental management. The 2004 Japanese edition was published in June 2004.

Issue Dates of Reports and Number of Copies Issued

		Date of Issue	No. of Copies	No. of Pages
Ricoh Group Environmental Report 1998	Japanese	Jan. 1999	26,200	30
	English	Jan. 1999	500	
Ricoh Group Environmental Report 1999	Japanese	Sept. 1999	51,300	32
	English	Sept. 1999	8,375	
Ricoh Group Environmental Report 2000	Japanese	Sept. 2000	45,950	60
	English	Dec. 2000	6,800	
Ricoh Group Sustainability Report 2001	Japanese	Sept. 2001	25,950	74
	English	Dec. 2001	7,000	
Ricoh Group Sustainability Report 2002	Japanese	Jul. 2002	21,315	84
	English	Sept. 2002	6,000	
Ricoh Group Sustainability Report (Environment) 2003	Japanese	Jun. 2003	21,045 (As of April 30, 2004)	84
	English	Sept. 2003	7,000	

Environmental Reports Issued by Business Sites

To enhance relationships with local communities, Ricoh Group business sites issue their own environmental reports as a means of communication with government offices, residents of neighboring areas, and family members of their employees. The Ricoh Group established the guidelines for the preparation of site reports on environmental conservation* for its business sites in fiscal 2001. In fiscal 2003, production sites (Ricoh Gotemba Plant and Yashiro Plant) and non-production sites (NBS Ricoh, Tokyo Ricoh, Lanier Switzerland, and Ricoh Australia) issued site reports for the first time. As a result, the number of site reports issued by the Ricoh Group increased to 12. Ricoh Fukui Plant, which has issued a site report since 1999, adopted a new system in fiscal 2003 under which they asked residents in the neighborhood to check a draft of their site report, after which they reflected the opinions in the final site report. Ricoh Fukui Plant was given the 7th Environmental Report Award. They have won this award for four straight years.

* http://www.ricoh.co.jp/ecology/report/site.html (Japanese language only)

Site Reports of Plants and Affiliates (FY 2003)

	Name of Company or Business Site	
Japan	Ricoh Atsugi Plant	Ricoh Numazu Plant
	Ricoh Gotemba Plant	Ricoh Fukui Plant
	Ricoh Yashiro Plant	Tohoku Ricoh
	Ricoh Logistics System	Tokyo Ricoh
	NBS Ricoh	
Outside Japan	Ricoh Industrie France	Ricoh Australia
	Lanier Switzerland	

Environmental Web Site

Ricoh's environmental web site focuses on visibility, simplicity, and user-friendliness so that visitors can easily find the information they want, including the latest news and information on products covered by the Law Concerning the Promotion of the Procurement of Enviromentally Conscious Goods and Services by the State and Other Entities (Law on Promoting Green Purchasing). In fiscal 2003, Ricoh was chosen as a recipient of an Eco Web Prize by the general public. On the ECO TODAY web site for children, a section called the Tempel-Tuttle Story is set up. In it, forest ecosystem conservation activities are explained in an easy-to-understand way, using examples from China, Brunei, Malaysia, and Japan, and children can learn about environmental problems through quizzes and games. Ricoh's environmental web site was awarded the 2003 Environment Goo Award from Japan's largest environmental information web site, Environment Goo.

http://www.ricoh.co.jp/ecology/ecotoday/index_e.html

Environmental Advertisements

Ricoh produces environmental advertisements to inform persons in charge of environmental conservation at government organizations and business enterprises, citizens, and other stakeholders of its activities and concepts.

Advertisement of green procurement (Nikkei Ecology)

Advertisement of forest ecosystem conservation activities (National Geographic)

Advertisement of energy conservation technology (Nikkei Business)

Exhibitions

In December 2003, Ricoh participated in a general environmental exhibition titled Eco Products 2003 held at Tokyo Big Sight. Under the theme “Toward Competitive Sustainable Environmental Management,” Ricoh introduced the expertise obtained from past activities, eco-friendly products such as the Aficio 2075 series that were developed with state-of-art energy conservation technology, those technologies and parts that were developed under green partnership with suppliers, a printer delivery system with less waste, and the rewriting technology currently under development. Ricoh thus presented its state-of-the-art eco-technology and the efforts made by all of its employees to realize sustainable environmental management.

Eco Products 2003

Lectures

The top management of the Ricoh Group has actively delivered lectures on the importance of environmental conservation and the concept of sustainable environmental management. In fiscal 2003, as an enterprise that won the WEC Gold Medal, Masamitsu Sakurai, president of the Ricoh, delivered a lecture on the Ricoh Group’s sustainable environmental management at the International Environmental Forum, which was held for the first time in Asia by the World Environment Center (WEC).

Lecture at the International Environmental Forum

Two-Way Communication

To facilitate communication with stakeholders, Ricoh’s plants and offices accept visitors and hold meetings with them. In February 2004, 16 members of the Santama Group, Tokyo Branch of Japan Small and Medium Enterprise Management Consultants Association, visited Ricoh Gotemba Plant. They were given a plant tour and had a meeting with the manager and staff of sustainable management. In October 2003, Chief Executive Ernst Ligteringen, Global Reporting Initiative (GRI*) visited the Ricoh Aoyama Office and held a meeting with its staff.

* GRI (headquarters: Amsterdam, the Netherlands): the official organization supporting the United Nations Environment Programme (UNEP). This organization has established international standards for the assessment and reporting of impacts and performances concerning three aspects (environment, corporate social responsibility, and economy) of enterprises (the GRI Guidelines).

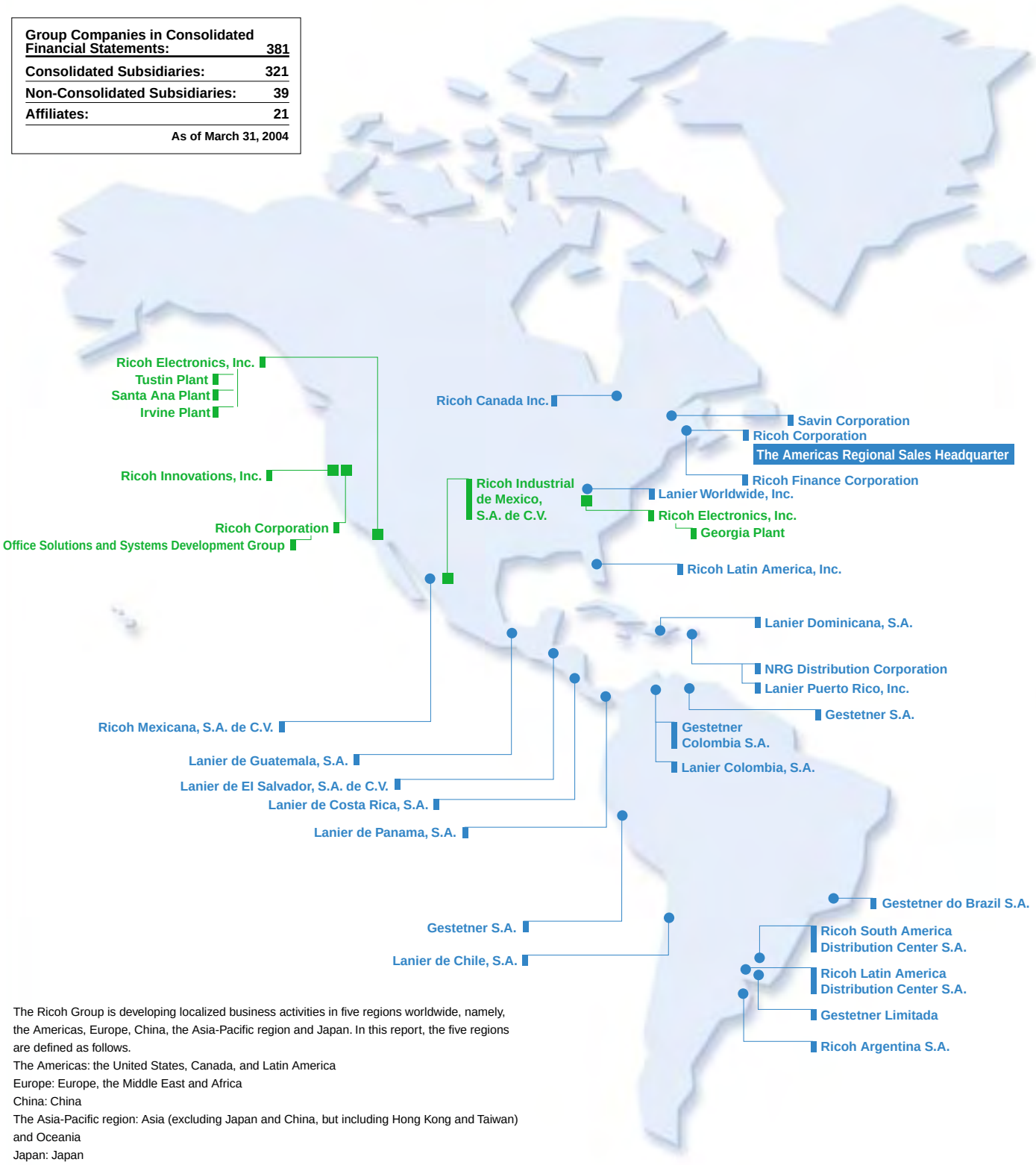
Members of the Santama Group, Tokyo Branch of Japan Small and Medium Enterprise Management Consultants Association visited Ricoh Gotemba Plant.

Meeting with Chief Executive Ernst Ligteringen, Global Reporting Initiative (GRI)

● Marketing and general operations
■ Production and R&D

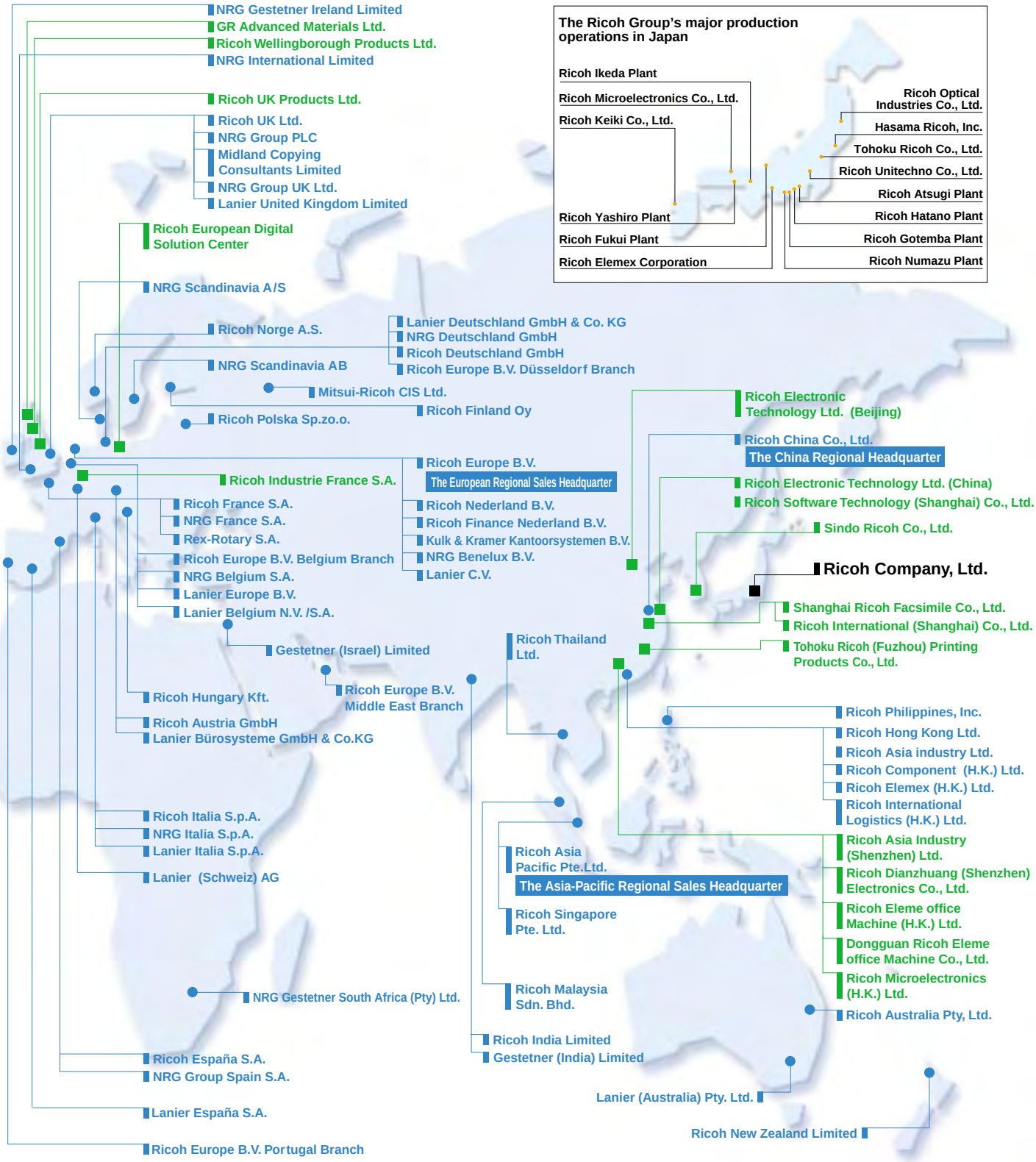
Group Companies in Consolidated Financial Statements:	381
Consolidated Subsidiaries:	321
Non-Consolidated Subsidiaries:	39
Affiliates:	21

As of March 31, 2004



The Ricoh Group is developing localized business activities in five regions worldwide, namely, the Americas, Europe, China, the Asia-Pacific region and Japan. In this report, the five regions are defined as follows.
The Americas: the United States, Canada, and Latin America
Europe: Europe, the Middle East and Africa
China: China
The Asia-Pacific region: Asia (excluding Japan and China, but including Hong Kong and Taiwan) and Oceania
Japan: Japan

* Different from the scope covered by this report. (See page 4.)


NRG Gestetner Ireland Limited
GR Advanced Materials Ltd.
Ricoh Wellingborough Products Ltd.
NRG International Limited
Ricoh UK Products Ltd.
Ricoh UK Ltd.
NRG Group PLC
Midland Copying Consultants Limited
NRG Group UK Ltd.
Lanier United Kingdom Limited
Ricoh European Digital Solution Center
NRG Scandinavia A/S
Ricoh Norge A.S.
NRG Scandinavia AB
Lanier Deutschland GmbH & Co. KG
NRG Deutschland GmbH
Ricoh Deutschland GmbH
Ricoh Europe B.V. Düsseldorf Branch
Mitsui-Ricoh CIS Ltd.
Ricoh Finland Oy
Ricoh Polska Sp.zo.o.
Ricoh Industrie France S.A.
Ricoh Europe B.V.
The European Regional Sales Headquarter
Ricoh France S.A.
NRG France S.A.
Rex-Rotary S.A.
Ricoh Europe B.V. Belgium Branch
NRG Belgium S.A.
Lanier Europe B.V.
Lanier Belgium N.V. /S.A.
Ricoh Nederland B.V.
Ricoh Finance Nederland B.V.
Kulk & Kramer Kantoorsystemen B.V.
NRG Benelux B.V.
Lanier C.V.
Gestetner (Israel) Limited
Ricoh Europe B.V. Middle East Branch
Ricoh Hungary Kft.
Ricoh Austria GmbH
Lanier Bürosysteme GmbH & Co.KG
Ricoh Italia S.p.A.
NRG Italia S.p.A.
Lanier Italia S.p.A.
Lanier (Schweiz) AG
NRG Gestetner South Africa (Pty) Ltd.
Ricoh España S.A.
NRG Group Spain S.A.
Lanier España S.A.
Ricoh Europe B.V. Portugal Branch
Ricoh Thailand Ltd.
Ricoh Asia Pacific Pte.Ltd.
The Asia-Pacific Regional Sales Headquarter
Ricoh Singapore Pte. Ltd.
Ricoh Malaysia Sdn. Bhd.
Ricoh India Limited
Gestetner (India) Limited
Ricoh Electronic Technology Ltd. (Beijing)
Ricoh China Co., Ltd.
The China Regional Headquarter
Ricoh Electronic Technology Ltd. (China)
Ricoh Software Technology (Shanghai) Co., Ltd.
Sindo Ricoh Co., Ltd.
Ricoh Company, Ltd.
Shanghai Ricoh Facsimile Co., Ltd.
Ricoh International (Shanghai) Co., Ltd.
Tohoku Ricoh (Fuzhou) Printing Products Co., Ltd.
Ricoh Philippines, Inc.
Ricoh Hong Kong Ltd.
Ricoh Asia industry Ltd.
Ricoh Component (H.K.) Ltd.
Ricoh Elemex (H.K.) Ltd.
Ricoh International Logistics (H.K.) Ltd.
Ricoh Asia Industry (Shenzhen) Ltd.
Ricoh Dianzhuang (Shenzhen) Electronics Co., Ltd.
Ricoh Eleme office Machine (H.K.) Ltd.
Dongguan Ricoh Eleme office Machine Co., Ltd.
Ricoh Microelectronics (H.K.) Ltd.
Ricoh Australia Pty, Ltd.
Lanier (Australia) Pty. Ltd.
Ricoh New Zealand Limited
The Ricoh Group's major production operations in Japan
Ricoh Ikeda Plant
Ricoh Microelectronics Co., Ltd.
Ricoh Keiki Co., Ltd.
Ricoh Yashiro Plant
Ricoh Fukui Plant
Ricoh Elemex Corporation
Ricoh Optical Industries Co., Ltd.
Hasama Ricoh, Inc.
Tohoku Ricoh Co., Ltd.
Ricoh Unitechno Co., Ltd.
Ricoh Atsugi Plant
Ricoh Hatano Plant
Ricoh Gotemba Plant
Ricoh Numazu Plant

Ricoh's Business Sites	Site (Resource Conservation and Recycling) (See pages 57 and 58.) Waste recovery rate (%)	Total waste amount produced (t)[1]	Total waste discharge amount (t)[2]	Final waste disposal amount (t)	Water consumption (1,000 tons)
Atsugi Plant—Office equipment and other products 1005 Shimo-Ogino, Atsugi, Kanagawa 243-0298, Japan	100	835	814	0.0	112
Hatano Plant—Printed circuit boards and electronic components 423 Hirasawa, Hadano, Kanagawa 257-8586, Japan	100	177	177	0.0	15
Numazu Plant—Supplies 16-1 Honda-machi, Numazu, Shizuoka 410-8505, Japan	100	8,418	3,831	0.0	2,062
Gotemba Plant—Copiers, fax machines, and data processing systems 1-10 Komakado, Gotemba, Shizuoka 412-0038, Japan	100	1,534	1,526	0.0	57
Fukui Plant—Supplies 64-1 Ohmi, Sakai-cho, Sakai-gun, Fukui 919-0547, Japan	100	8,410	2,103	0.0	179
Ikeda Plant—Electronic devices 13-1 Himemuro-cho, Ikeda, Osaka 563-8501, Japan	100	161	154	0.0	166
Yashiro Plant—Electronic devices 30-1 Saho, Yashiro-cho, Kato-gun, Hyogo 673-1447, Japan	100	467	467	0.0	148
Non-production sites	99.2	1,991	1,975	15.1	194
Total	99.9	21,993	11,048	15.1	2,932
The Ricoh Group's Manufacturing Subsidiaries in Japan					
Tohoku Ricoh Co., Ltd.—Office equipment and parts for copiers 3-1 Shinmeido, Nakanomyo, Shibata-machi, Shibata-gun, Miyagi 989-1695, Japan	100	1,766	1,766	0.0	146
Hasama Ricoh, Inc.—Parts for copiers and data processing equipment 86 Aza-Kitasanden, Sanuma, Hasama-cho, Tome-gun, Miyagi 987-0511, Japan	100	2,042	2,042	0.0	8
Ricoh Unitechno Co., Ltd.—Fax machines, copiers, and microfilm equipment 713 Tsurugasone, Yashio, Saitama 340-0802, Japan	100	375	375	0.0	12
Ricoh Optical Industries Co., Ltd.—Photographic equipment 10-109 Ohata, Hanamaki, Iwate 025-0303, Japan	100	766	766	0.0	55
Ricoh Keiki Co., Ltd.—Parts for copiers and data processing equipment 3144-1 Aza-Ipponguri, Shimoizumi, Kuboizumi-machi, Saga 849-0903, Japan	100	150	150	0.0	4
Ricoh Microelectronics Co., Ltd.—Printed circuit boards 10-3 Kitamura, Tottori, Tottori 680-0911, Japan	100	520	520	0.0	17
Ricoh Elemex Corporation—Office equipment, clocks, watches, and educational equipment 2-14-29 Uchiyama, Chikusa-ku, Nagoya, Aichi 464-0075, Japan **Ena Plant** 1218-2 Nakano, Nagashima-cho, Ena, Gifu 509-7205, Japan **Okazaki Plant** 3-69 Ida-cho, Okazaki, Aichi 444-8586, Japan	100	777	777	0.0	108
Total	100	6,396	6,396	0.0	349
The Ricoh Group's Manufacturing Subsidiaries outside Japan					
Ricoh Electronics, Inc. (REI)—Office equipment and supplies One Ricoh Square, 1100 Valencia Avenue, Tustin, CA 92780, U.S.A.	99.8	7,910	7,910	17.3[4]	160
Ricoh UK Products Ltd. (RPL)—Office equipment and supplies Priorslee, Telford, Shropshire TF2 9NS, U.K.	100	1,247	1,247	0.0	28
Ricoh Industrie France S.A.S. (RIF)—Office equipment and supplies 144, Route de Rouffach 68920, Wettolsheim, France	100	6,952	6,952	0.0	73
Ricoh Asia Industry S.Z. Ltd. (RAI)—Copiers Color TV Industrial Zone, Futian District, Shenzhen, P.R. China	100	1,441	1,441	0.0	162
Taiwan Ricoh Co., Ltd.—Photographic equipment 34 Lane 200, Jwu Her Road, Fuh Shing Li, Chang Hwa, Taiwan	100	78	78	0.0	22
Total	99.9	17,628	17,628	17.3	445

1. **Total waste generation**: the amount of waste generated.
When waste is generated after waste reduction processing during manufacturing, the total waste generation amount means the amount of waste at the point of generation. When waste is processed after manufacturing at a facility in a business site, the total waste generation amount means the amount of waste prior to waste processing.
2. **Total waste discharge**: the amount of waste discharged outside business sites. This includes residual waste after the intermediate processing of waste at business sites.
3. **The Ricoh Group's target substances for reduction**: PRTR substances designated by four Electric & Electronic Industries Associations in Japan between fiscal 1998 and 2000. The figures are indicators multiplied by the environmental impact potential. (See page 61.)

Sites (Preventing Global Warming) (See pages 53 and 54)		Sites (Pollution Prevention) (See pages 61 and 62)				
Energy consumption		Emissions into air (NOx) (t)	Emissions into air (SOx) (t)	Water discharge (BOD) (t)	'Ricoh target substances for reduction' used[3] (t)	'Ricoh target substances for reduction' discharged[3] (t)
($t\text{-}CO_2$)	(TJ)					
13,366	330.1	1.765	0.031	1.471	100.0	9.3
1,388	37.0	0.032	0.000	0.468	203.9	3.6
34,115	754.5	17.614	0.000	3.264	12,885.6	3,889.7
2,975	68.3	0.719	0.020	0.037	0.0	0.0
21,520	455.1	6.879	0.128	1.030	8,763.4	622.9
9,925	257.1	1.583	0.000	0.531	152.5	96.7
27,105	704.5	3.177	0.021	0.512	449.8	270.9
20,215	504.8	3.353	0.173	0.109	9.6	0.0
130,609	3,111.5	35.122	0.373	7.422	22,564.8	4,893.1
10,412	229.8	3.173	2.112	6.562	1,661.3	376.0
1,737	41.3	0.262	0.171	0.083	37.9	32.2
1,165	30.3	0.121	0.000	0.030	21.5	21.5
7,258	169.7	1.482	0.967	0.284	87.1	9.8
795	21.7	0.000	0.000	0.000	169.7	0.3
2,921	73.9	0.338	2.318	0.164	154.0	0.9
6,353	148.0	0.595	0.005	0.168	284.2	75.7
30,642	714.9	5.971	5.573	7.291	2,415.7	516.4
41,794	377.0	9.969	0.000	2.362	714.0	11.5
10,130	108.3	1.519	0.000	0.000	646.3	517.0
8,800	268.1	6.298	0.000	4.020	9.8	0.5
13,195	72.6	0.377	0.272	10.874	0.0	0.0
1,271	9.0	0.018	0.005	0.040	18.1	0.0
75,190	835.0	18.181	0.277	17.296	1,388.2	529.1

4. REI couldn't maintain Zero-Waste-to-Landfill because 17.3 tons of waste was landfilled due to inadequate control by a recycling company. The recycling company then implemented preventive measures such as clarification of the workflow and education for workers.

* Data for Taiwan Ricoh is only for the first half of fiscal 2003.
(Shares in this company held by the Ricoh Group were transferred to third parties in December 2003.)

■ 1976–March 2003

	The Ricoh Group's Major Activities	Society's Recognition of the Ricoh Group's Major Activities	Worldwide Trends
1976	Establishes Environmental Promotion Section		1971 Environment Agency set up Ramsar Convention adopted
1990 December	Sets up Environmental Administration Office		1977 United Nations Conference on Desertification held UNEP Conference held
1992 February	Establishes Ricoh General Principles on the Environment		1987 Montreal Protocol adopted
March	FT5570 copier awarded the BAM (initial version)		1990 London meeting (set phaseout of CFCs and HCFCs)
1993 March	Ricoh achieves total elimination of ozone-depleting substances (specific chlorofluorocarbons (CFCs), specific types of halon, carbon tetrachloride, etc.).	1993 May Ricoh UK Products' copier photosensitive drum recycling technology receives the Queen's Award in the U.K.	1991 Recovered Resource Use Promotion Law enacted
May	Announces the recycled product design basic policy and implements recyclable design level 1	September Ricoh UK Products' power consumption reduction activities receive Business Energy Awards Grand Prize.	1992 UN Conference on Environment and Development (Earth Summit) held
May	Launches materials labeling on plastic parts		1993 Energy Saving Law revised
December	The Ricoh Group achieves total elimination of ozone-depleting substances (specific chlorofluorocarbons (CFCs), specific types of halon, carbon tetrachloride, etc.).		1995 The First Conference of Parties to the United Nations Framework Convention on Climate Change (COP1) held Law for Promotion of Sorted Collection and Recycling of Containers and Packaging enforced International Energy Star Program started
1994 August	Completes the Comet Circle concept	1994 May Ricoh UK Products' copier photoconductor drum recycling technology receives the European Better Environment Award for Industry.	
November	Implements labeling of materials and grade on plastic parts		
1995 February	Holds First Ricoh Company Environment Conference	1995 March Ricoh receives the Minister of International Trade and Industry Prize in resource-recovery development projects for its efforts in environment-conscious product assessment and recyclable designs.	
October	Announces International Energy Star certified products		
December	Ricoh Gotemba Plant acquires ISO 14001 certification (the first certification given by a Japanese certification organization).		
1996 July	Ricoh UK Products acquires BS 7750/ISO 14001 certification.		1996 ISO Environmental Auditing Standards of Environmental Management System established International Energy Star Award launched by EPA
1997 March	Sets management of 79 types of chemical substances	1997 March Ricoh Corporation (the U.S.A.) wins Energy Star Copier Prize.	1997 COP3 (Kyoto Conference) held Kyoto Protocol adopted
1998 April	Ricoh establishes the Recycling Division.	1998 December Ricoh ranked number one in the Second Corporate Environmental Management Level Survey by the *Nihon Keizai Shimbun* newspaper.	1998 Eco Partnership Tokyo Conference held Law concerning the Promotion of Measures to Cope with Global Warming enacted
May	Issues the *Ricoh Group Green Procurement Guidelines*		
October	Ricoh Fukui Plant achieves a 100% resource recovery rate (Zero-Waste-to-Landfill).		
1999 January	Issues the *Ricoh Group Environmental Report 1998*	1999 November Ricoh wins the IEA Demand-Side Management Award of Excellence in the recently created Copier of the Future Division for its energy-saving technology.	1999 Revised Energy Saving Law enforced PRTR Law enacted
September	Ricoh announces results of its first environmental accounting.		
2000 January	Ricoh acquires Eco-Mark certification for 28 copier models.	2000 March Ricoh Corporation receives three awards from the Energy Star Program: 1) 2000 Energy Star Excellence in Consumer Education Award, 2) Labeling Partners of the Year Award, and 3) Office Equipment Partner of the Year Award (for the fifth consecutive year, the Energy Star Award).	2000 Law Concerning the Promotion of the Procurement of Eco-Friendly Goods and Services by the State and Other Entities promulgated Basic Law for Establishing a Recycling-Based Society enacted Waste Management and Public Cleansing Law revised Law for the Promotion of Utilization of Recyclable Resources enacted
February	Ricoh's digital multifunctional copier, the imagio MF6550, acquires Type III Environmental Impact Disclosure from BVQI (Sweden).		
March	Holds the 1st Global Recycling Conference		
		June Ricoh wins Grand Prize in the 10th Corporate Contribution to Society Awards organized by the Asahi Shimbun Foundation.	
		December Ricoh ranks first for the third year in a row in the 4th Corporate Environmental Management Level Survey organized by the *Nihon Keizai Shimbun*.	
2001 July	Ricoh announces its participation in e-mission 55.	2001 July Ricoh receives the highest eco-rating of AAA in the photographic and office equipment categories from Innovest Strategic Value Advisors, a U.S.A. investment research company, and ranked first among nominees.	
December	imagio MF6550RC, an environmentally conscious digital copier, is marketed for rental use.	December In a survey conducted by the Financial Times, a U.K. business newspaper, Ricoh is chosen by global CEOs as the world's seventh most respected company in the "most environment-conscious" category.	2001 Ministry of the Environment (Japan) established The first Conference on the Creation of Wa no Kuni held Law for Recycling of Specified Kinds of Home Appliances enacted Law Concerning the Promotion of the Procurement of Eco-Friendly Goods and Services by the State and Other Entities enacted
2002 January	The first Ricoh Green Procurement Meeting is held.		
March	The Ricoh Group's main production sites in the world achieve a 100% resource recovery rate (Zero-Waste-to-Landfill).	2002 February Ricoh President Masamitsu Sakurai receives the 22nd Mainichi Economic Management Award.	
April	Ricoh announces its participation in the UN Global Compact.	May Ricoh ranks first in the world in environmental and social/cultural aspects for office equipment and home appliances in the corporate responsibility rating conducted by Ökom GmbH (Germany) .	
September	Ricoh system acquires Type III Eco-Label certification from the Japan Environmental Management Association for Industry (JEMAI).	August Ricoh wins an award of excellence at the 18th Corporate Public Relations Awards.	
November	The Noise Testing Center of Ricoh Omori Plant acquires ISO/IEC17025 certification from the NIST (the U.S.).		
December	The Ricoh Group implements the first commendation of the Ricoh Sustainable Development Award.		2001 COP7 held 2002 The World Summit on Sustainable Development (Johannesburg Summit) held
2003 January	Ricoh establishes the Corporate Social Responsibility (CSR) Division.	2003 February The imagio MF6550RC, a recycled digital copier, wins the award of excellence and the Nikkei Sangyo Shimbun Award from the 2002 Nikkei Superior Product and Service Awards.	2003 The EU Directive on Waste Electrical and Electronic Equipment (WEEE) comes into effect. The EU Directive on the Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) comes into effect.

* For details, see Ricoh's web site. (http://www.ricoh.com/environment/global/index.html)

■ Fiscal 2003 (from April 2003 to March 2004)

The Ricoh Group's Activities

2003 April	Holds the 13th Ricoh Nature Seminar
April	Yokohama Training Center, Ricoh Human Creates Co., Ltd. acquires ISO 14001 certification.
April	Lanier Espana S.A.U. acquires ISO 14001 certification.
April	Ricoh installs a neon sign fully powered by natural energy in Osaka.
May	Kakegawa office of Shizuoka Ricoh Co., Ltd. and Kakegawa Service Station of Ricoh Technosystems Shizuoka service station are recognized as No.1 and No.2 advanced establishments, respectively, in the field of waste reduction and recycling by Kakegawa, Shizuoka Prefecture.
June	Ricoh Group's second parent-child nature school held
June	Ricoh establishes environmental regulations for paper products.
June	The third environment month commemorative seminar held
June	The Ricoh Group issues *Sustainability Report 2003*.
July	The first Global Recycle Technical Meeting held
July	Eight Nagoya city establishments of the Chubu Branch of Ricoh Technosystems CO., Ltd. are recognized as "eco establishments" by Nagoya, Aichi Prefecture.
August	The imagio Neo 352/452/221/271 series equipped with QSU energy conservation technology introduced
August	The 12th Ricoh Company Meetings for Environmental Volunteer Leaders held
August	Ricoh Group holds the third parent-child nature school
August	Ricoh holds Green Procurement Fair 2003.
August	Aficio 2035/2045 wins Hungary's first Type I Eco-Label for office equipment.
September	The Ricoh Group issues the English version of the *Sustainability Report 2003*.
September	The second Ricoh Forest Seminar (Nature Seminar) held
September	Nagano Ricoh wins Nagano Eco Circle gold rating from Nagano city under their ecology certification system.
September	Ricoh and IBM Japan co-sponsor the Asia-Pacific round of 2003 WEC IEF, organized by the World Environmental Center (WEC).
September	Ricoh Engineering acquires ISO 14001 certification.
October	The 3rd Ricoh Nature Seminar Intermediary Course held
October	The 14th Ricoh Nature Seminar held
November	Eco Collaboration Web Access application package introduced
November	Ricoh co-sponsors G-ForSE2003, jointly organized by the United Nations Environment Programme (UNEP) and the Global Sports Alliance (GSA).
November	imagio MF5570RC/MF7070RC environmentally conscious multifunctional digital copiers introduced
November	The 2nd Environmental Site Report Information Exchange Meeting held
December	Participates in Eco Products 2003
December	The 13th Ricoh Company Meetings for Environmental Volunteer Leaders held
2004 January	Ricoh implements Ricoh Group's Code of Conduct and Ricoh Group's CSR Charter.
January	Ricoh Asia Pacific Pte Ltd. (Singapore) acquires ISO 14001 certification.
January	Suzuka local office attached to Yokkaichi office of Ricoh Technosystems' Chubu Branch is recognized as "eco establishment" by Suzuka, Mie Prefecture.
January	The 15th Ricoh Nature Seminar held
February	imagio Neo 752 equipped with energy conservation technology HYBRID QSU and imagio Neo 602 equipped with QSU energy conservation technology introduced
February	Toyama office of Ricoh Technosystems CO., Ltd.'s Chubu Branch is recognized as "eco establishment" by Toyama Prefecture.
February	The 10th Ricoh Group Environmental Conference held
February	Saga Ricoh is recognized as "eco shop" by Saga Prefecture.
February	The 3rd Ricoh Group Green Procurement Conference held
February	IPSiO G707/G505 GEL JET Printer equipped with high-speed duplex function introduced
March	The 9th International Procurement Conference held
March	The 14th Ricoh Company Meetings for Environmental Volunteer Leaders held
March	Ricoh Group's fourth parent-child nature school held

Society's Recognition of the Ricoh Group's Activities

2003 April	Ricoh receives the Grand Prize of the 12th Global Environment Awards.
May	Ricoh receives the 2003 WEC Gold Medal.
May	Ricoh receives the Grand Prize and Sustainable Web Site Prize of the 3rd Annual ECO-Web Awards from Ecology Symphony.
May	Ricoh Elemex Corporation's Okazaki Plant receives a letter of appreciation from Okazaki, Aichi Prefecture for its social contribution.
June	Ricoh's Research and Development Division wins a superiority award from the 30th Environmental Awards, which is sponsored jointly by the Hitachi Environment Foundation and the Nikkan Kogyo Shimbun, Ltd. and assisted by the Ministry of the Environment.
June	The Ricoh Group's *Sustainability Report 2002* receives the Consistent Performance Prize at the 6th Green Reporting Awards in 2003.
June	Ricoh Fukui Plant's fiscal 2002 environmental report wins the Prize for Site Reports at the 6th Green Reporting Awards 2003.
October	Ricoh UK Products receives the Grand Prize in the UK Excellence Awards CSR Division.
October	Ricoh's neon sign powered by natural energy receives the fiscal 2003 Good Design Prize.
October	NRG Italia receives the Special Prize from the 6th Eco High-Tech Awards, sponsored by the Italian Ministry of Environment and other organizations.
November	Ricoh receives Minister for Economy, Trade and Industry Award in the 6th Green Purchasing Awards.
November	"ECO TODAY" environmental web site for children receives an Award of Excellence in the 2003 Environment Goo Awards.
2004 February	imagio Neo 752/602 series receives the Energy Conservation Center Chairman's Prize in the 14th Energy-Saving Awards.
February	Ricoh Unitechno receives the "Director-General of the Agency of Natural Resources and Energy Award for Excellent Energy Management Plant" for electric divisions at the fiscal 2003 Energy Conservation Month Commendation Ceremony.
February	Ricoh Chubu Sales Group receives the Nice Assistance Award (Aichi Prefecture) in the One More Life Employee Volunteer Awards from the Ministry of Health, Labor and Welfare for its "Green Promotion" local environmental conservation project.
March	The Ricoh Group wins "AA" for environment rating from the Tohmatsu Evaluation and Certification Organization.
March	Ricoh receives the Amateur Judge Prize in the 4th Annual ECO-Web Awards from Ecology Symphony.

Subsequent Events

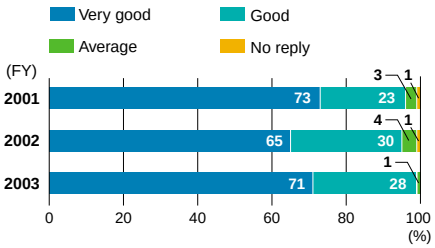
May	The Ricoh Group's *Sustainability Report 2003* receives the Consistent Performance Prize at the Seventh Green Reporting Awards 2004 (three years in a row).
May	Ricoh Fukui Plant's fiscal 2003 environmental report wins the Prize for Site Reports at the Seventh Green Reporting Awards 2004 (four years in a row).

Responses to the Questionnaire for Ricoh Group Sustainability Report 2003

21,045 copies of the Japanese version report were distributed and 122 readers answered the questionnaire as of the end of April 2004. The main responses are as follows.

■ Responses to the Questionnaire

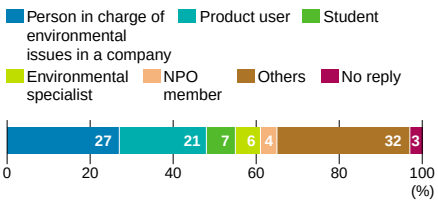
1. How would you rank the Ricoh Group's environmental conservation activities that are described in the report?



2. Which section(s) of the report were you most interested in?

1st	Social Contribution Activities
2nd	Environmental Accounting
3rd	Three P's Balance
4th	Development of Eco-Conscious Technologies and Products
4th	Sustainability Chart
6th	Production (Resource Conservation and Recycling)
6th	Achievements in fiscal 2002

3. In what capacity did you read this report?



■ Some of the opinions from the Ricoh Group Sustainability Report 2003 and improvements in the 2004 report

○ Every year, I take pleasure in reading your sustainability report. I am deeply impressed with your company's commitments, including those of your President, stated in the report. I would like to use the report as a reference book on environmental conservation.

○ Every year, I am surprised with the volume of the report. If an index were made, the report would be easier to read.

▶ An index by term is provided on the right page.

○ The development of eco-conscious technologies and products development is excellently presented.

○ It is easy to read, as your statements are described in the first half and information is presented in the second half. The 2003 report is a significant improvement over the 2002 report.

▶ The concepts of sustainable environmental management and supporting mechanisms are mentioned in the first half, and data and actual cases for each product and business site are described in the second half. In addition, the FOCUS section is provided to explain themes of primary concern in society and activities unique to the Ricoh Group in detail.
(See pages 21, 51 and 59.)

○ I would like to recommend that plans and performance be compared and future plans be mentioned.

▶ In the 2004 report, basic concepts, targets for fiscal 2004, review of fiscal 2003, and future activities are described at the beginning of each section for products and business sites.
(See pages 39, 43, 48, 53, 57, 61 and 62.)

○ If you have mid- and long-term environmental visions, roadmaps and unique programs, let us know such information.

○ It would be a better approach if permissible emissions were computed based on the maximum regeneration level of the earth and emissions were controlled within the level.

▶ Our Year 2010 Long-Term Environmental Goals are explained. We will draw up an ideal level at first, and then establish targets to achieve the level.
(See page 13.)

○ I am interested in the transportation section. I believe that manufacturers should pay more attention to the environmental impact caused by the transportation process.

▶ Cases of modal shift are mentioned in the recycling-based logistics section.
(See page 56.)

○ I am impressed by the section on pollution of soil and underground water. The results of your investigation are important.

○ I highly appreciate your approach, in that information unfavorable to your company is also reported.

○ I highly appreciate your company's stance that information, whether favorable or unfavorable, be disclosed in good faith.

▶ Although information was disclosed only for domestic activities in the 2003 report, information is now disclosed even for overseas activities. This 2004 report discloses all of the results of investigations for overseas activities and the names of domestic business sites that have caused pollution in the past. All relevant information, including information on domestic business sites without a record of pollution, is disclosed on our web site.
(See pages 63 and 64.)

http://www.ricoh.com/environment/data/survey.html

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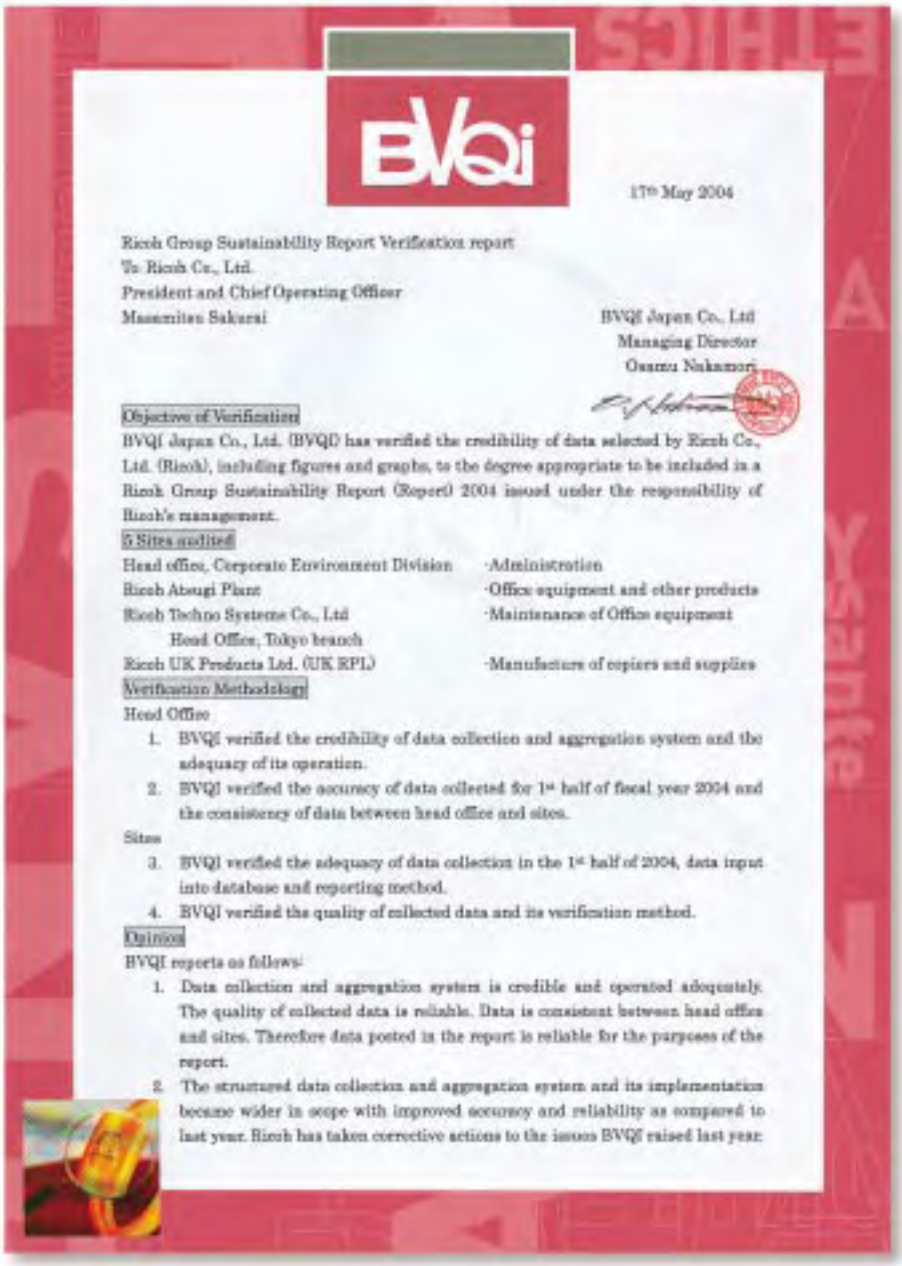
For the purpose of disclosing more reliable information, the Ricoh Group receives a third-party review of environmental impact data and environmental accounting data. The results of this review are provided to stakeholders in the sustainability report (Environment). To improve sustainable environmental management, the scope of application of the sustainable environmental management information system was expanded and other improvements were made through examining the results of the review. As a result, the 2004 report obtained a higher rating than before. The Ricoh Group continues to promote sustainable environmental management by effectively making use of third-party reviews.



17th May 2004

Ricoh Group Sustainability Report Verification report
To: Ricoh Co., Ltd.
President and Chief Operating Officer
Masamitsu Sakurai

BVQI Japan Co., Ltd
Managing Director
Osamu Nakamori

Objective of Verification
BVQI Japan Co., Ltd. (BVQI) has verified the credibility of data selected by Ricoh Co., Ltd. (Ricoh), including figures and graphs, to the degree appropriate to be included in a Ricoh Group Sustainability Report (Report) 2004 issued under the responsibility of Ricoh's management.

5 Sites audited

Head office, Corporate Environment Division	-Administration
Ricoh Atsugi Plant	-Office equipment and other products
Ricoh Techno Systems Co., Ltd Head Office, Tokyo branch	-Maintenance of Office equipment
Ricoh UK Products Ltd. (UK RPL)	-Manufacture of copiers and supplies

Verification Methodology
Head Office
1. BVQI verified the credibility of data collection and aggregation system and the adequacy of its operation.
2. BVQI verified the accuracy of data collected for 1st half of fiscal year 2004 and the consistency of data between head office and sites.

Sites
3. BVQI verified the adequacy of data collection in the 1st half of 2004, data input into database and reporting method.
4. BVQI verified the quality of collected data and its verification method.

Opinion
BVQI reports as follows:
1. Data collection and aggregation system is credible and operated adequately. The quality of collected data is reliable. Data is consistent between head office and sites. Therefore data posted in the report is reliable for the purposes of the report.
2. The structured data collection and aggregation system and its implementation became wider in scope with improved accuracy and reliability as compared to last year. Ricoh has taken corrective actions to the issues BVQI raised last year.

Reference View (whole statement)

BVQI has reported many findings and opinions regarding environmental activity at the head office site level through the data verification process. BVQI has concluded the following:

1. Environmental Impact Information System (EIIS)

Most of the data were collected and aggregated through the Environmental Impact Information System. Therefore, reliability of data has been improved. Ricoh Group non-manufacturing companies in Japan and oversea's manufacturing sites partly use Excel spreadsheet to collate data and report to head office. BVQI observed improvements on the system itself and its implementation as follows:

- Scope expansion of EIIS to oversea's manufacturing sites
  Ricoh Electronics, Inc. (REI in U.S.A.) started application of EIIS as from beginning of fiscal year 2003, Ricoh UK Products Ltd. (RPL) and Ricoh Industries France S.A.S. (RIF) as from second half of fiscal year 2003.
- Data collection, aggregation and reporting to Head office, Corporate Environment Division by designated person at each site
- Data review by person in charge at head office

As a result reliability of data aggregation has been improved as compared to that of last year. However, miscalculation in aggregation and mis-data input into data bases has been observed, although these did not affect the purpose and gist of the report. BVQI observed slight data differences between Head office, the Corporate Environment Division and sites due to no clear rule on rounding figures.

[Issues to be addressed]

- Setting up rules on rounding figures
- Reduction on manual aggregation and manual input

2. Greenhouse Gas (CO_2) emission

Calculation methodology for CO_2 emission has been clearly stipulated. Sites report raw data to head office with amount consumed—such as Kiloliters—and Head office converts into CO_2 using coefficient.

3. Environmental Accounting

The designated person who collects and books environmental accounting data clearly understands Ricoh Environmental Accounting guidelines and books appropriately. Head office feedbacks needed information by site. Site comparison tables are created to overview overall activity. Assumption used on identification of economic benefits and cost allocation is used as individual knowledge. This should be shared and recorded for accountability.

[Issues to be addressed]

- Promotion of record and share of assumption used

4. Improvement practice in 2003

It is highly valued that environmental impact reduction activity has been on line toward the goals of 2003

- Energy consumption and CO_2 emission reduction through product LCA
- Total amount of waste generated, discharged, and resource recovery rate of waste
- Styrene, Ozone and dust emission from products in use
- Expansion of Green purchasing in items and amount
- Purification of soil and underground water polluted with chloric organic solvent

5. Internal review

As a corrective action to the issues raised last year, data has been reviewed at head office. However mistakes occurred again after the head office review. This needs further consideration.

[Issues to be addressed]

- Identification of root cause and system review

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