

## Achievements in Fiscal 2002

To promote the kind of environmental management that ensures environmental conservation and profitability at the same time, the Ricoh Group continuously makes improvements to the basic environmental management system, develops environmental technologies, and encourages all employees to participate in sustainable management, environmental accounting<sup>1</sup>, and social contribution activities<sup>2</sup>. In addition, the Group places importance on the evaluation of its activities by society at large. The following shows the Group's major environmental achievements in fiscal 2002.

1. See page 29 for environmental accounting.

2. See page 63 for social contribution activities aimed at the environment.

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### Basic System for Sustainable Management

To encourage the development of environmental technologies and environmental management activities as a global company, we have established an award for sustainable management activities.

#### Award to promote sustainable management (International)

In fiscal 2002, we established an award to promote sustainable management on a groupwide scale. This award is subdivided into the development of environmental technologies and activities that promote environmental management carried out by all employees on a daily basis. Candidates for the awards are judged based on the environmental conservation effects and economic benefits of their activities. In fiscal 2002, Electronic Devices Company and NRG Benelux B.V. each received an award for developing analog one-chip LSI's for cellular phones<sup>1</sup> and setting up a copier recycling business<sup>2</sup>, respectively.

1. See page 40.

2. See page 61.

We are building a system to evaluate and promote sustainable management all over the world.

#### Developing a sustainability self-assessment program (Europe)

Ricoh Europe B.V., the regional sales headquarters for Europe, developed a sustainability self-assessment program as a tool to evaluate the present level of its sustainable management and propose the required improvements in a clear manner in order to achieve highly sustainable management. This program rates the company's activities (up to 1,000 points) in 11 areas, including the company's environmental management system, collection and recycling, energy conservation, and corporate social responsibilities, etc. The program also rates the comprehensive values of such activities in terms of environmental accounting and corporate image. All items used in the rating can be determined in absolute rather than relative terms. By March 2003, Ricoh UK Ltd., Ricoh Deutschland GmbH, Ricoh France S.A., Ricoh Italia S.p.A., and the head office of the NRG Group followed Ricoh Europe B.V. and implemented the same sustainability self-assessment programs.

#### Evaluation of environmental management (Asia-Pacific region)

Ricoh Asia Pacific Pte. Ltd., the regional sales headquarters for the Asia-Pacific region, started evaluating the environmental management of all sales companies under its supervision (i.e., Ricoh Australia Pty. Ltd.; Ricoh New Zealand Limited; Ricoh Singapore Pte. Ltd.; Ricoh Thailand Co., Ltd.; Ricoh Malaysia Sdn. Bhd.; and Ricoh Philippines, Inc.) in the first half of fiscal 2002. The following six items are evaluated: the company's environmental action plan, collection, recycling, recovery, PR aimed at customers, and ISO 14001. The companies are notified of their evaluation results in order for them to improve their environmental activities.

## Developing Environmental Technologies and Products

**We are developing products with less environmental impact to be used by our customers.**

### Developing products with high environmental performance based on LCA (International)

The Aficio 2035/2045 (imago Neo351/451) series marketed in March 2003 is based on a life cycle assessment (LCA) to be environment-friendly throughout its life cycle, from manufacturing and use to recycling. Designed to be highly recyclable, the series is manufactured using less lead solder (in its printed circuit boards), less polyvinyl chloride (used in wire coating), and less hexavalent chromium (in steel boards)<sup>1</sup>. Furthermore, the environmental impact caused at the production stage was reduced thanks to the use of the newly developed P × P Toner<sup>2</sup> and toner bottles manufactured using recycled PET bottles for drinks (accounting for 50% of materials used)<sup>3</sup>. Also, to reduce the environmental impact when being used, Ricoh's unique energy conservation technology called QSU<sup>4</sup> was further devel-



Aficio 2035/2045  
(imago Neo351/451)  
(Model 765D equipped with optional functions)

oped to reduce energy consumption. Moreover, the series is equipped with electronic database functions, which contribute to decreasing the amount of paper used<sup>5</sup>. The series easily complies with the International Energy Star Program, Japan's Green Purchasing Law, and Eco Mark standards.

1. See page 43.
2. See page 40.
3. See page 17.
4. Power consumption in energy-saving mode (off mode) is reduced to 4.5 W (compared with 7 W in previous models). See pages 38 and 39 for QSU technology.
5. See page 40.

### Reconditioned digital copiers (Japan)

Following the marketing of the imago MF6550RC (reconditioned digital copier) in fiscal 2001, the imago MF3570RC and imago MF4570RC were offered in fiscal 2002. Ricoh was able to develop a reconditioned digital copier before any of



imago MF4570RC,  
a reconditioned digital copier  
(with optional model 5 attached)

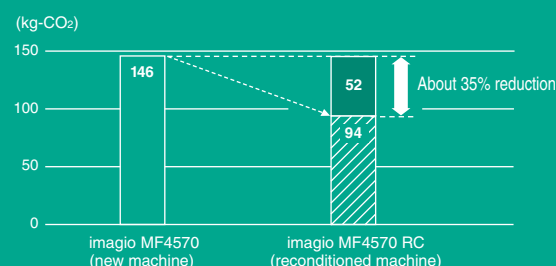
its competitors because it was a leader in digital copier sales and had accumulated extensive know-how and skill in the recycling of analog copiers. Reconditioned digital copiers contain more than 87% (mass ratio) reused parts<sup>1</sup>, the highest in the industry. The environmental impact of the imago MF4570RC over its life cycle is approximately 35%<sup>2</sup> less than its predecessor, which was made of all new parts, in terms of the amount of resources used and energy consumed in manufacturing. The imago MF6550RC received the Good Design Award 2002 and the Nikkei Industrial Daily Award for Excellence (under the Nikkei Product and Service Excellence Prize 2002).

1. Parts that can be used again from collected machines and that have undergone the necessary processing for reuse
2. Based on CO<sub>2</sub> emissions; see graph below.

\* The imago MF6550RC/MF3570RC/MF4570RC are leased only in Japan.

#### LCA Comparison between a New Machine and Reconditioned Machine (CO<sub>2</sub> Emissions)

Reviewed by BVQI (1)



\* A comparison was made by calculating the annual environmental impact of new and reconditioned machines over a five-year period and eight-year period, respectively.

\* Figures for CO<sub>2</sub> emissions while being in operation at customers' sites were not included in the calculation of the data.

**Ricoh products are useful in reducing environmental impact and have significant economic benefits for the Ricoh Group and its customers.**

### Contributing through energy-saving products (International)

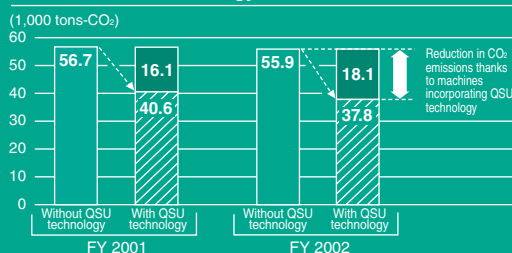
We are aggressively introducing our proprietary energy-saving technology QSU<sup>1</sup> to major models<sup>2</sup> in the hope that more customers will use these models and more effectively reduce their environmental impact. The products marketed by the Ricoh Group in fiscal 2002 contributed more to impact reduction than those marketed in fiscal 2001, resulting in an 18,100-ton reduction in CO<sub>2</sub> emissions per year. The following graph shows CO<sub>2</sub> emissions before and after the introduction of QSU technology. In terms of electricity fees charged to customers, the reduction is equivalent to ¥1,161.6 million in savings. Also, segment environmental accounting shows that QSU technology brought about a profit of ¥2,305 million to the Ricoh Group.

1. See pages 38 and 39.

2. In fiscal 2002, the following products marketed were equipped with QSU technology: the Aficio 1035/1045 (imagic Neo 350/450), Aficio 1022/1027 (imagic Neo 220/270), and Aficio 2035/2045 (imagic Neo 351/451) series (digital multifunctional copiers); the Aficio AP4510 (IPSIO NX920); and the IPSIO NX650S/NX750/NX850 (printers).

#### Reduction in CO<sub>2</sub> Emissions through the Use of QSU Technology

Reviewed by BVQI (2)



\* QSU technology was used only in copiers and multifunctional copiers in fiscal 2001. Because the technology was incorporated in printers in fiscal 2002, the coverage of the survey was expanded.

#### Actual Costs and Effects of Developing QSU Products (Copiers/Printers) (Segment Environmental Accounting)

Costs		
Item	Main costs	Amount
Research and development	Development of energy-saving units	¥400 million
	Molds, Jigs, and Parts	¥458 million
Effects		
Economic benefits		Effect on environmental conservation
Corporate effect	Customer effect	Reduced CO <sub>2</sub> emissions 18,100 tons
Effect on profit ¥2,305.0 million	Reduced electricity expenses ¥1,161.6 million	

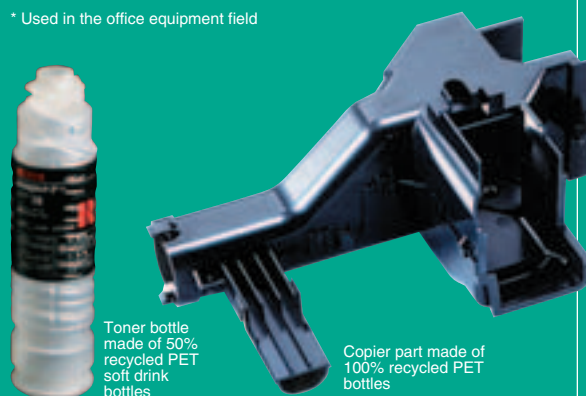
\* Figures for reduced electricity expenses and CO<sub>2</sub> emissions represent the benefits gained for an entire year if the machine is used eight hours a day, 20 days a month. The figure for corporate effect represents the effect on gross margin for fiscal 2002 sales. (See page 30 for the formula used to calculate the effects.)

**We contribute to the development of a society that recirculates resources by partnering with suppliers through green procurement.**

### Recycling waste from other industries

To develop a society that recirculates resources, we need to actively recycle waste from other industries in addition to recycling our own products. Ricoh, in cooperation with Kawaguchi Chemical Industry Co., Ltd., and Kyohei Industry Co., Ltd., developed a toner bottle using recycled PET soft drink bottles (accounting for 50% of materials used) and used it for the Aficio 2035/2045. Furthermore, in the summer of 2003, we will be the first in the world to start using a copier part\* made of 100% recycled PET resin. The part was developed jointly with TOHOKU MUNEKATA CO., LTD., and can be recycled three times without adding virgin materials. Ricoh procured 100 tons of waste PET resin in 2003 and will procure an additional 200 tons in 2004.

\* Used in the office equipment field



### Suspending the use of specified chemical substances (International)

The Ricoh Group will completely suspend the use of lead, hexavalent chromium, polyvinyl chloride, and cadmium in its products by fiscal 2004. To achieve this goal, a database of materials and parts that do not contain such substances was built. The database will help procure materials and parts suitable for designing products with less environmental



Meeting held at RAI to explain the green procurement criteria

impact. In addition, we asked our suppliers to completely suspend their use of prohibited substances and helped them develop parts using alternative materials\*. Since fiscal 2002, the Ricoh Group's suppliers in Japan have been required to submit certificates of the nonuse of prohibited substances for materials and parts to be supplied to the Ricoh Group, and this requirement will be expanded to include suppliers in other countries. Also in fiscal 2002, suppliers in Japan and those of Ricoh Asia Industry (Shenzhen) Ltd. (RAI: a production site in China) and Shanghai Ricoh Facsimile Co., Ltd., (SRF) were targeted, and a meeting was set up to explain the green procurement criteria and encourage suppliers to completely suspend their use of prohibited substances.

\* See page 44.

### Reduction in chemical substances used in color copiers

The Ricoh Group was the first to reduce the use of chemical substances in its products, including black-and-white copiers, color copiers, and multifunctional copiers. The imagio Neo C380, a copier marketed in Japan, is the product to achieve Level A\* (the highest level) in the level of lead free set under the criteria by Japan's Green Purchasing Network for color and multifunctional copiers. Thanks to the reduced use of polyvinyl chloride, the imagio Neo C380 and Aficio 1224C/1232C (imagio Neo C240/320) achieved Level II. Among color copiers, only Ricoh products have achieved Level II.

\* See table on page 43.

## Participation by All Employees

A new loop has been created in the Comet Circle that further promotes the development of a society that recirculates resources through Zero-Waste-to-Landfill activities.

### “From ecosystem to ecosystem”: A new concept (Japan)

At the Ricoh Logistics Center in Gotemba, employees make various proposals for zero waste, including the reuse of polypropylene (PP) bands used in packing. Also, fallen leaves and weeds gathered from the maintenance of the biotope within the center were previously disposed of as general waste but are now used in the center's vegetable garden as leaf soil. In this way (i.e., by returning as much waste



Green areas on the premises of Gotemba Logistics Center

resources as possible to nature), the Center achieved

Zero-Waste-to-Landfill. This new concept, “from ecosystem to ecosystem,” was added to the Comet Circle\* and opens new possibilities in creating a society that recirculates resources. Furthermore, the center is looking into returning some of the wood waste from end-of-use wooden pallets (used to transport goods) to green areas on the premises to shift from the present external recycling to internal recycling. In the future, the center will open the biotope to the general public, providing the company with an opportunity to form a partnership with local residents.

\* See page 11.



## We examine soil and underground water for pollution and promote purification.

The Ricoh Group thinks it important to take care of soil and underground water pollution and is actively taking measures against such pollution. In 1992, we started to examine and purify soil and underground water at our production sites in Japan. 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 chloric 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. In purchasing land, we make it a rule to examine the soil/underground water for pollution as part of our risk management process. Also, we started conducting similar examinations and purification activities outside Japan in 2001.

### Past use of chloric organic solvents and heavy metals and the prevention of pollution caused by these substances

Chloric organic solvents have been used for washing parts since the 1960s. At present, only dichloromethane is used in the manufacturing of photosensitive materials, but it will be discontinued in fiscal 2004. Heavy metals have been used in the coating process, such as soldering, and in the manufacturing of photo-sensitive materials since the 1960s, and they are still used at some of our production sites. Pollution caused by these substances began with their use without sufficient countermeasures. Currently, however, at production sites where dichloromethane and heavy metals are used, antipollution measures are being taken, including the use of waterproof pans and nonpermeable coating to prevent these substances from reaching the soil.

### Examinations and purifications in Japan

We conducted our first examination for chloric organic solvents in 1992 to improve the soil and underground water and have been voluntarily conducting similar examinations ever since, including one based on guidelines published by the former Environment Agency in 1999. For heavy metals, we voluntarily conduct field surveys on our premises and along boundaries that may be polluted, based on the results of examinations on the past use of heavy metals. The table on the opposite



Removing polluted soil (at Ricoh Keiki Co., Ltd.)



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



Pumping water to prevent pollution (at Ricoh Elemex Corporation's Ena Plant)

page shows the results of an underground water examination conducted in April 2003. At the six production sites where pollution was detected (indicated in bold), detailed examinations and purification activities are now conducted. At

all production sites surveyed, including the six sites mentioned above, the use of chloric 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 2002, the Ricoh Group spent approximately ¥820 million on examinations and purification activities in Japan, and starting in fiscal 2003 the Group will spend approximately ¥810 million until the completion of its purification activities.



Municipal government's fact-finding visit (at Ricoh Elemex Co., Ltd.)

### Examinations and purification activities outside Japan

Examinations and purification activities are conducted, starting from production sites that are thought to have a higher possibility of being polluted according to past use of harmful substances. At present, surveys are conducted at Ricoh Electronics, Inc. (U.S.A.); Ricoh UK Products (U.K.); Ricoh Industrie France S.A.(France); Ricoh Asia Industry Ltd. (China); and Taiwan Ricoh Co., Ltd. (Taiwan). At sites where pollution is detected, a report is sent to the municipal government and improvement plans are made and implemented.

## Survey Results of Underground Water Pollution at Ricoh Production Sites and the Ricoh Group's Manufacturing Subsidiaries in Japan (As of April 2003)

Reviewed by BVQI (3)\*

Business Site	Pollutant (Japan's environmental standard)	Survey result	Measures implemented	Remarks
Ricoh Gotemba Plant	Chlorine organic solvents	No history of use	—	
	Heavy metals, etc.	No pollution		
Ricoh Fukui Plant	Chlorine organic solvents	No history of use	—	
	Heavy metals, etc.	No history of use		
Ricoh Yashiro Plant	Chlorine organic solvents	No history of use	—	
	Heavy metals, etc.	No pollution		
Ricoh Ikeda Plant	Chlorine organic solvents	No pollution	—	
	Heavy metals, etc.	No pollution		
Ricoh Atsugi Plant	Chlorine organic solvents	No pollution	—	
	Heavy metals, etc.	No history of use		
Research and Development Center	Chlorine organic solvents	No pollution	—	
	Heavy metals, etc.	No history of use		
Applied Electronics Laboratory	Chlorine organic solvents	No pollution	—	
	Heavy metals, etc.	No history of use		
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 was 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	Cis12 dichloroethylene (0.04 mg/l)	0.17 mg/l	Purification of underground water Neutralization of gas Regular monitoring	Soil was removed.
	Trichloroethylene (0.03 mg/l)	0.19 mg/l		
	Tetrachloroethylene (0.01 mg/l)	0.022 mg/l		
	Heavy metals, etc.	No pollution		
Ricoh Unitechno	Chlorine organic solvents	No history of use	—	
	Heavy metals, etc.	No history of use		
Ricoh Microelectronics	Chlorine organic solvents	No pollution	—	
	Heavy metals, etc.	No pollution		
Hasama Ricoh	Chlorine organic solvents	Cleaning completed	—	Soil was removed.
	Heavy metals, etc.	No pollution		
Ricoh Optical Industries	Chlorine organic solvents	Cleaning completed	Regular monitoring	The purification of underground water was completed. A survey is being conducted on the existence of naturally occurring lead and arsenic.
	Lead (0.01 mg/l)	0.016 mg/l		
	Arsenic (0.01 mg/l)	0.013 mg/l		
Ricoh Keiki	11-dichloroethylene (0.02 mg/l)	0.33 mg/l	Purification of underground water Regular monitoring	Soil was removed.
	Heavy metals, etc.	No pollution		
Tohoku Ricoh	Cis12 dichloroethylene (0.04 mg/l)	1.4 mg/l	Purification of underground water Neutralization of gas Regular monitoring	The purification of underground water was completed. A survey is being conducted on the existence of naturally occurring arsenic.
	Trichloroethylene (0.03 mg/l)	0.83 mg/l		
	Tetrachloroethylene (0.01 mg/l)	0.43 mg/l		
	Arsenic (0.01 mg/l)	0.013 mg/l		
Ricoh Elemex, Ena Plant	Trichloroethylene (0.03 mg/l)	55 mg/l	Containment and purification of underground water Purification of underground water Neutralization of gas Regular monitoring	
	Cis12 dichloroethylene (0.04 mg/l)	0.47 mg/l		
	Heavy metals, etc.	No pollution		
Ricoh Elemex, Okazaki Plant	Trichloroethylene (0.03 mg/l)	13 mg/l	Containment and purification of underground water Purification of underground water Regular monitoring	
	Hexavalent chromium (0.05 mg/l)	2.6 mg/l		
	Cadmium (0.01 mg/l)	0.059 mg/l		

- The above survey results are for the maximum concentration of pollutants measured at a monitoring well at each business site.
- No pollution: No pollution was detected where pollutants were used or from underground water from a monitoring well on a business site, including its borders.
- Containment and purification of underground water: Underground water is pumped to the surface and purified to prevent polluted water from flowing out of the business site.
- The areas surrounding all business sites, including the above-mentioned sites, are not affected by pollutants.
- The removal and purification of contaminated soil and gases are for the cleaning of polluted areas while the purification of underground water is for the elimination of pollutants in underground water.

\* April 2003 survey results were reviewed.

## Contributing to the Development of a Sustainable Society

**In April 2002, Ricoh expressed its intention to participate in Global Compact.**

### (International)

Global Compact\* was proposed to the world's business leaders by the UN Secretary-General Kofi Annan in 1999. Global Compact is an international initiative based on nine principles in the areas of human rights, labor, and the environment. The concept of Global Compact matches the Ricoh Group's goal of contributing to the development of a sustainable society that recirculates resources, and in 2002 Ricoh became the second Japanese company that expressed an intention to participate in the international initiative. The Ricoh Group will make further efforts toward the development of a sustainable society and continuously report on these efforts in its sustainability report.

\* Global Compact: <http://www.unglobalcompact.org/>

### The Nine Principles

#### ◎ Human Rights

1. Businesses should support and respect the protection of internationally proclaimed human rights within their sphere of influence; and
2. make sure that they are not complicit in human rights abuses.

#### ◎ Labour Standards

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. the elimination of all forms of forced and compulsory labour;
5. the effective abolition of child labour; and
6. eliminate discrimination in respect of employment and occupation.

#### ◎ Environment

7. Businesses should support a precautionary approach to environmental challenges;
8. undertake initiatives to promote greater environmental responsibility; and
9. encourage the development and diffusion of environmentally friendly technologies.

## Social Evaluation

**In recognition of its preeminent global leadership in environmental conservation, Ricoh wins the 2003 WEC Gold Medal.**

### (International)

Ricoh received the 2003 WEC Gold Medal for International Achievement in Sustainable Development. This award was established in 1985 by the World Environment Center (WEC) to recognize companies that demonstrate leadership in contributions to global environmental quality and sustainable development.

A jury consisting of international environmental experts, evaluates nominees for the WEC Gold Medal based on the following criteria: establishment of an exemplary, comprehensive, publicly-announced corporate sustainability policy; uniform, global and innovative application of the corporate sustainability policy; and international leadership in the sustainable development arena. The company that is judged to lead in all these areas is then selected for the award.

The award ceremony was held at the National Building Museum in Washington D.C. on May 15, 2003. About 500 representatives from international agencies, government, NPOs, media, industry, as well as Ricoh employees attended the ceremony. Masamitsu Sakurai, president and COO of Ricoh Co., Ltd. summarized the company's concept of environmental management by saying, "Focusing on environmental conservation activities is one of the most important corporate missions for the entire Ricoh Group. We have about 74,000 employees, and each and every one of them is striving to perfect our resource-recirculating business activities."

Ricoh is extremely proud to be the first Asian company to receive this prestigious award, and the company will remain continuously committed to making further progress in its environmental management system.

<http://www.wec.org/>



WEC Gold Medal Award Ceremony