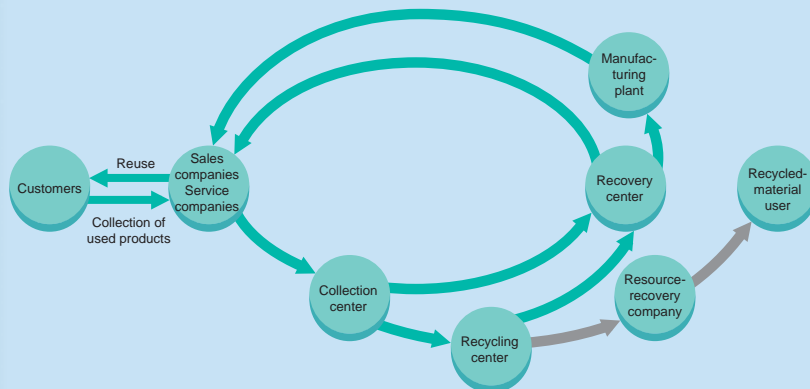


Recycling

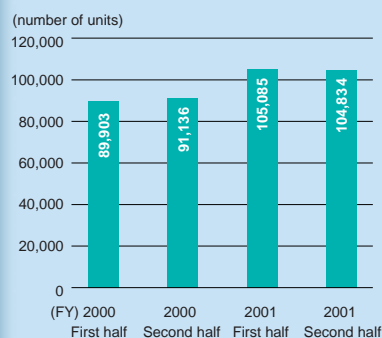
The Ricoh Group aims at securing profitability in the global recycling business.

The Ricoh Group aims at securing profitability in the recycling business in Japan by the end of fiscal 2004. The Group plans to do the same in the Americas, Europe, China and Taiwan, and the Asia-Pacific region. Efforts made in Japan include improving the efficiency of collection, recovery, and recycling by making use of a recycling information sharing system and nationwide recycling system. Increased profitability will be achieved by significantly reducing the cost of collection and disposal through an advanced “venous logistics” system and increasing the sales of recycled machines. For regions other than Japan, it was decided that used products will be collected, recovered, and sold within the same region. Efforts are being focused on improving collection rates and the expansion of recycling sites. Thus, the Group’s recycling activities are evolving into a recycling business. The recycling business conducted by sales companies in Europe has already turned profitable.

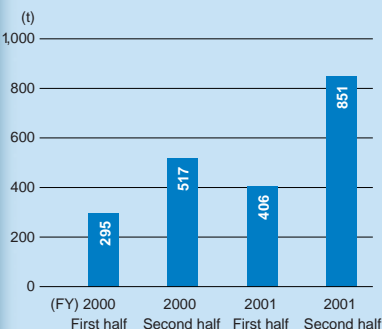
Recycled-Product Manufacturing



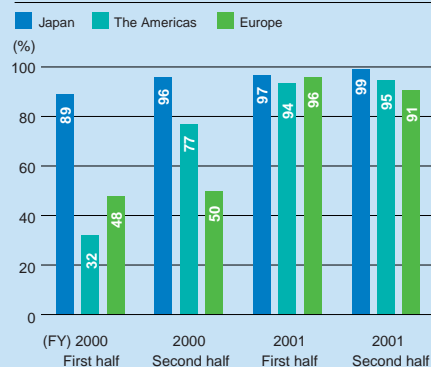
Number of Copiers Collected (Worldwide) (Reviewed by BVQI [22])



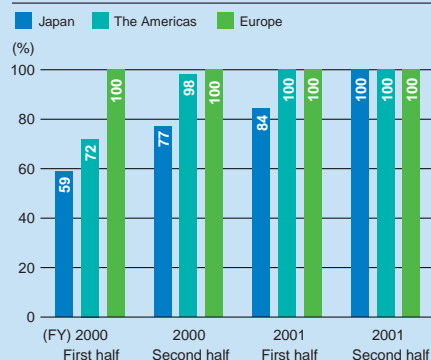
Amount of Toner Cartridges Collected (Worldwide) (Reviewed by BVQI [24])



Resource Recovery Rate of Copiers (Reviewed by BVQI [23])



Resource Recovery Rate of Toner Cartridges (Reviewed by BVQI [25])



Environmental Conservation Costs and Effects in the Recycling Business in 2001* (Segment Environmental Accounting)

(Unit: millions of yen)

Costs		Effects			
Item of cost	Amount	Economic effects		Effects on environmental conservation	
		Item	Amount		
Product recycle cost	572	Sales amount	937	Resources recovered 26,920 t A 4,537-t increase from the previous year	Final disposal 350 t A 497-t decrease from the previous year
Collection/resource recovery cost	2,802	Social effect	2,150	Resource recovery rate 96.3% (FY 2000) → 98.7% (FY 2001)	
Total cost	3,374				

* Data is for Japan only. The figure for “Social effect” is the amount that customers saved on the cost of waste disposal.

Japan

In fiscal 2001, Ricoh developed and began mass-producing the imagio MF6550 RC reconditioned digital copier. In fiscal 2002, Ricoh is working to improve its collection rate and collection quality to provide customers with as many recycled machines and toner cartridges as possible.

Reconditioned Digital Copiers

The imagio MF6550 RC is a reconditioned digital copier that contains more than 87% (mass ratio) reused parts¹, the highest in the industry. Ricoh was able to develop the imagio MF6550 RC in a short period of time because it was a leader in digital copier sales and had accumulated extensive know-how and skills in the recycling of analog copiers.

The environmental impact over its entire life cycle is approximately 50%² less than its predecessor, which is made of all new parts, in terms of the amount of resources and energy consumed in manufacturing, for example.



The imagio MF6550 RC reconditioned digital copier

1. Parts that can be used again from collected machines and that have undergone the necessary processing for reuse
2. The annual environmental impact of both the previous model and reconditioned machine was used for comparison. The data was calculated after the environmental impact of machine use was subtracted. See page 27.
<http://www.ricoh.co.jp/imagio/mf/6550RC/index.html> (Japanese language only)

Recycling of Toner Cartridges

The full-scale collection of all office supplies, such as toner cartridges, started in 1998. Ricoh's new nationwide recovery and recycling network was established in fiscal 2001. Collected toner cartridges are recovered and shipped according to Ricoh's quality standards. Cartridges that do not satisfy these standards are disassembled, sorted, cleaned, inspected, and supplied to production lines as parts while others are recycled into raw materials.



Recovered toner cartridge

Recycling Information Sharing System

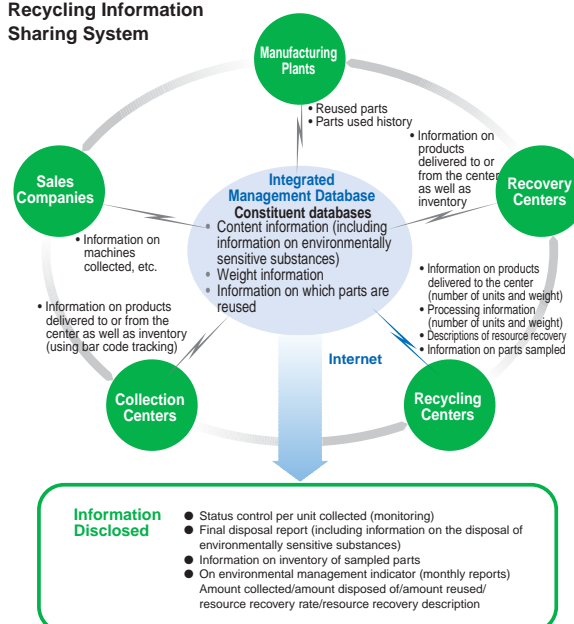
In the recycling business, used products are regarded as raw materials. It is therefore very important to improve collection rate as well as quality of collection. The recycling information sharing system was established as a part of the environmental management information system to efficiently carry out collection, recovery, and recycling as well as to help users understand information on environmental

impact and costs. Recovery and recycling centers can share information on the amount and rate of used products collected. Accurate information can be obtained simply by entering the model code of the product to be collected from customers. At present, the system mainly applies to copiers but is to be extended to include other products, such as toner cartridges. In 2003, other regions in addition to Japan will adopt this system to improve efficiency in the global recycling business.

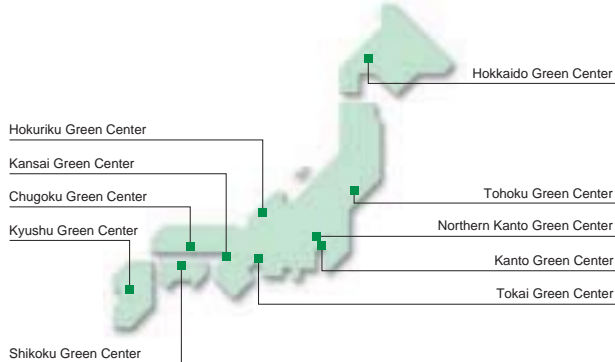
Nationwide Recycling System

A well-run nationwide recycling system is needed to efficiently collect and recycle Ricoh products, which are used all over the country. Ricoh started collaborating with green centers (collection centers), recovery and recycling centers, and plastic parts manufacturers to establish a nationwide network that would facilitate a more economically efficient recovery and recycling of used machines, toner cartridges, and parts collected from all over Japan.

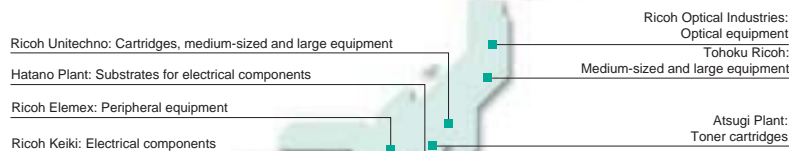
Recycling Information Sharing System



● Major Green Centers (Collection Centers) in Japan



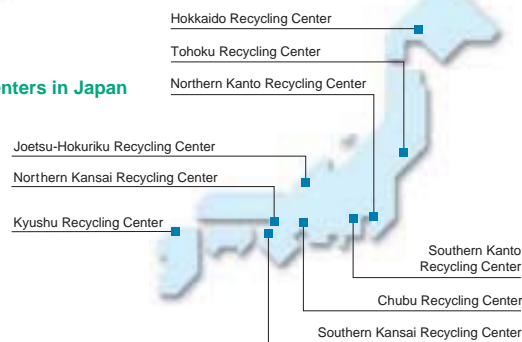
● Recovery Centers in Japan and Products Handled



● Recycling Centers in Japan



Kyushu Recycling Center



● Green Centers (Collection centers)

In fiscal 2001, Ricoh reorganized its collection centers into 10 regional green centers and 80 green centers to improve the collection rate and collection quality of its products. Based on the customer collection order information, personnel were dispatched from the nearest green center to pick up the product and/or toner cartridges from the customer's office. The products and toner cartridges collected at green centers are sent to recovery centers and recycling centers according to selection standards.

● Recovery Centers

At recovery centers, used machines and toner cartridges are disassembled, cleaned, reassembled (with some parts being replaced), and inspected before being shipped as recovered products. In addition, centers sort reusable parts. Ricoh Group companies and plants that have manufacturing lines for the targeted products work as recovery centers.

● Recycling Centers

Used products and toner cartridges forwarded to recycling centers are disassembled, and the parts and units that can be reused or recycled are sorted out. Those that can be reused are sent to recovery centers to be used in manufacturing new products or recycled products. Aiming at reducing the final disposal amount, three recycling centers achieved a 100% resource recovery rate in fiscal 2001.

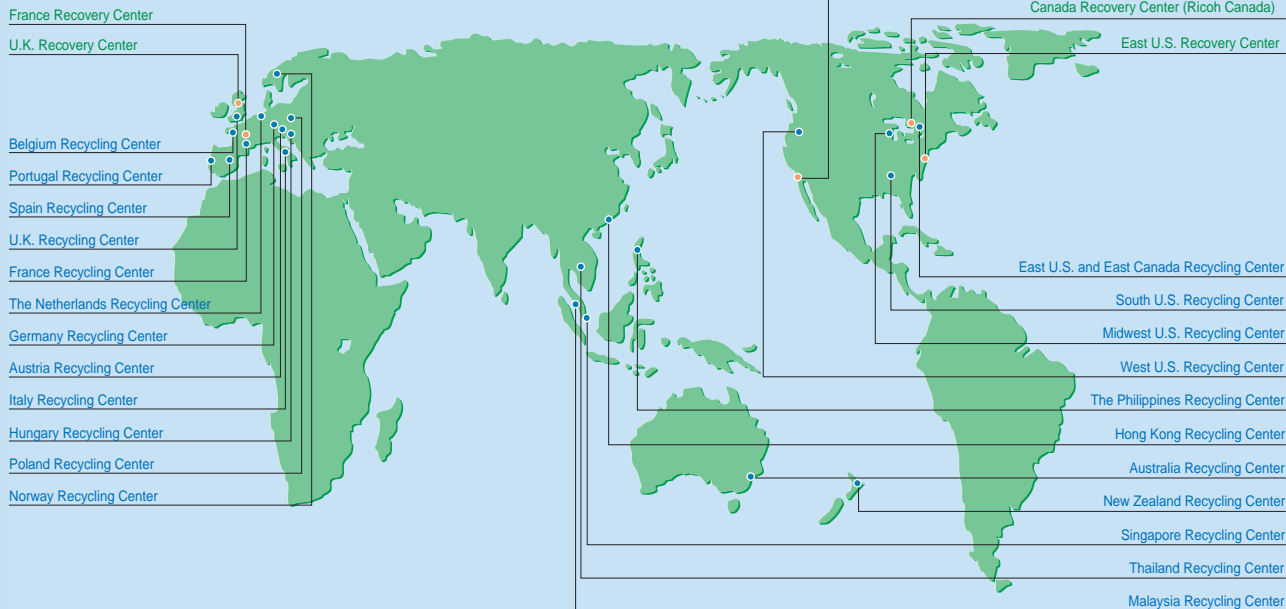
The Americas

Manufacturing plants of Ricoh Electronics, Inc., (REI) in California and Georgia are used as recovery centers for toner cartridges and other products. The collecting of toner cartridges for recovery began in 1995. REI conducted a joint research into recovery methods and quality assurance with Ricoh Corporation to promote more eco-friendly recycling activities focusing on the reuse of parts. Furthermore, a promotional video for toner cartridge recycling was prepared to improve employee as well as customer awareness of environmental conservation and the collection rate.



Toner cartridge recovery line at REI

Recovery and Recycling Centers* around the World



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

The United States

Savin

Savin Corporation, a sales company, carried out a promotional campaign aimed at increasing the collection rate of toner cartridges in cooperation with the aftermarket divisions of dealers. In the campaign, dealers compete against each other in collecting the most toner cartridges. Promotional tools, such as mouse pads describing the toner cartridges to be collected and mugs bearing the Ricoh Group's eco mark, were distributed while messages calling for the customer's cooperation in collection were included in packages of toner cartridges or on invoices for those cartridges. When receiving orders from customers, the company encouraged

them to join its recycling activities.



The Savin environmental conservation staff and promotional items used in the company's toner cartridge collection campaign



Europe

In Europe, government-authorized collectors and manufacturers collect used toner cartridges in each community. Manufacturers are striving to improve their present collection rate to achieve better resource recovery and appropriate disposal. Ricoh UK Products Ltd. and Ricoh Industrie France S.A., originally manufacturing plants but now used as recovery plants as well, are engaged in the recovery of products and toner cartridges. Getting a jump on the EU Directive on Waste Electrical and Electronic Equipment (WEEE), which will be effective in 2006, the two companies are already promoting high-level recovery and recycling.



Toner cartridge remanufacturing line in Ricoh Industrie France



Product reconditioning line at Ricoh UK Products

The Netherlands

NRG Benelux

In 1987, NRG Benelux B.V., a sales company, began the collection of machines and toner cartridges, and marketing of reconditioned machines. Working in close cooperation with its sales department, NRG Benelux continued to expand its operation, selling several thousand reconditioned products in fiscal 2001. In addition to their low level of environmental impact, the products' attractive prices have contributed to the favorable results.



Product reconditioning line and recovered machines reconditioned

The Netherlands

MIREC, NRG Benelux, and Ricoh Nederland

MIREC is a recycling center in the Netherlands that is in partnership with NRG Benelux B.V. and Ricoh Nederland B.V. With the motto “one industry’s waste as another industry’s resource,” MIREC is conducting business in Europe. The company not only collects, disassembles, recycles, and resells used products, but it also gives advice to its clients on ideal recyclable designs. MIREC’s system of analyzing the amount of environmentally sensitive substances in collected products facilitates efficient resale and proper treatment.



Disassembly and sorting line of collected products

Germany

NRG Deutschland

NRG Deutschland GmbH, a sales company, contributes to the Ricoh pan-European collection system and places “green boxes” in the customer’s office for the collection of used toner cartridges. Some of the collected cartridges are recycled at its head office in Hanover, and those that can be reconditioned are sent to Ricoh UK Products Ltd. and Ricoh Industrie France S.A. NRG Deutschland reconditions used copiers and other products by itself because it believes that doing so will



The NRG Deutschland staff and “green box”

efficiently improve resource recycling and reduce waste. Recently, more and more digital copiers are being recovered.

France

Ricoh France

Ricoh France S.A., a sales company, contributes to the Ricoh pan-European collection system and places “eco-boxes” in the customer’s office to improve the collection rate of used toner cartridges and collects them via CONIBI. The collected products and photo-conductor units are sent to Ricoh UK Products Ltd. and Ricoh



The Ricoh France environmental conservation staff and an eco-box

Industrie France S.A. respectively for recycling. As for machines, Ricoh France plans to recover them by itself as well.

France

CONIBI

CONIBI is a consortium established jointly by Ricoh and 10 other office-equipment manufacturers in January 2000 to efficiently collect used toner cartridges and toner bottles. Because customers use different brands of copiers or printers, the CONIBI collection system facilitates customer collection of different brands of products in a convenient and professional manner. Collected products are sent back to their respective manufacturer under the CONIBI system, which is attracting attention in Europe for its uniqueness. At



The CONIBI staff and a collection box

present, only consumables, such as toner cartridges, are covered by the system, but machines will be included in the future. In fiscal 2001, approximately 35,000 Ricoh and NRG FRANCE toner cartridges were collected under the CONIBI system. Product recovery at Ricoh UK Products and Ricoh Industrie France and energy recovery at CONIBI resulted in the achievement of Zero-Waste-to-Landfill.

The United Kingdom

Ricoh UK

As of March 2001, Ricoh UK Ltd. is the first accredited sales company in the U.K. that is ISO 14001 certified. The company collects its used toner cartridges and recycling parts, and residuals are treated appropriately by energy recovery. Furthermore, Ricoh UK places stickers on its products with the words “This copier uses recyclable toner cartridges” to promote the environmental awareness of customers.

China and Taiwan

Ricoh Asia Industry Ltd. (RAI), a manufacturing plant in Shenzhen, China, recovers toner cartridges at a bonded warehouse that belongs to Ricoh Express (S.Z) Warehouse Ltd. In order to make the recycling operation economically efficient, the collection rate needs to be improved.

Hong Kong

Ricoh Hong Kong

Ricoh Hong Kong Ltd., a regional sales headquarter in the China and Taiwan region, is calling for customer’s cooperation in the collection of used toner cartridges by sticking a label on the recycling of toner cartridges on product packages. Customers can return used toner cartridges

to Ricoh Hong Kong by attaching the label to the outside of their packages.



A brochure that promotes the collection of toner cartridges and a return label

Hong Kong

Ricoh Office Solutions

Ricoh Office Solutions, a sales company, rents recycled machines. The company also recycles printed circuit boards.



Copier recycling line

China

RAI

Among the toner cartridges collected by Ricoh Office Solutions, Ricoh Asia Industry Ltd. (RAI) recovers only those it manufactures itself. RAI currently recycles an average of approximately 1,000 units per month.



Toner cartridge recycling line at RAI

Asia-Pacific Region

In New Zealand, customers cooperate in collecting toner cartridges, and as a result the collection rate gradually improved. A similar project started in Australia in July 2001. The recycling of toner cartridges and other products as well as the recycling of parts will take priority.

Australia

Ricoh Australia

Ricoh Australia Pty, Ltd., began product collection and material recycling in September 2001. Sims Pacific Metals Limited, which is one of Ricoh's partner companies, recycles the products into raw materials. One of our partner companies, Close the Loop Limited, collects toner cartridges and recycles them into raw materials from



The Ricoh Australia environmental conservation staff and toner cartridge collection box

which they produce rulers, furniture, benches, etc.

Australia

Lanier Australia

Lanier Australia Pty. Ltd., a sales company, makes arrangement for collecting used products. Collected products in good condition are recycled by the company and rented out. The remaining collected products are recycled into raw materials after removing all reusable parts. Plastic panels



Recycled products at Lanier Australia

are recycled into building materials by AOSL. Toner cartridges are collected and recycled into materials by "Close the Loop."

New Zealand

Ricoh New Zealand

Ricoh New Zealand Limited began collecting toner cartridges in April 2001. Stickers giving the location of collection points are enclosed with new products, and customers attach the stickers to the outside of their packages and return the used products by mail. To improve its collection rate, Ricoh New Zealand is carrying out a campaign that offers customers who send back used toner cartridges a chance to win a new cartridge. Collected toner cartridges are recycled by Plascrete International Ltd. into raw materials to produce bricks, etc. In Victoria Park, a famous tourist attraction in New Zealand, there is a walkway made of these bricks with Ricoh's logo written on it.



A walkway made out of recycled bricks

A slip enclosed with new products announcing a campaign that offers the user a chance to win a new toner cartridge

