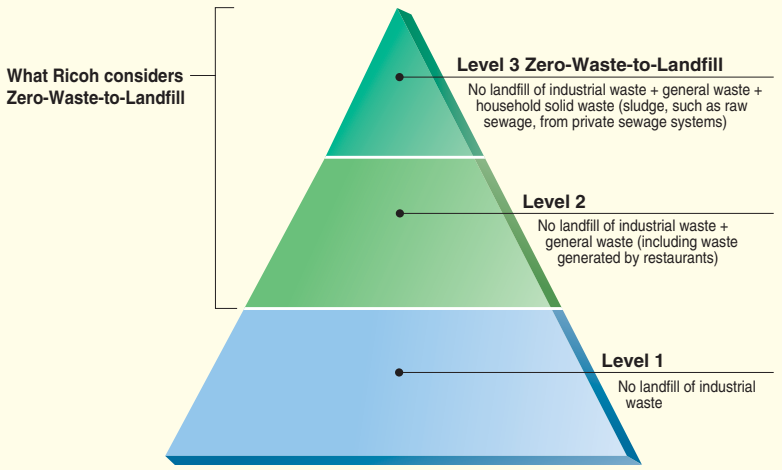
We promote Zero-Waste-to-Landfill activities worldwide while reducing waste and costs.

● Concept

The Ricoh Group is globally working to maximize resource productivity, primarily 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 now promoted at non-production sites and sales subsidiaries at home and abroad. In addition, an audit system for recyclers was introduced in Japan, aiming to upgrade and expand proper waste disposal.

* 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 2007

◎ Reduce generated waste by at least 3% (Ricoh and manufacturing subsidiaries in and outside of Japan, compared to fiscal 2000 figures).
◎ Reduce generated waste by the ratio calculated by multiplying the number of years from the base fiscal year to fiscal 2007 by the yearly rate (2%) (non-manufacturing subsidiaries in Japan; the base fiscal year is set at each company).
◎ Improve the waste recycling rate to at least 95% (non-manufacturing subsidiaries in Japan).
◎ Reduce water consumption to a level that is below the results of fiscal 2000 (Ricoh production sites and manufacturing subsidiaries in and outside of Japan).
◎ Reduce paper consumption by at least 10% (Ricoh manufacturing and non-manufacturing subsidiaries in Japan, and manufacturing subsidiaries outside of Japan, compared to fiscal 2002 figures).

● Review of Fiscal 2006

Waste volume generated at production sites increased by 2.9% from fiscal 2000 levels, reflecting a large increase in corrugated cardboard waste as a result of the procurement of parts from Asia and transportation among overseas sites (see graph ❶). At non-production sites, the resource recovery rate is steadily improving thanks to Zero-Waste-to-Landfill activities (see table ❹). In terms of water consumption, our continued efforts have contributed to an 11.8% reduction over the fiscal 2000 level (see graph ❷), while we achieved a 4.2% reduction in paper consumption compared with the fiscal 2002 level.

● Future Activities

Production sites will continue improving processes in cooperation with the development and design divisions to cope with increasing waste due to the expansion of business. To cope with an increase in packaging waste reflecting expanded global production activities, improvement of forms and the design of packing materials used among different sites will be introduced. After clarifying problems from the viewpoint of the entire physical distribution system, we will instigate efforts to tackle this problem.

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

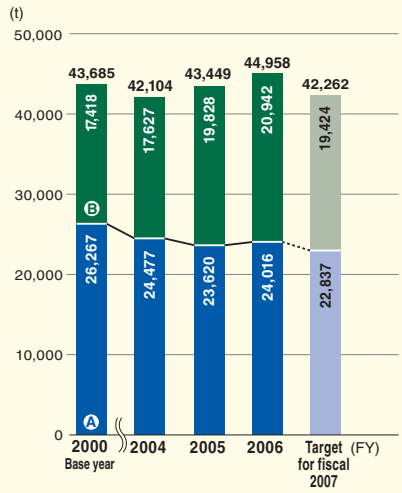
Costs			Effects			
			Economic benefits		Effect on environmental conservation	
Item	Main cost	Costs	Items	Benefits	Reduction item	Amount
Business area cost	Resource circulation cost	¥1,888.4 million	Reduction in waste disposal expenses	¥183.3 million	Amount of waste disposed/ reduced	124.3 (t)
			Proceeds from sale of valuables	¥487.3 million		

<The Entire Ricoh Group>

Total Amount of Waste Generated

❶ The Ricoh Group (production)

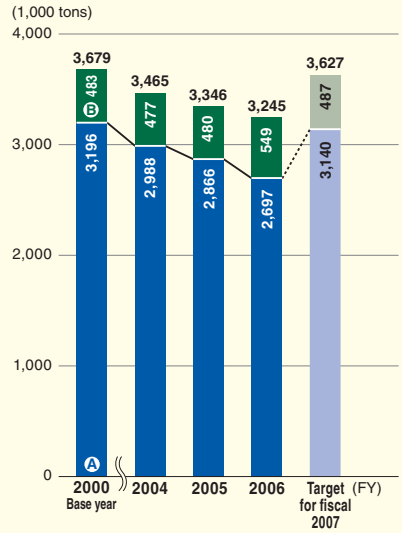
Ⓐ Japan Ⓑ Outside Japan



Volume of Industrial Water Used

❷ The Ricoh Group (production)

Ⓐ Japan Ⓑ Outside Japan

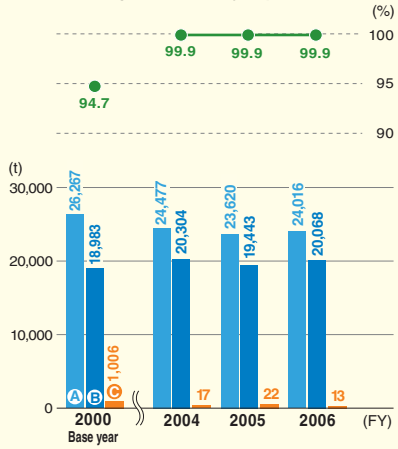


<Japan>

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

❸ The Ricoh Group (production)

● Resource recovery rate of waste
Ⓐ Total amount of waste generated
Ⓑ Total amount of waste discharged
Ⓒ Amount of waste finally disposed of



❹ The Ricoh Group (non-production)

	Resource recovery rate of waste (%)	Total amount of waste discharged (t)	Amount of waste finally disposed of (t)
Sales Companies	94.6	1,567	85
Maintenance and Services (Ricoh Technosystems)	97.7	931	21
Logistics (Ricoh Logistics System)	98.4	3,481	54
Finance (Ricoh Leasing)	95.1	60	3
General Services (Ricoh San-ai Service)	96.6	24	1

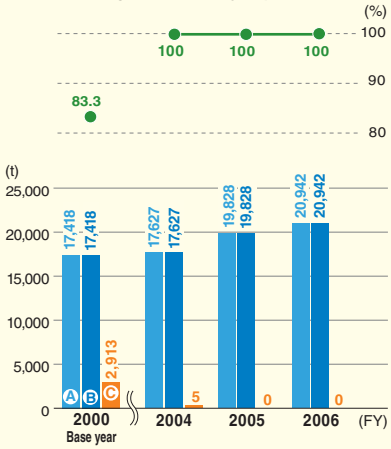
* At non-manufacturing subsidiaries, the amount of waste generated and the amount of waste discharged are the same, because waste is not processed at the business site. Therefore, only the total amount of waste discharged is listed.

<Outside Japan>

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

❺ The Ricoh Group (production)

● Resource recovery rate of waste
Ⓐ Total amount of waste generated
Ⓑ Total amount of waste discharged
Ⓒ Amount of waste finally disposed of



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

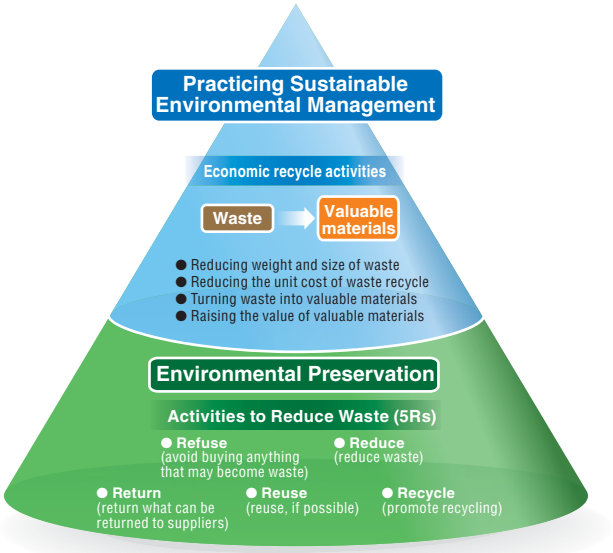
* Data on Ricoh Printing Systems and Shanghai Ricoh Digital Equipment are not included in graphs ❶ through ❺. Waste generated from the manufacturing of polymerized toner at Ricoh's Numazu Plant is not included either. Data that include waste from these sources are shown on Page 77

Developing and Raising the Level of Zero-Waste-to-Landfill Activities

<Ricoh Group (Global)>

Zero-Waste-to-Landfill activities are carried out at Ricoh's sites all over the world. The Ricoh Group defines Zero-Waste-to-Landfill as a 100% resource recovery rate, or no waste used as landfill. Zero-Waste-to-Landfill was achieved at its major production sites in Japan in March 2001 and at production sites outside of Japan in March 2002. Thus, the Group achieved Zero-Waste-to-Landfill at all its major global production sites. Since then, these activities have been promoted at non-production sites both at home and abroad and at companies that have newly joined the Group. At sites that have already achieved Zero-Waste-to-Landfill, efforts are being made to raise the level of Zero-Waste-to-Landfill, including controlling the volume generated and the conversion of waste into useful materials, under the concepts of sustainable environmental management.

Concepts in raising the level of Zero-Waste-to-Landfill Activities



Zero-Waste-to-Landfill Achieved at a New Group Company

< Ricoh Printing Systems, Ltd. (Japan)>

Ricoh Printing Systems, Ltd., is a printer manufacturer that joined the Ricoh Group in October 2004. Before joining the Group, the company's target was to achieve a landfill ratio of under 1% to total waste volume. The Ricoh Group's target, however, is to raise "the resource recovery rate of waste to 100%," and it was necessary for Ricoh Printing Systems to review its conventional waste disposal methods. In fiscal 2005, the company introduced Zero-Waste-to-Landfill activities in compliance with the Ricoh standards, reviewing the types of wastes and changing disposal methods and recycling routes. Consequently, Zero-Waste-to-Landfill was achieved at all of its five sites. Specific revisions were made in 13 cases at the Katsuta, Taga, and Yamagata sites. They improved disposal methods for every type of waste, introducing the recycling of corrugated cardboard and wooden pallets and reducing the generation of toner waste by establishing new recycling facilities. These efforts resulted in a reduction in disposal costs of ¥12 million.

Staff members in charge of environmental activities at Ricoh Printing Systems

Recycling Solder Used in the Manufacturing Process for Printed Circuit Boards

<Ricoh Microelectronics Co., Ltd. (Japan)>

Ricoh Microelectronics Co., Ltd. (RME) developed technology to collect and reuse unused paste solder generated during the manufacturing process for printed circuit boards, jointly with the Tottori University of Environmental Studies. The use of paste solder in manufacturing printed circuit boards was under strict control in order to maintain the quality of the solder, and paste solder exceeding the time limit had to be thrown away. The introduction of lead-free products, however, led to higher solder costs, causing a heavy cost burden. Using recently developed technology, paste solder is heated on the spot and separated cleanly into metal solder and solvent, which are collected and used in other processes. The original technology including the separation method and automatic control was adopted in the newly installed facility, which realizes steady treatment of solder. As a result, no more solder is disposed of, which has reduced both purchasing and disposal costs. The technology, which is expected to contribute widely to society by solving common problems in the manufacturing of printed circuit boards, was awarded an Excellent Performance Award at the Fiscal 2006 Awards for Resource-Recycling Technology and Systems hosted by the Clean Japan Center.

Waste solder recycling facility

Auditing Recyclers

<Ricoh (Japan)>

Ricoh has integrated the auditing of recyclers and created an auditor recognition system in order to ensure proper waste disposal. In the past, because each business site audited recyclers individually, such problems as different evaluations of the same recyclers and duplication of audit operations had emerged. To address these issues, Ricoh started to share information on recyclers within the Ricoh Group in fiscal 2005, established audit standards and a system, and launched auditor training and a recognition system targeting staff in charge at its production sites and manufacturing subsidiaries in Japan. In fiscal 2006, 27 auditors certified by the Group audited 159 recyclers handling waste from Ricoh's production sites, through assessment by authorized business type and on-the-spot inspection. Any recyclers where any incongruity was detected were given directions and requested to make improvements and after a few days, a confirmation audit was completed. From fiscal 2007 onward, recyclers handling waste from non-production sites, those that newly handle waste from production sites, and those who have been requested to make improvements will be audited. In addition, Ricoh will try to raise the audit level by improving the efficiency of recycler audit operations and implementing an auditor rotation system and follow-up education. Thus, efforts will be made to ensure even more reliable and efficient waste disposal.

Scene from audit

INTERVIEW

Recycler Interview | **Sakai Shoten**

Passing the strict audit enabled us to confirm the appropriateness of our business operations.

Mr. Sueji Sakai
President,
Sakai Shoten

Disposal facilities and total operations were audited against severe standards.

The Ricoh Group audited our waste disposal operations in August 2006. We have handled plastic waste and waste from general business operations by Ricoh Keiki Co., Ltd., for more than ten years. Having gone through many audits and inspections by our customers, we were confident that no defects would be found in our operations in any audit by any auditors. So, we did not worry too much when Ricoh told us that it wanted to audit our waste disposal operations. But when Ricoh actually carried out an audit, we were somewhat surprised that the audit was so severe. No other companies have requested us to present various licenses for our business operations. However, Ricoh checked the site and all the licenses, documents, records, equipment, facilities, etc., against each item on the assessment sheet. In ordinary audits, they only check facilities used for handling waste generated by our customers. The audit by Ricoh, however, covered our operations from collection and transportation to final disposal, as well as all facilities related to those operations.

We fulfill all our responsibilities as a recycler.

We were informed that as a result of the audit, there would be no problem with us continuing to offer our services. We are really pleased that we were able to confirm that our waste disposal operations are carried out appropriately in compliance with all relevant laws, thanks to Ricoh's strict audit. Recyclers are supposed to assume full responsibility for companies generating waste and it is our duty to fulfill these obligations and responsibilities. Ricoh's audit allowed us to recognize once again the importance of proper waste disposal and global environment conservation and try to obtain an "Eco Action 21" certificate. In December 2006, we became the first recycler in Saga City to acquire this certificate. We realize that the responsibilities of recyclers in environmental conservation will become even greater.