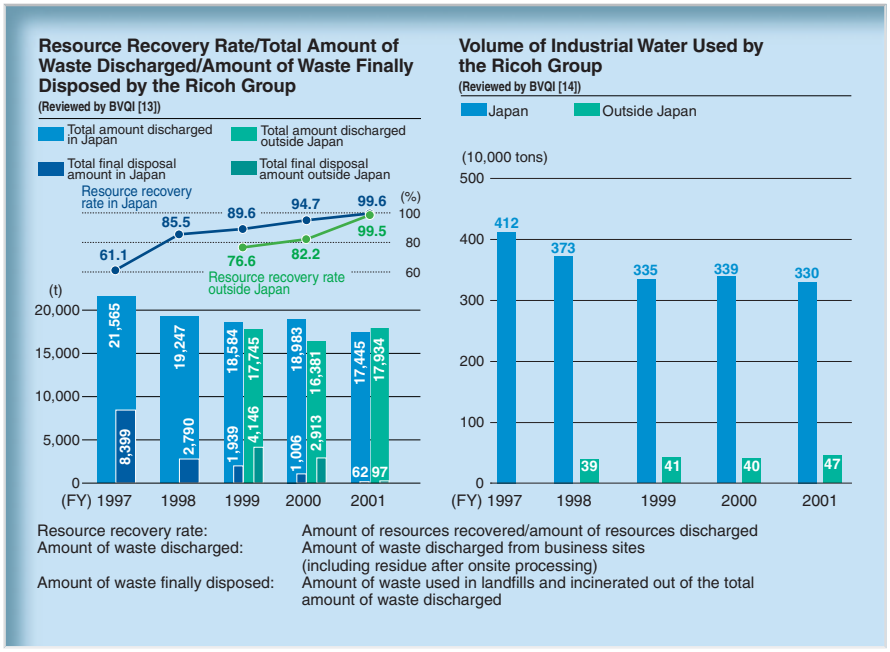
Production (Zero-Waste-to-Landfill)

The Ricoh Group achieved the goal of Zero-Waste-to-Landfill at all production sites all around the world.

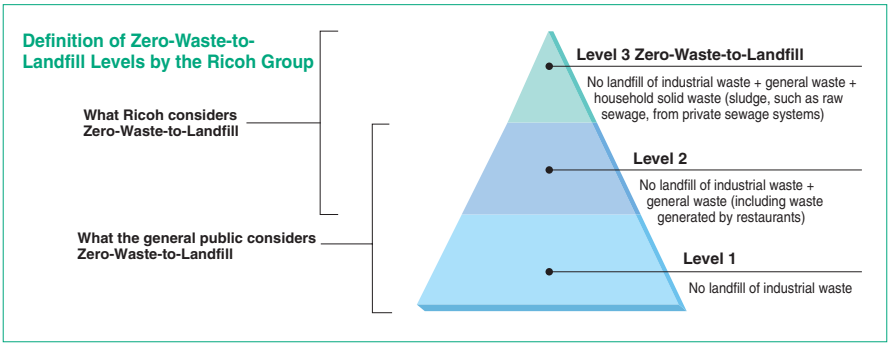
The Ricoh Group promotes Zero-Waste-to-Landfill activities as a part of its environmental management system by efficiently using resources, improving the efficiency of production lines, reducing waste disposal costs, and improving corporate quality by promoting employee awareness of environmental conservation. Ricoh UK Products Ltd. in the U.K. achieved Zero-Waste-to-Landfill in September 2001, and Ricoh Asia Industry Ltd. (RAI) in China and Taiwan Ricoh Co., Ltd.[1], achieved it in March 2002. With this, the Ricoh Group has achieved Zero-Waste-to-Landfill at all production sites[2] in Japan, the Americas, Europe, and China and Taiwan. In Ricoh in Japan, after the Aoyama Office in Tokyo achieved Zero-Waste-to-Landfill in fiscal 2000, Ricoh Shinagawa System Center, Ginza Office, Toda Technical Center, and the Shin-Yokohama Office did the same in fiscal 2001, as did 46 sites of Ricoh Group service companies[3] and two sites of sales companies[4]. In fiscal 2002, the Ricoh Group will continue its efforts to reduce the environmental impact of society as a whole and will further promote sustainable management by applying its Zero-Waste-to-Landfill know-how.

1. There is no infrastructure in Taiwan for the recovery of coating sludge, which is excluded from the Zero-Waste- to-Landfill efforts. (Coating sludge is subject to isolated landfill by disposal companies officially designated.)
2. Ricoh's production sites in Japan and manufacturing subsidiaries in Japan, the Americas, Europe, and China and Taiwan in which Ricoh owns more than 50% voting rights are included. There are no manufacturing subsidiaries in the Asia-Pacific region.



Zero-Waste-to-Landfill by the Ricoh Group

The Ricoh Group classifies zero waste (100% resource recovery rate and no waste used as landfill) into three levels. Although zero waste is roughly defined as no industrial waste being generated (level 1), the Ricoh Group aims at also eliminating general waste (level 2) and household solid waste, such as sludge (e.g., raw sewage), from private sewage systems (level 3). We regard cases in which waste is not utilized as an energy resource and simply incinerated as just a disposal of waste. The Ricoh Group aims at achieving perfect resource recycling by reducing, reusing, and recycling resources as well as the thermal recovery of waste.



Staff assigned to the Zero-Waste-to-Landfill campaign at REI, Georgia Plant, in the United States and the campaign mascot, Zero Hero; REI achieved Zero-Waste-to-Landfill in March 2001.

Staff assigned to the Zero-Waste-to-Landfill campaign at Ricoh Industrial de Mexico (RIM) in Mexico; RIM achieved Zero-Waste-to-Landfill in March 2001.

Japan

100% Resource Recovery of Used Products

Ricoh Elemex Corporation, which manufactures office equipment, clocks, watches, and water and gas meters manufacturer, worked detailed disassembly and sorting of used water meters and achieved a 100% resource recovery rate. Ricoh Elemex is making continuous efforts to achieve more-advanced resource recovery while working on recyclable designs for gas meters.

Environmental Accounting of the Semiconductor-Manufacturing Yashiro Plant

In fiscal 2001, the Yashiro Plant introduced an inverter control system and a system that recycles the hydrofluoric acid used in the etching process of semiconductors. The segment environmental accounting shown below reveals that these systems significantly contributed to environmental conservation and cost reduction.

Estimated Costs and Effects of Semiconductor Manufacturing at the Yashiro Plant in Environmental Conservation (Segment Environmental Accounting) (Unit: millions of yen)

Method of conserving energy or resources	Costs		Effects*				EI value (t/100 million yen)
			Economic benefit		Effect on environmental conservation		
	Investment	Maintenance	Reduced heat and light expenses	Subsidies	Reduced CO_2 emissions(t)	Reduced discharged waste(t)	
Inverter control system	131.5	1.5	177.5	100.0	5,762	—	3,807.8 (CO_2)
Hydrofluoric acid recycling	120.0	33.5	97.8		6,324	1,500	
Filtration device	26.5	5.6	4.6		148	—	
Free-cooling system	25.8	0.6	27.1		904	—	
Total	303.8	41.2	307.0	100.0	13,137	1,500	

* Effects are calculated using the statutory depreciation period for equipment.

Europe

Ricoh UK Products

To promote employee awareness of environmental conservation, Ricoh UK Products, Ltd., added "environmental conservation" to the list of items in the individual and divisional performance evaluation and opened an on-site recycling center, through which the company strives to eliminate the production of waste by disassembling products in order to reuse their parts. Other efforts include leading in community activities by teaching companies and schools in the neighborhood about waste management and how to establish a recycling system.

Staff assigned to the zero-waste-to-landfill campaign at Ricoh UK Products

Staff assigned to community environmental conservation activities

Environmental Accounting of the Cleaning Process

In fiscal 2000, Ricoh Industrie France S.A. switched from water to air pressure to clean its thermal paper production line. Along with water recycling by steam collection, change in process reduced the company's annual water consumption 43.4%, down from 25,353 m^3 per year. Ricoh Industrie France saved on the cost of wastewater disposal using this system.

Environmental Conservation Costs and Effects of the Cleaning Process in Ricoh Industrie France (Segment Environmental Accounting) (Unit: millions of yen)

Costs			Effects*				EI value (m^3/100 million yen t/100 million yen)
			Economic benefit		Effect on environmental conservation		
Item	Main cost	Amount	Reduction	Amount	Reduction	Amount	
Business area cost	Investment	34.8	Industrial water	1.6	Industrial water	21,601 (m^3)	62,072 (Industrial water)
	Maintenance	0.0	Waste disposal expense	98.2	Waste disposal amount	6,085 (t)	17,486 (Waste)

* Effects are calculated for three years, starting from fiscal 1999.

China and Taiwan

Zero-Waste-to-Landfill at RAI

Ricoh Asia Industry Ltd. (RAI) strives to achieve Zero-Waste-to-Landfill as one means of promoting employee awareness of environmental conservation and improving labor productivity. It contributed to boosting the spirit of the employees and created a better atmosphere at the workplace. RAI opened an in-house recycling shop for copier and printer toner bottles and installed wastewater purification equipment to reduce biochemical oxygen demand (BOD)*. When RAI discovered that water pollution was being caused largely in part by leftovers from the cafeteria, it reviewed its menu.

* BOD is the quantity of oxygen used by microorganisms in the biodegradation of organic matter and is used to measure the amount of pollution in rivers and lakes.

Staff assigned to the zero-waste-to-landfill campaign at RAI

Zero-Waste-to-Landfill at Taiwan Ricoh

In January 2001, Taiwan Ricoh Co., Ltd., started a waste reduction campaign and began detailed sorting simultaneously. Employees determined the recycling routes by themselves to increase the number of types of sorting from 17 to 35. Thus, Taiwan Ricoh achieved advanced recycling.

Staff assigned to the zero-waste-to-landfill campaign at Taiwan Ricoh