

The environmental impacts of production plants and offices include the consumption of resources and the emission of waste. To reduce these impacts, the production plants are pursuing zero waste emission activities to minimize the processing of waste in landfills, by promoting the control of waste generation and recycling. Our offices are also actively working on reducing mainly copying paper.

## 1 Efforts for Waste Reduction and Proper Treatment

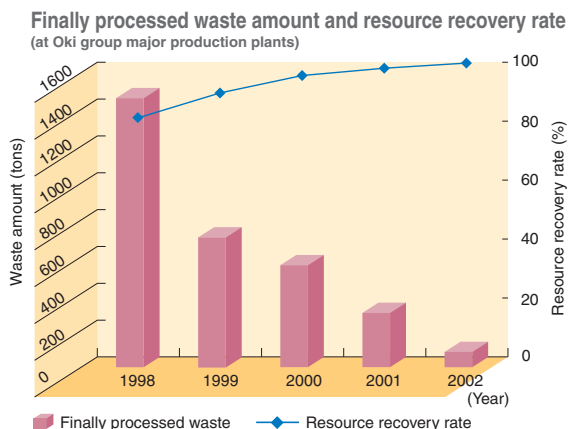
### 2002 waste reduction results

The quantity of finally processed waste stemming from industrial waste emitted from production plants, and municipal waste emitted from offices, etc. was 77 tons in 2002. This is a 75% reduction compared to 2001. We were further able to improve our resource recovery rate to 99.2%.

### Achievement of zero emission at major production sites in Japan

Oki's waste reduction activities have been promoted by the group as a whole since the first establishment of a goal for waste reduction in 1993. In our 2nd Waste Reduction Plan from 1996, the resource recovery rate, which had been at 31% (average for each district) at that time, was improved to 90% (average for each district) in 1999, and since 2000, we have been working for zero emission at our major production sites. With the Waste Reduction Promotion WG at the center of the activities, we aimed to share know-how on common examples-such as the recycling of wastepaper-between the sites, and for issues specific to production plants, such as the treatment of industrial waste, the plants proceeded with individual activities. We achieved our goal two years ahead of the plan.

Note) Zero emission: The Oki group defines this as a resource recovery rate of 99% or more for municipal waste and industrial waste.



### Sites achieved zero emission

Year of achievement	District / Company	Location	Operation
2002	Hachioji District	Hachioji-shi, Tokyo	Electronic device development
	Takasaki District	Takasaki-shi, Gunma	Information processing equipment development
	Tomioka District	Tomioka-shi, Gunma	Information terminal equipment production
	Numazu District	Numazu-shi, Shizuoka	Transport systems, acoustic positioning systems development and production
2001	Miyazaki Oki Electric	Kiyotake-cho, Miyazaki-gun, Miyazaki	Semiconductor IC/LSI production
	Nagano Oki Electric	Komoro-shi, Nagano	Electronic device design, production, and manufacturing service
	Honjo District	Honjo-shi, Saitama	Telecommunication and data transmission equipment production
	Miyagi Oki Electric	Ohira-mura, Kurokawa-gun, Miyagi	Semiconductor IC/LSI production
	Oki Data Corporation (Fukushima District)	Fukushima-shi, Fukushima	Printer, fax machine, peripheral development and production

### Waste reduction efforts at production plants

Oki's production plants can broadly be divided into two types: "assembly plants" which assemble products, and "semiconductor plants" which manufacture semiconductors. Because the waste emitted from each type is different, each plant pursues its own efforts to reduce waste. Among the waste of the assembly plants, packaging material for purchased parts represents the largest portion of the waste. Relatively strong packaging material such as IC packaging containers are returned to the IC manufacturers in a "reuse system" for repeated use. Semiconductor plants emit large quantity of waste oil, sludge, waste acid and waste alkali. They work to suppress the generation, regenerate for reuse, or recover the resources for this kind of waste.

### Examples of recycling of wastes at semiconductor plants

Category of waste	Substance of waste	Recycling application
Oil	Acetone	Reclamation, reuse as fuel
	Ethanol	Reclamation, reuse as fuel
	IPA	Reuse as fuel
Sludge	Developing fluid	Reuse as fuel
	Inorganic sludge	Reuse as cement material
	Organic sludge	Reuse as fertilizer material
Acid	Sulfuric acid	Reclamation
	Phosphoric acid	Reuse as fertilizer material
	Etching fluid	Collection of molten metals
Alkali	Developing fluid	Reuse as auxiliary fuel

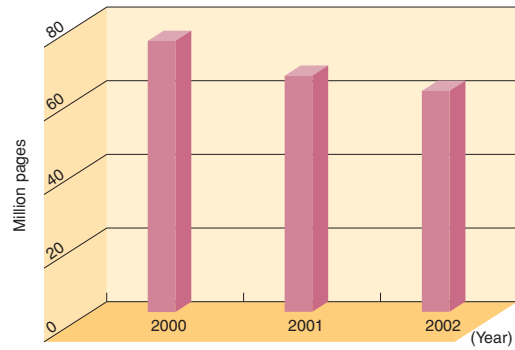
## ■“Less Paper” activities at offices

The offices (clerical sections) are striving to protect forest resources by green purchasing of office articles, or reducing the use of copying paper. The efforts are in accordance with ISO14001. In particular, they try to reduce the quantity of copying paper, using duplex printing, printing on the back of printed paper as much as they can, or using networks for electronic approvals of documents, or EDI (electronic data interchange) with business partners. As a result, the quantity of paper used was reduced by 8% (5 million pages) in 2002 compared to the previous year. For copying paper, catalogs/pamphlets, business cards, toilet paper, etc. for in-house use, we further conduct green purchasing in the whole Oki group, and use recycled paper with a high content of recycled material.

## ■Efforts for proper waste treatment

To ensure proper treatment of waste, the headquarter division for environmental management surveyed the manifest management of all 36 operational sites, sales offices, group companies, etc. all over Japan to check its status.

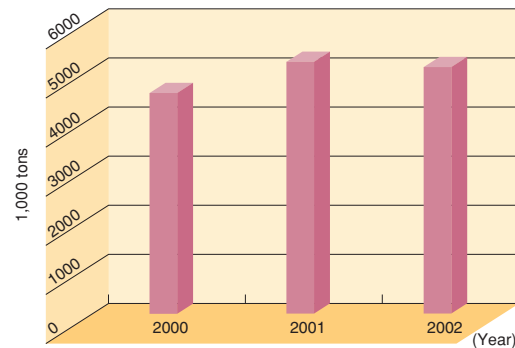
Quantity of copying paper used (converted to A4-size pages)



## 2 Efficient Use of Water Resources

In 2002, the use of water was at 5.016 million tons, which is a 2.5% decrease from the previous year. To reduce the use of water, we are aggressively promoting the recycling of water within our production plants. Especially the semiconductor manufacturing process uses large quantity of purified water, so that we have been operating purified water recycling systems since the plants were built. The recovery rate of water has reached a level of more than 95%.

Transition of water use



## 3 Regeneration of Unwanted Personal Items

Oki has recycled personal items that became unnecessary. Through the cooperation of its employees, Oki group is collecting unnecessary personal items to serve society. The following shows some examples.

### ■Bicycles

We donated 10 unwanted bicycles from our dormitory and company housing in Warabi city, Saitama prefecture to the NGO “AAA” (Asia & Africa Association). They are used at professional training sites in Kenya, Uganda, Sri Lanka, and other countries. The shipping cost was paid from the “Oki 100-Yen Fund of Love.”

### ■Picture books

We affixed a Laotian translation to Japanese picture books to create Laotian ones.

### ■Used clothing

We donated used clothing collected at sites of the Oki group all over Japan to refugees in Tanzania, via the NGO “Wakachiai Project.”

### ■Abacuses

We collected unwanted abacuses and donated them to an elementary school in Thailand via the Shimane International Center. They are used in math lessons.

### ■Spoiled postcards

Via the “Darunee Fund for Education in Asia” of the Minsai Center Japan, we supported poor children in Thailand and Laos to enter school. 250 postcards make up the funds for one year of education for one child.

### ■Articles for daily use, etc.

Unwanted soap, towels, stationery and other articles of daily use were donated for bazaars at facilities for the challenged.



Sorting of collected used clothing