

## Environmental Cost Management

Murata has long instituted and managed a budget for environmental preservation, pollution control, energy conservation, and prevention of soil and groundwater contamination. Moreover, we have reserved a portion of the total cost of remediation for liabilities related to ongoing efforts to remove soil and groundwater contamination. At the same time, we have carefully managed costs related to the environment. More recently, we introduced an environmental cost management system with the goal of increasing the efficiency of our environmental practices.

### Introduction of the Environmental Cost Management System

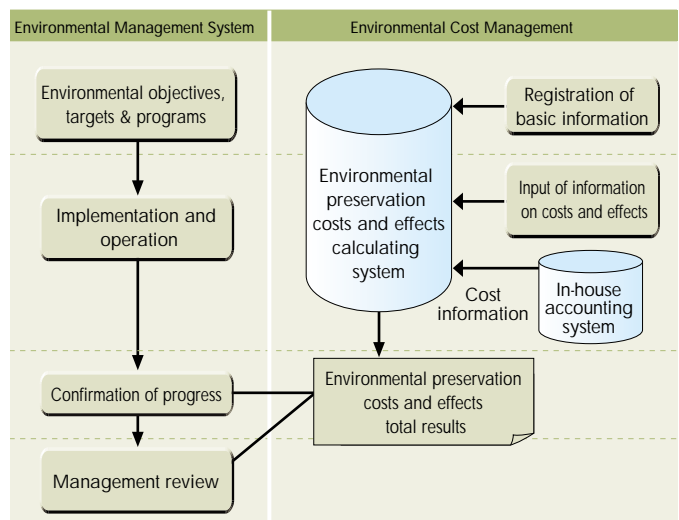
In the interests of ensuring more efficient environmental management, Murata identifies and analyzes the effect of its environmental preservation investments and costs. To underpin this approach, Murata has established a unique environmental cost management system based on the Minister of the Environment's Environmental Accounting Guidelines, 2002 Edition. This system was implemented in the company's plants, offices, and subsidiaries in Japan in October 2003.

This system has enabled Murata to pinpoint the costs and effects of individual programs of its ISO14001-compliant environmental management system. This information enables us to confirm our progress, modify our plans or review our management approach. By supplementing our environmental management system with a cost management capability, we can implement efficient measures, promote horizontal business development, achieve our environmental goals, establish targets, and review the effectiveness of our progress.

To determine the costs and effects, we calculate individual environmental preservation objectives. Toward this end, we extract environment-related investments and costs from items that have other objectives. To determine the effects, we perform an individual accounting of only the measurable economic and physical effects. For the effects of investments, we calculate the

projected economic and physical effects over a five-year period in light of the five-year amortization period used for environmental preservation facilities, considering the need for technical renewal after such a period.

#### Outline of the Environmental Cost Management System



## Performance for Second Half of 2003

### Investment versus effects

**Costs and Results of Environmental Preservation (Investment versus Effects)** (Millions of yen)

Classification		Investment	Economic effects	Physical effects		Reference page
Costs for plant and office areas	Pollution control	12	—			27, 28, 39-51
	Global environmental conservation	144	234	Reduction in CO <sub>2</sub> emissions	14,130 t-CO <sub>2</sub>	24
	Recycling	5	258	Resource conservation	18 t	7-10, 25
				Water conservation	18,900 m <sup>3</sup>	
Subtotal		161	492			—
Cost of upstream/downstream environmental conservation		69	—			19-23
Cost of management		—	—			—
Cost of social activities		—	—			—
R&D cost		18	—			11-12, 19
Cost of environmental damage		—	—			—
Total		249	492			

① The scope of the accounting includes the plants and offices of Murata Manufacturing and 16 subsidiaries in Japan.

② The accounting term is the six-month period from October 1, 2003, to March 31, 2004.

③ The effects include the materials and costs that are reduced over the five years as a result of the application of the investment.

④ Proportional accounting is carried out for compounded costs in which the cost of environmental conservation is embedded in other costs.

⑤ Presumptive effects, such as the avoidance of potential risk, are not calculated.

⑥ For the fuel and electric power conversion coefficients for CO<sub>2</sub> emissions, we used the figures contained in the Report on Survey of Carbon Dioxide Emissions (1992) of the Environment Agency.

⑦ The amount of the reduction is calculated as the effective difference between application and non-application of the investment.

## <Investment>

The total investment for environmental conservation by the Murata Group (in Japan) during the second half of 2003 was approximately ¥250 million.

The largest investment was toward global environmental conservation resulting from aggressive investment in inverters—which included conversion to energy-efficient lighting, pumps, compressors and air conditioners—as well as unit control and integration for improved energy efficiency.

## <Effects>

The estimated economic effect obtained through the investment is about ¥490 million for the second half of fiscal 2003.

The estimated reduction in CO<sub>2</sub> emissions is about 150,000 metric tons resulting from our aggressive promotion of investment in energy efficiency. The economic benefit of this energy conservation and other efforts is estimated at about ¥230 million.

As for resource recycling, the estimated reduction in raw material consumption is 18 metric tons resulting from the introduction of a raw material recycling facility, which will accrue an economic effect estimated at ¥260 million.

## ■ Costs versus effects

### Costs and Results of Environmental Preservation (Costs versus Effects)

(Millions of yen)

Classification		Amount Invested	Economic effects	Physical effects		Reference page
Costs for plant and office areas	Pollution control	259	—	Reduction in chemical substances emitted	209 t	27, 28, 39–51
	Global environmental conservation	73	131	Reduction in CO <sub>2</sub> emissions	21,783 t-CO <sub>2</sub>	24
	Recycling	703	1,175	Resource conservation	827 t	7–10, 25
				Water conservation	31,240 m <sup>3</sup>	
Waste reduction				4,137 t		
	Increase in recycling	6,184 t				
Subtotal		1,035	1,306			—
Cost of upstream/downstream environmental conservation		142	6	Reduction in chemical substances used	2 t	19–23
Cost of management		219	—			13–18, 26
Cost of social activities		80	—			37
R&D cost		284	—			11–12, 19
Cost of environmental damage		0	—			29–30
Total		1,759	1,312			

① The scope of the accounting includes the plants and offices of Murata Manufacturing and 16 subsidiaries in Japan.

② The accounting term is the six-month period from October 1, 2003, to March 31, 2004.

③ Costs include labor but not depreciation.

④ Proportional accounting is carried out for compounded costs in which the cost of environmental conservation is embedded in other costs.

⑤ Presumptive effects, such as the avoidance of potential risk, are not calculated.

⑥ For the fuel and electric power conversion coefficients for CO<sub>2</sub> emissions, we used the figures contained in the Report on Survey of Carbon Dioxide Emissions (1992) of the Environment Agency.

⑦ The physical effects are calculated as the effective difference between implementation and non-implementation of the countermeasures.

## <Costs>

The total cost of environmental conservation for the Murata Group (Japan) during the second half of fiscal 2003 was ¥1.8 billion.

The largest portion was spent on recycling resources due to aggressive promotion of waste reduction and recycling in the effort to achieve zero emissions.

R&D costs resulted from efforts to achieve reductions in product size, control waste generation, reduce hazardous substances, eliminate use of lead, and reduce the power consumption of products.

Costs related to management activities resulted mainly from efforts to maintain our environmental management system, provide educational training, and control chemical substances. Most expenses are related to labor.

As part of its corporate accounting, the Murata Group performed a trial calculation of the total cost of a full-scale cleanup of environmental contamination and appropriated this amount as a liability. In the second half of fiscal 2003, the cost of environmental damage was zero, so it was not necessary to appropriate an additional amount for cleanup of environmental contamination.

## <Effects>

For the second half of fiscal 2003, the economic effect totaled ¥1.3 billion.

Waste emissions were reduced by 4,137 metric tons and the amount recycled increased to 6,184 metric tons as a result of aggressive promotion of the waste reduction and recycling. The zero emissions target was achieved in March 2004, and the economic effect of this effort amounted to ¥1.18 billion.

See pages 7 and 8

CO<sub>2</sub> emissions were reduced by 21,783 metric tons as a result of measures to increase energy efficiency. The economic effect of this effort totaled ¥130 million.

In addition, our efforts to control pollution by reducing the use of hazardous chemical substances such as toluene during production processes resulted in a 209 metric ton reduction in consumption.

Management of pollution control enabled entire plants and offices to meet regulated values for drainage and gas emissions.