

Action plans are mapped out and sustainable environmental management is evaluated using Eco Balance, integrated environmental impact, and environmental accounting as tools.

The Ricoh Group believes that the environmental impact generated by advanced nations must be reduced to one-eighth the fiscal 2000 levels by 2050 (described in the Long-Term Environmental Vision¹). For our part, we aim to reduce total lifecycle CO₂ emissions by the Group and the input of new resources as well as the impact of chemical substances on the environment by 87.5% (declared in the 2050 Long-Term Environmental Impact Reduction Goal²). We pursue these targets by improving the level of sustainable environmental management—that is, by promoting environmental conservation activities that reduce environmental impact and enhance economic effects at the same time. To realize this, an appropriate scheme must be built so that suitable action plans can be mapped out to reduce the environmental impact caused by all our businesses, effective measures can be examined and implemented, and the results can be properly evaluated and disclosed. At the Ricoh Group, Eco Balance³, integrated environmental impact⁴, and environmental accounting⁵ serve as tools to operate the PDCA cycle for improvement of sustainable environmental management and for evaluation of action plans, measures and activity results.

1. See page 17.

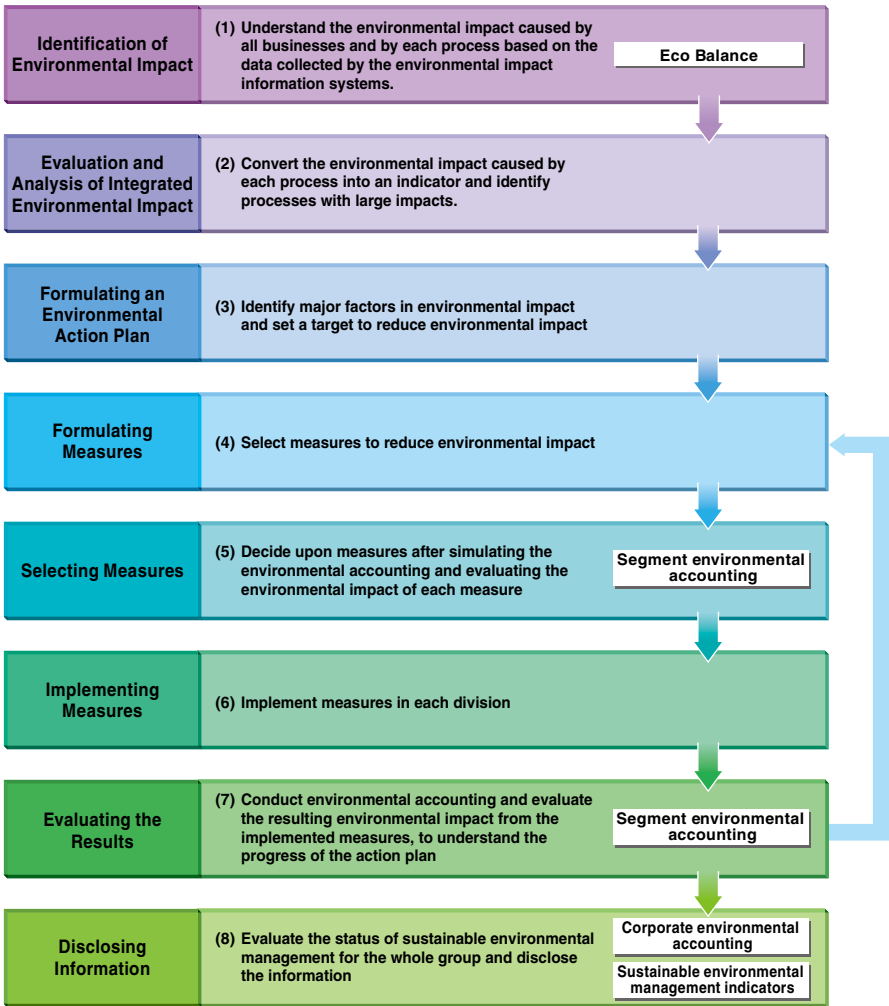
2. See pages 17, 18.

3. See page 62.

4. See page 59.

5. See page 59.

Eco Balance and integrated environmental impact evaluation flow



Understanding the environmental impact caused by all our businesses using Eco Balance and integrated environmental impact evaluation

The Ricoh Group obtains information on the environmental impact caused by all its businesses and by each process, using Eco Balance¹ and integrated environmental impact² as tools, to effectively reduce the environmental impact generated by processes with large environmental impact. First, Eco Balance is prepared based upon input and output data for each process and for each environmentally-sensitive substance. The data are collected by the sustainable environmental management information system³. At this stage, however, the significance of the environmental impact generated by each process cannot be compared because each process employs different environmentally-sensitive substances. Therefore, an integrated analysis method is used to convert the total environmental impact caused by business activities—including impact upon human health, depletion of resources, and impact upon ecosystems/biodiversity—into indicators to evaluate the integrated environmental impact and identify processes generating large environmental impact. The Ricoh Group sets environmental action plans⁴ based on its evaluation of the integrated environmental

impact that is identified by Eco Balance.

1. See page 61.

2. See page 5.

3. See page 55.

4. See pages 19, 20.

Selecting measures by environmental accounting and evaluating activity results

Reducing environmental impact using measures that will lead to the creation of benefits is crucial to promoting sustainable environmental management. The Ricoh Group uses environmental accounting to determine what measures should be taken for what processes and for what operations so that the maximum effect can be obtained. A number of improvement plans to reduce the identified environmental impact are examined in consideration of developments in society and changes in laws/regulations as well as the activities of competitors to improve processes generating large environmental impact identified through evaluation based upon Eco Balance and the integrated environmental impact. Then, using segment environmental accounting, we simulate how much environmental impact is reduced and how much profit is created compared with the costs for each measure, while surveying the results of the individual measures.

Eco Balance of the Ricoh Group

The Ricoh Group introduced the concept of Eco Balance in fiscal 1998 to clarify the environmental impact caused by all its businesses and effectively reduce it. Currently, the Ricoh Group is calculating the integrated environmental impact using EPS, which is an integrated analysis method developed by IVL Swedish Environmental Research Institute Ltd. We adopted EPS after evaluating various methods used in Japan and/or overseas because we found that its characteristics

agree with the Ricoh Group's ideas about environmental impact reduced by the collection of resources and the Comet Circle*, Ricoh's original concept aimed at establishing a sustainable society. We have mapped out environmental action plans based upon the concept of Eco Balance since fiscal 2002 and have applied the concept in the formulation of environmental goals that take a longer perspective since fiscal 2005. [* See page 15.](#)

Ricoh Group's Environmental Accounting

The Ricoh Group disclosed its environmental accounting for the first time in 1999. Subsequently, the Group has introduced corporate environmental accounting to determine the status of sustainable environmental management and disclose related information, as well as segment environmental accounting, that is used to prepare environmental action plans, select measures, and verify achievements. Thus efforts are being made to establish environmental accounting as a tool for sustainable environmental management.

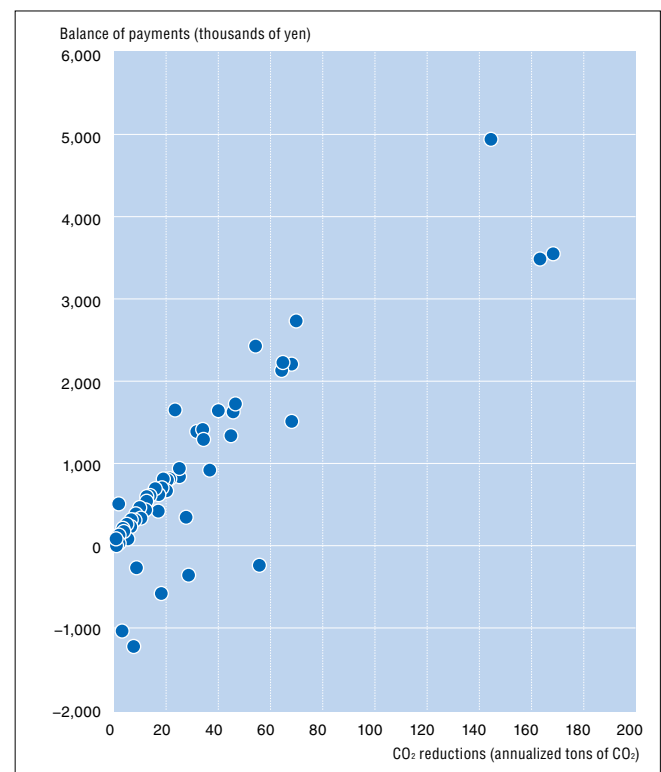
● Corporate environmental accounting

The Ricoh Group calculates and announces the cost spent in its business activities for environmental conservation, as well as the conservation and economic effects, as quantitatively as possible. The Ricoh Group prepares such data in compliance with the Environmental Accounting Guidelines 2005—set by the Japanese Ministry of the Environment—by taking the necessary portion from the Eco Balance data and calculating the cost and effect (in quantity and monetary value) of its environmental conservation activities based on its own formulas and indicators. In fiscal 2007, the Group started disclosing its environmental impact from a product lifecycle perspective, in addition to direct environmental impact (i.e., environmental impact generated at business sites). [See page 64.](#)

● Segment environmental accounting

This is an environmental accounting tool to forecast the costs and environmental conservation/economic effects of individual investment activities and projects for environmental conservation from among all processes of operations and to evaluate their results, in order to judge the effectiveness of respective measures.

CO₂ reductions and economic effects (based on segment environmental accounting)



* For environment accounting reports for fiscal 1998 to 2008, please visit our Web page at: <http://www.ricoh.com/environment/account/index.html>

Eco Balance

Eco Balance means the preparation of a list of input and output data on environmental impact to identify, quantitatively measure, and report environmental impact caused by companies; or such a list itself. It is based upon the same concept as LCA, and direct environmental impact as well as indirect environmental impact is calculated.

Integrated environmental impact

This is an integrated indicator shown in ELUs (Environmental Load Units), incorporating various types of environmental impact caused by environmental load. Substances that put a load on the environment cause various phenomena including global warming and air pollution, which negatively affect the ecosystem, biodiversity and human health. In addition to these, the depletion of resources is taken into consideration, and all these factors are incorporated into one single indicator that represents the significance

of environmental impact overall. Determining the environmental load caused by all our businesses and calculating the integrated environmental impact allow us to formulate specific plans to reduce them. In calculation, we apply the EPS (Environment Priority Strategies for Product Design), a method developed by IVL Swedish Environmental Research Institute Ltd, to allow us to convert the results into monetary values (1 ELU = 1 Euro).

Fiscal 2009 Review of environmental accounting

Environmental accounting is designed to present the costs incurred for environmental conservation activities during a given period in comparison to the resulting environmental and economic benefits. The scope of environmental accounting covers the entire product lifecycle, from the procuring of raw materials, the production and use of the products to recycling and final disposal. In the Fiscal 2009 review of environmental accounting, we re-evaluated the method of calculation.

When gathering data for the fiscal 2009 environmental accounting, we reviewed the method for gathering information on environment-related capital spending as well as the recycling business (in Japan) that has an especially large impact. Until then, we had booked only categories directly related to environmental preservation (such as collection and processing costs) as environmental costs. However, starting in fiscal 2009, we included indirect costs incurred in the recycling business. In capital spending related costs, environment-related capital spending as well as the depreciation costs for environmental investment (the number within the categories for each environmental cost) both shrank as a result of the improved accuracy of identifying environment-related capital spending.

When we look at the overall trends of the Ricoh Group, gross profit on sales and total environmental impact both declined due to economic changes in Japan and overseas. Therefore, the Eco Index (the ratio of the gross profit on sales to the total environmental impact) recovered to the previous year's levels (See graph (2)).

The Ratio of Eco Profit, an indicator of the cost effectiveness

of sustainable environmental management activities, as well as the Ratio of Eco Effect, an indicator that takes into account social cost reduction values, declined further (See graph (1)).

When we look at the fiscal 2009 corporate environmental accounting data*, environmental investments shrank by roughly 30% compared with the previous year, but this is due to the improved accuracy of environment-related capital spending figures, as mentioned earlier. Environmental costs for recycling in both the upstream and downstream processes increased by roughly 20% compared with the previous year.

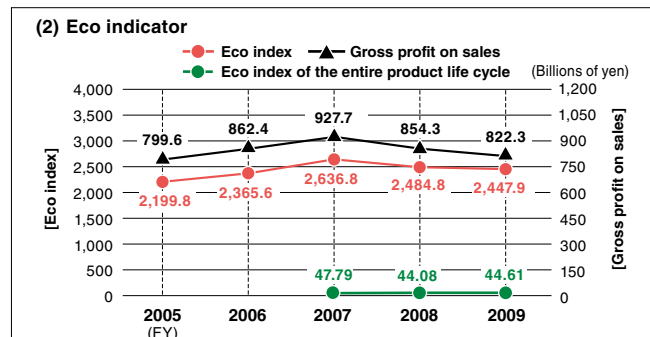
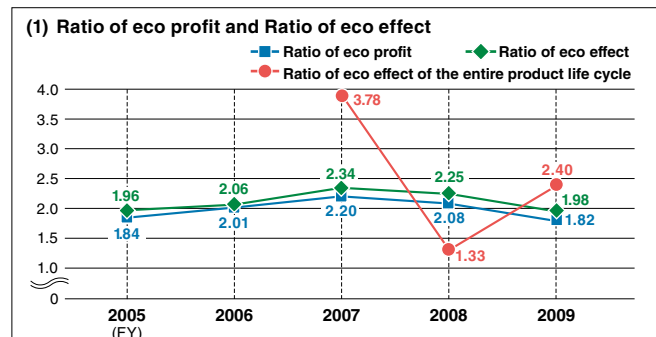
This was, however, a result of reviewing recycling-related environmental preservation costs. The economic effects turned positive as a result of reflecting a decrease in production due to the world economic slump, cost cuts, and decreases in utility costs and costs for waste disposal.

Recycling related costs, which make up a large portion of economic effects, moved steadily. As a result, total economic effects increased slightly.

Overall, recycling-related items, which make up a majority of costs and economic effects, were relatively strong despite the world economic slump and can be considered to be well-reflected in the economic effects. [*See pages 63 and 64.](#)

* Graph (1) shows ratio of eco profit, ratio of eco effect, and ratio of eco effect of the entire product life cycle. Graph (2) shows eco index, gross profit on sales, and eco index of the entire product life cycle.

Changes in the Ricoh Group's sustainable environmental management indicators



The Ricoh Group's sustainable environmental management indicators (fiscal 2009)	Results in fiscal 2009	Calculation formula
REP: Ratio of Eco Profit	1.82	Total economic benefit (36.70) / Total environmental conservation cost (20.17)
REE: Ratio of Eco Effect	1.98	[Total economic benefit (36.70) + Social cost reduction values (0.38 + 2.93)] / Total environmental conservation cost (20.17)
Eco Index	2,447.9	Gross profit on sales (822.3) / Total environmental impact (33,592.6) × 10 ⁵
RPS: Ratio of Profit to Social Cost	172.8	Gross profit on sales (822.3) / Total social cost (4.76)

* Unit: Billions of yen.

Sustainable environmental management indicators of the entire product lifecycle (fiscal 2009)	Results in fiscal 2009	Calculation formula
REP: Ratio of Eco Profit	1.82	Total economic benefit (36.70) / Total environmental conservation cost (20.17)
REE: Ratio of Eco Effect	2.40	[Total economic benefit (36.70) + Social cost reduction values (8.73 + 2.93)] / Total environmental conservation cost (20.17)
Eco Index	44.6	Gross profit on sales (822.3) / Total environmental impact (1,843,264.5) × 10 ⁵
RPS: Ratio of Profit to Social Cost	3.1	Gross profit on sales (822.3) / Total social cost (261.2)

* Unit: Billions of yen.