

Identifying Environmental Impact (Eco Balance)

Identifying the environmental impact of business activities as a whole and translating it into numerical figures to be used in planning an environmental action plan

The Ricoh Group calculates the environmental impact and cost of each process based on data collected from the environmental management information system¹ to identify the Eco Balance² of the Ricoh Group's business activities as a whole. All kinds of business activity-related environmental impact, including global warming, ozone layer destruction, and ecosystem damages, are identified and translated into numerical figures using the integrated analysis method³. The Ricoh Group makes environmental action plans⁴ based on these figures. Ricoh calls the environmental accounting based on these Eco Balance figures "Eco Balance Environmental Accounting." Eco Balance Environmental Accounting focuses on the environmental impact of each product and division as well as the cost and effect of individual environmental measures, enabling a stricter control of each product and division. In the future, each division will be evaluated by specific environmental management indicators, and numerical targets for all Ricoh Group business activities will be set in the environmental action plan as general environmental indicators.

1. See page 25.
2. Eco Balance is a system that involves the listing of environmental impact input/output data to identify, quantitatively measure, and report the environmental impact of companies.
3. Environmental priority strategies (EPS) for product design, which was developed by the Swedish Environmental Research Institute (IVL), is used in calculating the Eco Balance of business activities. Under EPS, damage caused by environmental impact on human health, ecosystems, non-living resources, and biodiversity is converted into monetary value using factors ($\text{CO}_2=0.108 \text{ ELU/kg}$, $\text{NO}_x=2.13 \text{ ELU/kg}$, $\text{SO}_x=3.27 \text{ ELU/kg}$, $\text{BOD}=0.002 \text{ ELU/kg}$, etc.) to calculate environmental load units (ELUs) of products.

4. See page 33.

* Data collection is limited to the image-related product business in Japan.

The environmental impact of upstream and downstream activities is roughly calculated based on the environmental impact data of specified models. (Blanks indicate environmental impact that is approximately zero or unknown.)

Eco Balance of Overall Business Activities

Input	Energy consumption	Electric power, heavy oil, etc.	[TJ]
	Resource consumption	Crude oil	[thousands of tons]
		Ore	[thousands of tons]
		Coal	[thousands of tons]
		Other	[thousands of tons]
	Water consumption	Tap water/well water/industrial water	[thousands of tons]
	Chemical substances (lead, hexavalent chromium, PVC, etc.)		[t]

Output	Chemical substances (toluene, dichloromethane, etc.)		[t]
	Environmental impact emission	NOx	[t]
		SOx	[t]
		CO ₂	[thousands of tons]
		CH ₄	[t]
		BOD	[t]
		COD	[t]

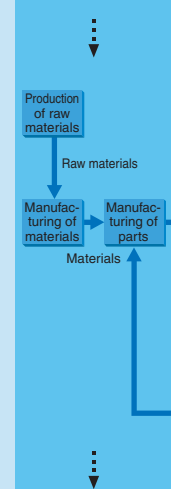
Environmental Accounting	Influence on the environment	Influence on human health, the ecosystem, abiotic resources, and biodiversity	[ELU]	1.45E+08	4.71E+07	
	Converted into money value	Social costs	[millions of yen]	16,082	5,215	
		Percentage			23.85%	7.74%
	Costs	Resource and energy costs	[millions of yen]	69,567		
		Environmental conservation costs	[millions of yen]	40		
	Effects	Economic benefits	[millions of yen]			
		Effects on environmental conservation (to reduce social costs)	[millions of yen]			
	Indicators for each item	Ratio of eco effect (REE) [total economic benefit + total social cost reduction amount]/total environmental conservation cost				
		Ratio of eco profit (REP) [total economic benefit/ total environmental conservation cost]				
	Overall indicators	Eco-efficiency index (EEI) [sales (yen)/ environmental impact amount (ELU)]				
Ratio of sales to social cost (sales/total social cost)						

**Major Activities
(Environmental Action
Plan from Fiscal 2002)**

* See page 33.

- ## Procurement of Materials and Parts

Upstream	Chemical substances contained in products
1,275	
7	
20	
10	
2	
	15



- Promotion of green procurement and green purchasing
- Promotion of the prevention of products from being polluted
- Increased quantity of reused parts in products

Manufacturing		Logistics and Marketing		Use and Maintenance				Collection and Recycling	
Production sites	Non-production sites	Transportation	Marketing	Use		Maintenance		Recycling and disposal	
				Electric power	Paper	Maintenance	Manufacturing of maintenance parts		
3,412	559	271	650	1,521	10,121	291	121	15	
2,981	187				394				
0							5		
							0		
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	
331			47			3			
35	4	35	39	48	585	17	1	0	
10	0	15	15	38	2,139	7	2	0	
148	23	16	37	57	746	16	8	0	
355	35	80	0	100		72			
16	0	0					0		
18	0						0		
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	
1.50E+08	1.53E+07	5.07E+06	1.13E+07	2.38E+07	2.03E+08	5.66E+06	2.34E+06	2.07E+05	
16,570	1,695	561	1,254	2,638	22,501	626	259	23	
24.58%	2.52%	0.83%	1.86%	3.91%	33.37%	0.93%	0.38%	0.03%	
4,193	462	88	819			397			
2,153	2,103	72	1,792	464		143		2,253	
509	92	113	3,613			352		1,421	
37	1	4	44	561		9		2,114	
0.25	0.04	1.60	2.04	1.21		2.53		1.57	
0.24	0.04	1.55	2.02			2.46		0.63	
								875.59	
								7.92	

- Reduction in the amount of energy used at business sites
- Reduction of pollution at business sites
- Promotion of resource conservation and recycling at business sites

- Promotion of green marketing
- Increased number of resource-recirculating products

- Promotion of the development of energy-saving products
 - Development of technologies useful in reducing the environmental impact of paper
- See page 35 (Environmental Technologies and Products Development) for the reduction in environmental impact while machines are operating.

- Improvement in the collection rate for used products and toner cartridges
- Improvement in the resource recovery rate for used products and toner cartridges

"E+n" means "×10ⁿ."
e.g.) 1.45E+08=1.45×10⁸