Environmental Impact Analysis

The Ricoh Group, using the Comet Circle concept[1], identifies the overall environmental impact of its products and business activities to bring about more effective impact reductions. For this purpose, the Ricoh Group constructed an Eco Balance-based environmental impact information system[2] that makes use of both LCA and Eco Balance methods. The Ricoh Group adopted both methods following a long-term research on LCA, which indicated that LCA was necessary in conjunction with Eco Balance if the Group was to respond to a variety of requests for clarification on the environmental impact of its products and business activities.

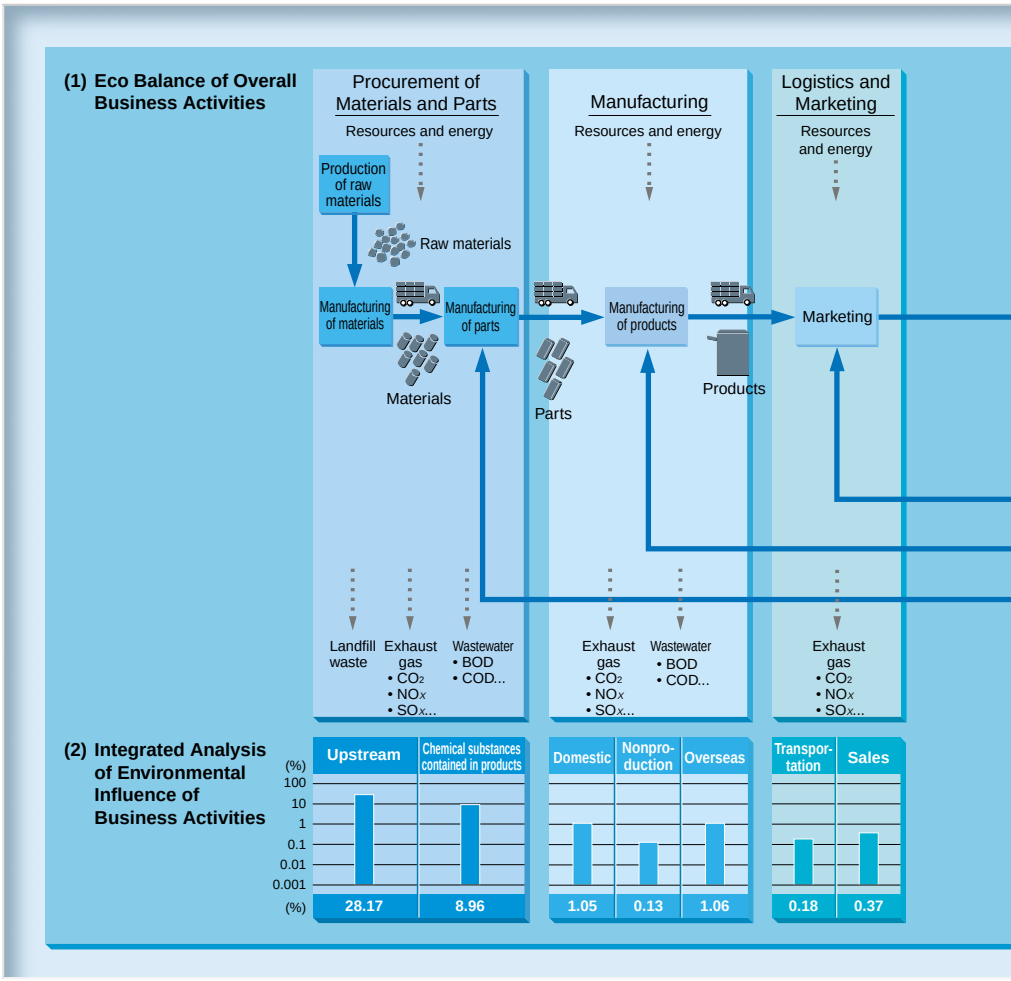
1. See pages 9–10.
2. See pages 19–20.

Eco Balance* Evaluation

The Ricoh Group used an integrated analysis method [See (2) in the figure on the right] to determine which of its business activities had the most environmental impact. It was discovered that upstream activities and chemical substances contained in products had the highest values. This means that the manufacturing of materials and parts and the chemical substances contained in products had the most effect on the environment.

Therefore, the Ricoh Group, according to its fiscal 2001 medium-term action plan, will strive to (1) collect its products for the recycling of materials and parts and (2) reduce chemical substances, especially lead, that have the most effect on the environment.

* See page 19.

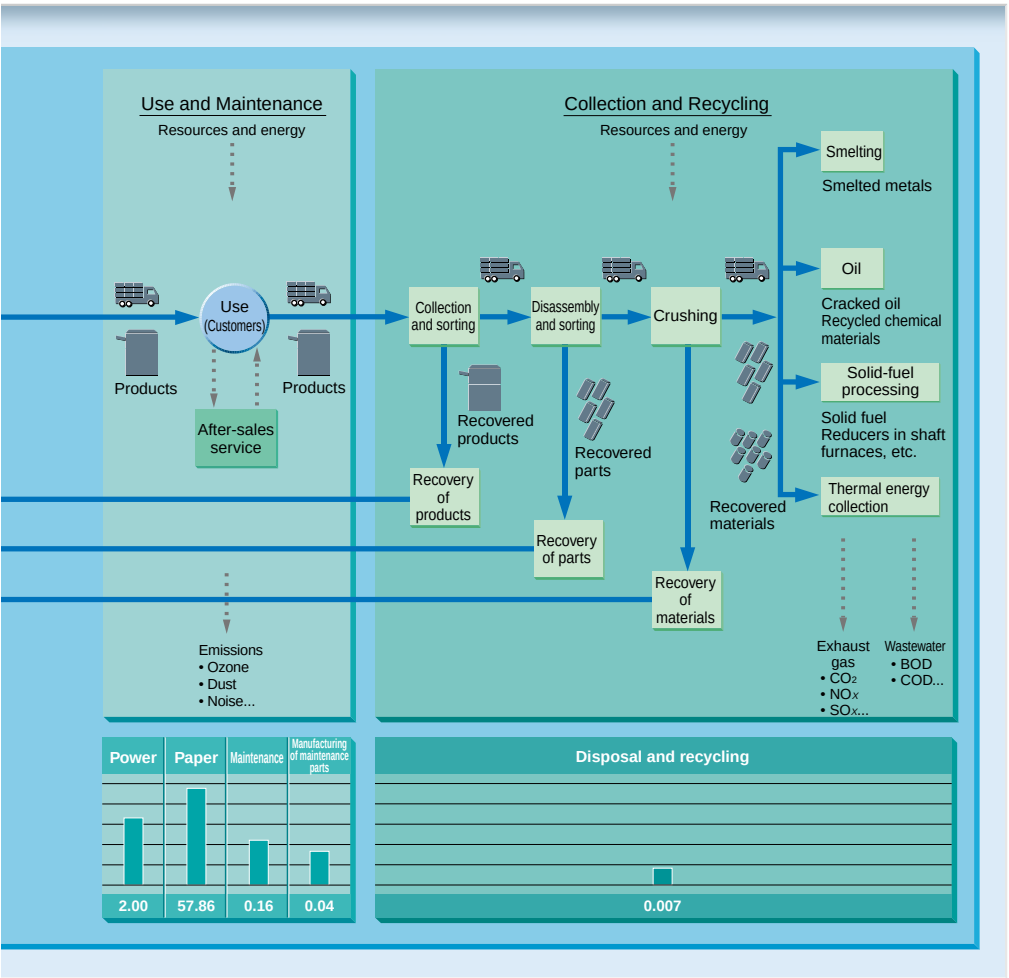


Input

Environmental Impact Item		Preliminary Process	Manufacturing	Transportation
Electric Power (kWh)		7,730 (MJ)	37.9	0
Fossil fuel (MJ)			167	381
Water usage	Tap water (ℓ)	—	3.65	0
	Industrial water (ℓ)	—	0	0
	Underground water (ℓ)	—	0	0
Resource input	Principal resource (kg)	—	Metal 116 Plastic and rubber 38.8 Glass 2.2 Others 45.1	0
	PRTR substances (g)	—	58.4	0
	Volatile organic substances (g)	—	0	0

Output

Environmental Impact Item		Preliminary Process	Manufacturing	Transportation
Emission into air	CO_2 (kg-C) Power consumption/others	250	6.03/3.20	0/7.0
	SO_x (g) Power consumption/others	3,460	10.2/13.3	0/31.5
	NO_x (g) Power consumption/others	711	12.9/8.35	0/79.2
	PRTR substances (g)	—	0	0
	Volatile organic substances (g)	—	0	0
Water discharge	Amount (ℓ)	—	3.65	0
	BOD (g)	6,560	0.255 or less	0
	COD (g)	7,570	0.236 or less	0
	PRTR substances	—	0.00439	0
Waste	Recycled (kg)	—	0.697	14.9
	Incineration (kg)	—	0.0294	0.845
	Landfill (kg)	—	0.0008	0



LCA Information of the imagio MF 7070 (Type III Environmental Impact Disclosure)*

Use and Maintenance	Recycling and Disposal
3,494	13.7
2,569	—
0	0
0	0
2,219	0
Copy paper 12,200 Toner 86.7 Photosensitive materials 3.63 Developer 10.0 Maintenance materials 27.9 Others 27.4	0
1,374	0
73.6	0

Use and Maintenance	Recycling and Disposal
291/45.4	1.11/0
412/3.63	1.23/0
568/20.6	1.78/0
1,374	0
73.6	0
2,219	0
0.31	0
—	0
0	0
11.2	177.4
0.864	8.60
37.9	

* See page 62 and http://www.ricoh.co.jp/ecology/e-/type3/index_e.html

LCA[1]

LCA is used to quantitatively identify the environmental impact made by a product throughout its life cycle and the influences a change in design or manufacturing process would have.

More effective environmental conservation activities will be the result of such assessment. LCA information on copiers was disclosed on Ricoh's Web site[2] in fiscal 2000.

Ricoh participates in government committees and other gatherings to help improve the LCA method and conduct research with scholars and company representatives.

1. LCA is a means of quantitatively determining the level of environmental impact generated throughout a product's life cycle, from resource procurement to manufacturing, transportation, usage, maintenance, recovery, recycling, and disposal. Even a partially determined level of impact can be used.
2. See page 62.

LCA Research

Ricoh established an LCA research team in 1994 to conduct practical research on LCA and has released a variety of case study reports. With more case studies being conducted, such issues as the importance of explaining the usage of LCA and the difficulties of collecting data and setting research conditions are being clarified.

● **Digital duplicator LCA (Tohoku Ricoh)***

Making use of the knowledge obtained by the LCA research team, manufacturing subsidiaries are also conducting LCA.

* (Japanese only) http://www.ricoh.co.jp/tohoku/lca/datasheet.html

Priport JP5800 Life Cycle Environmental Impact