1 Alps Electric Co., Ltd.

1. Company profile

Alps Electric Co., Ltd. has made great advance as a comprehensive electric components manufacturer since its establishument in 1948. At present, Alps designs and manufactures products in five main business fields - Components, Magnetic Devices, Communications, Peripheral Products and Automotive Electronics. We pursue innovations in technology and production methods at 24 manufacturing bases in 9 nations and at 58 sales bases in 12 nations across the five major regions of Japan, America, Europe, ASEAN/Korea and China.
Alps also counts 103 affiliates in Japan and abroad, including the car audio and car navigation manufacturer Alpine Electronics, Inc. and Alps Logistics Co., Ltd. Alps Logistics has expanded its services well beyond its original specialty of electronic components.

Capital stock	22,913 million yen
Number of employee	6,200
Net Sales (non-consolidated, year ending March 31, 2004)	346,701 million yen

2. Environmental activities

As a member of global society and in hopes for continued social development as we know it, Alps bases all aspects of its corporate activities on harmonizing with the earth's environment. Guided by the Environmental Protection Charter, we have established an environmental management system at all operations facilities in Japan. We are also aiming for ISO14001 certification at all facilities overseas, and have implemented systems for zero-emissions from manufacturing processes, the prevention of global warming, and management of chemical substances. In addition, we are activity promoting environmentally-friendly product development, for example, by switching to lead-free solder and plating.

Alps' Environmental Protection Charter (1994):

Alps' Philosophy

Alps, as a member of the global community, is committed to protecting the beauty of nature and to safeguarding our precious resources through the use of technologically advanced business practices and the efforts of its employees, in order to promote sustainable development.

Action Program

Putting a priority on environmental protection, we at Alps will:

1. Develop products in light of environmental concerns.
2. Engage in environmentally friendly production and sales.
3. Conserve our natural resources.
4. Reduce or eliminate waste.

5. Increase recycling activities.

3. Objectives

- To grasp the relationship between environmental initiatives in the company and their environmental impacts (verification of the effects of the initiatives)
- To compare environmental impacts in each division
- To use results as a guide to future initiatives in the company

4. Scope

The boundary of this analysis is the area surrounded by a black border in Figure 1.1: site-core balance (impacts through fuel consumption in factories + impacts through energy production + impacts through waste treatment).

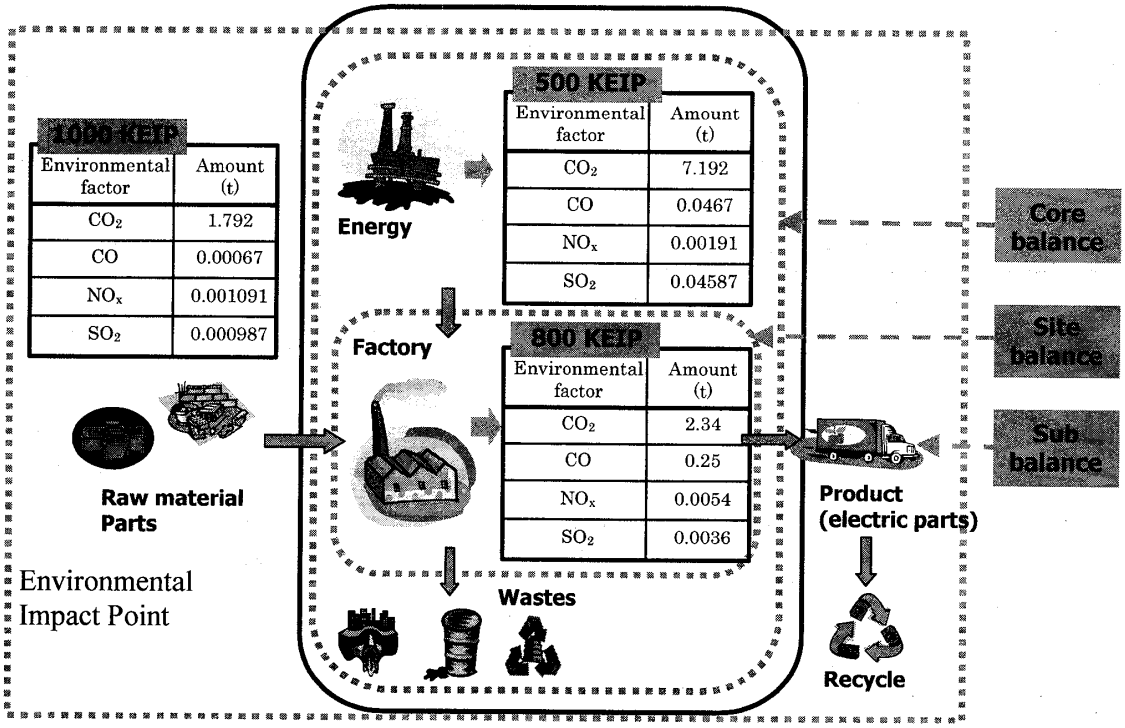

Figure 1.1: Scope of analysis

5. Condition

The analysis was conducted company- and division-wide.

▼ Input data

We used two kinds of input data company- and division-wide: input data and output data.

1. Company-wide data

<Input data>

Table 1.1: Material input data (company total)

Year			2000	2001	2002	Unit
Production cost			2,452	2,020	2,513	100 million yen
Energy	Electricity	Electricity	158,319	148,645	160,328	MWh
	Fuel	A heavy oil	12,882	11,868	12,127	kL
		Diesel oil	0	49	53	kL
		Gasoline	0	132	174	kL
		City gas 13A	252	354	548	t
Waste	Waste	Incinerated	838	358	349	t
		Landfilled	1,030	553	1,315	t

- We used data of the last three years.
- The data is largely categorized into energy data and emissions data.
- Wastes are disposed either by incineration or landfill, and subtracted by materials and thermal-recycled wastes.

<Direct output data>

Table 1.2: Direct emission data (company total)

Year	2000	2001	2002	Unit
HCFC141b	237	162	96	t
BOD	0	0	130	t
PFCs	[illegible]	[illegible]	[illegible]	[illegible]

↑ GWP exchange value

*1GWP: Relative value based on effect extent of global warming caused by CO_2 as 1

- Calculating the emissions of HCFC-141b, BOD, PFCs, we got this total value as direct emissions from the sites into the environmental category analysis of JEPIX.
- PFCs known as green house gas is expressed in GWP equivalents, and expressed in indices of carbon dioxide in case of an impact analysis.
- PRTR materials except for HCFC are not included in this analysis, for their direct environmental impacts are little.

2. Division-wide data

We used both input and output data of each four operational divisions, just as company-wide data. (Detailed data are omitted.)

▼ Content of the analysis

Analysis 1) Company-wide analysis and site-wide (division-wide) analysis were conducted.

◆ Company-wide analysis

- Eco-efficiency analysis (secular change)

- Environmental category (for the sake of the management in the company) analysis (category balance and secular change)
- Site-wide (division-wide) analysis
- Site-balance as a whole (secular change)
- Eco-efficiency analysis between sites (site comparison, secular change)

Analysis 2) Analysis with JEPIX-categories was conducted for the whole company.

- Environmental category analysis (category balance and secular change)
- Analysis of causes (analysis of measurement points)

6. Results

▼ Eco-efficiency analysis

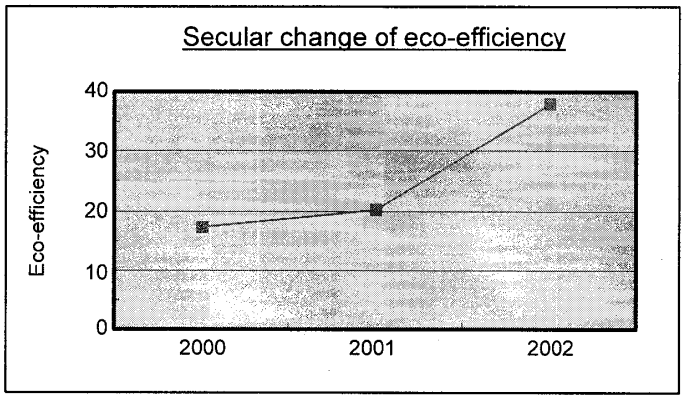

Figure 1.2: Secular change of eco-efficiency

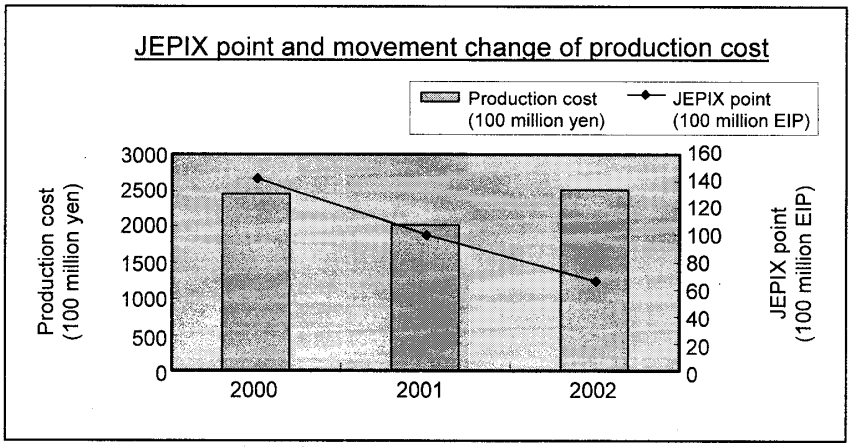

Figure 1.3: JEPIX point and movement change of production cost

In the year 2002, eco-efficiency has improved by some 120% in comparison to that of 2000.

▼ Environmental category analysis

We conducted an analysis, using environmental categories for the environmental management in the company.

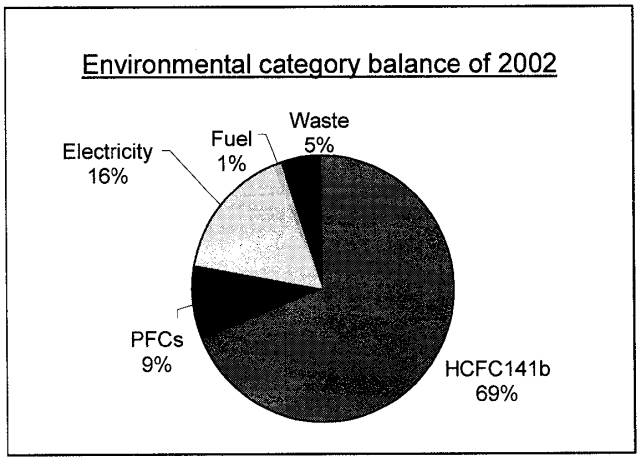

Figure 1.4: Environmental category balance of 2002

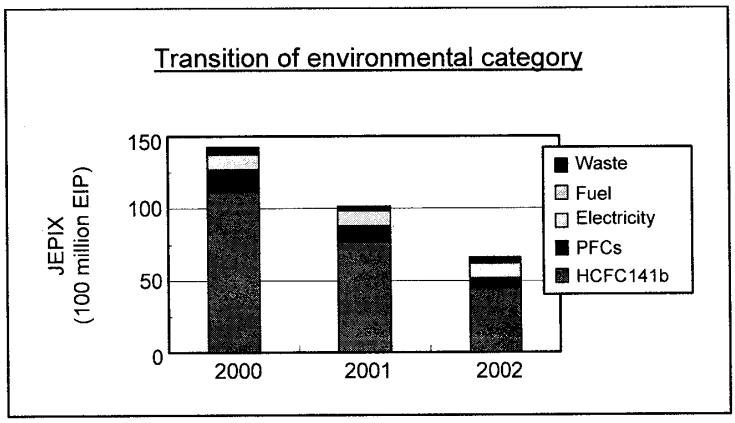

Figure 1.5: Transition of environmental category

- The environmental category analysis of the year 2002 (see Figure 1.4) shows that the size of the shares of HCFC, electricity, PFCs, wastes and fuel is in descending order.
- As to the secular change, the share of HCFC has been steadily the largest, but is getting smaller with time, while total environmental impacts have been on the decrease accordingly.
- The impact of HCFC-141b is especially overwhelming. The use of HCFC-141b was abolished totally in 2003, and its impacts will reach zero in 2004.
- The year 2002 has seen an increase in wastes which are disposed of for a landfill, and as a result an increase in impacts associated with the wastes.

▼ Site-balance

We conducted an analysis of four sites (divisions).

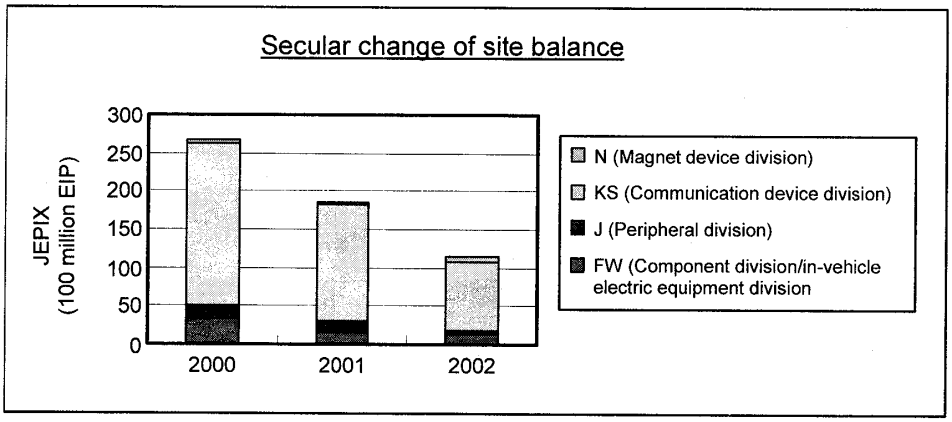

Figure 1.6: Secular change of site balance

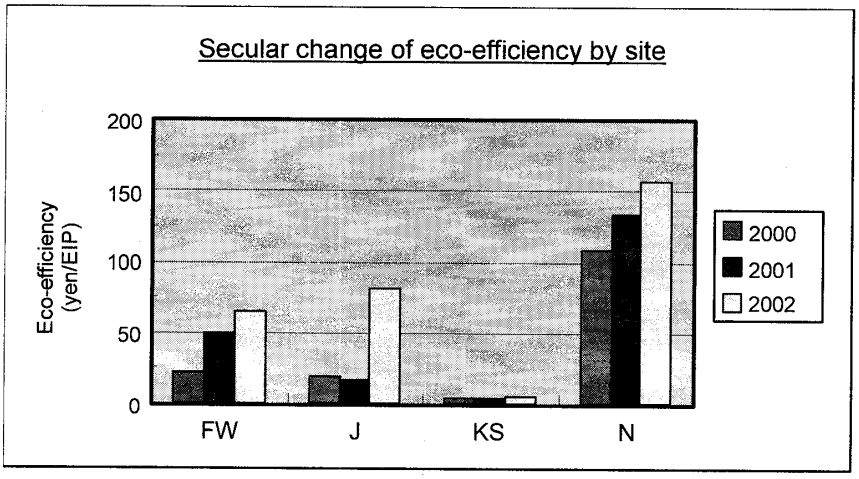

Figure 1.7: Secular change of eco-efficiency by site

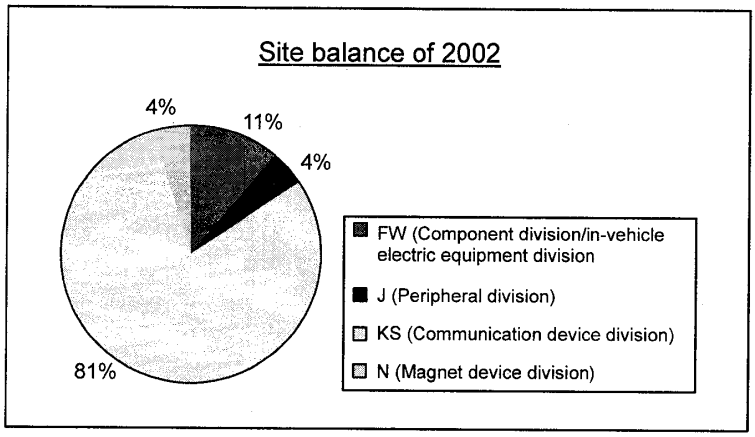

Figure 1.8: Site balance of 2002

- An overall improvement of the J-division in 2002 results from a reduction in wastes which are not to be recycled, a reduction in PFCs, and an increase in production costs.
- HCFC has been mostly used in the KS-division.

▼ Environmental category of JEPIX

We conducted an analysis in environmental categories set by JEPIX.

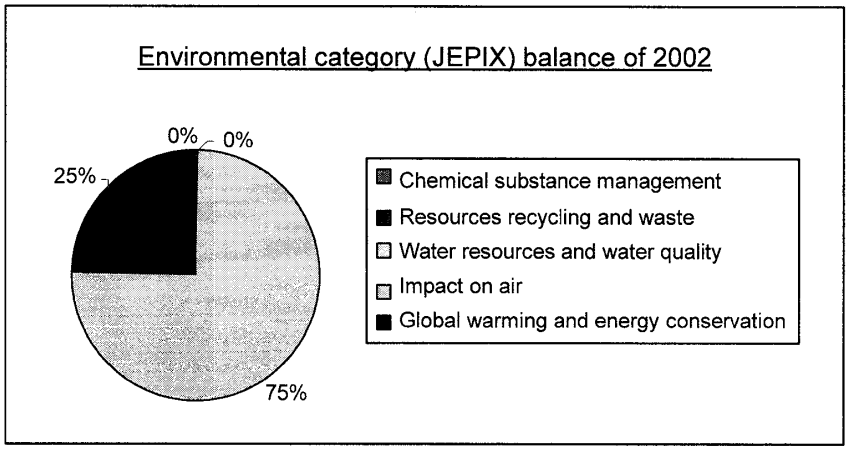

Figure 1.9: Environmental category (JEPIX) balance of 2002

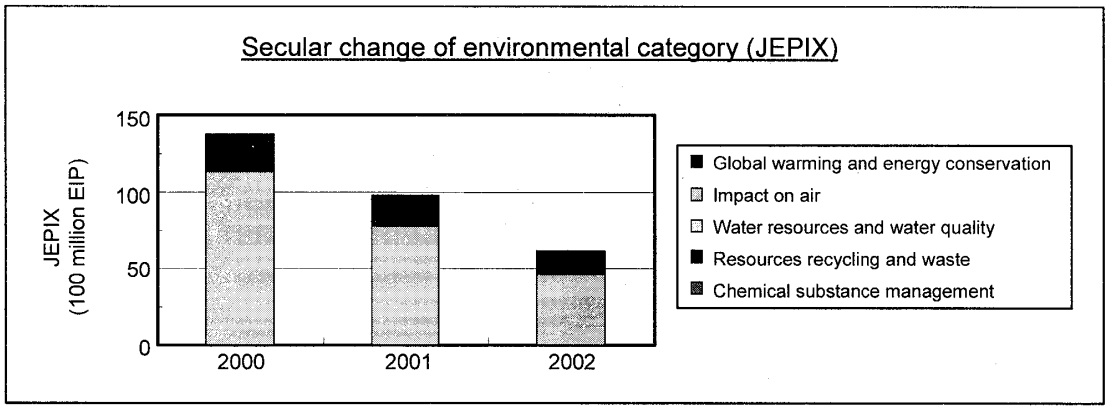

Figure 1.10: Secular change of environmental category (JEPIX)

According to the above Figures, one can see that the category of global warming and energy saving as well as the category of impacts to the air attribute to main environmental impacts. We went on to conduct a causal analysis of agents which comprise these two categories, and which cause environmental impacts.

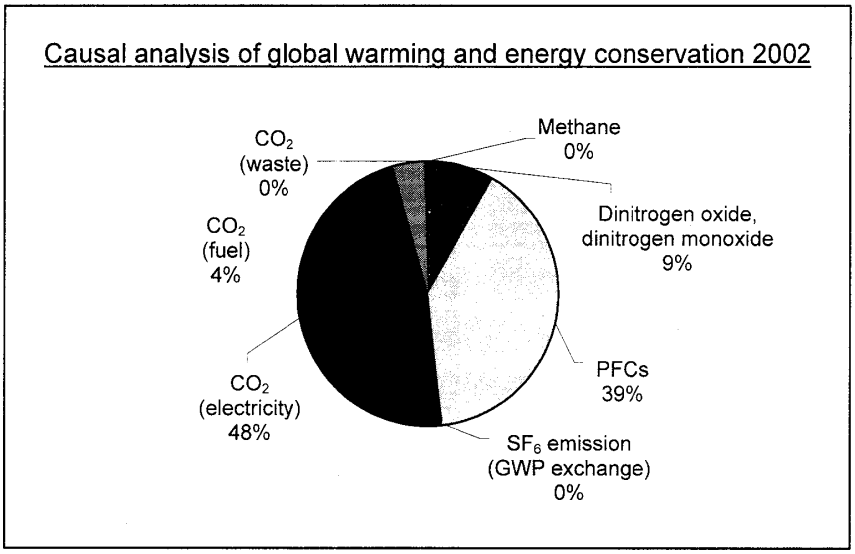

Figure 1.11: Causal analysis of global warming and energy conservation 2002

As to global warming, some 50% of the effects are attributed to carbon dioxide, and other global warming gases such as PFCs are also not to be dismissed.

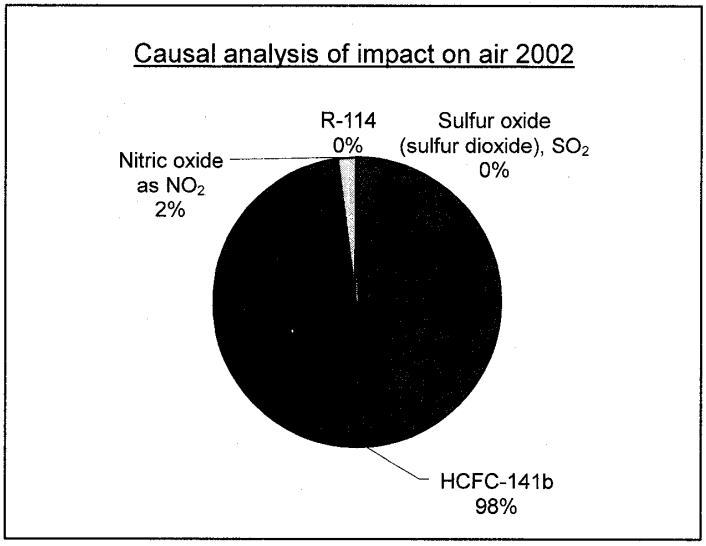

Figure 1.12: Causal analysis of impact on air 2002

The impact to the air is largely caused by HCFC-141b.

7. Summary

▼ Based on the analysis of results

- The eco-efficiency performance has improved from the year 2002 to 2003, thanks to an yearly decrease of environmental impacts.
- The decrease of environmental impacts is mainly contributed to a reduction of emitted HCFC and PFC.

▼ Challenges

- The impact of HCFC is so large as to let other causes look minor.
- The analysis doesn't consider wastes at this moment, which are thermal-recycled. It is necessary to decide how to handle recycling of wastes.
- It should be also decided how to handle production sites abroad.
- The direction of approaches and efforts in the company is partly compatible with the evaluation results of JEPIX.

▼ Future plans

- Enhancement of the quality of input-data.
- The statement of this analysis in the environmental report published next year is under consideration.
- This analysis will be used as a reference to set future targets.

We conducted an evaluation of environmental performances for the first time, and the evaluation results of our company are interesting. We will think about practicing this analysis by adding data of this year and watching the move of indices.