

Canon Environmental Report 2001



Canon

Corporate Philosophy -*Kyosei*

The corporate philosophy of Canon is *kyosei*. A concise definition of this word would be "living and working together for the common good," while a more detailed version would be "all people, regardless of race, religion or culture, harmoniously living and working together for many years to come."

Unfortunately, the presence of imbalance in our world--in areas such as trade, income levels and the environment--hinder the achievement of *kyosei*.

Addressing these imbalances is a mission for the future, and Canon is doing its part by actively promoting *kyosei*. True global companies should establish good relations, not only with their customers and the communities in which they operate, but also with nations, the environment and the natural world. They must also bear the responsibility for their activities on society. For this reason, Canon's goal is to contribute to the prosperity of the world and the happiness of humanity, which will lead to continuing growth and bringing the world closer to achieving *kyosei*.

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Message from the President

Guided by its corporate philosophy of *kyosei* - living and working together for the common good, and realizing that the primary challenge to environmental conservation is the effective use and management of resources, Canon with its all employees carries out environmental activities with the motto "maximizing resource efficiency through complete elimination of wasteful practices."

In the 1990s, as an integral part of Canon's management reform activities, we promoted with great emphasis the environmentally conscious manufacturing. Specifically, our efforts were targeted toward the elimination of CFCs and chlorinated organic solvents, adoption of the closed wastewater system at plants, and achievement of zero-waste. Canon's success in economizing operating resources and reducing environmental burden gives testimony that the goals of economic development and environmental conservation are in accord with each other.

Canon has made special effort to provide consumers with environmentally conscious products that not only conserve energy and resources, but also eliminate hazardous substances. The iR3300 series digital multifunction office system launched this year is a good example of our environmentally conscious products. We truly believe that the use of these products by consumers can make progressive improvement to the reduction of environmental burden on a global level, including the reduction of greenhouse gas emissions.

In pursuit of our Excellent Global Corporation Plan, Canon will continue to make advances in environmentally conscious manufacturing and products so that we can take a leading role in building a society of sustainable development.

We sincerely thank you for your continued support in Canon's activities.



A handwritten signature in black ink, reading "Fujio Mitarai". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Fujio Mitarai
President and CEO
Canon Inc.

Corporate Profile

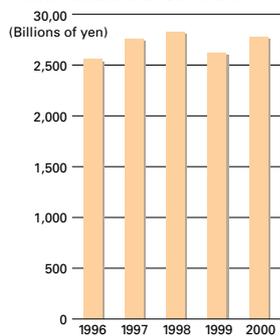
Name: Canon Inc.
 Establishment: August 10, 1937
 Headquarters: 30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo
 Representative: Fujio Mitarai, President and CEO
 Capital: ¥164,796 million (as of December 31, 2000)

Main Products:

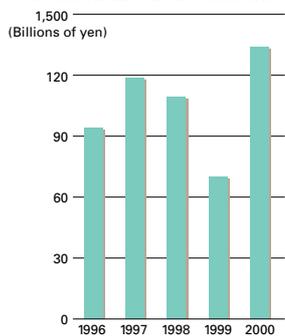
- Business machines: Office-use copying machines, Color copying machines, Personal copying machines, Laser beam printers, Bubble Jet printers, Scanners, Facsimile machines, Consumables (toners and cartridges), and others.
- Cameras: SLR cameras, Compact cameras, Digital cameras, Digital video camcorders, Interchangeable lenses, LCD projectors, Binoculars, and others.
- Optical devices and other products: Semiconductor manufacturing equipment, Television broadcasting lenses, Ophthalmic equipment, X-ray equipment, Medical equipment, Components, and others.

■ Canon Group

Consolidated Net Sales

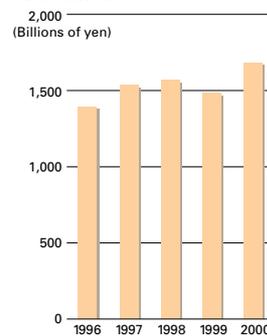


Consolidated Net Income

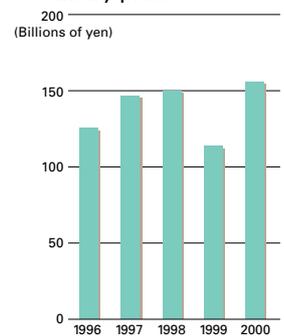


■ Canon Inc.

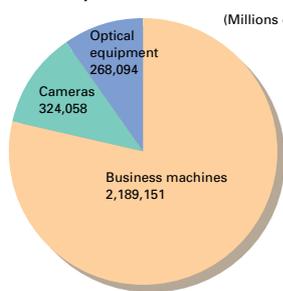
Net Sales



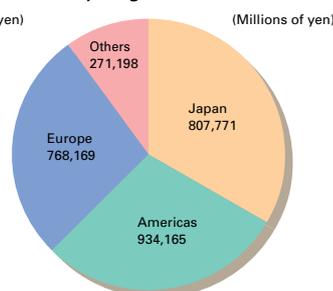
Ordinary profit



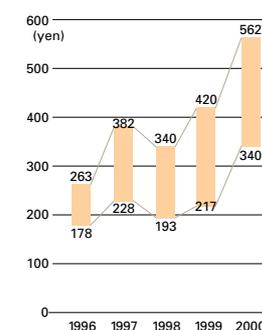
Sales by Product (2000)



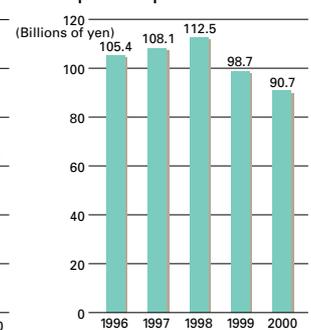
Sales by Region (2000)



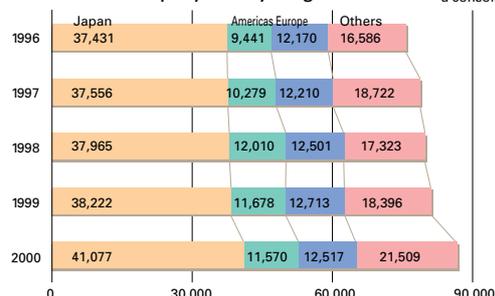
Stock Price



Capital Expenditures



Number of Employees by Region



Number of employees on a consolidated basis

Number of U. S. patents registered in 2000

Rank	Patent holder	Number of patents
1	IBM	2,886
2	NEC	2,021
3	Canon	1,890
4	Samsung Electronics	1,441
5	Lucent Technologies	1,411
6	Sony	1,385
7	Micron Technology	1,304
8	Toshiba	1,232
9	Motorola	1,196
10	Fujitsu	1,147

Source: U. S. Department of Commerce

Canon Environmental Charter

(Revised in April 2001)

Corporate Philosophy "Kyosei"

Our corporate philosophy is *kyosei*, which means "living and working together for the common good". We seek coexistence and harmony in our pursuit for corporate growth and development to contribute towards the prosperity of the world and the happiness of mankind.

Environment Assurance Philosophy

We aim to help realize a society of sustainable development by maximizing resources efficiency* to contribute towards the prosperity of the world and the happiness of mankind.

Environment Assurance Stewardship

Integrate environmental and economic goals in all corporate activities in line with the EQCD Policy, provide "Green Products" by improving resource efficiency through innovation, and also eliminate behaviors that threaten the health and safety of mankind and the environment.

EQCD Policy

Environment assurance is considered to be the most important qualification for a company to operate.

Environment

Environment

Companies are not qualified to manufacture goods if they cannot provide environment assurance

Quality

Quality

Companies are not qualified to market goods if they cannot produce good quality

Cost

Cost

Companies are not qualified to compete if they cannot meet cost requirements

Delivery

Delivery

Companies are not qualified to compete if they cannot meet delivery requirements

* To maximize resource efficiency is to minimize the consumption of all resources and to promote their reuse and recycling while improving the quality of products and service, in other words, to maximize efficiency in the use of resources.

- 1 Optimize the organizations for promoting Canon Group's global environmental efforts, and promote consolidated environment assurance activities of Group companies.
- 2 Consider how to minimize environmental burdens in product planning and development stages, and conduct environmental impact assessment.
- 3 Promote development of technologies and materials essential for environment assurance and share the achievements with the society.
- 4 Promote energy and resource conservation and elimination of hazardous substances in all corporate activities.
- 5 Give priority to materials, parts, and products with less environmental burden when purchasing and procuring necessary resources (Green Procurement).
- 6 Establish Environmental Management System (EMS) to prevent pollutions and environmental accidents, and to steadily reduce environmental burden.
- 7 Disclose actively to all stakeholders information on our environmental burden and the progress of environmental measures undertaken.
- 8 Promote education and activities to raise the environmental awareness of employees so that they will take initiative to carry out environmental conservation activities.
- 9 Maintain close relationship with governments, communities and other organizations concerned, and actively support and participate in the environmental conservation activities in the society.

Environmental Vision and Activities in 2000

The Canon Environmental Report 2001 is intended to explain the Canon Group's basic policy on environmental conservation, and to report the contents of the Group's activities in the year 2000 and future challenges identified through this year's results. Here, I would like to give a brief summary of our basic ideas and major achievements.



Yusuke Emura
Managing Director
Chief, Global Environment
Promotion Committee

Basic Environmental Concept

Building a sustainable society, an idea espoused by the whole world, is the ultimate goal of environmental conservation. With this understanding, the Canon Group adopts "maximization of resource efficiency" as its guiding principle for environmental activities.

In the belief that the conservation of energy and resources, and the elimination of hazardous substances hold the key to environmental problems, Canon to this end employs both selective and intensive measures to pursue environmental activities throughout its operating areas, from research and development, distribution, marketing and sales, and the collection and recycling of used products.

Ultimately, Canon's business activity is aimed at providing products that are convenient to customers and thus contributing the society. In the pursuit of "maximization of resource efficiency", Canon seeks to produce highly added values with

least resources and energy. I believe that a drastic improvement in resource efficiency can contribute to the global environment and to our human society.

Environment Assurance System

The 21st century is called the "Century of the Environment." Today, environmental activities are directly linked to corporate management, making it necessary for companies to speed up their environmental efforts. For this reason, Canon reorganized its environment-related committees in 2000 and established an organizational structure to facilitate decision-making and to efficiently utilize the resources of the Canon Group.

This reorganization enables all of Canon's operating units to exchange their technological expertise and new technologies, and at the same time, share the outstanding results of environmental activities undertaken by the Canon Group throughout the world. It also put in place a system to enable the management to become more actively involved in environmental issues.

Together with the reorganization of the environment assurance system, Canon also set up new mid-term environmental goals to shape a future vision for the company and established environmental investment standards to facilitate the early achievement of the environmental goals. To add further momentum to environmental activities, Canon also decided to evaluate environmental performance as part of the Group's consolidated business performance.

Results in the Year 2000

The various innovative undertakings by Canon in 2000 created a multiplying effect, resulting in remarkable achievements.

In production, for example, the innovative shift from conveyor-based processes to the use of a cell production method increased efficiency, leading to a cost saving of 30 billion yen through reduced inventory and space saving.

Specifically, from the introduction of the cell production method in 1998 to 2000, 380,000 m² of

floor space was saved, 16,000 m of belt conveyors removed, 25 units of automatic warehousing facility abolished, and 80,000 m² of external warehousing space made unnecessary. The consequent reduction in environmental burden is translated into a decrease of 8,000 tons of carbon dioxide, a significant reduction equivalent to 6.6% of the total environmental burden produced from Canon's operations.

Also, the adoption of a flexible production system made it possible to reduce 100 billion yen worth of intermediate inventory, which before the introduction of this system had to be kept at a constant level. The current flexible production system no longer needs this intermediate inventory but can attain the same amount of sales.

Also reduced was the amount of work in process, approximately 28 billion yen in value, without which the current system can produce the same number products. In sum, Canon has transformed into a corporate structure that sheds itself of excessive resources.

In terms of products, in addition to providing the marketplace with printers and scanners that consume minimum electricity, Canon has also carried out the recycling of toner cartridges worldwide for the last 10 years, has recently set up the mechanism to expand the reuse of parts and recycling of copying machines, as well as developed and adopted recycling technologies as represented by sandwich molding and the CO₂ dry cleaning technologies.

Various achievements have also been made in operation, as evidenced by the drastic reduction in emission of greenhouse gases such as PFCs and HFCs, the greater number of zero-waste operation sites, and the establishment of the VOCs plasma decomposing technology.

Future Challenges

The future challenge for Canon is to further speed up environmental activities and to increase their effectiveness.

In terms of products, Canon aims at stepping up the research and development of environmentally conscious products and their commercialization, strengthening the system for reuse and recycling,

and promoting value-added recycling. In terms of manufacturing activities, Canon aims at enforcing risk management in accordance with ISO 14001 and devoting more efforts to conserve energy and resources as well as to eliminate hazardous substances.

In addition, Canon plans to launch environment-related businesses to share with the society the various advanced technologies that the Canon Group has developed. By actively introducing new concepts such as environmental performance assessment and environmental accounting, and invigorating the Group companies, Canon will strive to further improve resource efficiency.

Information Disclosure

Canon actively discloses information to enable the public to understand the various environmental activities carried out by Canon. It will also continue to use the Type III eco-labels to inform consumers of the products' environmental performances. Already, such eco-labels are used for 33 models of products to disclose information. Although there is much room for improvement in the LCA calculation accuracy and in the comparability, Canon continues to play a leading role in promoting the use of the Type III eco-labels.

At the same time, to enable stakeholders to accurately understand the Canon Group's environmental activities, we put effort to disseminate information through the publication of the environmental report and enriching the contents of our websites.

Conclusion

For Canon, the year 2000 was the year of reorganization in various aspects of the Canon Group's environmental activities, including the introduction of new mid-term environmental goals. Our achievements in realizing the goal of "maximizing resource efficiency" in our various business operations marked our first step forward to the integration of business interests and environmental conservation.

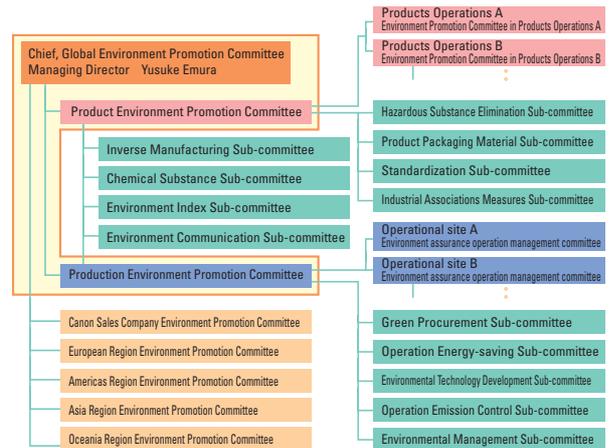
Based on these results, we will continue to take a proactive role in building a sustainable society.

Canon's Environmental Management

New Canon Global Environment Promotion Organization

Canon's environmental activities are supported by a matrix system comprised of line organizations such as product, production, marketing and sales, and special committees to support their activities. In addition to strengthening this matrix system, Canon has also revised the Environmental Charter (see p. 4) and established four environmental rules, defining the direction of Canon Group's environmental efforts.

Global Environment Promotion Organization



New Mid-Term Environmental Goals

Making 2003 the next turning point, the Global Environment Promotion Committee approved the "Mid-term Environmental Goals" in November 2000. The Canon Group companies have launched activities to work toward these new goals.

Environment Assurance Rules and Associated Regulations



Canon's 2001-2003 Mid-Term Environmental Goals

Items		Goals
Environmental	Energy conservation	<ul style="list-style-type: none"> Make all business machines comply with the standards of international Energy Star program Make power consumption during operation lower than the previous models
	Resource conservation	<ul style="list-style-type: none"> Increase the use of recycled parts and resin materials and design all products to use these materials Reduce the number of types of resin materials to one-third of the previous level Complete changes in design system to make products 100% recyclable during 2002 Complete collection and treatment systems during 2003
	Elimination of hazardous substances	<ul style="list-style-type: none"> Eliminate the use of all substances specified by EU (By the end of 2004) Establish technology to substitute the use of PVC and brominated flame retardants
Goals for Products Environmental	Energy conservation	<ul style="list-style-type: none"> 15% reduction in CO₂ emissions per production output, compared to the 1999 level 25% reduction in CO₂ emissions per production output, compared to the 1990 level (By the end of 2010)
	Resource conservation	<ul style="list-style-type: none"> 30% reduction in gross waste generation by 2010 compared to the 1998 level 50% reduction in gross waste discharge by 2003 compared to the 1998 level Zero landfill waste in all operational sites in Japan by 2003.
Goals for Production	Elimination of hazardous substances	<ul style="list-style-type: none"> 50% reduction in the emission of PRTR Law designated substances as compared to the 1998 level Canon's A, B, C ranks A-ranked substances: Eliminate use B-ranked substances: Reduce use by 20%, and emissions by 90% C-ranked substances: Reduce emissions by 20%
Common Goals	<ul style="list-style-type: none"> Start evaluation of environmental performance from 2001 Strengthen Canon's environmental education programs Enrich social contribution programs Promote environmental businesses Expand and promote environmental communication 	

Optimizing Environmental Investment

To help achieve environmental goals speedily, Canon sets up environmental investment standards to evaluate the priorities for environmental investment and optimize implementation.

■ Environmental Investment Standards

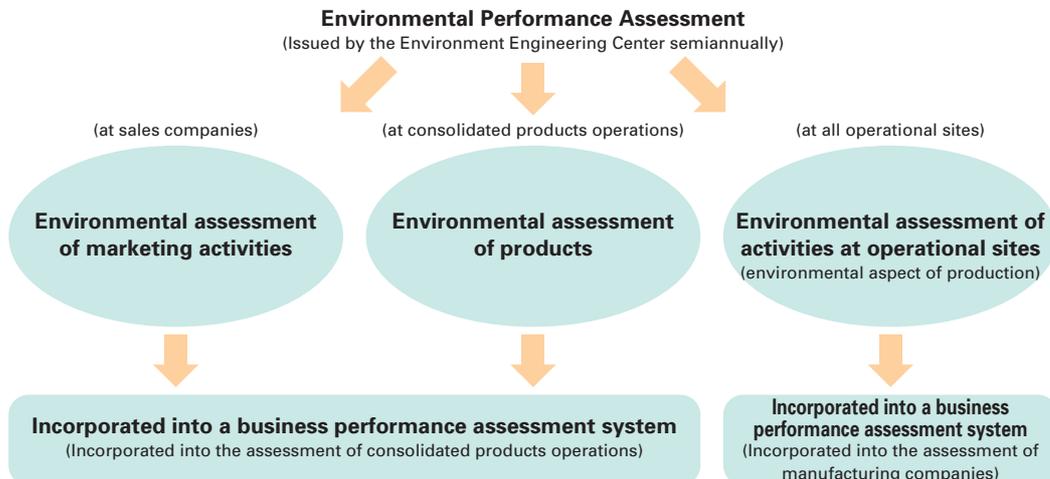
Priority	Concept		Specific Contents
Rank A	Require immediate investment		<ul style="list-style-type: none"> To clean up contamination To correct violation of legal standards To respond to complaints
Rank B	Require investment within planned period	To achieve within legally-designated period	<ul style="list-style-type: none"> To reduce energy consumption per production output by 1% in accordance with the Law Concerning the Rational Use of Energy To achieve within the period of the mid-to -long term plan (3 - 5 years)
Rank C		To achieve industrial standards and goals	<ul style="list-style-type: none"> 25% reduction in energy consumption per production output in 2010 To control emissions of hazardous substances: 50% reduction in dichloromethane by 1999 (compared to the 1996 level)
Rank D		To achieve corporate goals and standards	<ul style="list-style-type: none"> Investment required for achieving mid-term goals
Rank E	Other environment-related investment		

* At the same time, Canon is carrying out its own environmental accounting to measure the total environmental expenses invested against the economic effect that resulted. Canon's environmental accounting system is set up in accordance with the "Guidelines for Introducing an Environmental Accounting Systems (2000 Version)" issued by the Ministry of the Environment. See Page 10.

Environmental Performance Assessment System

From 2001, consolidated products operations, operational sites, and sales companies individually adopt systems to assess environmental performance to facilitate the early achievement of environmental goals.

■ Implementation of Environmental Performance assessment



Canon's Environmental Performance

Environmental burden of Canon's activities on the Nature and the society



Progress of Canon's Environmental Activities in 2000

Major improvements toward the 2000 goals

	Goals	Results of 2000	Compared to previous year	Details
Products	<ul style="list-style-type: none"> ● To promote the conservation of energy (energy efficiency) and resources (resource efficiency) in products 	Launched eco-products (environmentally conscious products) Reduced the size and weight of cameras and videos Employed technologies including conservation of energy and resources, and elimination of hazardous substances in copying machines Installed power saving feature in laser beam printers Installed power saving feature in facsimile machines Installed power saving feature in Bubble Jet printers		p. 45-49
Production	<ul style="list-style-type: none"> ● To increase energy efficiency by 30% at production sites to help prevent global warming (energy consumption to net sales) 	CO ₂ emissions: 394 t-C/100 million yen, 14% reduction as compared to the 1990 level	5% reduction	p. 23, 25, 26
	<ul style="list-style-type: none"> ● To eliminate the use of greenhouse gases (PFCs, HFCs, and SF₆) at operational sites to help prevent global warming 	Reduced to 5,539 t-C (convert PFCs to CO ₂) Use of all greenhouse gases were eliminated in 1999, excluding gases used in the semiconductor manufacturing processes.	87% reduction	p. 25, 26
	<ul style="list-style-type: none"> ● To reduce the weight of landfill waste by 95% by the end of 2000, using 1990 as the base year 	A reduction of 96% as compared to the 1990 level (Landfill waste: 1904 tons) 27 out of 43 operational sites in Japan eliminated the wastes to be landfilled.	17% reduction	p. 27, 28
	<ul style="list-style-type: none"> ● To utilize water resource efficiently 	A reduction of 14% as compared to the 1996 level (amount of water used: 714 tons) Started operation of the water circulation system at the Oita Canon Materials	8% reduction	p. 31
	<ul style="list-style-type: none"> ● To reduce the emission of hazardous substances by 20% by 2000, using 1996 as the base year 	A reduction of 39% as compared to the 1996 level (emissions of hazardous substances: 848 tons)	3% increase	p. 29, 30
Sales	<ul style="list-style-type: none"> ● To reduce CO₂ emission by improving logistics efficiency 	A reduction of 2,373 t-C (including data from procurement and logistics)	3% reduction	p. 24, 35
Recycle	<ul style="list-style-type: none"> ● To improve the recycling rate of used products (reuse and recycle) 	Amount of used products collected : Collected 119,000 units of copying machines : Collected 14,277 tons of toner cartridges : Collected 15.1 tons of Bubble Jet cartridges (Japan region) : Collected 598 tons of product packaging materials	7% decrease 17% improvement 68% improvement 30% improvement	p. 36-40
		Recycling rate of used products collected : 87% for copying machines : 100% for cartridges : 100% for Bubble Jet cartridges (Japan region) : 100% for product packaging materials		

Environmental Accounting for 2000

Canon's environmental accounting system dates back to 1983, when the company started to identify investment and expenses associated with pollution prevention. In 1991, Canon expanded the scope of its environmental accounting system beyond pollution prevention to cover all areas of environmental activities, and has since been utilizing the system as a tool to determine whether or not the company is investing its corporate management resources-people, materials and money-in an effective manner.

For fiscal 2000, Canon overhauled the system for compliance with the Guidelines for Introducing an Environmental Accounting System (2000 version) released by the Ministry of the Environment in May. The move had two objectives:

1. Disclose information to stakeholders
2. Obtain a feedback on the status of environmental measures and incorporate it in corporate management.

The company subsequently established Environmental Accounting Guideline for the Canon Group.

Corporate Environmental Accounting for 2000

Canon's environmental conservation costs consisted of investment of ¥3.4 billion and expenses of ¥9.1 billion. Although investment showed little change from the previous year's level, expenses rose by about ¥400 million, or 5%, due mainly to higher maintenance and management costs necessitated by an increased number of corporate organizations and facilities as a result of expanded business operations. Economic effect amounted to approximately ¥1.8 billion, about the same level as the preceding year. To achieve this economic effect, ¥1.3 billion was expended in improvement work, which the company feels was cost-justified. On the environmental conservation front, Canon's efforts to eliminate PFCs and HFCs resulted in an 87.9% reduction of non-energy derived greenhouse gases (CO₂ equivalent, while its waste reduction measures effectively cut the volume of waste for landfill by 17%. The company also realized a 9.3% reduction in water consumption.

Recognizing that environmental accounting is still under development, Canon has aggressively sought to hold discussions, both inside and outside the company, to find the best ways to utilize or implement environmental accounting in corporate management. We plan to report the outcome on an ongoing basis.

● 2000 Environmental Accounting

Comprehensive Effect Comparison Format (Disclosure Form C)

Notes on data collection

Data are collected for 43 operational sites in Japan. In the research and development area, data collection was restricted to the expenses immediately identifiable as environmental conservation-related R&D expenses (recycling, elimination of hazardous substances, and eco-materials). We have decided not to include costs for development of environmentally conscious products and product recycling in this report (a calculation method is under review).

Data collection period: January 1, 2000 - December 31, 2000

Environmental Conservation Costs (100 millions of yen)

Category	Main Implementation	Investment	Expenses
(1) Costs within the business area		31.8	65.6
① Pollution Prevention Costs	Prevention of air, water and soil pollutions	21.7	39.0
② Global Environment Conservation Costs	Curbing of global warming; Energy conservation; Improvement of logistics efficiency	6.9	5.5
③ Resource Recycling Costs	Efficient utilization of resources; Waste reduction; Separation and recycling of waste	3.2	21.1
(2) Costs for Up/Down Streams	Green procurement	0.0	0.7
(3) Management Activity Costs	Environmental education; Environmental Management System; Administrative personnel costs	0.9	15.5
(4) Research & Development Costs	R&D for reducing environmental burden	1.0	3.7
(5) Social Activity Costs	Tree planting; Environmental information disclosure; Environment-related advertising	0.4	5.5
(6) Environmental Damage Costs	Restoration of polluted environment	0.1	0.4
Total		34.2	91.4

● Definition of Cost Calculation

1. In accordance with the Ministry of the Environment's Guidelines, calculations were made for each item by operational site.
2. All the costs for observance of the laws related to environment are included.
3. When costs are paid for environmental purposes combined with other costs, the actual cost is calculated by deducting the costs for other purposes.
4. If the portion paid for other purposes is not easily identified, a closest estimate of 0%, 25%, 50%, 75% or 100% will be applied.
5. The depreciation of equipment investment in 2000 is posted as an expense.

Effect (100 millions of yen)

Economic effects of environmental conservation measures	
Specific effect	Amount
Income earned by waste recycling	1.1
Cost reduction through energy conservation	7.5
Treatment cost reduction through waste recycling	2.3
Cost reduction through improved logistics efficiency	7.2
Total	18.1

● Definition of Effect Calculation

1. The effect of the investment in 2000.
2. The effect deriving from the depreciation in 2000.
3. The gain from the sales of valuables related to reduction, separation, and recycling of waste.

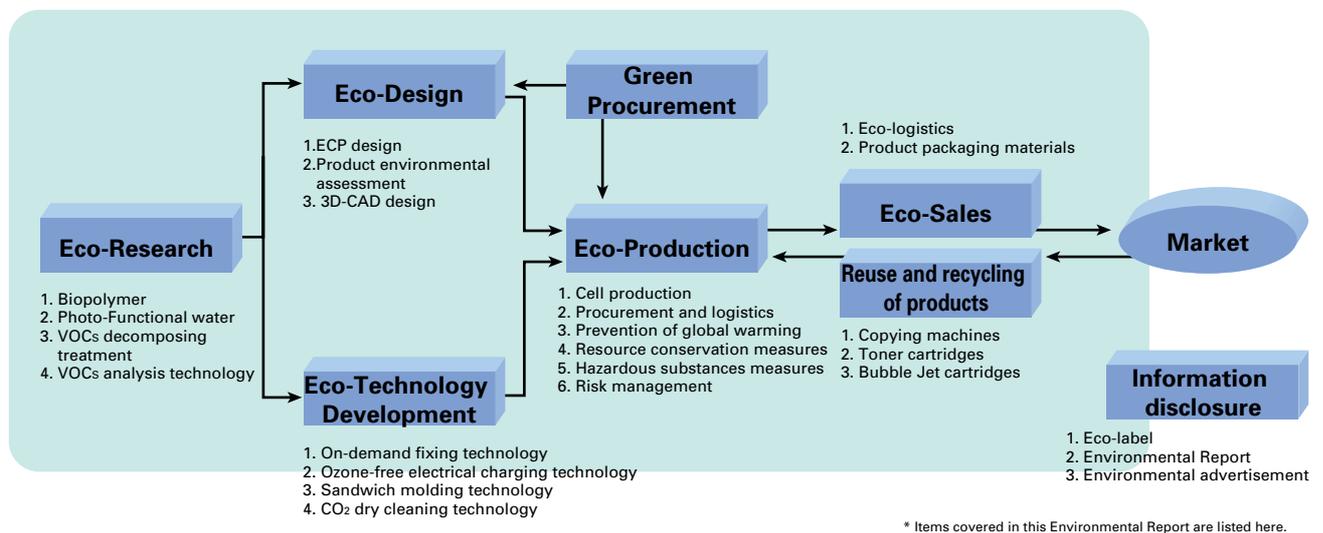
Environmental Costs at Operational Sites Outside Japan (100 millions of yen)

	Investment	Costs for the term
Americas region	65	72
Europe region	5	39
Asia region (excluding Japan)	81	255
Total	151	366

Eco-Cycle-Based Manufacturing

Canon has implemented a diverse range of programs to manufacture products that combine improved performance with reduced environmental burden. In June 2001, Canon launched the iR3300 (imageRUNNER or iR2200/2800/3300 in other regions) series digital multifunction office systems, as flagship of environmentally conscious products.

Flow of Canon's Manufacturing System



iR3300

Major environmental features designed into the iR3300 series

- Energy conservation**
 - Canon's proprietary on-demand fixing technology: achieves ultra-low power consumption and high performance
- Resource conservation: "Reduce, Reuse and Recycle"**
 - Compact design; Reduction in the amount of materials used
 - Reusable or easy-to-recycle design
 - Use of components recovered from existing models
 - Sandwich molding technology that facilitates use of recycled materials
- Paper resource conservation**
 - 100% recycled copying papers are acceptable
 - Double-sided copying capability is offered as standard feature
- Elimination of hazardous substances**
 - Use of Canon's exclusive ozone-free electrical charging technology
 - Use of halogen flame retardant-free plastics
 - Use of lead-free components and materials (lenses, soldering and electric wires)
 - Use of chromate-free steel plates
- Life Cycle Assessment and information disclosure**

Eco-Research that Builds on Basics

Research on Biopolymers

In the 21st century, we are required to adopt production methods with less environmental impacts. Materials produced by microorganisms, in particular, have gained the spotlight as raw materials that take the place of petroleum, with less burden on the environment.

Certain types of microorganisms discovered by Canon were found to have a unique ability to produce polyester. To date, Canon has succeeded in isolating as well as culturing four types of such microorganisms. Microorganism-produced polyesters have a structure entirely different from that of any of the conventional polyesters. At Canon, researchers are engaged in research on practicability of multifunctional biopolymer synthesis using microorganisms that take in functional groups to synthesize new polyesters. They are pursuing the possibility of using these biopolymers as the materials for biodegradable toners and devices, setting their sights on earliest possible commercialization.

Soil Pollutants Decomposition Technology That Uses "Photo-Functional Water"

Pollution of soil and underground water by trichloroethylene (TCE) and other organic solvents, which were previously used for cleaning metal parts and semiconductors as well as in dry cleaning, has become a serious environmental problem. The pollutant decomposition technology Canon developed uses a light source and the "acidic electrolyzed water" formed at an anode when water is subjected to electrolysis. This breakthrough technology is capable of decomposing organic solvents more efficiently than conventional methods such as absorption by activated carbon. Moreover, because the technology involves a simple process that does not require burning of activated carbon, there is no danger of secondary pollution. It boasts superb decomposition capability: even high TCE concentrations exceeding 1,000 mg/liter are reduced to under regulation levels within 200 to 300 minutes.

Canon will also focus its research effort on technologies for restoration of polluted environment.

VOC Treatment Technology

Under PRTR (Pollutant Release and Transfer Register) Law that went into effect in March 2000, corporations are obligated to exercise stricter management of hazardous chemicals and disclose information. As for harmful chemicals generated in manufacturing processes, switching to safe alternative substances or eliminating the emission altogether is an urgent necessity. At Canon, hazardous chemicals still in use are subjected to rigorous decomposition and treatment processes.

Canon is directing its R&D effort to VOC treatment technology, with the aim of minimizing the amount of VOCs released into atmosphere. It currently focuses on a non-thermal plasma decomposition device with ferroelectrics, attached to an exhaust duct, that can break down VOCs into harmless carbon dioxide before releasing them into the air.



VOC Analysis and Assessment Technology

As exemplified by sick house syndrome caused by chemicals, adverse effect of the polluted air in a closed space on humans has become a serious social problem. New construction materials are largely responsible for VOCs (volatile organic compounds) in the room, but business machines are also known to release them, albeit in extremely minute quantities. Although the concentration is too low to be a threat to health, Canon thinks it necessary to take steps to make office equipment safe even when used under unfavorable conditions, such as extended hours of use in a closed space.

Canon has made positive efforts to address this problem ahead of all others. To succeed in this endeavor, it is essential to accurately understand the mechanism of VOC generation, develop toners and inks that release little VOCs, and establish an appropriate imaging process. Canon is currently pressing ahead with the establishment of monitoring technology for ultra-micro VOCs, an undertaking that requires highly sophisticated technological expertise. Canon is engaged in technological pursuit that stays one step ahead of trends of the times.

The company puts measurement data to full use in its product development process, in order to cut down VOC generation to minimum possible levels, so that it can continue to offer safe-to-use products.



Portion of the VOCs monitoring system



Takafumi Midorikawa,
Chief of CEM Project Chemical Products Quality Assurance Center, Chemical Products Operations

An expert in chemistry, Takafumi Midorikawa participated in the development of a photosensitive drum. He currently serves as Chief of CEM project, and is actively involved in developing technology for monitoring of VOCs and other chemical substances released from products.

Eco-Design System for Environmentally Conscious Products

In product development, Canon follows its "Two Principles and Eight Action Items for Product Environment" standards to reflect new social values prioritizing products' environmental consciousness. To make the most efficient use of limited resources, product design and development departments adopt ECP (Environmentally Conscious Product) Design Standards for Eco-Design that takes into account a product's entire life cycle.

* ECP Design Standards: Design standards that incorporate green procurement and recycling data from parts manufacturers.

Two Principles and Eight Action Items for Product Environment

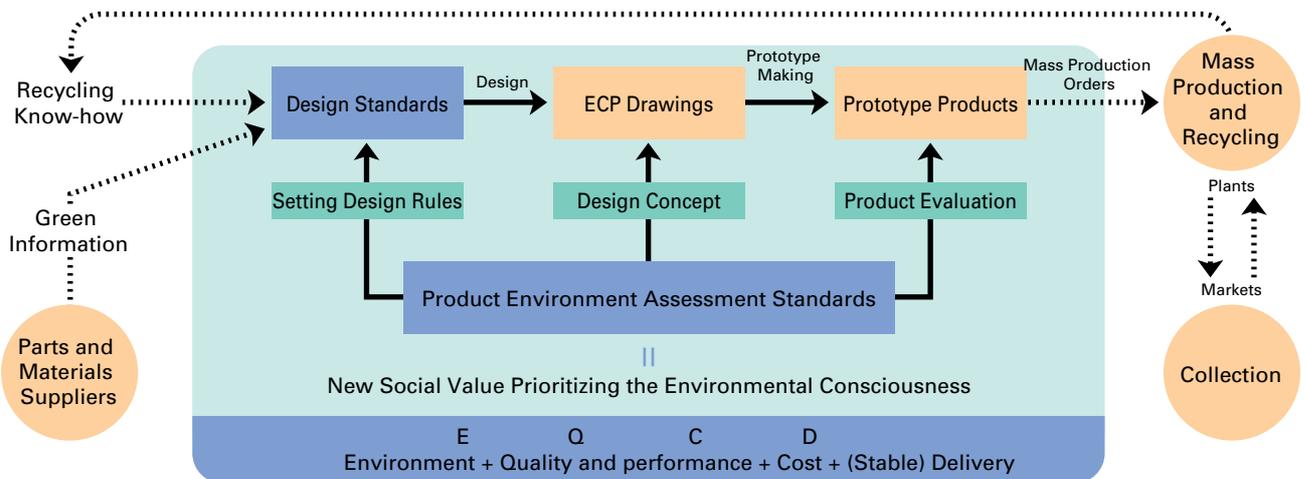
Principles

- To conserve the earth's environment
1. E (Environment)
Q (Quality)
C (Cost)
D (Delivery)
 2. From product planning to disposal

Action Items

1. Strictly comply with the law
2. Conserve energy
3. Conserve resources
4. Facilitate disassembly and collection
5. Facilitate reuse and recycling
6. Minimize final waste to be landfilled
7. Develop products with long lives
8. Develop products that last in the marketplace

■ Eco-Design System



Product Environment Assessment Guideline

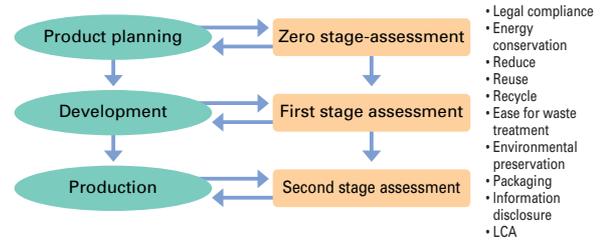
Until now, Canon has used a "Product Environment Assessment Guideline" that it formulated in December 1993 for product development. The Guideline employs the life cycle assessment (LCA) method to conduct detailed assessment of a product by dividing the process into three stages, namely, product planning, development and design, and the production of prototypes.

Today, with a view to building a resource-recycling society, industrial organizations have established guidelines that emphasize setting up systems for environmental consideration based on 3Rs (Reduce, Reuse, and Recycle). On the international level, lively discussions have been carried out worldwide to look for measures to prevent global warming. Consumers too, have become more aware of environmental issues in their purchasing decisions.

In consideration of this social trend and in tandem with the establishment of Canon's eco-design system and advances in environmentally

conscious technologies, Canon introduced a new Product Environment Assessment in April 2001, which was put into operation in July 2001.

Product Environment Assessment



- Evaluation items
- Legal compliance
 - Energy conservation
 - Reduce
 - Reuse
 - Recycle
 - Ease for waste treatment
 - Environmental preservation
 - Packaging
 - Information disclosure
 - LCA

Case Study of Product Improvement through Product Environment Assessment (BJ-M70)

Environmental efficiency of product		Conventional model	BJ-M70
Energy conservation	International Energy Star Weight	—	OK
Resource conservation	Disassembly time	2650 g	1374 g
	Material labeling (>25 g resin)	2251 seconds	518 seconds
	Adhesion points	—	100%
Elimination of hazardous substances	Types of specified tools	15 parts	7 parts
	Types of specified tools	7 types	4 types
Elimination of hazardous substances	Elimination of halogenated flame retardants (Housings)	△ Specific brominated flame retardant	○ All halogenated flame retardants

Optimum Design using 3D-CAD

With environmental regulations said to become more stringent in the future, it is standard practice at Canon to take environmental measures always in advance. In 1999, Canon has already introduced 3D computer-aided design to create simulations of designs that offer optimum environmental features.

Using this system, the assembly of materials and parts can be experimented many times on screen, making it possible to identify in the design stage materials and structures that are easy for recycling and disassembly. In addition, new software that automatically calculates the total content of hazardous substances and the rate of recycling has also been installed.

In the past, after a design was completed, a prototype was made. It was then disassembled and each of the parts and materials was weighed to calculate its environmental burden. After the

introduction of the 3D-CAD system, the production process of prototypes is greatly reduced, leading to substantial savings in resources, cost, and time.

3D-CAD also makes it possible to provide feedbacks regarding ease of disassembly and recycling, information on the contents of hazardous substances, LCA results, and cost estimates during the various stages of product planning, development, and design. The use of 3D-CAD renders the remarkable result of using the minimal input to efficiently produce products that offer the optimal environmental features.



Canon's Technology Development Aimed at Overall Reduction of Environmental Burden

Prevention of global warming, resource conservation and elimination of hazardous substances, essential to building a recycling society, and health consideration for product users are pressing environmental issues that require comprehensive measures, not isolated treatment for each problem.

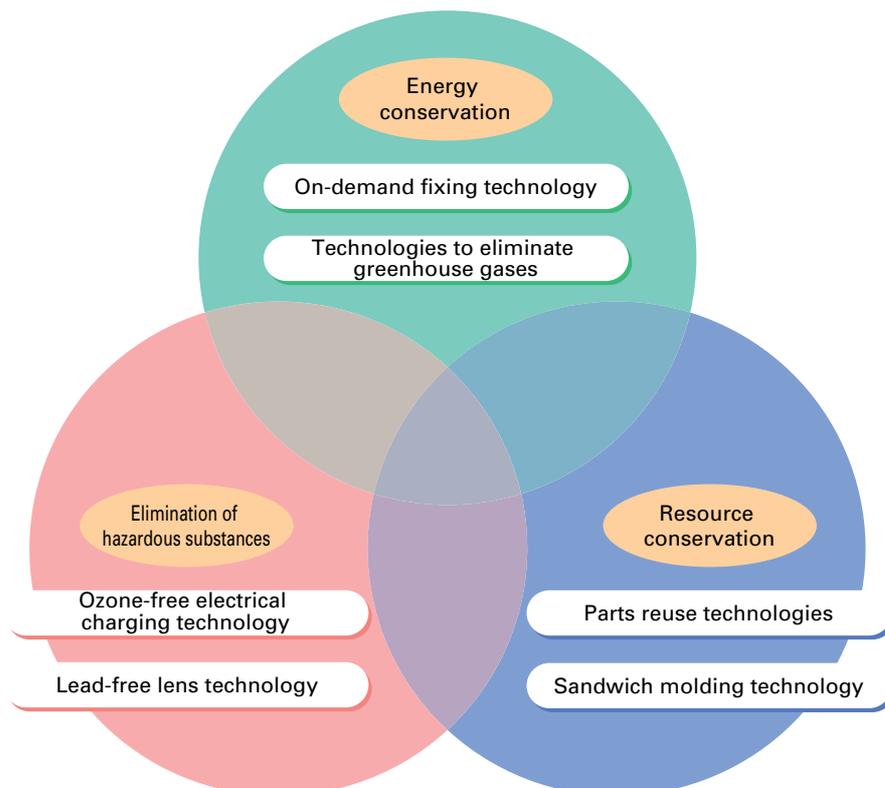
At Canon, we place utmost priority on energy and resource conservation and the elimination of hazardous substances, and ensure environmental consideration at all stages of product's life cycle, from development, production, and sales and marketing, to use, and recycling.

Through accumulation of past product data, we are working to minimize environmental burden, from product design throughout the entire product life cycle. Presently, products are designed to eliminate waste from the production process and to reduce environmental burden in the disassembly, reuse, and recycling of products after use.

Technology development to this end include on-demand fixing technologies realizing drastic reduction of power consumption, ozone-free electrical charging technology aimed at zero emission of hazardous substances generated during product use, and measurement and assessment technologies for promoting product designs without generation of VOCs*.

With numerous other environmental technologies, such as CO₂ dry cleaning technology for effective reuse of parts by units, and sandwich molding technology for meeting the strict flame retardant standards for plastics recycling, we are contributing to reduction of environmental burden from all angles.

* VOCs: Volatile organic compounds, such as aldehyde, benzene, and chlorinated hydrocarbon, among the 189 types of hazardous air pollutants registered according to revision of the Clean Air Act by the Environmental Protection Agency (EPA) of the United States.



Engineers behind Canon's Innovations in Environmental Technologies



Shunji Nakamura
Senior General Manager, EP
Technical Development Center,
Chemical Products Operations

On-Demand Fixing and Ozone-free Electrical Charging

Energy conservation
technology

Hazardous-substance
elimination technology

On-demand fixing and ozone-free electrical charging technologies, incorporated in copying machines and laser beam printers (LBPs), emerged as a result of Canon's quest for environmental consciousness and operational ease.

The on-demand technology features a fixing film that conducts heat very efficiently and a ceramic heater, which, as the name "on-demand" indicates, quickly raises temperature only when paper passes through the fixing mechanism. The technology has eliminated warm-up time, drastically reducing power consumption in standby mode. Also, there is no waiting time for printing, making printing a stress-free task.

With this technology, power consumption is reduced to one-fourth of that of conventional units, which greatly contributes to energy conservation.

Ozone-free electrical charging technology represents one of the milestone technologies that prompted widespread use of LBPs in offices. Canon believes that products used near its customers should not release ozone and other hazardous substances. The technology has not only cut the amount of ozone released from products during use to 1/1,000 or lower of conventional levels but also eliminated the need for a cumbersome ozone eliminating filter, thereby simplifying the configuration of the charging unit.

These two technologies have contributed to reduction in the number of parts in the product, making the product compact and achieving energy conservation. They represent Canon's proprietary technologies that have made Canon products much friendlier to users.



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Manager, Peripherals Design
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Div.15, Peripherals
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Shinji Taguchi
General Manager, Environment
Technology Development Div.,
Environment Engineering
Center

Sandwich Molding Technology

Resource conservation
technology

Today companies are required to make positive efforts to use recycled materials. Recycled materials, however, generally are inferior in quality compared to virgin materials. For this reason, it was difficult to use recycled materials in business machines, which must meet strict flame resistance standards. The sandwich molding technology adopted by Canon enables efficient utilization of resources, by allowing recycled materials to be used without compromising quality or costs.



Keiji Ikemori
General Manager, Lens
Products Development
Planning Div., Lens Products
Development Center, Image
Communication Products
Operations

Lead-Free Lenses

Hazardous-substance
elimination technology

The lead in lenses does not pose a danger to health because it does not dissolve and leak. The sludge (waste produced during lens polishing process), however, can be hazardous. Canon uses lead-free (zero lead content) lenses in which harmless titanium is used as a substitute, so that environmental pollutants may be eliminated from all stages of a product's lifecycle.



Yutaka Ishii
General Manager, i Printer
Products Environment
Management Div., i Printer
Products Operations

Environmentally Conscious Bubble Jet Printers

Energy conservation
technology

Resource conservation
technology

Hazardous-substance
elimination technology

Long-term, comprehensive approaches are indispensable for safeguarding the environment. A full range of environmental technologies-energy conservation, elimination or reduction of hazardous substances, selection of easy-to-recycle materials, and independent ink tanks-have gone into Canon's Bubble Jet printers.

Canon's On-demand Fixing (SURF) Technology and Ozone-free Electrical Charging Technology

Laser beam printers (LBP) in the early days were faced with several dilemmas. Reducing the power consumption in operation and during standby mode resulted in longer time for printing. It was also difficult to make a copying machine compact due to high temperature and high voltage parts and the necessity of a device to eliminate the ozone produced during the fixing process.

The "on-demand fixing technology" and "ozone-free electrical charging technology" have made it possible to overcome these problems. With these technologies, machines are now made easier to use and with less environmental burden. The groundbreaking technologies, developed to meet the user demand, support the SOHO (Small Office & Home Office) era.

Shortening the Warm-up time by Heating Only Where Necessary, When Necessary

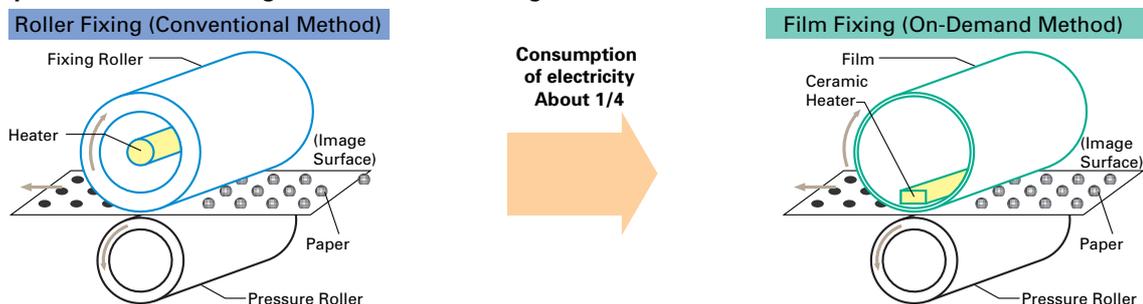
For the LBP, when fixing characters and images to paper, it is necessary to melt toner with heat. It was therefore difficult to cut power consumption. Canon focused on this fixing process and developed totally innovative on-demand fixing technology.

Typical roller fixing methods require that an entire metal roller be heated to a certain temperature for printing. This requires both energy and time. With the on-demand fixing method, only the part where the paper comes in contact with the fixing mechanism is heated up when necessary. This technology eliminates warm-up time and results in time and energy savings. The key parts for this technology are the

ceramic heater that heats up instantly and the polyimide film that can tolerate rapid temperature changes. With over 150 patents, the technology can be called the jewel of Canon's environmental technology.

This method consumes only one-fourth the energy required by the roller fixing method. For a company using 100 LBP machines, a 2 million yen reduction in operating expenses over five years can be realized by switching to the new machines. Furthermore, the roller fixing method requires a large fan to cool the large heated roller and the exhaust heat warms up the room. This requires the office to use additional cooling to maintain a comfortable temperature. The on-demand fixing

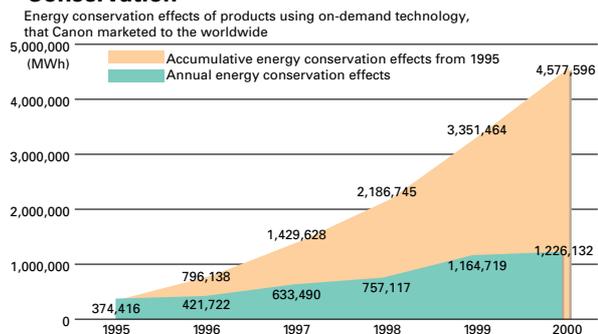
■ Comparison of Roller Fixing and On-Demand Fixing Mechanisms



Roller fixing uses radiated energy from the heater to warm up an aluminum roller that has a comparatively high heat capacity. Due to this, the heating process is slow and it takes time to reach the necessary temperature (200°C). Since the on-demand fixing uses a ceramic heater to directly heat the small heat capacity polyimide film, the necessary temperature can be reached in a short time.

method, requiring no cooling, saves energy for air conditioning, in addition to energy used for printing. The technology is already in use in Canon's LBP, copying machines, facsimile machines, and digital multifunction office systems, and its use will continue to expand. Printing speed has reached 33 copies per minute (the performance of a digital multifunction office system), making it both energy efficient and convenient for use.

On-Demand Technology's Contributions in Energy Conservation



Energy Conservation Efforts: the Environmentally Conscious Manufacturing

1993	1994	1996	1997	2000
<ul style="list-style-type: none"> FC310/330 4th Energy Vanguard 21 (Energy Conservation Award) Agency of Natural Resource and Energy Director-General's Award 	<ul style="list-style-type: none"> U S EPA 1st Energy Star Award Technology Innovation Category 	<ul style="list-style-type: none"> LPB-730 6th Energy Vanguard 21 (Energy Conservation Award) Agency of Natural Resource and Energy Director-General's Award US EPA Energy Star Award Office Equipment Copier Partner of the Year 100% Club Member - Facsimile 	<ul style="list-style-type: none"> US EPA Energy Star Award Office Equipment Facsimile Partner of the Year 	<ul style="list-style-type: none"> CanoFax L2600 JMF Award for Energy-conserving Machinery Japan Machinery Federation President's Award IEA-DSM Copier of the Future Award of Excellence

Realizing A Clean Operating Environment with Ozone-free Electrical Charging Technology

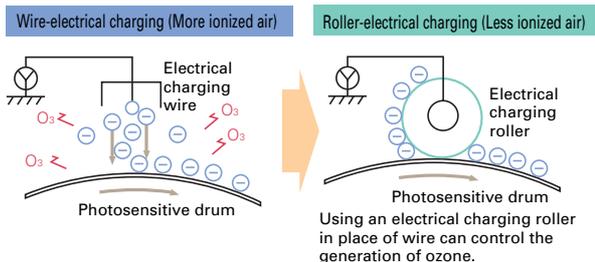
The LBP boasts high-quality images and fast printing. It uses electro-photographic technology to form characters and images with a laser onto a photosensitive media that has been electrically charged. Since uneven electrical charging translates into an irregular image, it is important for the photosensitive media to be charged uniformly.

Since conventional wire charging methods use high voltages of 5 - 10 kilovolts, harmful ozone is produced during the electric discharge. Canon, a pioneer in efforts to resolve this problem, was the first in the industry to develop ozone-free electrical charging technology in 1989. As a result of various researches, uniform charging became possible by superimposing alternating and direct current waveforms on the conductive roller, which is then brought into contact with the photosensitive media. Electricity consumption for this new charging method is less than 1/5 of that of conventional Corona electrical charging, and ozone production is also reduced to less than 1/1000. This eliminated the necessity of ozone absorption filters, significantly simplifying the machine structure, making maintenance easier, and improving print quality.

The ozone-free electrical charging technology is also being used in Canon's copying machines, facsimile machines, and digital multifunction office systems. This is the era of the desktop personal printer. Canon supports the highly sophisticated information society by considering energy conservation, smaller machine size, users' health, and other aspects.

 Canon was awarded both the Prize of the Commissioner of the Japanese patent Office and the Invention Practice Service Prize in 1999 for its ozone-free electrical charging technology. The awards were announced at the Prize of the Commissioner of the Japan Patent Office ceremony hosted by the Japan Institute of Invention and Innovation.

Ozone-free Electrical Charging



Canon's Sandwich Molding: Leading Plastic Recycling

Many problems had to be solved to use recycled plastic for the housing material of business machines. First, the use of halogenated flame-retardants was banned in the manufacturing of the housing material, to prevent the release of toxic dioxins in case that the material is burned. Unfortunately, most non-halogenated flame retardants are not suitable for use as recycled materials.

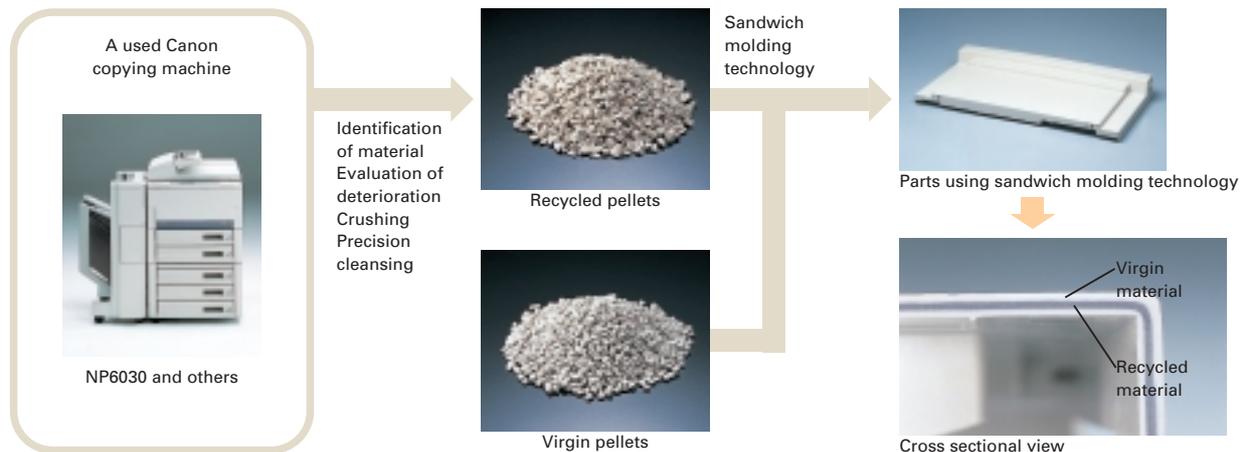
Furthermore, as most materials are degraded during the recycling process, virgin material is usually mixed in before making them into pellets. Unfortunately, the heat necessary for this process further deteriorates the properties of recycled material. In addition, if the material is not thoroughly cleaned before recycling, black spots and other irregularities make the recycled material inappropriate for use as housing material for aesthetic reasons.

Canon's sandwich molding technology uses recycled plastic between two layers of virgin plastic, creating the appearance of 100% virgin

material. Furthermore, this technology skips the pellet making process that requires heating, therefore preventing the material degradation and reducing overall costs. Realizing cost savings and a higher level of quality, this Canon's proprietary technology effectively uses resources, solving the problems associated with material recycling.

This was the first material made with sandwich molding technology using recycled plastic that passed the strict flame retardant standard of UL94-5VB. This accreditation demonstrates Canon's high-level technology and quality. The MEDIO iR series has housing material produced with this sandwich molding. Currently, housing material of a 3 mm thickness contains 30% recycled plastic material, but Canon plans to increase this percentage, cutting costs even further. Sandwich molding is slated for use in laser beam printers, Bubble Jet printers, and facsimile machines.. In the future, to secure a supply of material for recycling, Canon will put effort into establishing a collection route for used products.

Resource Conservation: Sandwich Molding Technology



CO₂ Dry Cleaning Technology that Efficiently Cleans Reuse Parts

Until now, disassembling and cleaning product parts for reuse have presented difficulties. The CO₂ dry cleaning technology, which Canon developed in conjunction with equipment manufacturers, made it possible to clean parts by units as they are, after they are disassembled from collected products. Compared to manual cleaning, this method reduces cleaning time by 40% and cost by 20%, largely improving efficiency.

The CO₂ dry cleaning method sprays dry ice against the dirty surfaces of parts. As dry ice breaks down into minute particles, they repel dirt even from the narrowest gaps in the parts. Since a dust collecting mechanism instantly absorbs dirt and the dry ice vaporizes, this method is free of the problem with dirt clinging back onto the parts as when water is used for cleaning.

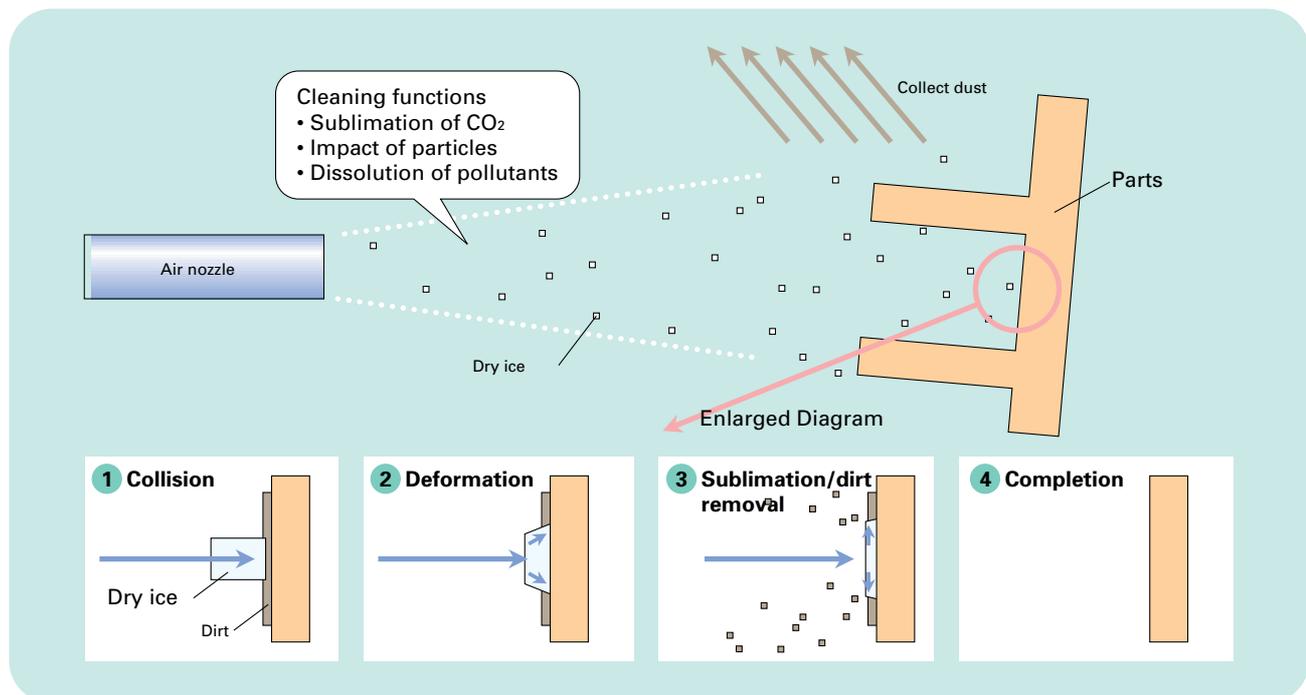
Cleaning of units mounted with electronic components has also become possible by blowing air that contains ions. With CO₂ dry cleaning, even those difficult-to-remove dirt from toner stains, nicotine from cigarettes, and finger marks can be rid of by blowing surfactant together with dry ice to clean the parts.

Compared to the conventional CO₂ dry cleaning methods, Canon has made an immense improvement to "Reuse" technology by creating this new system that runs in various cleaning modes and has an integrated cleaning and dirt collecting structure providing excellent operation safety.

Canon plans to sell this technology to other companies to support their effort in reusing used parts.



■ Highlights of the CO₂ Dry Cleaning Technology



Promotion of Green Procurement

Purpose of Green Procurement

Preferential purchasing of parts and materials that have the lowest possible burden on the global environment is called the green procurement.

Canon procure green parts and materials to ensure its products to be environment-conscious.

Since 1997, with the idea that "procurement is a dialogue", Canon has carried out full-fledged green procurement activities in cooperation with suppliers, aimed at conserving energy and resources and eliminating hazardous substances (items purchased in these activities include raw materials, parts, and goods).

These activities include establishment of an organization and committees, such as the Green Procurement Subcommittee, of which task is to promote green procurement, setting of principles and standards for green procurement, implementation of joint activities with suppliers both in Japan and abroad, and construction of an information network.

Green Procurement Standards

In the selection of green products, we have set, based on the idea that "Green products = Corporate structure + Products themselves," 7 corporate structure parameters and 11 product parameters to quantitatively determine the "greenness" of parts and products prior to procurement. In 2000, a total of 784 suppliers were evaluated under corporate structure parameters and approximately 30,000 items of raw materials and parts under product parameters.

Global-Scale Green Procurement

As Canon's activities extend globally, we hold environment seminars in major countries where we have business connections, to promote mutual understanding with our suppliers. Already, a total of 1,500 companies, 1,100 in Japan, 200 in North America, and 200 in Southeast Asia, have joined in our efforts and support green procurement.

Green Procurement Standards



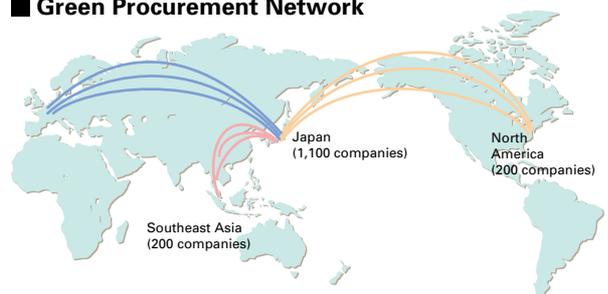
Results of Corporate Structure Evaluation for the year 2000 Suppliers of domestic manufacturing companies with over 100 million yen transaction in 1999

	Number of all suppliers	Number of applicable suppliers	Percentage of amount
Consigned production materials	1,136 Companies	501 Companies (44%)	94%
Standard production materials	541 Companies	247 Companies (45%)	96%
Custom-ordered non-production materials	443 Companies	26 Companies (6%)	47%
Standard non-production materials	1,077 Companies	10 Companies (1%)	7%
Total	3,197 Companies	784 Companies (25%)	89%

Results of Product Evaluation for the year 2000

	Type and number of products	Number of suppliers
Raw materials	Resin: Approx. 3000	25 Companies
	Steel sheets: Approx. 200	6 Companies
	Paper: Approx. 100	20 Companies
Electrical components	23,000	300 Companies
Mechanical parts	Approx. 1,300	30 Companies
Purchased goods	"Green" certified products: Approx. 4,600 (office supplies, personal computers, desks and chairs, printed matter, envelopes, toilet paper)	

Green Procurement Network



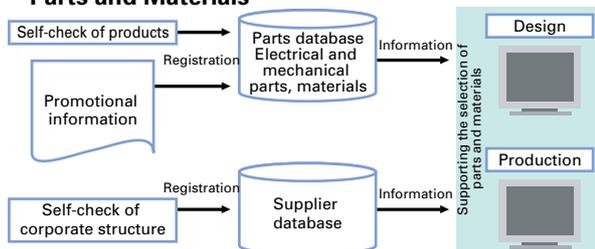
Overview of Past and Future Green Procurement Activities

Steps	Green procurement activities	Activities with suppliers, results
Stage 1	Making requests and implementing educational programs to cultivate understanding for introducing environmental activities and green procurement both in the company and at suppliers	<ul style="list-style-type: none"> Meetings for explaining green procurement standards Domestic suppliers: 2 times Overseas suppliers: 4 times (Hong Kong, Singapore, Thailand, USA) Publication and distribution of the green procurement standards and guidebooks
Stage 2	Recognizing the current level of environmental burden of each supplier (self-assessment: corporate structures, products)	<ul style="list-style-type: none"> Requested suppliers to self-check the greenness of their "corporate structures" according to the green procurement standards, and collected response from approx. 800 companies (100%) in 1997, 1998, and 1999. Requested self-check the greenness of raw materials and parts according to product categories. Approx. 380 companies and 27,000 items checked in 1998 and 1999.
Stage 3	Constructing an environment assurance system at suppliers (establishment and improvement of EMS)	<ul style="list-style-type: none"> Supported the construction of EMS Introduced programs for small and medium-sized companies in the guidebook. Responded to requests for supporting EMS construction. Some companies voluntarily obtained ISO14001 certification.
Stage 4	Implementing the evaluation of corporate structure and product (support, selection of recommended products)	<ul style="list-style-type: none"> Evaluation of environmental activities of "green" suppliers Selection of "green" products
Stage 5	Preparing a database of environment information on products (information disclosure, ECP design), standards for selecting new suppliers	<ul style="list-style-type: none"> On-line communication with suppliers Feedback of environment information to development and design departments

Up to 2000, green procurement activities have been undertaken in steps, starting from stage 1 toward stage 5. We have held meetings for explaining green procurement, published standards and a guidebook, and requested suppliers to self-check their corporate structure and products, thus implementing tasks up to stage 4.

In stage 5, as a tool to support development, a system for self-checking approximately 30,000 items of raw materials and parts of 400 suppliers is being established. In addition to environment information on materials, such as resin, we now provide similar information on parts as well. In the future, we also plan to build a database for electronic components (information on recommended items) and unpurchased products (promotional information).

Green Procurement Management System for Parts and Materials



* While the green procurement management system for parts and materials has been in operation since November 1999, the green procurement information system was newly established in 2000.

Canon's Green Procurement

Office supplies used within the company are purchased according to the green certification system. Green certified goods add up to approximately 4,600 items, including office supplies, personal computers, desks, chairs, printed matter, envelopes, and toilet paper. Use of these goods help enhance environmental awareness of all employees and lead to expanding the market for green products.

List of green certified goods



Production Innovation—Shift from Conveyor Belt to Cell Method

Combining Production Efficiency with Reduction of Environmental Burden

When resource efficiency is maximized, environmental burden is reduced. Wastefulness in the production process not only results in higher environmental burden, it is the same as throwing profits away. In order to reduce environmental burden and create profits at the same time, it is necessary to eliminate wastefulness in the production process on a continuous basis.

To this end, the Canon Group has introduced the "Cell Production Method", beginning in 1998 with the Nagahama Canon Inc., one of the subsidiaries company, and has achieved remarkable result. By changing the production method from having workers line up and operate along a conveyor belt to having them work in "cells" (small units), a total of 16,000 m of conveyor belt was made redundant, 25 warehousing units abolished, and 8,000 tons of carbon dioxide (6.6% of Canon's total emission) reduced. Furthermore, the number of units

produced by each worker is increased.

With the conveyor production method, each worker performs a single duty on a unit. Since the conveyor transports the units quickly, a worker can become overwhelmed by the number of units and ended up spending very little time on each one. With the cell production method, since different kinds of duties are carried out at the cell, a worker can find a sense of fulfillment in completing the whole unit. In addition, with the conveyor belt method, when a certain process at the conveyor belt has trouble, the operation of the whole conveyor belt is affected. The cell method, however, is set up in such a way that workers who finish work first can help other workers out, enabling the production in the cell to be carried out in a coordinated and smooth manner.

Eliminating wastefulness in resources, energy, and space while utilizing the wisdom and expertise of workers can help lower the cost and increase productivity. Thus, the cell method is promoted as a new production method that can increase productivity by reducing environmental burden and one that can enable workers to find a sense of fulfillment in the products they make.



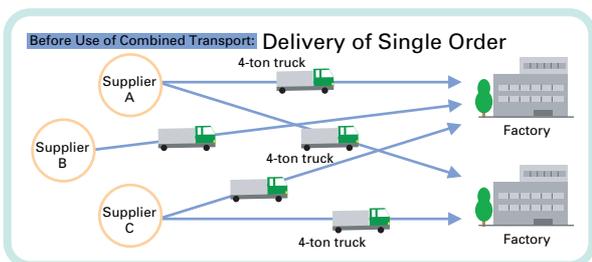
Cell Method nurtures production experts. Canon has its own "Meister" System, which refers to multi-skill workers who have mastered a wide range of job functions. The "Meister" System is divided into four ranks, from the "S" class workers who have mastered the assembly of the main body and all units of a product, down to Class 3 for workers who can assemble over 30% of a product, or who have mastered over 30 minutes of job functions.

Joint Logistics of Procurement

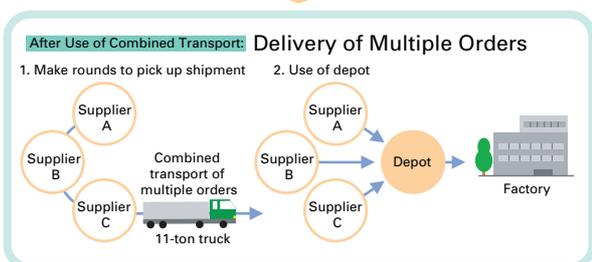
Since 1998, Canon has actively pursued measures to improve transport efficiency and reduce environmental burden as part of its production reform activities. Specifically, by joining forces with business partners and transport providers, Canon succeeded in improving the load efficiency of trucks and eliminating inefficient transport practices such as transporting small orders over long distances. By grouping orders together to enable delivery to fewer sites and making tours to pick up parts for combined transport, Canon is deploying logistics that exerts less burden on the environment. In 2000 especially, combined transport has increased over the previous year, substantially reducing the environmental burden of CO₂ and NO_x.

Reduction of CO₂, NO_x, and SO_x by Combined Transport

	1999	2000	Difference	Annual reduction of environmental burden
No. of Participating Sites	69	110	41	CO ₂ →572.1t-C NO _x →1.7t SO _x →0.7t
Amount of cargoes (pallets/day)	1,458	1,834	376	
Distance traveled (km/day)	31,769	30,730	1,039	
Average load capacity (pallets/day, trip)	13.9	17.8	3.9	

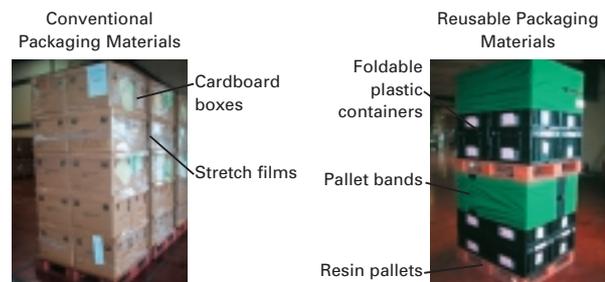


Combined and streamlined distribution
 • Increase load efficiency
 • Reduce travel distance



Reusing Packaging Materials from Distribution

Canon procures components and parts globally from domestic and overseas parts suppliers and provides them to its production sites worldwide. To ensure the quality and functionality of parts, cardboard boxes, plastic containers, shock-absorbing materials, dividers, and wooden pallets, etc. were used until now to transport and store parts during transit from the suppliers to various production sites. Many of these materials resulted in waste. To conserve resources, Canon introduced reusable items such as foldable plastic containers and trays, resin pallets, pallet bands, etc. and standardized their sizes and quality of materials, with recycled materials where possible, so that suppliers and the Group companies can use them efficiently for transporting components and parts.



Reduction in Disposed Export-use Packaging Materials



Global Warming Prevention and Energy Conservation Activities

Global Warming Prevention: Targets and results

- Reduce energy consumption (energy consumption per net sales) by 30% from the 1990 level by 2000.
- Eliminate PFCs, HFCs, and SF₆ by the end of 1999.



- Achieved 14% reduction in energy consumption from the 1999 level.
- Eliminated PFCs, HFCs, and SF₆ from the production process in 1999 (excluding gases used in the manufacturing process of semiconductors).

Energy Conservation at Operational Sites

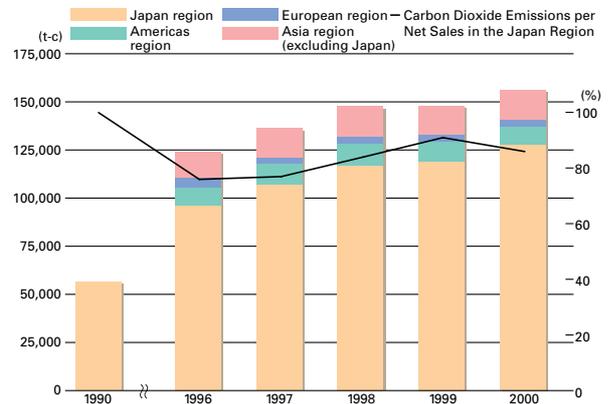
Canon has promoted energy conservation activities for many years for the protection of energy resources, such as petroleum. In response to *COP3 held in 1997, we are undertaking further measures in view of global warming prevention as one of our top priorities. The major cause of global warming is carbon dioxide emission generated by energy consumption. Thus, the Operation Energy Conservation Sub-Committee has taken the lead in implementing measures aimed at reducing energy consumption per net sales by 30% from the 1990 level by 2000. Last year's results are as shown in the graph: 86% energy consumption per net sales compared with the 1990 level. While energy consumption efficiency has improved, the amount of carbon dioxide generated has increased due to expansion of business activities.

*COP3: Third Conference of the Parties to the U.N. Framework Convention on Climate Change (an international conference aimed at stabilizing the concentration of greenhouse gases in the atmosphere)

2000 Energy Consumption Results

	Electricity	Gas	Oil	Other
Japan region	95,044	10,380	21,939	0
Americas region	7,843	1,528	0	0
European region	1,957	1,684	5	0
Asia region (excluding Japan)	13,961	213	233	1,191

Change in Carbon Dioxide Emissions per Net Sales in the Japan Region



2000 Energy Conservation Results

Region	Item	Amount of energy conserved
Japan region	Introduction of water heat storage air-conditioning system Improvement of production equipment and process Introduction of waste heat recovery system Introduction of high-efficiency lighting equipment	1251
Americas region	High-efficiency lighting equipment and strengthened control of air-conditioning	105
European region	Shift to clean energy (biomass)	—
Asia region (excluding Japan)	Change from conveyor production system to cell production system Introduction of inverter control instrument Optimized operation of air-conditioning facilities Improvement in lighting	416

Measures for Global Warming Prevention

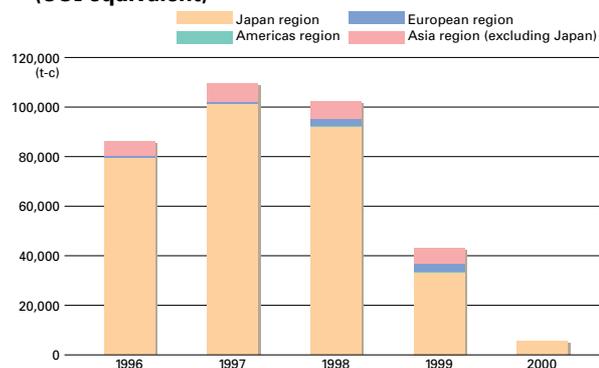
1993	1994	1995	1996	1997	1998	1999	2000
<ul style="list-style-type: none"> – Monitoring of energy consumption results 	<ul style="list-style-type: none"> • Energy conservation targets for the 2nd production environment promotion plan set 		<ul style="list-style-type: none"> • Operation Energy Conservation Sub-Committee established (October 1996) 		<ul style="list-style-type: none"> • Energy Conservation Assurance Standards established (April 1998) • PFCs Countermeasure Sub-Committee established • Elimination targets for PFCs, HFCs, and SF₆ set 	<ul style="list-style-type: none"> • Certified as the Excellent Buildings for Environment and Energy: <ul style="list-style-type: none"> - New R&D building at the Toride Plant (March 1999) - New Headquarters building (November 2000) • Elimination of PFCs (excluding some applications) completed (December 1999) 	

Elimination of Non-Energy Derived Greenhouse Gases

Greenhouse gases, namely PFCs, HFCs, and SF₆, that became subjected to control at COP3 have extremely high global-warming coefficient, thousands to ten thousands of times more compared to that of CO₂. With the aim of eliminating these gases from our manufacturing sites around the world, in 1998, Canon established the PFCs Sub-Committee to examine technologies for eliminating their use in cleaning, solvents, and aerosol propellant. As a result, all applications of PFCs in the production process, except for manufacturing of semiconductors, have been eliminated by

December 1999. We are determined to eliminate gases used for semiconductors as well, as soon as technology is established.

Change in PFCs, HFCs and SF₆ Emissions (CO₂ equivalent)



Energy Conservation Examples at Toride Plant

The new R&D building completed at Toride Plant in June 2000 adopted thorough energy conservation measures starting from the design stage, achieving more than 40% improvement compared with conventional energy consumption levels. Infrared-ray absorbing glass windows and ALC exterior walls with high insulation performance were employed on the exterior. Water heat storage system was also introduced for efficient use of nighttime electricity, realizing substantial reduction of running costs of air-conditioning. It also contributes to reduction of power consumption during summertime peak hours. Also installed were inverter fluorescent lights that automatically adjust intensity by sensing sunlight, and automatic on-off control with a sensor detecting the presence of people. Rainwater is utilized for toilets, taking advantage of available natural resources without any waste.

In March 1999, the building was certified to meet the requirements of the "Excellent Building Mark for Environment and Energy" established by the Institute for Building Environment and Energy Conservation, and received certification, along with the Yokohama Landmark Tower and others.



R&D building at Toride Plant

Efforts at Utsunomiya Plant

At Utsunomiya Plant, to realize full participation of all employees in energy conservation activities, "Energy-Saving Watchers" are organized at each workplace.

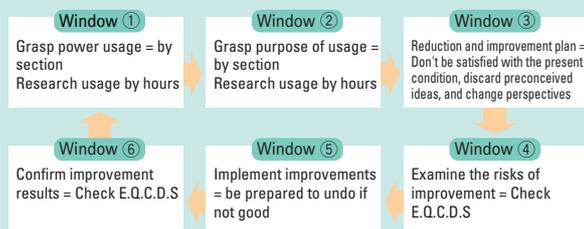
Their duty is to accelerate the energy conservation activities of production facilities, and to promote the "110 Energy-Saving Activity" aimed at achieving 10% energy saving in a week. While raising the awareness of each employee and ensuring continuous activities is an important aspect, other methods are employed to standardize the activities, such as "6 windows for energy saving" cards and "10 hints for improvement" cards, contributing to overall energy conservation activities of the plant.

Efforts at Nagahama Canon Inc.

For thorough implementation of energy conservation measures, Nagahama Canon installed 580 integrating wattmeters on main equipment and facilities, to analyze the relationship between energy consumption and the operation of machinery and equipment, making use of this data for efficient operation and reduction of energy waste.

6 Windows for Energy Saving

Proceed through 6 steps by opening each window in order. Do not skip any windows.



10 Hints for Improvement

Search for improvement themes by checking the facility requiring energy conservation measures from all angles.

1. Remove: functions, instruments, process
2. Smaller: shape, inner and outer diameter, capacity
3. Less: time, mounting items, frequency
4. Lighter: weight, load
5. Weaker: power, pressure, capacity
6. Shorter: distance, time
7. Lower: temperature, power, height
8. Slower: speed, progress (faster)
9. Narrower: gap, distance, configuration
10. Slender: shape, inner and outer diameter

Waste Management at Operational Sites

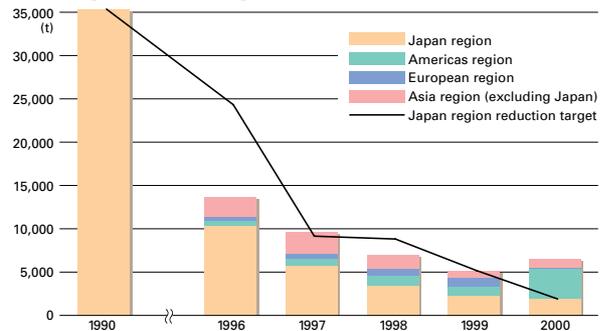
Waste Reduction: Targets and results

○ Reduce 95% of the landfill waste volume from the 1990's level by the end of 2000

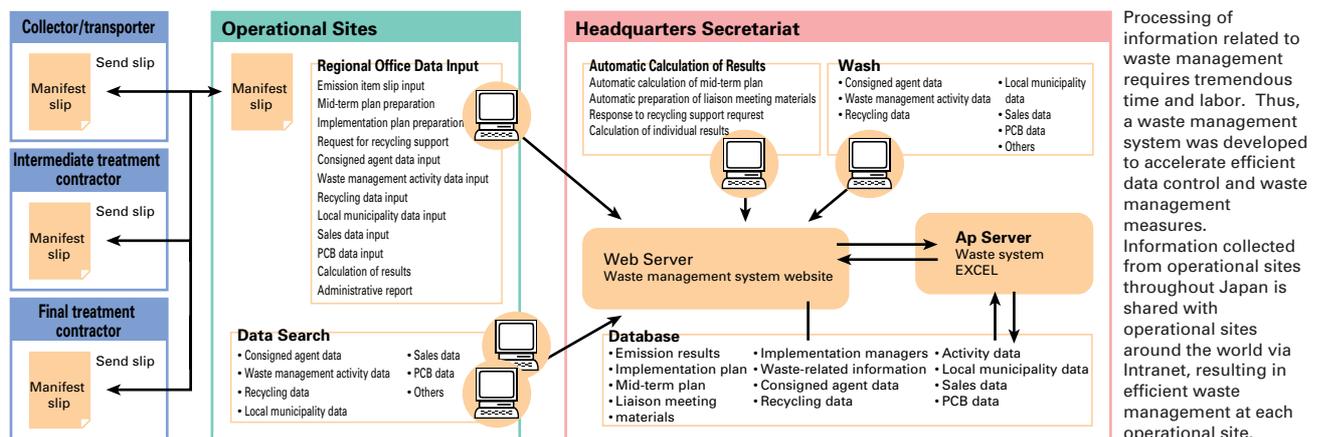
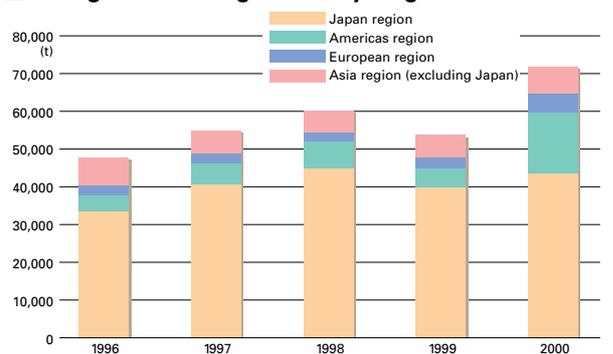
- Attained 96% reduction.
- Attained zero landfill waste disposal at 27 sites among 43 operational sites

Canon began full-fledged efforts to reduce waste disposal since the establishment of the Waste Countermeasures Committee in 1991. Our basic policy is to practice the 3Rs – Reduce, Reuse, and Recycle. To reduce waste, the process of business activities was reviewed to prevent generation of waste. Whatever waste generated is returned to the process for reuse. If not reusable within the company, it is recycled by a consigned agent. What cannot be recycled is properly disposed. Based on this policy, various efforts have been made, resulting in 96% reduction of landfill waste in Japan, exceeding the target 95%. As for the economic effects, sale of valuables and reduction of disposal costs due to recycling of landfill waste resulted in a profit of 340 million yen.

■ Change in the Weight of Landfill Waste



■ Change in the Weight of Recycling



History of Resource Conservation Measures

1970	—	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<ul style="list-style-type: none"> Central Pollution Prevention Committee established (1971) 		<ul style="list-style-type: none"> Waste reduction targets established (Jan. 1991)(50% reduction in 2000 compared to the 1990 level) Waste Countermeasures Committee established (Jan. 1991) 	<ul style="list-style-type: none"> Waste Technology Development Task Force established (1992) 		<ul style="list-style-type: none"> Waste Management Standards established (May 1994) 			<ul style="list-style-type: none"> Waste Management System introduced (July 1997) 	<ul style="list-style-type: none"> Waste reduction targets revised (Oct. 1998) (95% reduction in 2000 compared to the 1990 level) 	<ul style="list-style-type: none"> Consigned waste processor selection criteria established (Dec. 1999) 	<ul style="list-style-type: none"> New waste reduction targets set (June 2000)

The greatest cause of waste problems is the wasteful use of resources. It is important to "maximize resource efficiency" by eliminating waste generated at the workplace and creating maximum effect with minimum resources. In addition, instead of just relying on outside recycling processors, we must first think of value-added recycling and making full use of recycled items ourselves. With the aim of becoming the top leader among environmentally advanced companies, Canon set new targets for waste management in June 2000.

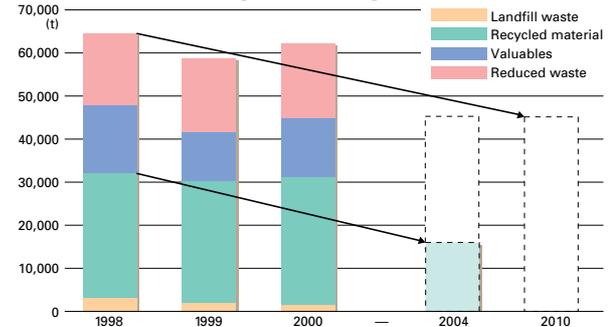
- Reduce total waste generation by 30% by 2010 compared to the 1998 level.
- Reduce total waste discharge by 50% by 2003 compared to the 1998 level.
- Realize zero landfill waste at all operational sites in Japan by 2003.

We are determined to promote waste reduction activities aimed at attaining the above three targets.

2000 Waste Management Results (t)

	Waste discharged outside the company	Landfill waste	Recycled valuables
Japan region	45,295	1,904	43,392
Americas region	19,609	3,419	16,189
European region	5,323	142	5,181
Asia region (excluding Japan)	8,042	1,044	6,998

New Waste Management Targets



Definition of Terms
 Total waste generation: Landfill waste + recycled material + valuables + reduced waste
 External discharge: Landfill waste + recycled material + valuables
 Total waste discharge: landfill waste + recycled material

Five-Fold Increase in Recycling Compared to the 1990 level

We have promoted recycling of waste by preparing a finely itemized list of waste materials for disassembly and separate collection. With growing awareness toward recycling among our employees, we were able to attain a five-fold increase in recycled materials compared to the 1990 level. Furthermore, excluding human waste and others disposed by the government, we totally eliminated final waste disposal (zero final waste) at 27 out of 43 operational sites in Japan, and are determined to continue efforts aimed at zero waste at all operational sites and improved quality of recycled materials.



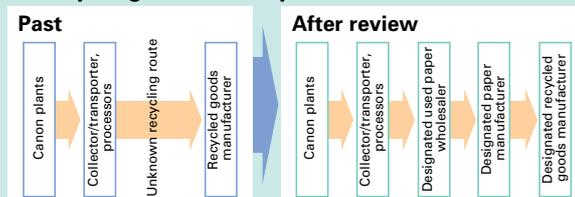
Proper Management of Recycling

As the responsibility of a company generating waste, Canon makes double and triple checks to carry out proper waste management. The waste treatment contractor selection criteria went into effect in December 1999 to evaluate the financial condition, treatment system, and environmental aspects of the consigned agent and to determine their qualification as a waste processor. Then, the entire series of process, including collection and transport, and intermediate and final treatment is checked exceeding the requirements of manifest control stipulated by laws and regulations. Furthermore, we annually check the actual treatment site to confirm that the consigned waste is managed properly.

Recycling of domestic waste



Recycling Route of Paper Waste



Canon Group companies in Japan generate a total of 5,000 tons of used cardboard boxes and newspapers annually. At Canon, we have reorganized the system, from collecting and transporting to processing of recycled materials, so that waste is recycled through designated routes. Used cardboard boxes and newspapers are recycled as cardboard materials and pulp molds to replace expanded polystyrene as a shock-absorbing material in the packaging, and are purchased by Canon as preferred items.

Domestic waste, such as food leftovers and miscellaneous waste, are steamed at 400°C by the platinum catalytic combustion process using kerosene fuel, and the resulting carbonized material is sold to steel companies for use as a coke substitute in a refinery.

Managing Chemicals and Eliminating hazardous Substances

Reduction in discharge of hazardous substances: Target and results

○ Reduce discharge 20% from the 1996's level by 2000

• Attained 39% reduction

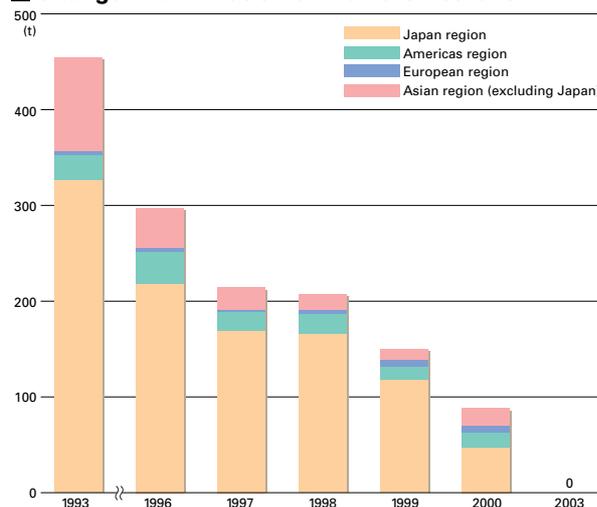
Many of environmental problems may be considered a result of emissions of chemical substances during their use and disposal. Canon has taken measures directed toward reduction of environmentally harmful emissions. Participated by the entire Canon Group, the efforts entailed the elimination of ozone-depleting substances, chlorinated organic solvents, and greenhouse gases, as well as removal of refuse incinerators to tackle the dioxin problem. In the belief that any emission occurring from business operations has a negative impact on the environment, Canon established the Operation Emission Control Sub-Committee in 1996, thereby stepping up its effort to eliminate hazardous chemicals, including development of systems to effectively manage these substances.

Reduction of Hazardous Substances Emission

The Operation Emission Control Sub-Committee identified 2,173 chemicals that are harmful to health and environment, and listed them as substances that need to be managed. These substances are classified into rankings of A, B and C according to the degree of their harmfulness, for each of which Canon exercised rigorous control. To attain the year 2000 target of a 20% reduction in harmful emissions, Canon took measures such as a shift to a production process that does not use hazardous substances, substitution by safe substances, installation of collection devices, and development of technology that decomposes hazardous substance. These efforts enabled Canon to achieve a 39% reduction by 2000.

*A: Eliminate; B: Reduce; C: Control discharge

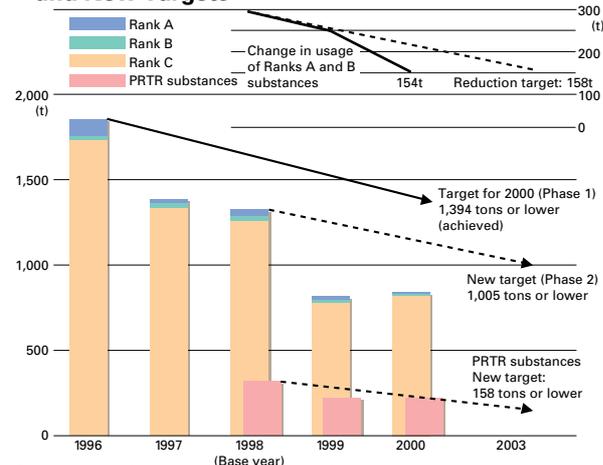
Change in Elimination of Dichloromethane



Elimination of dichloromethane

In 1993, Canon began work to eliminate dichloromethane, a cancer-causing chemical that accounts for 94% of Rank A substances. Efforts culminated in 1997 in the complete removal of the substance from its main application, the cleaning process, at all operational sites throughout the world. Thanks to the development of alternative methods, we achieved full elimination of dichloromethane in other applications in Japan by the end of 2000, and switching is under way at other operational sites, with completion slated for 2003.

Change in Reduction of Hazardous Substances and New Targets



Canon has reviewed the list of chemical substances that needs to be managed. Accordingly, the company is revising the amount of emissions for 1998 and thereafter.

Milestones in Canon's Effort to Curb Hazardous Chemicals

1970	1980	1990	1991	1992	1993	1994	1995
Central Pollution Prevention Committee established (1971)	Fluorocarbon Countermeasure Committee inaugurated (1988)	Fluorocarbon and Tri-chloroethane Countermeasure Committee established (May 1990)		Elimination policy established: Elimination of fluorocarbon by the end of 1992 and Tri-chloroethane by the end of 1993	Use of fluorocarbon eliminated (Dec. 1992)	Use of Tri-chloroethane eliminated (Oct. 1993)	Use of HCFC eliminated (Oct. 1995)

Creation of a Chemical Management System

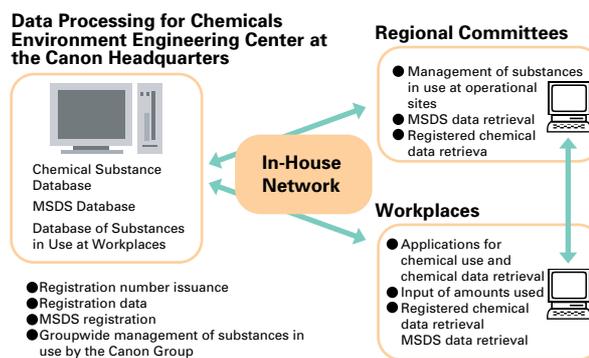
Canon uses as many as some 12,000 kinds of chemicals in its production, each of which is identified with a registration number and managed with consideration to its environmental impact. When a new and unregistered chemical is considered for use, it is reviewed at the regional committees and the Headquarters. Only after the chemical is certified through this process is it assigned a registration number and approved for use. Also, in 1997, Canon put into operation an online database system for information retrieval. The system has facilitated checking, at in-house computer terminals, Material Safety Data Sheets (MSDS), the current usage and emissions of a specific chemical, and the amount of chemicals stocked or consumed at individual operational sites. The database system has come to be widely used within Canon for daily management as well as provision of information on hazardous substances to development divisions.

PRTR* Control Balance Sheet

Canon uses the Chemical Management System to control Class One Specific Chemical Substances (354 substances) and Class Two Specific Chemical Substances (81 substances) designated by the Law Concerning Reporting, etc. of Release of Specific Chemical Substances to the Environment and Promotion of the Improvement of Their Management, which came into force in July 1999. In the Americas Region, the Canon Group companies implement similar management and

submit reports periodically to the U. S. Environmental Protection Agency. (PRTR data are available at our website).

*PRTR: Pollutant Release and Transfer Register

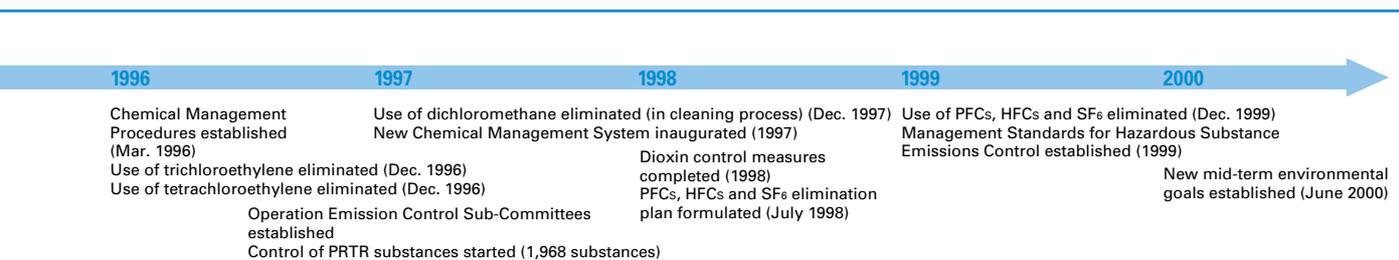


PRTR Control Balance Sheet for 2000 (Japan)

Unit: tons

No.	Substance No.	Substance	Emissions into the atmosphere	Discharge into water	Transfer to waste
1	1	Water-soluble zinc compounds (as zinc)	0	0	0.97
2	16	2-aminoethanol (monoethanolamine)	0	0	0.28
3	43	Ethylene glycol	0	3.37	0.19
4	44	Ethylene glycol monoethyl ether	6.18	0	0.17
5	63	Xylene	12.79	0	1.25
6	93	Chlorobenzene	57.98	0	41.24
7	96	Chloromethane	0.01	0	0
8	139	o-dichlorobenzene (1,2-dichlorobenzene)	0.31	0	0
9	145	Methylene chloride (dichloromethane)	8.24	0	4.00
10	172	N, N-dimethylformamide	4.09	0	0
11	177	Styrene monomer	0.88	0	0
12	207	Water-soluble copper salts (as copper)	0	0.47	0
13	227	Toluene	59.87	0	0.43
14	230	Lead and lead compounds	0.04	0	1.37
15	232	Nickel compounds	0	0.02	0
16	243	Barium and its water soluble compounds	0	0	0.35
17	283	Hydrogen fluoride and its water soluble salts	0.11	1.73	0.42
Total			150.50	5.59	50.87

Note: The above PRTR data represent volumes released into the environment or transferred to waste for Class One Specific Chemical Substances (354) whose annual volume of use is 5 tons or more.



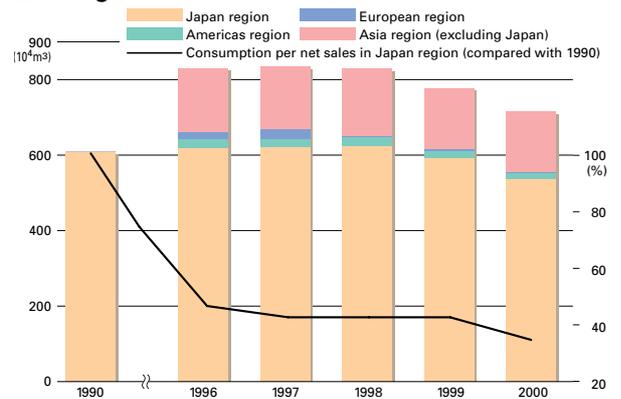
Water Quality Management and Reduced Water Usage Through Voluntary Control

Water shortage and water pollution problems are major global issues. At Canon, we strive to minimize our dependency on water resources, such as river and underground water, and make effective use of precious water resources that are vital to life.

Our R&D center at Fuji-Susuno Research Park (Shizuoka Prefecture), opened in 1996, introduced a closed system for wastewater, equipped with a rapid filter, activated charcoal absorption tower, and bioremediation facilities for complete filtration and purification, and repeated use of water within the facility. Here, wastewater is divided into two types: laboratory and domestic. Laboratory water containing organic solvents is thoroughly purified, then used as circulation water for the cleaning tower. Recycled wastewater amounts to 500m³ daily, accounting for 30% reduction of water used throughout the entire facility.

At Oita Canon Materials, a Group company established in 1999, a totally closed recycling system was introduced for reuse of all water, excluding rainwater. At other operational sites as well, automatic analytical instrument and real-time monitoring system for wastewater are installed for conservation of valuable water resources.

■ Change in the Use of Water Resource



Oita Canon Materials



Fuji-Susuno Research Park

Risk Management for Preventing Environmental Pollution

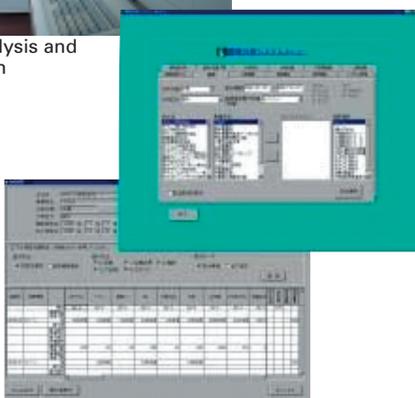
The aim of pollution prevention activities is to control and eliminate the use of specified substances. At Canon, we have steadily achieved the targets for reducing such substances and are working to innovate technologies for further improvement. At the same time, we are focusing on the following activities for thorough implementation of pollution prevention and risk management.

Environmental Burden Analysis and Assessment System

In accordance with Japan's Measurement Law, Canon has installed a measurement certification division within the company for analysis and assessment of the environment by certified measurers employing the latest equipment. This division is currently preparing to obtain ISO Guide 25, an accreditation for testing institutions. Measurement plans at all operational sites, data on wastewater, soil, air, odor, noise, and vibration, and response to any abnormality in measurements are controlled using an Environmental Analysis Support System



Environmental analysis and measurement room



Environmental analysis support system

Inspecting Equipment from All Sides

For minimizing environmental burden caused by the production processes, manufacturing equipment, and buildings and structures, we have prepared the "Environmental Conscious Design Standards for Construction" to verify whether preventive measures are fully incorporated when newly installing, renovating, or remodeling any facility. Preventive measures include the installation of wastewater equipment that can be inspected from all sides and the elimination of underground pipe work.



Wastewater equipment that can be inspected from all sides



Canon's Environmental Assurance Conscious Design Standards for Construction explains requirements-such as water quality, waste, noise, odor and vibrations-that must be complied with in construction work.

Risk Management

In the environmental management guidelines at each operational site, rules are established for dealing with unpredictable events in which the environment is inadvertently impacted. For example, in the case of waste oil spill from an operational site, oil fence, kept for emergencies, is used to contain the spill and trained personnel are to deal with the problem. Simultaneously, this information is promptly relayed to the department in charge for making comprehensive judgment and taking prompt actions.

2000 Environmental Performance Data

Environmental management data for environmental conservation activities at each operational site are centrally managed by the Environmental Engineering Center at the corporate headquarters. Although the environmental management items that require monitoring vary, depending on regional

characteristics and business operations engaged by individual operational sites, each site sets its own standards and implements stricter regulations than mandated by law. Shown below as an illustrative example are data for Canon's Shimomaruko headquarters.

Environmental Management Performance of Operational Sites in Japan Region

2000 data for the Canon Inc. Headquarters

- Location: 3-30-2, Shimomaruko, Ohta-ku, Tokyo
- Activities: Headquarters management, Products Operations, research and development
- Area: 96,576 m²

- Established: 1951
- Number of employees: 4,978
- Designation of land use: Industrial district

Water quality

Item		Regulatory standards	Operational site standards	Highest measured values	
Health	Cadmium	(mg/l)	0.1	0.08	<0.005
	Cyanide	(mg/l)	1	0.8	<0.05
	Organic Phosphorous	(mg/l)	0.1	0.08	<0.05
	Lead	(mg/l)	0.1	0.08	<0.014
	Hexavalent chromium	(mg/l)	0.5	0.4	<0.05
	Arsenic	(mg/l)	0.1	0.08	<0.005
	Total mercury	(mg/l)	0.005	0.004	<0.0005
	Alkyl mercury	(mg/l)	Not detected	Not detected	Not detected
	Dichloromethane	(mg/l)	0.2	0.16	0.022
	Carbon tetrachloride	(mg/l)	0.02	0.016	<0.001
	1,2-dichloroethane	(mg/l)	0.04	0.032	<0.001
	1,1-dichloroethylene	(mg/l)	0.2	0.16	<0.001
	Cis-1,2-dichloroethylene	(mg/l)	0.4	0.32	<0.001
	1,1,1-trichloroethane	(mg/l)	3.0	2.4	<0.001
	1,1,2-trichloroethane	(mg/l)	0.06	0.048	<0.001
	Trichloroethylene	(mg/l)	0.3	0.24	<0.001
	Tetrachloroethylene	(mg/l)	0.1	0.08	<0.001
	1,3-dichloropropene	(mg/l)	0.02	0.016	<0.001
	Thiuram	(mg/l)	0.06	0.048	<0.001
	Simazine	(mg/l)	0.03	0.024	<0.001
Thiobencarb	(mg/l)	0.2	0.16	<0.001	
Benzene	(mg/l)	0.1	0.08	0.057	
Selenium	(mg/l)	0.1	0.08	<0.005	
Living Environment	Potential of hydrogen (pH)		5.0-9.0	5.9-8.5	6.5-8.0
	Biochemical oxygen demand (BOD)	(mg/l)	600.0	480.0	68.0
	Suspended solids (SS)	(mg/l)	600.0	480.0	210.0
	n-hexane extracts (mineral oil)	(mg/l)	5.0	—	<5.0
	n-hexane extracts (animal and vegetable oils)	(mg/l)	30.0	—	9.6
	Phenol	(mg/l)	5.0	4.0	<0.05
	Copper	(mg/l)	3.0	2.4	<0.2
	Zinc	(mg/l)	5.0	4.0	0.61
	Soluble iron	(mg/l)	10.0	8.0	1.2
	Soluble manganese	(mg/l)	10.0	8.0	<0.1
	Chromium	(mg/l)	2.0	1.6	<0.05
	Fluorine	(mg/l)	8.0	6.4	1.0
	Boron	(mg/l)	10.0	8.0	0.34
	Phosphorous	(mg/l)	32.0	26.0	5.8
	Nitrogen	(mg/l)	240.0	192.0	10.0
Iodine consumption	(mg/l)	220.0	176.0	16.0	

Air Quality

Item	Operational site standards	Highest measured values
Boiler SOx(ppm)	76.0	64.0
Soot and dust (g/Nm ³)	0.05	0.003

*Standards stipulated by the Air Pollution Control Law are used as the operational site standards.

*Boilers emit no SOx, because they use LNG.

Noise

(Unit: dB)

Category	Operational site standards	Highest measured values
Morning	60	54
Day	70	less than 59
Evening	60	55
Night	55	54

Note: Tokyo Metropolitan Government's Standards are used as operational site standards.

Vibration

(Unit: dB)

Category	Operational site standards	Highest measured values
Day	65	41
Night	60	39

Note: Tokyo Metropolitan Government's Standards are used as operational site standards.

Odor

*No measurements were taken during 2000, because there was no risk of emission of odors. Measurements will be taken in the future if there arises a possible effect on the neighborhood in cases such as building a facility that may give out odor.

*Legal and regulatory standards: The most stringent legal regulations (Sewage Law and Tokyo Municipal Sewage Ordinances)

*Site standards: 80% of the most stringent legal regulations

Environmental Management Performance of Operational Sites outside Japan

Standards for operational sites outside Japan vary widely from country to country. Canon takes a global view and implements the same-or even stricter-standards as those adopted in Japan at all

of its operational sites worldwide. Presented below are data for Canon Dalian Business Machines, Inc. located in China.

Environment Management Items: Water, Air, Noise, Vibration, and Odor

2000 data for Canon Dalian Business Machines, Inc..

- Address: No. 23, Huai He West Road, Dalian Economic & Technical Development Zone, Dalian, Liao Ning Province, PRC
- Line of business: Manufacturing and recycling of toner cartridges
- Area: 170,008 m²

Water quality

Item		Legal and regulatory standards	Operational site standards	Highest measured
Potential of hydrogen (pH)	(mg/l)	6.0-9.0	6.0-8.5	7.83
Chemical oxygen demand (COD)	(mg/l)	500.0	400.0	343.0
Suspended solids (SS)	(mg/l)	400.0	320.0	115.0
n-hexane extracts (animal oil)	(mg/l)	100.0	80.0	8.12
Phosphate	(mg/l)	15.0	12.0	7.03

*Legal and regulatory standards: The most stringent standards among those stipulated by laws and regulations (Standard of Gross Sewage Discharge, Standard of Liao Ning Province, Standard of Sewage Treatment Plant Development Zone)

*Operational site standards: 80% of the most stringent legal requirements stipulated by the Japanese Water Pollution Control Law and other laws and regulations. Standards of Liao Ning Province and Standard of Sewage Treatment Plant Development Zone are used as the values for phosphates

Air Quality

	Item	Operational site standards	Highest measured values
Boiler	SOx(ppm)	0.7	Not detected

Note: Standards stipulated by the Air Pollution Control Law are used as the operational site standards.

Noise

(Unit: dB)

Category	Operational site standards	Highest measured values
Day	65.0	46.8
Night	55.0	39.6

Note: Operational site standards: Standard of Industrial Enterprise Boundary is used as operational site standards.

Vibration

No measurements were taken for 2000, because no noise restriction is imposed on this area. If, however, there should arise a possibility of noise pollution, such as construction of a vibration-causing facility, in the future, the company will take measurements.

Odor

Item	Operational site standards	Highest measured values
Odor	30.0	<10.0

Note: Operational site standards: Standards of Stench Emission are used.

Information for other operational sites has been disclosed and can be viewed at Canon website.
<http://www.canon.com/environment>

Eco-Logistics Activities to Improve Environmental and Economic Efficiency

Reducing CO₂ Emissions by Efficient Container Utilization: "Container Round Use"

To pursue effective and environmentally conscious transportation, Canon has implemented three measures: factory-vanning^{*1}, use of local ports^{*2}, and modal shift^{*3}, which have made steady progress every year. In 1992, Canon launched the "Container Round Use" program to improve container utilization. In the case of import, a container is usually returned empty to the port after the cargoes are unloaded at the warehouse. In the case of export, an empty container is transported to the warehouse for loading before it is returned to the port. "Container Round Use" means utilizing the import container after unloading, for export use. By eliminating the transport of empty containers, unnecessary CO₂ emissions can be avoided and transportation costs reduced at the same time.

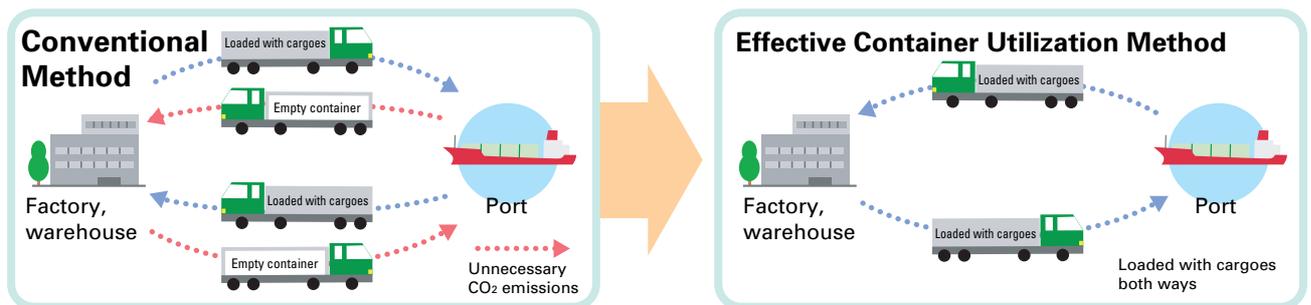
However, there are two problems. It is difficult

to coordinate the timings of transportation for imports and exports, and efficient container utilization has limitation with only one company. To promote the "Container Round Use" program, Canon has systematized the scheduling operations and shared information about container availability and schedules with companies outside the Canon Group. Last year, approximately 3,500 of 40-ft containers were used for "Container Round Use," the largest scale of container utilization realized in Japan. Canon is committed to upgrading transport efficiency to help reduce CO₂ emissions and energy consumption, and improving economic efficiency.

*1 Factory-vanning: Pack products in sea freight containers at factories and then ship directly to destinations.

*2 Use of local ports: Use ports closest to the factory of shipment.

*3 Modal shift: Shift transport mode from trucks to shipping or railways.



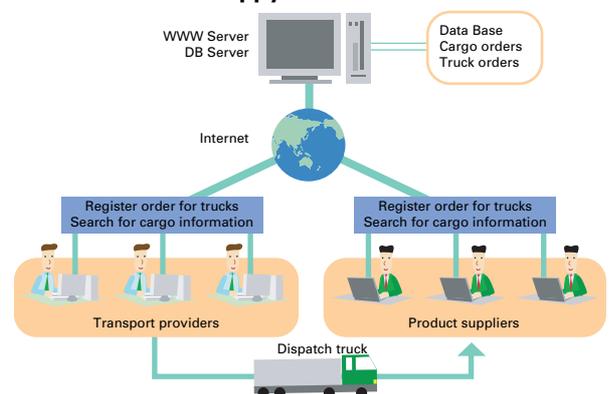
Reducing CO₂ Emissions by Effective Truck Utilization: "Canopy Net"

Canon's pursuit of distribution efficiency did not stop with container transport. The "Canopy Net," an Internet service provided by the Canon Sales Co., Inc., offers an effective and low-cost distribution system that enables trucks to return loaded after unloading.

Until now, it was very time-consuming and troublesome to coordinate cargo transport with empty trucks that became available. To increase efficiency, an information management system that stores the data of cargo and truck was established, linking suppliers and transport providers through the Internet.

As fewer trucks returned unloaded, unnecessary CO₂ emissions is substantially reduced, thus contributing to the overall reduction of traffic congestion and air pollution.

Structure of Canopy Net



Environmental Consideration for Packaging Materials

Besides actively pursues 3R (Reduce, Reuse, and Recycle) activities, Canon is making effort to employ materials that are easy for customers to treat. In other words, Canon takes the basic environmental measure of using packaging materials that can be recycled with socially available recycling systems. In 1991, Canon became the industry leader in using pulp molds (100% recycled paper) to replace expanded polystyrene as a shock-absorbing material in the packaging of small product items such as toner cartridges and cameras. Other measures include switching to the use of cardboard as a shock-absorbing material and using thinner protective stretch films to keep products in place.

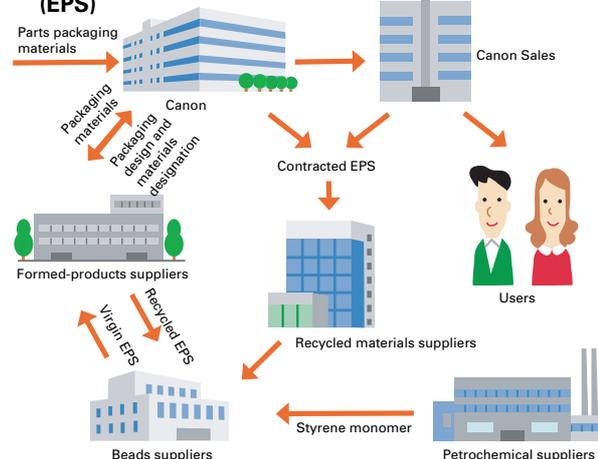


Pulp mold (100% recycled paper)

Reducing the Use of Packaging Materials and Closed Recycling

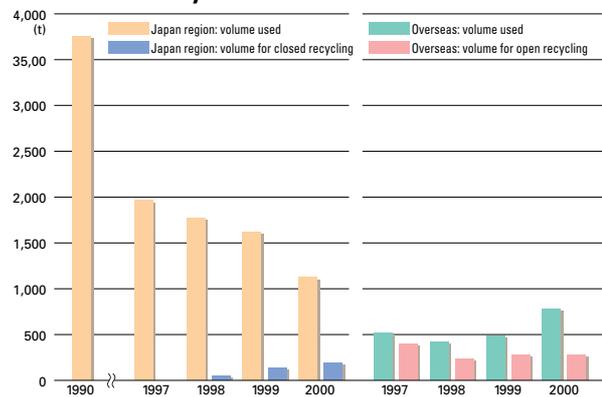
In 1990, Canon started to take measures to reduce the use of expanded polystyrene. By 1997, the amount of expanded polystyrene used was halved (1990 as the base year). At the end of 1997, Canon introduced an expanded polystyrene closed recycling system within the Group and started the system on a full-fledged scale in May 1998. Using

■ Closed Recycling System for Expanded Polystyrene (EPS)



this system, Canon collects the expanded polystyrene used by affiliated companies in the Group in Japan. The polystyrene is melted, made into beads, and reused as packaging materials for products. The recycled material's cost and functionality as a shock-absorbing material are the same as those made from new materials.

■ Change in the Amounts of Expanded Polystyrene Used and Recycled



Increasing the use of Recycled Expanded Polystyrene to 50%

Canon recycles not only expanded polystyrene collected in-house, but also actively recycles expanded polystyrene collected from other sources with the cooperation of manufacturers of recycled materials, beads and formed-products. Canon is expanding the use of recycled expanded polystyrene as shock-absorbing materials for all Canon products.

Making Environmentally Conscious Stretch Films

Stretch film is used in large amount for stabilizing cargo goods. A closed recycling system to collect and recycle stretch films is currently in operation in Japan.

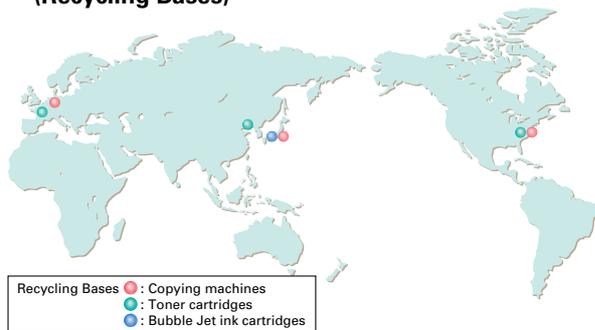
In 2000, 729 tons of stretch films were used in Japan and 24 tons were recycled.

Tri-Region Organization to Promote Product Recycling

Canon, as it operates worldwide, thinks it necessary to adopt measures on a global scale in collecting and recycling used products as well. Canon adopts a tri-region structure and sets up recycling bases in Asia, Americas, and Europe to minimize burden on the environment. Canon identified the following priorities for reusing and recycling materials to achieve the goal of zero landfill waste.

- 1) Remanufacturing of products by replacing parts, Reusing of parts
 - 2) Material recycling: Recycled into raw materials
 - 3) Thermal recycling: Use materials as fuel
- Utilizing the used products and consumables in this order can help cut cost on raw materials and realize value-added recycling, improving both environmental and economic efficiency as a result.

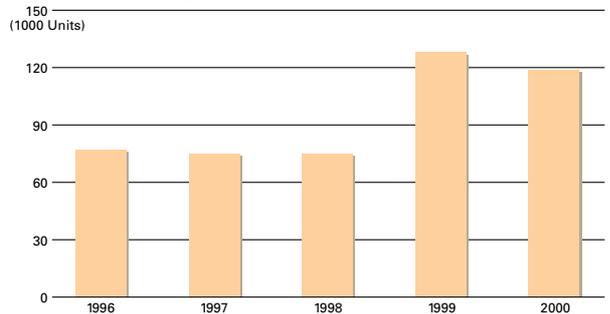
Tri-Region Recycling Organization (Recycling Bases)



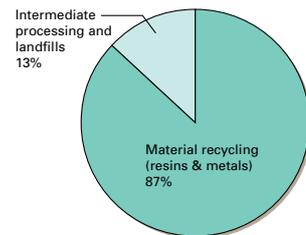
Remanufacturing of Copying Machines and Reusing of Parts

Canon remanufactures copying machines replacing worn parts in used copying machines with new ones, in the United States, Europe, and in Japan. Recently, Canon is devoting its efforts to utilize parts recovered from used copying machines for new products.

Used Copying Machines Collected Worldwide



Rate of Recycling in 2000 (Worldwide)



* Including parts reuse and remanufacturing of used copying machines

Copying Machine Collection and Exchange Centers Operated in Cooperation with Other Copying Machine Manufacturers

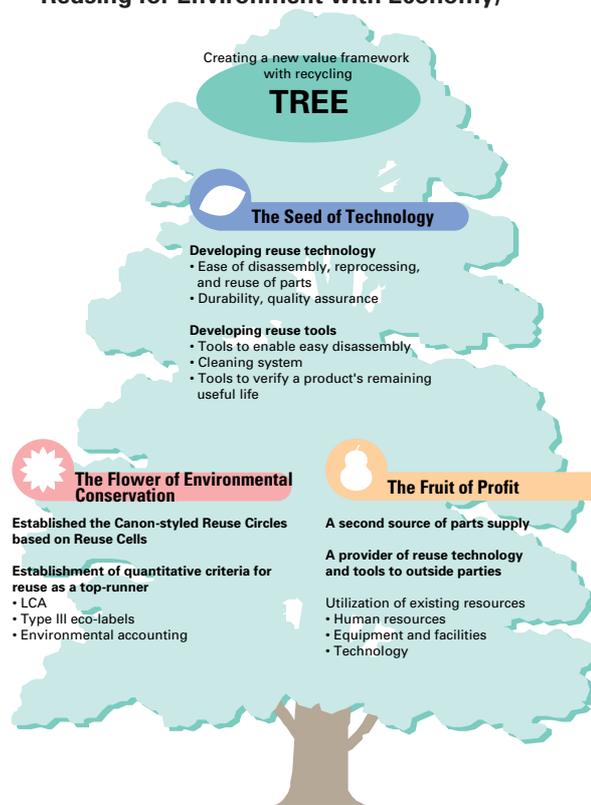
Canon also actively participates in the collection and recycling programs of used products such as the "Copying Machine Collection and Exchange Center," a recycling model operation contracted by the former Ministry of International Trade and Industry, to undertake the collection of used products efficiently. Since the opening of the Center in Tokyo in January 1999, others centers were also opened in Osaka, Sapporo, and Nagoya in 2000 and in Hiroshima, Fukushima, and Sendai (planned) in 2001, to provide a national network of collection and exchange centers.

"Inverse Manufacturing"-A New Production Method for a Resource-Recycling Society

Canon is actively engaged in Inverse Manufacturing. It is a manufacturing method that incorporates the concept of easy-to-disassemble, easy-for-reuse structures and easy-to-recycle materials at the production stage. Today, the manufacturing industry is required not only to produce goods, but also to operate with the concept of an "inverse manufacturing plant" that takes into consideration the collection, disassembly, and reuse of products.

Recycling is generally carried out following the process of taking apart the components, sorting them, and then recycling the materials; it is very difficult to make profits while trying to conserve resources. However, in working with the used products we collected, we learned that "a recycled product can have quality as good as the brand new ones if certain parts are replaced," that "we can improve profitability because many components do not need to be broken down into materials to be reused," and that "if we make parts and components common to many products, we can increase the extent of reuse." By thoroughly reviewing and revising the production process, Canon has put into place a corporate environment that promotes reuse. In 1999, the Toride Plant in Ibaraki Prefecture launched the Technology of Reusing for Environment with Economy (TREE) plan, integrating product development, sales and all other departments associated with the operation to carry out inverse manufacturing activities.

■ Parts Reuse Program - TREE (Technology of Reusing for Environment with Economy)



TREE Priorities

- 1 To perform product design and understand parts life with a view to durability and reuse of products
- 2 To establish an efficient system to collect used products
- 3 To exercise strict quality control on collected parts
- 4 Reuse technology

Taking the Lead in Reuse Activities: _____ Toride Plant

Used copying machines are disassembled into constituent parts, which are inspected for proper functionality. Only parts with quality compatible to the new ones are reused. As the disassembly of parts for reuse requires even more skills and knowledge than manufacturing new ones, Canon allocates qualified engineers and technicians equipped with the expertise, utilizing effectively its human resources, technology, and facilities. At the plant, parts for reuse are labeled with a price tag, illustrating that reuse is not only a waste reduction measure, but also a measure to produce cost-saving effect by utilizing parts that still have values. After completing the collection route in 2001 through the establishment of nationwide network of centers to exchange collected copying machines, Canon will have a system to enable it to effectively utilize parts that were discarded as waste in the past.



A Pioneer in Toner Cartridge Recycling

Canon started the toner cartridge collection and recycling program in 1990. After-use toner cartridges from laser beam printers, copying machines, and facsimile machines are collected for reuse and recycling.

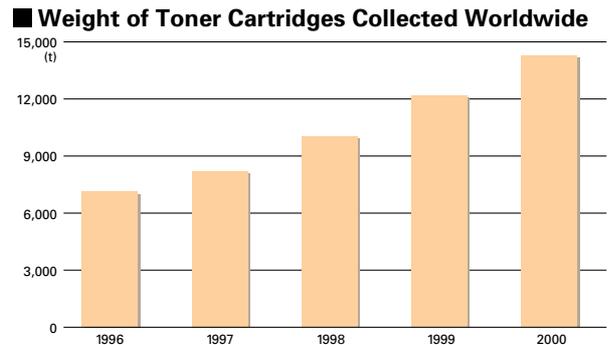
Today, toner cartridges collected worldwide are recycled through Canon's tri-region network in Asia, Americas, and Europe.

Recycling Process of Toner Cartridges

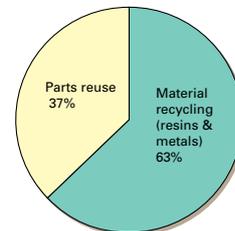
The used toner cartridges being collected are separated at collection centers and sent to recycling plants. Toner cartridges collected in Japan are sent to the Canon Recycling Operations Center (CROC) at Canon N.T.C. Iwai Plant in Ibaraki Prefecture for inspection, and then to Canon Dalian Business Machines in China for recycling. Similarly, used toner cartridges in Europe are sent to Canon Bretagne in France, and used toner cartridges in the Americas are sent to Industrial Resource Technologies, a subsidiary of Canon Virginia, for recycling.

At the recycling centers, the toner cartridges are disassembled and sorted into parts for reuse and parts for recycling. Parts for reuse are cleaned and subjected to stringent quality inspection before being reassembled into new toner cartridges. Parts for recycling are destined for material recycling*, after considering the environmental burden that these parts produce in their product life cycles.

*Material recycling: a method to recover material from waste and reuse them as new product materials.



■ **Rate of Recycling in 2000: 100% (Canon Dalian)**



Canon Dalian in China



Industrial Resource Technologies in the USA



Canon Bretagne in France

Reviewing Methods to Recycle Bubble Jet Ink Cartridges and Ink Tanks, by Using Life Cycle Assessment

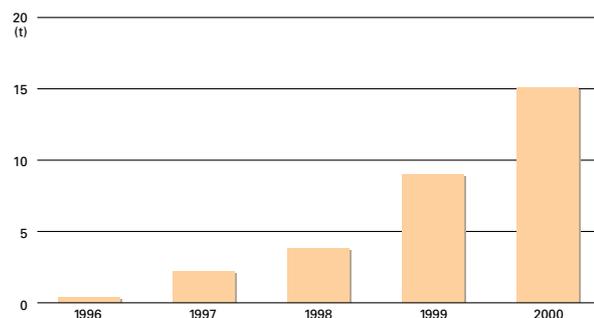
Bubble Jet printer is one of Canon's key products. Its large sale volume requires even more attention to the impact that the product has on the environment.

In 1996, with cooperation from customers, Canon started the recycling of Bubble Jet ink cartridges and ink tanks by setting up collection boxes at Canon Zero One shops (Canon Sales retail outlets) and service centers. The volume of Bubble Jet ink cartridges and ink tanks collected has increased over the years, with 15 tons of cartridges collected in 2000. The collected cartridges are disassembled and sorted by materials for recycling at the Canon Recycling Operations Center (CROC) at Canon N.T.C. Iwai Plant in Ibaraki.

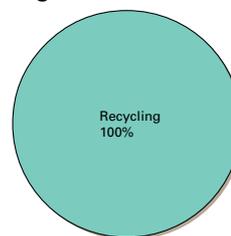
To reduce the product's overall environmental burden, Canon uses Life Cycle Assessment to review recycling methods that can render the optimal results. At the time when materials were selected for the Bubble Jet ink cartridge, special consideration was taken to facilitate recycling later on. Some resins from the ink tanks are reused through closed recycling as raw materials for making the body of Bubble Jet printers. Other resins and metals are reused for other purposes through material recycling. In sum, Canon has achieved 100% recycling.

The Bubble Jet ink tank recycling technology received the President's Award from the Clean Japan Center, as the first recycling technology to receive it, in the Center's Recycling Technology Award for the year 2000.

■ Weight of Bubble Jet Ink Cartridges Collected



■ Rate of Recycling in 2000: 100%



CROC

Used cartridges are collected and brought to CROC, where they are sorted into plastic and metal materials for reuse.



Automatic disassembly equipment for Bubble Jet ink cartridges



Washing and drying equipment for resins



Canon N.T.C. (CROC)

Information Disclosure

Information Disclosure by Eco-Labels

In building a resource-recycling society, it is essential that consumers correctly understand product's environmental information when making a purchase. At Canon, as a means of disclosing products' environmental information, we became the first in Japan to introduce Type III eco-label, an international environmental labeling.

Type III eco-label that Canon has introduced provides environmental information in a total of 27 areas: 12 areas of basic environmental performance and 15 areas of eco-efficiency. For each of these areas, based on the concept of life-cycle assessment, figures for all stages including materials and parts, production, distribution, use, recycling, and disposal are made available.

Currently, data on 8 models of digital multifunction office systems, 1 model of laser beam printers, and 15 models of Bubble Jet printers are offered on our website. Since May 2001, Canon's Type III eco-label has been prepared in accordance with the Japan Environmental Management Association for Industry's product specific standards, JEMAI Program Ver.2 (unification of calculation range, method, and format).

BJ S6300 Product Environmental Declarations

(As of April 2001)

■ Basic Environmental Performance

Power consumption	Standby mode: Approx. 3W
Resource efficiency	Main body weight: Approx. 7.0 kg Main body dimensions (W × D × H): 573 × 335 × 194 mm Use of recycled parts and materials: None Items recycled: Bubble Jet cartridges and ink tanks Technology for recycling main body plastic housing materials is established.
Product safety	Hazardous substances: No parts contain specified brominated flame retardants (PBB, PBDE); No use of heavy metals (Pb, Hg, Cr(VI), Cd) in plastic housing parts; No use of halogenated flame retardants Operational sound level: Approx. 39 dB(A) at highest quality printing mode
Packaging materials	No use of heavy metals (Pb, Hg, Cr(VI), Cd) in shipping box. Recycled according to the Container and Packaging Recycling Law
Complied standards	International Energy Star Program, VCCI (Class B) * The Canon Group plant manufacturing this product has obtained ISO-14001 certification.

■ Eco-Efficiency

	Material/parts (/unit)	Production (/unit)	Distribution (/100 km)	Use (/1000 sheets) (Monochrome)	(Color)	Recycle/ Disposal (/unit)	
Energy	Electricity (kWh)	36.1	13.9	0.0	2.4	7.6	1.6
	Fossil fuel (crude oil equivalent: L)	—	0.53	0.11	0.01	0.01	0.12
	Gas (MJ)	—	0.0	0.0	0.0	0.0	—
	Others (MJ)	—	0.0	0.0	0.0	0.0	—
	Water (groundwater / industrial & city water: L)	— / —	0.6/6.3	0.0/0.0	0.1/0.1	0.2/0.1	— / —
Resources	Metals (ferrous / non-ferrous: kg)	— / —	3.1/0.1	0.0/0.0	0.0/0.0	0.0/0.0	— / —
	Plastics & rubber (kg)	—	5.1	0.0	0.0	0.0	—
	Glass (kg)	—	0.0	0.0	0.0	0.0	—
	Other (kg)	—	4.2	0.0	0.1	0.1	—
	Waste (incineration & landfill: kg)	—	0.2	0.2	0.0	0.	6.1
Environmental safety	Greenhouse gases (CO ₂ / PFCs, HFCs, SF ₆ : kg-C)	11.4/—	1.9/0.0	0.1/0.0	0.5/0.0	0.9/0.0	0.3/—
	Acidification gases (SO _x / NO _x : g)	— / —	6.7/11.4	0.8/2.1	0.6/0.5	1.2/0.9	1.2/2.5
	Ozone-depleting chemicals (CFC equivalent: g)	—	0.0	0.0	0.0	0.0	—
	Water effluent (BOD / COD: mg)	— / —	131.1/132.1	0.0/0.0	0.4/0.7	0.5/1.1	— / —
	PRTR listed chemicals (total: g)	—	0.0	0.0	0.0	0.0	—

Note: "--" indicates levels currently unknown due to lack of sufficient social infrastructure.

Date of marketing: May 2001

Price (excluding tax): 74,800 yen

Printing speed: 17 ppm (monochrome) / 12 ppm (color)

Main environmental considerations:

- Reduced number of labels (using engraved mark)
- 100% recyclability of housing plastics
- Individual ink tanks for all colors
- Lead-free wires, chromate-free steel plates



Canon Type III eco-label

● Basic Environment Performance

Information on power consumption, resource efficiency, product safety, packaging materials, and standards compliance, in customers use, recycling and disposal stage.

● Eco-Efficiency

Environmental impact throughout the product life cycle is indicated quantitatively from various viewpoints.

Points: energy, resources, environmental safety, environmental pollutants

Life-cycle stages: materials and parts, production, distribution, use, recycling and disposal

Different Types of Eco-Labels



Type III eco-label Ver. 2

The ISO-14020 series establishes three types of eco-labels as means to disclose environmental information of products.

(1) Type I

Similar to the "Blue Angel" environmental labels in Germany and the International Energy Star Program, a third party reviews whether a product meets specific standards, and approves the use of an environmental mark to indicate its conformity.

(2) Type II

Manufacturers make an environmental claim of their products and services according to independent standards. This is a self-declared type labeling, and information provided is decided by each company or organization.

(3) Type III

From the viewpoint of Life Cycle Assessment (LCA), environmental burden of a product from its development, procurement of raw materials, production, to sales and marketing is indicated as environmental features. The major difference with Type I and II labeling methods is that, as information is provided in the format of a highly objective environmental performance data sheet, customers themselves can evaluate the disclosed data.

"In 1998, the then Ministry of International Trade and Industry (present Ministry of Economy, Trade and Industry) requested the business machine industry to adopt the Type III eco-label, a more objective label than the existing Type II labels placed by each company. While most companies were hesitant to accept this request, a voice was raised within our company that Canon should take the lead, so that others will follow, enhancing the environmental activities within the entire industrial circle. Thus, we decided to take the challenge."

"The first undertaking, no matter what, requires a tremendous amount of energy. It will be costly, and there are also risks. Nevertheless, Canon decided on the introduction of Type III eco-labels for the following two reasons."

"For one, by disclosing detailed environmental data, we can grasp the needs of consumers and what they expect of manufacturers in terms of environmental consideration. The other is that we can gain an objective recognition of which environmental aspects we are behind in comparison with our competitors, and make improvements in those areas."

"We are often asked whether there were actually any merits in introducing the Type III eco-labels. First of all, it certainly helped to raise the consciousness of each employee. As data on such small units as parts and materials are presented, the attitude that "if all is well, then details don't matter" no longer applies. Most of all, promotion of environmental measures in a determined manual has resulted in reduction of costs at all aspects."

At Canon, our underlying philosophy has been that elimination of waste from corporate management leads to environmental conservation. By taking the lead in introducing the Type III eco-labels ahead of other companies, Canon has succeeded in the first stage of its attempt to realize harmonious integration of the environment and economy.



Kiyofumi Matsumoto
Manager, LCA (Life Cycle
Assessment & Analysis)
Dept.
Environment Administration
Div., Environment
Engineering Center

Details on Type III eco-labels are provided in our website (Japanese only):

<http://www.canon.co.jp/ecology/ecolabel/lterm/index.html>

For details of JEMAI Program Ver.2, please refer to the JEMAI website:

http://www.jemai.or.jp/ecolabel/eng_ecl/e_ecl-1.htm

Environmental Communication

To further the development of a resource-recycling society, the disclosure of environmental information is absolutely necessary. In order to raise the visibility of its global environmental activities encompassing development, production, and sales, Canon undertakes a wide variety of

communication activities. Canon supplies information to the public using various media such as the periodic publication of an Environmental Report, the web site, various events and seminars, and newspaper advertisement.



Environmental Reports



Environmental Web Site

 Canon received the "Masterwork" Prize in the newspaper category at the 10th Contest of Environmental Advertisement, co-sponsored by The Regional Exchange Center and Nihon Keizai Shimbun in Japan.



Environmental information disclosure by operational sites
Nikkei Business Daily, Feb. 22, 2000



Type III eco-label
Nikkei Business Daily, Nov. 14, 2000

Comments on Canon's Environmental Activities

Hiroshi Sakisaka Vice President (holding the post of Executive Managing Director) Japan Environmental Management Association for Industry (JEMAI)
The Japan Environmental Management Association for Industry (JEMAI) is a public corporation established in 1962 with the objective of helping to prevent industrial pollution. JEMAI has been developing methodology for environmental impact assessment, researching issues relating to protection of the environment, and training pollution control managers. In recent years, JEMAI has expanded its activities to cover environmental management systems, including the research and application of life cycle assessment (LCA) and environmental labels. We are paying close attention to Canon's remarkable efforts in the field of environment.

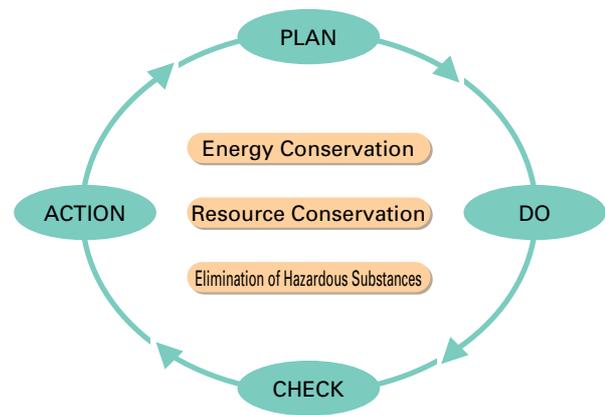
Takehiko Totsuka General Manager, General Administration Department, Tokyo Headquarters. Obayashi Corporation.
Since the Obayashi Corp. established the Green Procurement standards for office equipment in April 2000, we have selected manufacturers and purchased products based on our evaluation of the environmental activities undertaken by the manufacturers and the environmental conscious features of the products. In accordance with the corporate philosophy of kyosei, the Canon Group formulated the Environment Assurance Philosophy and the Environment Assurance Stewardship. It has tackled environmental problems actively from the various perspectives of energy and resource conservation, and the elimination of hazardous substances. As users, we think highly of the Canon products not only because of their high performance, but also because they match the environmental activities of our company. We have great expectation that the Canon Group will continue to develop products that can contribute to the conservation of resources and other environmental activities of its users.

Kikuko Tatsumi Director, Nippon Association of Consumer Specialists
Canon's environmental advertisement series were both easy for the consumer to understand and well designed to present the highlights of the company's environmental protection activities. In our "Environmental Label-Consumers' Guide for Making Purchase Decisions" survey, we discovered that consumers wanted data for comparison purposes when shopping for durable goods, different result from groceries and household supplies. Canon has made much effort towards the introduction of the Type III eco-label that indicates this data. This type of involvement is important for the creation of better environmental communication between consumers and corporations. We hope to see more of it in the future.

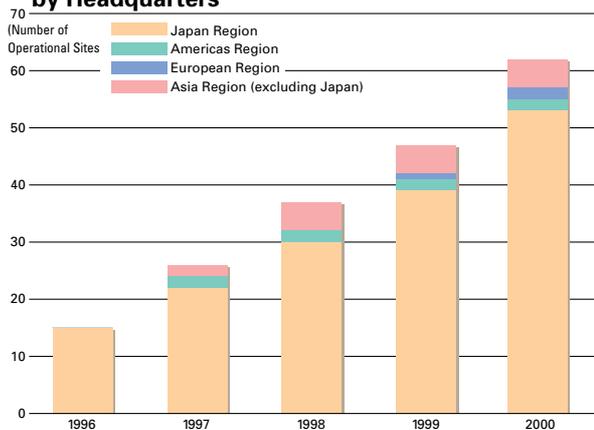
Environmental Auditing and ISO14001

An environmental management system is an important tool to promote environmental management continually and with efficiency. Canon implements environmental activities through the PDCA (Plan - Do - Check - Action) cycle that places emphasis on energy conservation, resource conservation and the elimination of hazardous substances. Canon periodically conducts self-checks such as the "Environmental Audit by Operational Sites" and "Environmental Audit by Headquarters" and operates the "Environmental Analysis System" for continued monitoring of environmental burden. Furthermore, Canon was quick to receive the third party EMS certification. In February 1995, the Ami and Ueno operational sites were the first in Japan to meet BS7750 standards, the forerunner of the

ISO14001 international environmental management system. All major production sites worldwide have obtained the ISO14001 certification.



Accumulated Progress of the Environmental Audit by Headquarters



2000 Data for the Environmental Audit by Headquarters

Site/Subsidiary	Audited Month
Optron Inc.	January
Canon Chemicals, Inc., Totsuka Plant	January
Canon N.T.C. Saitama Plant	January
Canon Aptex, Inc. Ibaragi Headquarters	February
Ami Plant	March
Fukushima Plant	April
Oita Canon, Inc	April
Ueno Chemical Products Plant	May
Nagahama Canon, Inc.	June
Canon Bretagne S.A.	June
Hirosaki Seiki, Inc. Ishiwatari/Kitawatoku Plants	July
Canon Research Center	September
Utsunomiya Plant	October
Canon Components Inc.	November
Copier Co., Ltd. Tachikawa Plant	December

ISO Certified Sites and Subsidiaries

Site/Subsidiary	Certified Date	Site/Subsidiary	Certified Date	Site/Subsidiary	Certified Date
Ami Plant	February 1995	Copier Co., Ltd. Kofu Plant	November 1996	South Tech, Inc.	December 1997
Ueno Chemical Products Plant	February 1995	Canon Hi-Tech (Thailand) Ltd.	November 1996	Canon (Schweiz) AG	December 1997
Toride Plant	May 1995	Copier Co. Ltd. Fukui Plant	November 1996	Utsunomiya Optical Products Operation	December 1997
Fukushima Plant	September 1995	Copier Co. Ltd. Tachikawa Plant	November 1996	Canon Chemicals Inc. Ishige Plant	January 1998
Hirosaki Seiki, Inc., Ishiwatari/Kitawatoku Plants	September 1995	Canon Opto (Malaysia) Sdn. Bhd.	December 1996	Canon Denmark A/S	March 1998
Canon Electronics Inc. Misato Plant	October 1995	Canon Business Machines, Inc.	December 1996	Tamagawa Plant	November 1998
Canon Aptex Inc.	November 1995	Canon Components, Inc.	February 1997	Hiratsuka Development Center	December 1998
Canon Bretagne S.A.	November 1995	Hanawa Seiki, Inc.	February 1997	Canon Business Machines de Mexico, S.A. de C.V.	December 1998
Nagahama Canon Inc.	December 1995	Canon Zhuhai, Inc.	March 1997	Canon Svenska AB	April 1999
Utsunomiya Plant	January 1996	Miyazaki Daishin Canon Co., Ltd.	March 1997	Canon Electronics Inc. Akagi Plant	June 1999
Oita Canon Inc.	January 1996	Canon Chemicals, Inc. Iwama Plant	April 1997	Canon Electronics Inc. Headquarters Kagemori Plant	July 1999
Canon Inc., Taiwan	April 1996	Canon Dalian Business Machines, Inc.	July 1997	Custom Integrated Technology, Inc.	December 1999
Canon N.T.C. Iwai Plant	July 1996	Canon Giessen GmbH	October 1997	Canon Sales Co., Inc. Makuhari Headquarters	December 2000
Canon Chemicals Inc. Tsukuba Headquarters	July 1996	Canon Virginia, Inc.	December 1997		

Introduction of Eco-Products

Copying and Facsimile Machines, Laser Beam Printers, Image Scanners, and Other Office Equipment

In the early 1990s, Canon started to take the lead in the industry to implement a wide range of environmentally conscious measures including energy conservation, ozone-free design, and recycling of consumables.

In September 2000, Canon's prototype-stage digital multi-functional office system with high-speed on-demand fixing technologies received the prestigious Copier of the Future "IEA-DSM Award of Excellence," an award to recognize innovative energy-efficient technologies.



The prototype was made into the MEDIO iR3300 series and was launched in June 2001 in Japan. The models in this series only consume 5W of electricity when in Sleep Mode and take only 6

seconds to recover from Sleep Mode to Start-Up, a breakthrough in energy-saving technology and quick start.

Compared to the 125 wh/h energy-saving standard specified by The Law on Promoting Green Purchasing that took effect in April 2001, this series consumes only 35 wh/h, thus achieving a significant reduction to 1/4 of the standard. This series also boasts the shortest warm-up time and most energy-efficient system among machines of the same class.

The series has additional features that include resource conservation and the elimination of hazardous substances. It is designed with standard features to enable the use of 100% recycled papers and a double-sided copying function, thus contributing to the reduction in paper use.

Environmental considerations were taken to enable the maximum use of 50% of parts from older models, in addition to actively using plastics from halogen-free materials (do not give out dioxins when incinerated) and recycled materials with Canon's original sandwich molding technology. Utmost effort has also been made to minimize the use of chemical substances such as

■ iR3300 Series



The iR3300 series comes with a number of leading-edge technologies developed during Canon's relentless pursuit of more efficient use of energy, which entailed the reworking of existing technologies. Some of the technologies are presented below:

● Energy-saving technology (On-demand fixing technology)

Canon's proprietary on-demand fixing technology has reduced power consumption to about one-fourth that of conventional methods. In Sleep Mode, power consumption is a mere 5W, while recovery from Sleep Mode takes just six seconds. Resulting energy conservation far exceeds the copying machine standard required by the International ENERGY STAR Program (132W in Sleep Mode and Recovery time from Sleep Mode of 30 seconds for copying machines of the iR3300 class).

● Resource conservation technology (Design for reuse and recycling)

To ensure that Canon products won't burden people or the earth, the company practices product designing with reuse and recycling in mind, which entails incorporation of resource conservation technologies in all aspects of the product's lifecycle, from parts and raw materials to production processes, and to use and disposal of the product.

*Under Canon's recycling program, products collected are disassembled and only those components that have passed rigorous inspection are put back into the production process for reuse. Rejected parts undergo thorough material separation processes to be reused as resources.

● Clean technology (Elimination of hazardous substances)

To eliminate the need of discharge control and treatment for lead, chrome and ozone during manufacturing, use and disposal stages, Canon has adopted lead-free lenses, soldering and wiring. Also adopted are steel plates with coating that contains no chrome. Furthermore, the ozone-free electrical charging technology developed by the company has cut ozone generation to less than approximately 1/1,000 of the previous level (based on comparable in-house data).

lead, halogen, and chromate, to keep environmental impact to the minimal. The MEDIO iR3300 series, which crystallizes Canon's environmentally conscious efforts taken so far, is a key new product series of medium speed digital multi-functional office system with functionality far exceeding the requirements provided by The Law on Promoting Green Purchasing in April 2001.

The energy-saving design using Canon's originally developed on-demand fixing technology and the elimination of hazardous substances using ozone-free electrical charging technology were introduced in the early 1990s for low-speed laser beam printers and copying machines. These technologies are widely used today in laser beam printers, facsimile machines, as well as the MEDIO iR3300 series.



LBP-1810



LBP-1110

A trial calculation of energy conserved by Canon products with the on-demand fixing technology indicates an amount equivalent to the annual electricity consumption of 350,000 households in Tokyo.

In the past, products using the on-demand fixing technology have received numerous awards. In 2000, not only that the technology received the IEA-DSM award, in February, the L2600 facsimile machine also received the Award for Excellent Energy-saving from the Japan Machinery Federation.



Canon's L2600 facsimile machine

With digital equipment becoming more popular in offices and homes, the need for scanning products has also increased. Canon employs an originally developed image scanning technology LIDE* in its products, making them more energy-efficient, more compact in size, and lighter in weight as compared to conventional models.



CanoScan N656U

*LIDE: Light-Emitting Diode (LED) Indirect Exposure
The LED indirect exposure scanning method, developed by Canon, uses a light guiding mechanism to ensure even emission of the light from small LEDs, which is detected by the linear sensor.

Due to these proactive environmental measures, Canon has continued to be the leader* in the office equipment industry in terms of the number of products registered with the Energy Star program of the US Environmental Protection Agency, a pioneer standard for energy-saving office equipment in the world. Canon is proud to have received the Energy Star Energy-Efficient Products Award.

(*As of March 2001)



2001 Energy Star Award

Cameras, Video Camcorders and Lenses

As the world's largest lens manufacturer, Canon is making effort to reduce environmental burden from all angles. In the past, about 200 types of optical glass were used in lenses, and lead was used in half of them to raise optical performance. Canon started a project in 1991 to develop lead-free glass (glass that does not contain lead). And joining forces with glass manufacturers in 1993, Canon replaced lead with the environmentally harmless titanium, and succeeded in developing lead-free glass that delivered the same optical functions as conventional glass that contained lead.

As of 2000, Canon uses approximately 100 types of lead-free glass. The lens-shutter cameras have all shifted to lead-free photographic lenses. The EF lenses for the EOS series single-lens reflex cameras have also changed to lead-free lenses wherever possible.

To further reduce the use of lead, lead-free glass and plastics are used for viewfinders in cameras. Canon also works to reduce glass waste by making lenses of smaller diameters and using technologies to shape and process glass more effectively. Most of Canon's overseas affiliated camera manufacturing facilities in Taiwan, Malaysia, and Zhuhai in China have switched to lead-free glass.

Canon was also the first in the world to introduce the new concept of using diffractive optical element for camera lenses in 2000. By making the diffractive optical element multi-

layered, Canon was able to utilize the merits of the diffractive optical element and succeeded in producing a prototype of the EF 400mm F4 DO IS USM lenses. Compared to the conventional lenses, the new lens is much more compact and lighter, making the cameras easier to use and helping save resources.



Environmental consideration is given to camera bodies and external parts by actively using metals such as aluminum and stainless steel. These materials not only improve the product's appearance, but they are also easy to recycle. Furthermore, Canon is making cameras more compact and lighter in weight to help conserve resources.



EF lens series



EOS-1V



Sure Shot Z90W/
Prima Super 90 Wide



PowerShot S300
Digital ELPH/
DIGITAL IXUS 300



ZR30MC/MV450i

Bubble Jet Printers

Canon started to take environmental measures for Bubble Jet printers at a comparatively early stage. These products are managed with environmental considerations throughout their life cycles.

For example, in the case of a multiple-color ink tank, the ink tank has to be replaced even when only one color is used up. Canon uses an independent ink tank system, which enables the replacement of individual colors. A high-precision remaining ink detection system using a combined optical and dot-counting method also helps to avoid wasteful paper use. In 1996, Canon was the first in the industry to start the recycling of used Bubble Jet cartridges. Today, 100% of the collected cartridges are recycled.

By making the plastic housings of printers thinner, less resource is used. In addition, indication of materials are made to facilitate disassembly and sorting. As an environmentally conscious feature, operating instructions are embedded in the design to avoid the use of labels. A closed recycling technology for the main body is also established, making it possible to recycle 100% of the housing plastics. Canon is taking a comprehensive approach to product manufacturing to help realize a resource-recycling society.

The BJ S6300 printer launched in June 2001 is the first in the ink jet printer industry to use chrome-free steel plates and lead-free wires.

Conventional ink jet printers are in standby mode for longer periods than in printing. With the BJ S6300 ink jet printer, power consumption during the standby periods is reduced to approximately 3W, achieving a higher level of energy conservation. Canon is exploring the possibility of collecting end-of-use printers and will continue to take environmentally conscious measures in the future.



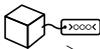
BJ S6300



Canon's Bubble Jet cartridge recycling system received the Recycling Technology Award from the Clean Japan Center in February 2001.

Environmental Features of the S800

Material indication for all plastic parts more than 20g in weight



Parts and materials selected through green procurement



Produced only at plants with ISO 14001 certification



Zero waste from manufacturing



70% energy consumption reduction in standby mode (compared with the BJC-7000)



No specific brominated flame retardant



100% recyclable



Bubble Jet cartridges are collected and recycled.



Ink tanks that can be replaced individually



Reduced use of labels, using engraved marks



CD-ROM reducing the volume of paper operating manual



Installation of holes under product nameplates to facilitate their removal



All screws conforming to M3 specifications



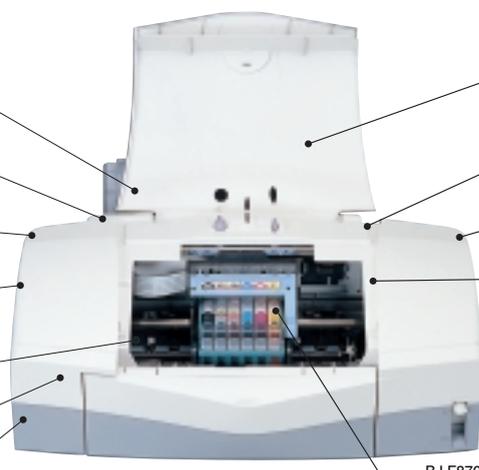
Thinner plastic housing



100% recyclable plastic housing



Introduction of snap-fit couplings



BJ F870

Environmentally Conscious OA Paper

Kenaf Paper (Non-Wood Pulp Paper)

Most experts agree that the earth will not have enough conventional wood pulp to meet worldwide demand for paper in the 21st Century. Industry is therefore turning its attention to kenaf, a material with the potential to become an alternative to wood. Kenaf, a plant that prospers mainly in Southeast Asia, will help protect forests while offering higher material yield and absorbing more CO₂ than trees. Expectations are high that kenaf will prove useful in a variety of applications as an environmentally conscious new resource.

Canon took the lead in developing kenaf paper, working on a joint development project with paper manufacturers to commercialize the world's first high-quality kenaf paper designed for copying. Furthermore, blending recycled pulp of 40%, we have created kenaf paper that offers users excellent image and paper quality, comparable to that of conventional high-grade copying paper.



Recycled Paper

Canon's recycled paper contains between 70% and 100% recycled pulp. We select different types and ratios of recycled pulp for a wide variety of applications, including papers that meet the requirements of the Law on Promoting Green Purchasing. For example, the brightness of our high-grade recycled paper is almost indistinguishable from that of new paper, but we also offer paper that is less white and which is more suitable to double-sided copying. Finally, all of our recycled paper products are alkaline paper,

which is ideal for safely storing documents for long periods of time.



ECF Paper (Pulp Bleaching Method)

Paper is typically made with bleached pulp. The most common bleaching method used in Japan involves oxygen and elementary chlorine. Canon, however, produces its Office Planner paper for copying machines and Bubble Jet printers using an elementary chlorine-free (ECF) bleaching method that is common in Europe and the United States. This method cuts down on the usage of chlorine, which is thought to be harmful. At the same time, it contributes to environmental conservation by substantially reducing chlorine residues in wastewater from paper plants.



Environmental Education and Awareness-Enhancement

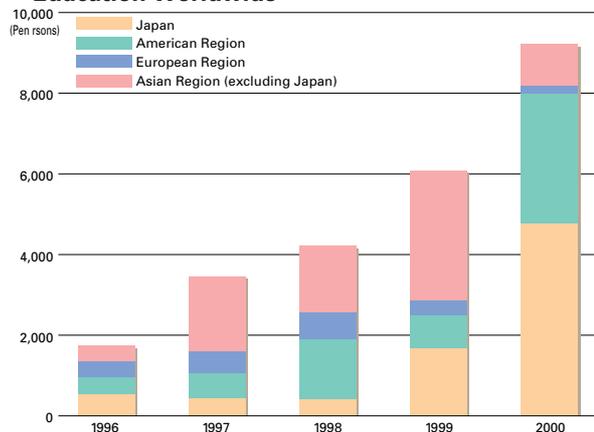
To upgrade the level of environmental management and to undertake environmental activities to contribute to the society, it is necessary to continuously raise the awareness of all employees regarding the importance of the environment and to encourage them to take the necessary environmental measures at the workplace and at home.

In order to train personnel to lead environmental activities at operational sites and workplaces, Canon offers environmental education to employees of different ranks and provides a variety of programs and seminars to nurture environmental specialists, and encourages employees to participate in external lectures and training programs.

Major Training Programs and Results

	Japan	Overseas	Total
Training programs for different ranks			
Training for newly hired employees	711	508	1,219
Training for general employees	3,079	3,514	6,593
Training for newly appointed Assistant Managers and Foremen	27	0	27
Training for executives (Directors)	23	0	23
Training programs for environmental specialists			
Training for environmental staff	394	41	435
Training for internal environmental auditors	322	40	362
Standard seminar on Design for Environment			
Seminars on environmental technology and technology on safety technology for chemicals	40	—	40
External training programs, seminars, and lectures, etc.	244	151	395

Number of Participants in Environmental Education Worldwide



Environment Assurance Staff Training

It is a 2-day course with a various curriculum that covers Canon's environmental policies, an overview of Canon's environmental activities, legal regulations governing various environmental fields, corporate standards, and case studies of solving environmental problems at various workplaces, etc.



Environment assurance staff training

Standard Seminar on Design for Environment

To reduce the environmental burden throughout a product's life cycle, it is important to incorporate environmental features at the design stage. From 2000, Canon has provided training on the important areas of Design for Environment for engineers and technicians mainly from the development and production departments. The seminar was favorably received by participants. There were comments like "Since the seminar covers important contents, all personnel engaged in product design shall attend the seminar." and "The seminar is useful for the early stages of design, its contents shall be taken into serious consideration." For this reason, Canon has increased the number of seminars in 2001.

Environmental Showroom

Environmental showrooms were set up at Canon's Shimomaruko Headquarters, Toride Plant, Ami Plant, and Fukushima Plant to raise the environmental awareness of employees. Special consideration was given to exhibit the unique activities of the particular facility, and to locate the showrooms at places easily seen by the employees.



Technology Forum

Canon started the hosting of technology forums in 1998 to upgrade and develop the technological level of the Canon Group. In 2000, a technology forum was held in May at the Canon Headquarters in Shimomaruko, where the latest technology and specific products of nine different technological fields were presented. In the environmental technology field, a wide range of technologies was introduced and information exchanged, with the focus on the recycling-related technologies..

Participants to last year's forum increased to 550, making the forum a networking venue for engineers of the Canon Group companies.



Eco-Activities at Shimomaruko Headquarters

Canon is actively engaged in environmental activities in its offices as well. Presented below are a few examples.

"MORAO": Effective utilization of office supplies

To promote effective use of office supplies and equipment no longer needed at workplaces, Canon created in 1997 a site, "MORAO," as a swap shop on its corporate intranet. The site has been extensively used as a forum for information exchange. Allowing participants to advertise surplus goods or goods they want, MORAO has contributed to not only cost reductions but also elimination of waste.



Uniforms made from recycled PET bottles: An example of Green Purchasing

Canon Group's divisions in charge of procurement have established detailed standards that extend from raw materials and parts to office supplies, against which goods are evaluated, and are exercising preferential purchasing of green products. For example, employee's uniforms are purchased with due environmental consideration. The standards specify such details as nonuse of harmful substances, use of recycled materials and recyclability at the end of their useful life. In March 2001, Canon switched to uniforms that use materials containing polyester made from recycled PET bottles.

ECO UP Shimomaruko

Making all employees more environmentally aware is vital for success in energy conservation, and reductions and thoroughgoing sorting of waste. Canon therefore created a new organization, ECO UP Shimomaruko, in March

2001. The organization, consisting of four sub-groups for energy conservation, emissions control, environmental volunteer work, and education, is promoting environmental activities at workplace.

Canon's New Head Office Building Incorporates State-of-the-Art Environmentally Conscious Design

Canon's new head office building, scheduled for completion in April 2002, is designed with all-round environmental consideration. Its environmentally conscious features include high-performance double-glazed heat reflecting glass, which cuts off outside air and solar radiation, air-conditioning systems powered by natural energy, high-efficiency lighting, and energy-efficient elevators. Furthermore, to minimize environmental burden of construction work, Canon provided contractors with the Environment Conscious Design Standards for Construction it developed, requesting strict adherence to them. Canon's aggressive environmental conservation efforts thus extend beyond products and manufacturing processes into its own building.

The new head office building has achieved energy-saving design that uses 35% less energy than the standard building specifications designated by the Institute for Building Environment and Energy Conservation. In November 2000, the building received Level 2 certification of the Excellent Building for Environment and Energy. Level 2 certification, which has been granted to 27 buildings nationwide, represented a second one for Canon, following the new B1 building of Toride Plant in Ibaraki Prefecture.



Labor Safety—Safe and Pleasant Working Environment

Canon is committed to improving the safety and health aspects of its workplace by eliminating the risk of workplace accidents, creating a pleasant working environment, and promoting the health of its employees.

Safety and Health Activities

Safety and health activities can be divided largely into two areas, the prevention of accidents, and the prevention of reoccurrence. In the area of accident prevention, in addition to the activities to identify dangers in advance and the activities to keep the workplace clean, orderly, and disciplined, Canon puts emphasis on inspecting the workplace for potential dangers and reviewing methods to identify dangers in advance. In the area of reoccurrence prevention, Canon tries to find the root cause of an accident and to share the lesson with companies in the Canon Group to prevent the occurrence of similar accidents.

■ 2000 Industrial Accidents

(No. of accidents)

	Accidents requiring interruption of service	Accidents not requiring interruption of service	Total
Japan region	5	149	154
Americas region	82	188	270
European region	46	11	57
Asia region (excluding Japan)	7	34	41

Working Environment Inspection

Together with labor safety and health, measures to ensure proper working environment and health of employees must be taken. These measures should also be developed into emission control at their sources. To this end, 4 working environment inspectors continue measurements and monitoring of working environments.

■ Working Environment Inspection in 2000 (Japan region)

(No. of workplaces)

	Category 1	Category 2	Category 3	Total
Number of workplaces inspected	649	9	5	663

Category 1: A working environment in which hazardous substances are used, but the workplace is operated in a satisfactory condition, and the condition should be maintained.

Category 2: A working environment that ranks between Category 1 and Category 3, and requires further improvements.

Category 3: A working environment in which significant environmental improvements are required.

Safety and Health Management

Canon introduced a safety and health management system in February 2000, which comprises a series of "Plan - Do - Check - Action" processes.

The "Check" process will begin with external assessment of the Fukushima Plant in July 2001, and will be extended to include all other operational sites later on. The main purpose of the assessment is to ensure that employees are taking actions in accordance with the management systems of the workplace and with the documented rules or guidelines of the company.

The assessment will mainly include a prior written survey and on-site interviews, evaluating 20 factors with 391 items. Both internal and external assessments will be carried out, with a third-party organization carrying out the assessment at the introduction of the safety and health system, and an internal entity to conduct evaluation to follow up on the implementation.

Canon will mount a group-wide effort to eliminate industrial accidents by adopting the safety and health system throughout the Canon Group companies.

Canon Health-Care System

The Canon Health Insurance Union operates the "Canon Health-Care System" with emphasis on preventive health care. Conventional health care activities are centered on health check-up carried out to identify and treat illnesses at an early stage. With the aging work force and the increase in lifestyle-related diseases, the priority in health care has shifted to the maintenance of health so that employees "will not fall sick," and "will enjoy a longer period of health." In view of this trend, the Canon Health Care System is carried out to enable the Canon Group employees and their family members to lead a healthy and active life and at the same time, to curb the medical cost that is on the rise every year.

■ Purposes of "CHS21" (Canon Health-Care System)

- Health care support throughout employee's lifetime
- Support for Canon Group employees and family members, and Canon retirees
- Physical and psychological support to different age groups

To maintain and promote the health of Canon employees and their families by encouraging self-management

*Canon Health-Care System

Diverse Social & Cultural Support Activities

Along with pursuing business activities in the Americas, Europe and Asia, Canon promotes philanthropic and cultural programs based on its corporate philosophy of promoting kyosei, in support of the creation of a harmonious society. We will continue to promote a wide range of social contribution and cultural programs throughout the world

Support for Cultural and Academic Programs

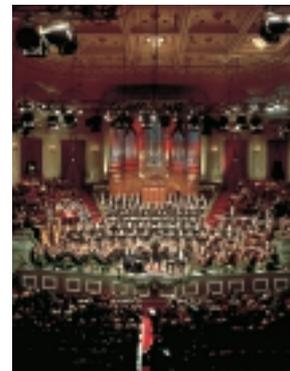
In the United States, Canon provides digital imaging equipment to the Harbor Branch Oceanographic Institution to monitor the habitat of dolphins. Also our digital video camcorders supply images for NASA's school-oriented web site, COOLSPACE. The web site provides live images of space shuttle launches and environmentally important areas in the world. Canon also supports a variety of programs ranging from the "Wings of the Americas" program to protect birds and preserve their habitats, and the Canon National Parks Science Scholars Program that awards scholarships for research in U.S. National Parks, to sponsoring the Netherlands-based Royal Concertgebouw Orchestra, which stages performances around the world.



Dolphin monitoring activities



"Wings of the Americas", a program to protect migratory birds



Royal Concertgebouw Orchestra

Support for Social Activities

Canon Europa is a WWF (World Wide Fund for Nature) Conservation Partner.

The WWF is the world's largest environmental protection organization. Five million members in over 100 countries through the world support the WWF's activities. Canon Europa and the WWF planned the "Canon - WWF Panda Bus Tour" to travel throughout Europe to survey over 6,000 young people about the environment. Based on the valuable ideas collected during this tour, we will encourage governments and companies to join hands in preserving the earth's environment. Canon also supports a program to digitize 20,000 photographs owned and maintained by the WWF making it possible to access images of the world's invaluable wildlife over the Internet.

In the United States, Canon provides a nonprofit organization that searches for missing children with both financial support and digital equipment to facilitate the speedy dissemination of information. Our financial support is extended in ways that meet the needs of local communities.



WWF staff explaining the importance of environmental protection to children

Promoting Imaging Culture

Since its founding, Canon has sought to contribute to the society through technology. Our imaging culture support activities are designed to discover new talent and cultivate new cultural expressions through imaging technologies. The World Press Photo Contest, with hundreds of countries participating, includes a global exhibition of award-winning photographs. Canon also supports the International Photographic Competition on the Environment, held by UNEP. Within Japan, our efforts to support digital art creation include activities through ARTLAB and the Digital Art Gallery, and sponsoring the Canon Digital Creators Contest that presents awards in the categories of digital photos, digital graphics and illustrations, digital movies, and Web graphics and images.



World Press Photo Contest



UNEP International Photographic Competition on the Environment



ARTLAB



Canon Digital Creators Contest

Social Activities at Shimomaruko Headquarters

● International Education Support Activities

In 1997, Canon began supporting child education in Asia where educational environment is not well developed. Canon collects used books and CDs from its employees to sell at the company "Charity Book Fair." Canon offers the matching amount of sales and donates the proceeds to the NPOs to contribute to setting school libraries and publishing children's books in Laos, establishing children's scholarship programs in Thailand, and operating of Youth Self-help Centers in Viet Nam.



School Library in Laos

● Social Welfare Activities

Since 1997, Canon has been supporting physically challenged artists, using artwork from the "Physically Challenged Artist's Art Bank" for the cover of its web site and brochures on social and cultural support activities. In fiscal 2001, Canon created a picture book "Hokkorishita Jikan", a collection of artwork used on the web site for social and cultural support activities. The book was sold for charity and all profits went to educate children in Asia through NPOs. Some of the books were donated to libraries at child care institutions and family support centers.

● Supporting Disaster-affected Communities

When a major disaster strikes in Japan or overseas, the Canon Group companies in Japan raises funds and collects donations from its employees to send to the stricken region.

● Community Contribution Activities

Canon supports local welfare and vocational aid centers in Ohta Ward, Tokyo, where its Headquarters are located. From donating supplies for bazaars to employees volunteering for festivals, Canon values good relations with local residents.

● Employee Volunteer Activities

Since 1994, employees have been donating used stamps and prepaid telephone cards, foreign coins, and spoiled post cards to welfare institutions as a part of caring volunteer activities. This activity has led to the creation of "Heartware Club" where employees gather for periodic volunteer activities such as sorting the used prepaid telephone cards and foreign coins and attaching translations to the children's books. In another effort, the second Sunday of June has been established as a day to beautify the Tama River area in Ohta Ward and Canon employees participate in cleanup activities with the Boy Scout members.



Picture book "Hokkorishita Jikan"

"Living and working together" with diverse people as a corporate citizen

At Canon, we participate in many social contribution and cultural activities under our corporate philosophy of kyosei, but I have personally discovered many new things from my interaction with NGO activists and artists. When you can have close personal contact with people with diverse backgrounds, the concepts of "corporate citizen" and "kyosei" take on added meaning from direct personal experience. The experience of seeing a world, which is not available within the company, was more stimulating than I expected.

We have run articles about grassroots-level volunteer activities by Canon employees in the company newsletter. Efforts are also being made to link people who want to do volunteer work and who need it over the Internet and through

the intranet. The number of employees who volunteer at partner organizations has also increased and I feel that this indicates a heightened awareness. It is important to keep a global perspective while beginning action at a local level. I have personally enjoyed and taken pride in my social activities as both a citizen and a woman, and hope to widen my scope of activity both inside and outside of the company.

Yasuko Miyazaki
Manager, Social Contribution Operations Dept.,
Corporate Communications Headquarters



Creating Universal Design

Universal Design

Product design needs to deliver not only aesthetics, but also operability and functionality. Modern design places emphasis on universality, designs that are easy to use for all people including toddlers and aged. The spirit of universal design has been nurtured as one of Canon's corporate philosophies, and Canon is committed to actively develop easy-to-use products to meet the needs of all users.

For example, to make copying machines and printers accessible to the physically challenged and the elderly, Canon adopts easy-to-operate panels and large buttons. Cameras are designed with special consideration to avoid creating stress to the hands and eyes.

CRX Project: an Inter-Company Network

Until now, the colors of buttons, signs, pictorial symbols, layout of the operating panels, etc. were all different depending on manufacturers. By standardizing these features, products will become more accessible to all users. With this objective, Canon, Ricoh, Fuji Xerox, and Epson carry out the CRX Project through an inter-company network to work toward the standardization of designs. This project puts together the technologies of the four companies to create a multiplier effect. Canon will continue to promote the project's activities and take on the challenge of universal product design.

Comments on Canon's Social and Cultural Support Activities

Atsuko Takahashi Nihon Minsai Koryu Center
The Nihon Minsai Koryu Center is a non-governmental, non-religious organization that gives educational support to developing nations. The Center's Darunee Fund provides financial support for middle school children in northeastern Thailand and elementary school children in Laos, one of the poorest countries in the world, through an international foster child educational support program. Currently, we provide scholarships for 15 children in Thailand with the funds raised by Canon employees collecting spoiled postage-paid postcards before usage (250 returned postcards provide funding for one full year scholarship for 1 child). At the "Tokyo Global Citizen Festa 2001" held in February, Canon reported on this activity as a corporate supporter and was received warmly.

Kikujiro Namba Earthwatch Japan
Earthwatch was established in Boston in the United States in 1973 and supports the field work of scientists. Time and talent are necessary to conduct field research on wildlife in various sites throughout the world and Canon has donated equipment such as binoculars and cameras as well as providing volunteers. I've heard that Canon is serious about the environment as shown by the toner cartridge recycling program and that the employees are very concerned about the environment as well.

Kazuo Tohara Digital Media Center, Tokyo Colony
Tokyo Colony established the Art Bank for physically challenged in 1986 as a library to showcase the talents of handicapped artists. Selected works from artists are stored and a fee is paid to the artist when a piece is used for posters, pamphlets or other publications. Canon has used this artwork for their web site and for pamphlets. This year, Canon also published a collection of the artwork used on their web site in the book "Hokkorishita Jikan" by Chie Takeuchi. I feel that Canon is a company making comprehensive contributions to our society in various fields from social welfare to the environment.

Akashi Akai
Association for Sending Picture Books to Lao Children (ASPB)
With the purpose of improving the educational environment of Laotian children, we have supported literacy education since 1982. Printed material is scarce in Laos due to an underdeveloped print culture and from the effects of a long civil war. Since 1997, Canon has held an annual in-house Charity Book Fair to sell books and CDs collected from employees with the profits being donated to our activity. With these funds, we have been able to build 5 school libraries. Local residents as well as the children at the schools use the libraries. We also have written and published 5 children's books of folk tales and distributed them to children who are very pleased.

Awards for Canon Environmental Activities (1999-2000)

2000

February	Canon Svenska	Environmental Supplier of the year (Oscar Dellert CO.)
March	Canon Inc.	Awards for recycling technology and system "MITI Environmental Protection and Industrial Location Bureau Director-General Award" (Clean Japan Center, former MITI, The Japan Chamber of Commerce and Industry, The Federation of Economic Organizations)
March	Canon Inc. Canon Chemicals	Ibaraki Pref. Excellent Site Accreditation for Recycling (Ibaraki Pref. Recycling Education Center)
April	Canon Inc.	Environmental Report Award "Excellence Award" (Toyo Keizai Green Reporting Forum)
September	Canon Inc.	Project of the Copier of the Future IEA-DSM "Award of Excellence" (International Energy Agency)
October	Canon Opto Malaysia	Selangor State Environmental Award (State of Selangor, Malaysia)
November	Canon Inc.	The Excellent Building Mark for Environment and Energy (Institute for Building Environment and Energy Conservation)
November	Canon Virginia	Environmental Excellence Award (Virginia Recycler's Association)
December	Canon Inc.	Environmental Advertisement Contest
December	Canon Australia	Excellence Award (Japan Eco-life Center, Nihon Keizai Shimbun Inc.)
December	Canon Virginia	Sustainable Energy Development Authority Silver Award (Government Body-SEDA)
December	Canon Virginia	National Environmental Achievement Traek Award (U.S. Environmental Protection Agency)

1999

May	Canon Virginia	Gold & Silver Awards (Hampton Roads Sanitation District)
May	Canon Inc.	The 8th Global Environment Award, Science and Technology Ministry Award (Fuji Sankei Group, Nihon Kogyo Shimbun)
May	Canon U.K.	BREEAM (Building Research Establishment Environmental Assessment Method)
May	Canon Inc.	Excellent Electrical Streamlining Plant "Outstanding Performance Award" (Kanto Region Electrical Streamlining Committee)
June	Canon Dalian	1998 Advanced Environment Conservation Unit (Dalian Development Area Management Committee)
July	Canon Inc.	Award for Excellence of the Eco-Life Lake Biwa Awards (Shiga pref., Nihon Keizai Shimbun Inc.)
July	Canon Inc.	Environmental Technology Award (Japan Society of Civil Engineers)
July	Canon Inc.	Electric Equipment Packaging Category Award (Japan Packaging Institute)
September	Canon France	Return Mark (The Environment and Energy Management Agency)
September	Canon Svenska	Environmental Supplier of the year (Oscar Dellert CO.)
October	Canon Italy	Eco Hitech Award 1999 Ecoqual'IT (Italian consortium of the IT company that care the environment)
October	Canon Inc.	Recognition City of Kawasaki Environment person Merit (Recognition City of Kawasaki Environment person Merit)
November	Canon Inc.	The 34th JSPMI Prize, JSPMI Chairman Prize Japan Society for the Promotion of Machine Industry
November	Canon Inc.	The 3rd Environment Report Award "Outstanding Performance Award"(Environment Agency, Mainichi Shimbun, Nihon Keizai Shimbun)
December	Canon Dalian	Excellent Export Company of Environment Preservation Promotion Award (China Economic Department Management Section)

September 12, 2000 IEA-DSM Award of Excellence in Technology for the Copier of the Future Project

Canon received the IEA-DSM Award of Excellence in Technology for the Copier of the Future Project, an internationally renowned energy saving prize, on September 12.

The IEA-DSM Award of Excellence in Technology for the Copier of the Future Project, based on the evaluation of the prototype for energy saving technologies to be employed in the copying machine, is awarded within the framework of the Copier of the Future Project to excellent technologies satisfying the energy-efficiency standards required for copying machines of the near future.

The award went to the prototype employing Canon's original on-demand fixing technology (See pages 17 and 18 for details) which gained

recognition as fully satisfying the requirements in the Copier of the Future Project.

Main requirements in the Copier of the Future Project consist of stringent criteria such as power consumption of 10 W or less in Sleep Mode regardless of copy speed and the recovery time from Sleep Mode to be 10 seconds or less for network-compatible office-use copying machine with a speed of 30 or more copies per minute.



Global Environment Award

At the 10th Global Environment Award in 2001, Canon received the Award for Excellent Companies, chosen by the Global Environment Council. This was the third time that the company had received an award at the annual ceremony. In 1992, Canon received the Grand Prize at the 1st Global Environment Award.

The Global Environment Award is a system whereby companies and local governments are recognized to be enthusiastically promoting environmental conservation activities, aiming for both industrial development and the preservation of the global environment. They were established by the Fuji Sankei Group, with the cooperation of the World Wide Fund for Nature's Japan Committee.

At the 1st Global Environment Award, Canon received the Grand Prize in recognition of its

efforts to promote the creation of an environmentally-conscious business, through such activities as working toward the elimination of CFCs and trichloroethane, planning a 50% reduction in waste by the end of the century, recycling 95% of cartridges from 1990 onwards, and receiving the 1st Geographic Society Chairman's Prize from the National Geographic Society for undertaking an advertising campaign in the National Geographic magazine, regarding the protection of animals.



Chronology of Environment Assurance Activities

2000

Environmental issues and trends

- Enactment of the Law on Promoting Green Purchasing
- Enactment of the Basic Law for Establishing the Recycle-based Society
- Revision of the Waste Disposal and Public Cleaning Law
- Enactment of the Law for Promotion of Effective Use of Resources
- Enactment of Law concerning Promotion of Reuse of Food Recyclable Resources
- Promulgation of the laws related to the Law for Promotion of Effective Use of Resources Environment Week
- Sixth Conference of the Parties (COP6) for FCCC

Canon's response - Organization

- Established the new Environment Assurance system
- Following the restructuring of the organization, redefined responsibilities and started incorporating them into performance evaluation

Canon's response - Activities

- Completed the chemical management system and measures for PRTR
- Acquired ISO 14001 certification of Canon Sales Co., Inc.
- Established the new mid-term environmental plan
- Started the recycling of toner bottle
- Expanded application of Typelll eco-label to the products manufactured overseas
- Announced VOCs biological treatment
- Reconstructed the recycling system for used papers
- Made concentrated exhibition of environmental technologies at Canon EXPO 2000
- Applied Typelll Eco-Label to LBP
- Developed CO₂ cleaning machine
- Revised the Canon Green Mark and issued the new guidelines
- Issued "Canon Environmental Report 2000"
- Announced the environmental accounting
- Developed rare earth recovery technology
- Started the introduction of lead-free wires to business machines and Bubble Jet printers
- Introduced the plastic sandwich molding technology
- Announced the VOC decomposition technology by plasma

1990-1999

Environmental issues and trends

- Law for the Promotion of Effective Use of Resources
- Agenda 21, Rio Declaration on Environment and Development, Earth Summit
- BS7750
- ISO/TC207 international standardization of environmental management
- International ISO 14001 Standards Established
- Framework Convention on Climatic Change
- Third Conference of the Parties (COP3)
- Pollutant Release and Transfer Register (PRTR) legislation

Canon's response - Organization

- Established systems to promote environment assurance
- Established Waste Countermeasures Committee
- Completed Ecology Research & Development Center
- Established Environment Audit Dept.
- Restructured Environment Assurance Subcommittees
- Restructured Environment Assurance Promotion Committee
- Established Environment Engineering Center
- Established Global Environmental Promotion System

Canon's response - Activities

- Initiated toner cartridge recycling
- Started clean energy operations
- Established Canon Environmental Charter
- Created Environment Assurance Promotion Plan
- Initiated cartridge recycling at Canon Dalian
- Started sorting and collection of waste
- Jointly developed lead-free glass
- Initiated copying machine remanufacturing activities
- Initiated labeling of plastic materials
- Established treatment technologies for hazardous glass sludge
- Eliminated use of CFCs
- Jointly sponsored UNEP World Environment Photo Contest
- Formulated Voluntary Environmental Plan
- Started operations at Canon Manufacturing U.K.
- Introduced product environmental assessments
- Eliminated use of trichloroethane
- Initiated environmental audits
- Acquired EMAS certification at Canon Giessen
- Eliminated use of hydrochlorofluorocarbons
- Acquired BS7750 certification (Ami, Ueno and other plants)
- Acquired ISO 14001 (DIS) certification
- Started the recycling of Bubble Jet cartridges in Japan
- Established global green purchasing and procurement standards
- Established Canon Group mid-term environmental policies and goals
- Disclosed the Japan's first Type III eco-label
- Published "Canon Environmental Report 1999"
- Disclosed environment information on Web site
- Eliminated use of PFCs, HFCs, SF₆

1990-1989

Environmental issues and trends

- Superfund Act (soil)
- Report of Ozone Hole
- Adoption of Montreal Protocol
- Establishment of Ozone Layer Protection Law
- Helsinki Declaration on abolition of CFCs

Canon's response - Organization

- Established Fluorocarbon Countermeasure Committee

Canon's response - Activities

- Decided to eliminate specified brominated flame-retardant plastic materials

1970-1979

Environmental issue and trend

- Offensive Odor Control Law
- United Nations Conference on the Human Environment
- Hexavalent Chromium Pollution became a major issue
- Washington Convention and Ramsar Convention went into effect
- Seveso explosion (hazardous waste)

Canon's response - Organization

- Establishment of Central Committee on Pollution Prevention

Canon's response - Activities

- Established Pollution Prevention Management Standards

1960-1969

Environmental issues and trends

- Basic Law for Environmental Pollution Control
- Air Pollution Control Law & Noise Regulation Law
- OECD pointed out the acid rain issue

1950-1959

Environmental issues and trends

- Itai-itai disease (cadmium poisoning)
- Minamata disease (organic mercury poisoning)

Plants and Offices covered in Environmental Report 2001

Japan		Japan		Overseas	
Name	Location	Name	Location	Name	Location
Canon Inc.		Domestic Manufacturing Subsidiaries		Overseas Manufacturing Subsidiaries	
Headquarters	Tokyo	Hirosaki Seiki Headquarters & Ishiwatari Plant	Aomori	Canon Bretagne S.A.	France
Meguro Office	Tokyo	Hirosaki Seiki Kitawatoku Plant	Aomori	Canon Inc., Taiwan	Taiwan
Tamagawa Plant	Kanagawa	Canon Chemicals Inc. Headquarters & Tsukuba Plant	Ibaraki	Canon Opto (Malaysia) Sdn.Bhd.	Malaysia
Kosugi Office	Kanagawa	Canon Chemicals Iwama Plant	Ibaraki	Canon Hi-Tech (Thailand) Ltd.	Thailand
Hiratsuka Development Center	Kanagawa	Canon Chemicals Ishige Plant	Ibaraki	Canon Engineering (Thailand) Ltd.	Thailand
Ayase Office	Kanagawa	Oita Canon Inc.	Oita	Canon Dalian Business Machines, Inc.	China
Fuji-Susono Research Park	Shizuoka	Canon Aptex Inc. Ibaraki Headquarters	Ibaraki	Canon Zhuhai, Inc.	China
Canon Research Center	Kanagawa	Canon Aptex Shimomaruko Office	Tokyo		
Ecology Research & Development Center	Kyoto	Miyazaki Daishin Canon Co., Ltd.	Miyazaki	Overseas Marketing Subsidiaries	
Utsunomiya Plant	Tochigi	Optron, Inc.	Ibaraki	Canon U.S.A., Inc.	U.S.A.
Toride Plant	Ibaraki	Canon Components, Inc.	Saitama	Canon Canada, Inc.	Canada
Ami Plant	Ibaraki	Nagahama Canon Inc.	Shiga	Canon Business Solutions, West, Inc.	U.S.A.
Fukushima Plant	Fukushima	Oita Canon Materials Inc.	Oita	Canon Business Solutions, Central, Inc.	U.S.A.
Ueno Chemical Products Plant	Mie	Canon N.T.C. Iwai Plant	Ibaraki	Canon Business Solutions, Southeast, Inc.	U.S.A.
Utsunomiya Optical Products Operations	Tochigi	Canon N.T.C. Saitama Plant	Saitama	Canon Latin America, Inc.	U.S.A.
				Canon Panama, S.A.	Panama
Domestic Sales Subsidiaries				Canon do Brazil Industria e Comercio Limitada	Brazil
Canon Sales Co., Inc. Makuhari Headquarters	Chiba			Canon Chile, S.A.	Chile
				Canon Mexicana, S.de R.L.de C.V.	Mexico
Domestic Manufacturing Subsidiaries				Canon Europa N.V.	Netherlands
Canon Electronics Inc. Headquarters, Kagemori Plant	Saitama			Canon U.K. Ltd.	United Kingdom
Canon Electronics Yamada Plant	Saitama			Canon Deutschland GmbH	Germany
Canon Electronics Misato Plant	Saitama			Canon France S.A.	France
Canon Electronics Yokose Plant	Saitama			Canon Italia S.p.A.	Italy
Canon Electronics Akagi Plant	Gunma			Canon (Schweiz) AG	Switzerland
Copyer Co., Ltd. Headquarters	Tokyo			Canon Espana S.A.	Spain
Copyer Tachikawa Plant	Tokyo			Canon Svenska AB	Sweden
Copyer Kofu Office	Yamanashi			Canon Norge A.S.	Norway
Copyer Fukui Office	Fukui			Canon Singapore Pte. Ltd.	Singapore
Canon Precision Inc.	Tokyo			Canon Marketing Services Pte. Ltd.	Singapore
Hanawa Seiki, Inc.	Fukushima			Canon Hongkong Co., Ltd.	China

Editorial Note

This environmental report was compiled with reference to the Global Reporting Initiative (GRI). According to GRI, the sustainability of a business organization must be reported in the context of the economic, environmental, and social aspects of its activities. Due to space constraint, we have not been able to include all information in this year's report. However, we have made every effort to focus the report on our environmental activities, while providing information also on economic and social aspects.

Special attention was given to ensure that the report has reliability, understandability, comparability, verifiability, timeliness (the report's content is updated regularly), and relevance to the needs of its readers.

Scope

1. Period: This report summarized the data from January 1 to December 31 of 2000. The environmental report is scheduled for publication yearly.
 2. Business units: Canon Inc. (15 operational sites), Canon Sales Co., Inc. (1 operational site), domestic manufacturing subsidiaries (26 operational sites), overseas marketing subsidiaries* (22 operational sites), and overseas manufacturing subsidiaries (15 operation sites)
- * For overseas sales subsidiaries, only data on product recycling and ISO certification was included.
3. Fields: The report provides information on environmental aspects of Canon's products and activities at operational sites, and on social aspects such as social contribution activities. (Part of the report also covers information on environmental management.)

Glossary of Environmental Terms

● Clean Energy

Clean energy involves hydro, wind, natural gas, solar and other less polluting sources of energy. Clean energy sources must be evaluated taking account of all stages of their life and uses, since some substances, such as hydrogen gas, are nonpolluting during combustion but can form pollutants during the production processes.

● Eco-Design

Eco-design is a way of designing products and/or packing that phase out the use of hazardous substances and aims for long product life, easiness of disassembly, reuse and disposal of parts, and less energy consumption during production and else stages. Eco-design is also described as environmentally conscious design or design for environment.

● Eco-Labels

Eco-labels are used to identify products that place a relatively small burden on the environment. The eco-mark authorized by the Japan Environmental Association is one of such symbols. Others include the Blue Angel and the Energy Star. In addition to this third-party certification, the International Organization for Standardization (ISO) is considering the adoption of self-declared claim and indication of quantitative environmental burdens.

● ECP Design

ECP stands for Environmentally Conscious Product. Generally, a product's environmental burden is almost determined in as early as the planning, development and design stages. In order to help realize a resource-recycling society, manufacturers have begun considering as far upstream as possible products' environmental implications and measures to recycle resources as efficiently and rationally, so that they can incorporate these considerations in product design and increase product competitiveness.

● Environmental Audits

Environmental audits are conducted to evaluate objectively whether a company is in compliance to environmental standards required by the law, as well as to its own environmental policies and targets. As environmental audit is a prerequisite for ISO 14001 certification the number of companies undergoing environmental audits has risen sharply in Japan. At the same time, systems to publicly train and certify environmental auditors have been established.

● Environmental Charter

An environmental charter defines a company's fundamental stance on environmental issues, and indicates specific guidelines. Two such charters-the Industry Charter of the International Chamber of Commerce and Keidanren's (The Federation of Economic Organizations) Environmental Charter-are particularly well known. The latter charter identifies 24 environmental guidelines in 11 areas.

● Greenhouse Gases

Greenhouse gases absorb infrared rays that reflect off bodies of land and water, inhibiting their escape from the earth's atmosphere. Sunlight passes through greenhouse gases easily, causing global warming. At the 1997 COP3 meeting in Kyoto, six greenhouse gases including CO₂, methane, nitrous oxide, HFCs, PFCs, and SF₆ were singled out for reduction efforts.

● Green Procurement and Purchasing

This concept calls for the preferential procurement and purchase of items that place less burden on the environment. The establishment of Green Purchasing Network in Japan has initiated a rapid expansion of these activities. The Green Procurement of materials and parts is essential for manufacturers that seek to reduce the environmental burden of their products.

● GRI (Global Reporting Initiative)

The Global Reporting Initiative was established in fall 1997 with the mission to develop globally applicable Sustainability Reporting Guidelines for business organizations. The GRI Guidelines provide a framework for sustainability reporting with emphasis on the linked aspects of an organization's environmental, social, and economic aspects.

● Inverse Manufacturing

Conventional manufacturing emphasizes only the process of design, manufacturing, and use, and pays little attention to the inverse process of waste disposal, reuse, and recycling. Inverse manufacturing is a new method designed to solve this problem. It

adopts a comprehensive approach that takes into consideration the product's whole life cycle including both the design-manufacturing-use processes, and the after-use processes. Specifically, inverse manufacturing entails an industry or a business organization to establish a recycling route and to install inverse manufacturing lines at recycling plants, etc.

● ISO 14000s

ISO 14000s is a series of environmental management standards promulgated by the International Organization for Standardization (ISO). These standards comprise environmental management systems, environmental audits, environmental labeling and environmental performance assessments, as well as LCA and the use of specific terminology and definitions. The certification under one standard in this series, the ISO 14001 environmental management system, is becoming an increasingly common prerequisite to business in Europe and other regions.

● JEMAI Program

It is a program of the Japan Environmental Management Association for Industry (JEMAI), an external body of the former Ministry of International Trade and Industry. The program is set up to prepare the Japanese version of Type III eco-label. It aims at raising the environmental awareness of consumers in the environmental burden of the products or services they select or use by providing them with accurate, verifiable, and fair quantitative information.

● LCA

Life Cycle Assessment or Analysis is a method for evaluating objectively and quantitatively the burden of a product on the environment through its entire life cycle: from raw materials to production, distribution, consumption and finally disposal or recycling. Although there is an understanding of the need for standardized methodology, putting LCA into practice still faces many challenges. Full agreement on its implementation has not yet been reached.

● Material Safety Data Sheet (MSDS)

The Material Safety Data Sheet describes chemicals. Such information is necessary for the people who use these chemicals because it informs them about environmental and health implications, as well as details on their safe use. Generally, Material Safety Data Sheets are prepared by the manufacturers of chemical products, and are then provided to users. In June 1990, the International Labor Organization adopted international standards for Material Data Safety Sheets in the Convention Concerning Safety in the Use of Chemicals at Work.

● Product Environmental Assessment

The burden that a product will exert on the environment throughout its entire life is assessed at the product development stage, and features are incorporated into the product to reduce this burden. In Japan, product environment assessments are mandatory for certain products designated under the Law for Promotion of Effective Use of Resources. Many companies also voluntarily conduct such assessments for other products.

● PRTR

The Pollutant Release and Transfer Register keeps track of the emissions and transfers of potential environmental pollutants. Based on reports by business organizations, it summarizes data on the amount of environmentally polluting chemical substances that have been released into the air, water, and soil, as well as the amount of substances that have been transferred to waste treatment companies in the form of waste.

● Remanufacturing

Remanufacturing involves the collection of parts from used products for reuse in the manufacturing of new products. Remanufacturing exerts less burden on the environment than turning parts back into raw materials for input into the manufacturing system. Remanufactured products must have quality as reliable as that of the new products.

● Resource-Recycling Society

This phrase describes a new type of economic society that makes effective use of limited natural resources and aims to minimize society's burden on the environment. As a way to renounce the current system of mass consumption and mass disposal, a resource-recycling society is proposed as an ideal for the 21st century, which is envisioned in the Basic Environment Plan based on the Environment Basic Law in Japan.

Your comments and suggestions are important to us.

Please fax this survey to Environment Engineering Center, Canon Inc. at 81-3-3757-8208

■ Was the report easy to understand?

- Easy to understand Average Difficult to understand

Comments

■ Was the content substantial enough?

- Satisfactory Average Not satisfactory

■ Did you find any articles of particular interest? (Multiple selection possible)

- Eco-research Eco-design Eco-technology development Green procurement
 Eco-production Eco-sales Reuse and recycling of products Information

disclosure

- Eco-activities at office Eco-products Environmental audits and ISO 14001 Industrial safety
 Support for social and cultural activities Promotion of social contributions Universal design

■ Please list any report content that was not sufficient or that needed to be improved.

■ Please give us your comments, opinions, or suggestions to help us improve Canon's environmental activities.

■ Which of the following best describes you?

- Canon client/Canon product user Canon shareholder/investor Environmental department of corporation Government/public administration
 Research and education institution Student Press
 Residents near a Canon operational site or plant Environmental NGO/NPO Canon employee or its family
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■ How did you learn about the Canon Environmental Report?

- Canon's Web page Newspapers/magazines Seminars/lectures Exhibitions
 Canon's sales personnel Other sources ()

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Thank you for your cooperation.

Canon

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The photograph on the front cover of this report is a work taken at Maranhao by Mr. Luis Veiga of Brazil, entitled "My Planet." It has been awarded the Canon Special Prize in The Third International Photographic Competition on the Environment 1999-2000, hosted by The United Nations Environment Programme (UNEP), and supported by Canon Inc.



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