EPSON

Sustainability Report 2003

April 2002 – March 2003

An Overview of Corporate Environmental and Social Activities

●About This Report

This report has been compiled based on the following basic policies:

◆To fulfill our responsibilities as a corporate citizen, we regularly report on both our environmental and social activities.

◆Our highest priority is to provide a reader-friendly report with the information that best meets the uncompromising standards of our diverse stakeholders. To do so, we have relied on the Japanese Ministry of the Environment's *Environmental Reporting Guidelines* (2000) for environmental activities; and on the Global Reporting Initiative (GRI)'s *Sustainability Reporting Guidelines* (2002) for social activities (please see p. 69)

◆This report contains overviews of activities and data for the following Epson Group companies:
Environmental activities – Seiko Epson Corporation, 18 Group companies and affiliates in Japan, and 44 overseas companies that have acquired ISO 14001 certification and in which Epson has ownership of more than 50%.
Social activities – Seiko Epson Corporation and stipulated Group companies and affiliates.

◆We have enhanced the report's readability by adding the following distinctive features:

- Timeline of environmental and social activities.
  Because this is our first sustainability report, we have traced our entire history of activities rather than focusing only on FY2002. This allowed us to take stock of our past initiatives and to assure that we are pursuing the proper path to earning the complete confidence of our stakeholders.
- Personal experiences of Epson employees in their pursuit of environmental and social performance.
- Part II of *Epson's Vision for Global Warming Prevention* from our previous report.

●●The report covers activities from April 2002 through March 2003. However, some indicated activities took place after April 2003.

●●●Past reports and next issue

Epson has issued an environmental report every August since 1999. From now on, we will issue a sustainability report. Our next report is scheduled for August 2004.

●●●●About the cover

The word *sustainability* is interwoven with silhouettes of people who represent our multifaceted relationship with society.

Contents

Management Philosophy

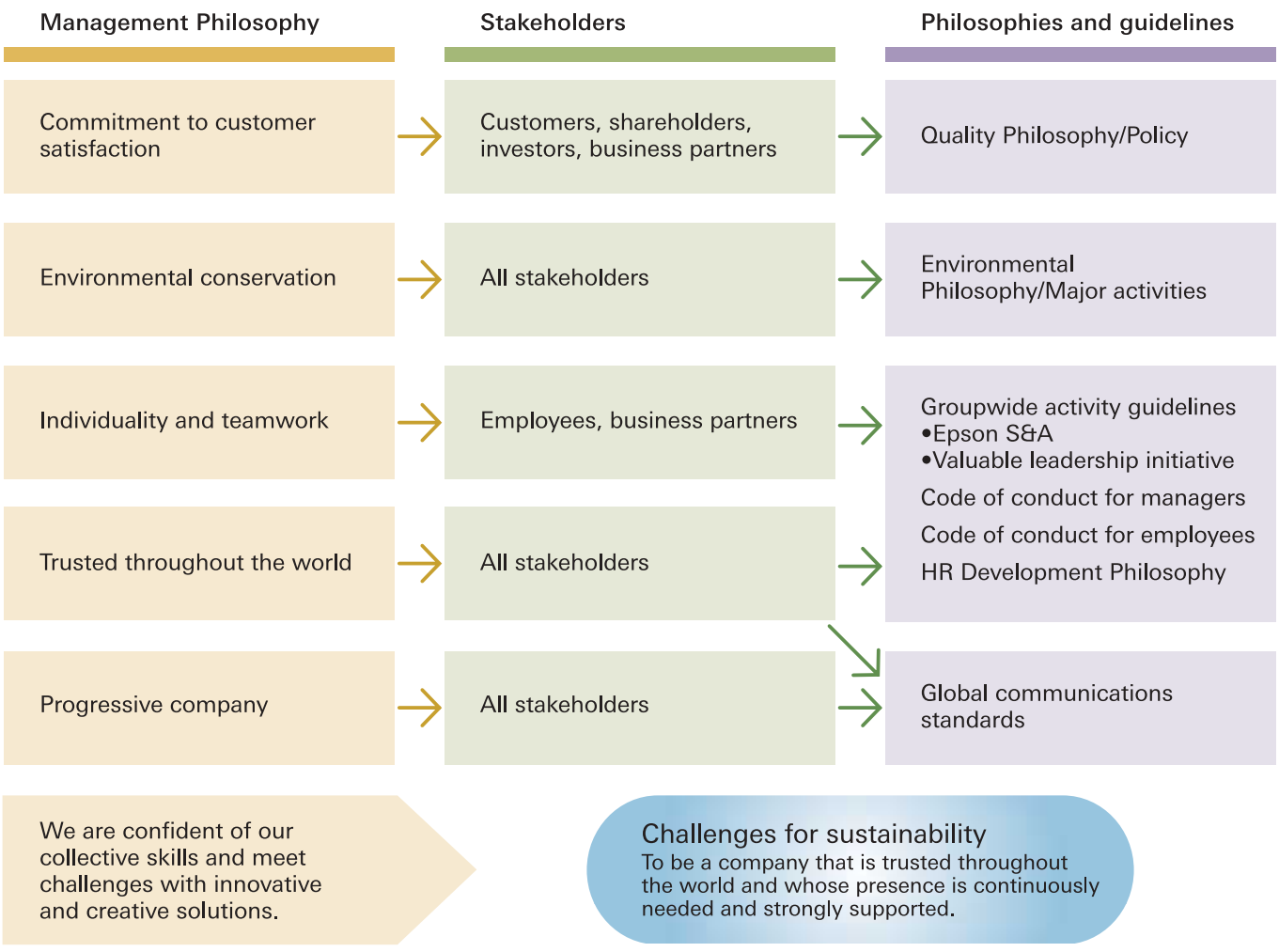
Management Philosophy

(Issued July 1989, rev. March 1999)

Epson is a progressive company,
trusted throughout the world
because of our commitment to
customer satisfaction,
environmental conservation, individuality
and teamwork.
We are confident of our collective skills
and meet challenges with innovative
and creative solutions.

This has been translated into 14 languages and is shared Groupwide.

Epson strives to create a sustainable society bearing in mind the interests of our stakeholders, the environment and local/international communities.



Message from Management

We Relish Challenges to Achieve Higher Goals and Fulfill an Important Role in Society

Epson Group recognizes that what sustains us is the confidence of our many supporters. These include our customers around the world, shareholders, investors, business partners, local communities and other valuable stakeholders. Our knowledge that this confidence is the basis of our future development is reflected in our deep commitment to trust-based management, which forms the base of our Management Philosophy.

Trust-based management encompasses different aspects of our operations—we must keep providing high-quality products and services; the profits we earned must be distributed and returned to the stakeholders; and we must make sure that our employees enjoy their work and find their jobs rewarding. I fear that overemphasis on higher sales and profits could undermine the humanity and individuality of each employee. I would rather see our employees exercise self-reliance, have fun at work, and follow our founding motto: Creation and Challenge. It is our driving force to keep winning trust, making Epson a place where people can grow.

Social responsibilities are becoming more important in our corporate culture. The Epson Group has established a system to ensure complete adherence to related laws and elimination of various risks inherent in our business operations. We also have high standards of corporate ethics and human rights, as well as a policy to communicate with the utmost respect for the local culture and customs. At Epson, I am the first to receive negative reports and we disclose them swiftly and appropriately. We also value the opportunity to work together with local communities to make social contributions and prove that we are a good corporate citizen.

A company contributing to the creation of a sustainable society is a company that is fulfilling an important role in society. I hereby declare our aim is to be such a company and to always work to earn your trust.

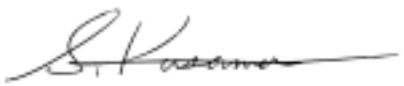
Consideration for the environment is a social responsibility that is a part of engaging in business, and I am convinced that business operations and environmental conservation are not mutually exclusive. Investments in conservation require a long-term perspective and should never be transient or profit oriented. We are ready to make a significant investment. Our determination to respond to environmental concerns will result in better competitiveness and greater profitability in the long run.

Here is an example. We have been researching an innovative production process, the scaleable minimum fab concept, for electronic devices. This is now being implemented with the aim of reducing total energy consumption in FY2010 by 60% from the FY1997 level. This innovation requires a tremendous investment in terms of time and money, but we believe that when it is realized, it will not only achieve energy savings but also dramatically cut costs. In 1992, Epson proved that completely eliminating the use of CFC gases reduced overall costs. Environmental conservation can in fact dramatically enhance productivity by reducing energy and resource consumption, as well as waste generation.

In an attempt to enhance the synergy of our business operations and environmental conservation, we have made the proposition
"(Q+E)/C/D"
[Q: quality, E: environment, C: cost, D: delivery]
the basis of our environmental management. As a result, we will pursue environmental conservation as a part of our quality improvement initiatives. We have entered an era in which the market naturally expects products to be eco-friendly as part of product quality.

The Epson Group always welcomes your feedback, and will use it to guide us to reaching higher goals. This is our promise, to ensure the Group remains a sustainable company trusted throughout the world.

I hope to hear from you after you have read this report of our efforts in FY2002.



Saburo Kusama
President
Seiko Epson Corporation

FY2002 Environmental and Social Topics

Highlights of our environmental and social activities in FY2002

TOPIC 1 Enhanced efforts through internal Environmental Management Awards

Environmental Management Awards were introduced internally in FY2001 to improve environmental conservation activities in each operations division and Group company. In FY2002, Tohoku Epson Corporation, Epson Portland Inc. (U.S.A.) and Epson Engineering (Shenzhen) Ltd. (China) were rewarded for distinguished efforts.

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Awards ceremony

TOPIC 2 Large-format printer realizes large energy saving

Epson developed the MAXART large-format printer that consumes 60% less energy per day than previous models. It was awarded the Chairman's Award for Energy Conservation sponsored by the Energy Conservation Center, Japan. This accomplishment follows the dramatic energy savings achieved by the PM-950C and PM-3500C inkjet printers in the Colorio series.

pp. 20-24

MAXART PX-9000

TOPIC 3 More eco-labels received

Epson Taiwan Technology & Trading Ltd. became the first printer manufacturer in Taiwan to receive Taiwan's eco-label Green Mark certification. Eleven laser printer models and 11 toner cartridge models earned the certification in December 2002 after dedicated efforts to qualify.

pp. 20-24

Online certification news

TOPIC 4 U.S. affiliate begins recycling program

Epson America Inc. (U.S.A.) began a Product Stewardship Program for corporate and individual customers, which accepts and recycles used Epson products for just $10 per product. Epson encourages establishment of local recycling systems around the world.

pp. 25-27

Online program guidelines

Highlights of environmental and social activities April 2002—May 2003

Apr. 2002	Seiko Epson Corp. joins the "e-mission 55" global business group that is working to bring the Kyoto Protocol into force
	Epson Industrial (Taiwan) Corp. earns Green Productivity (GP) stamp, becoming a government-designated green production model plant
	Epson (China) Co., Ltd. participates in China BELL 2002 Conference on Environment and Business Education
May 2002	Singapore Epson Industrial Pte. Ltd. receives government designation as a water conservation model plant
June 2002	Personal computers compliant with Epson Ecology Label and PC Green Label go on sale in Japan
	Seiko Epson Corp. cosponsors Kids ISO Program (see Topic 7)
	Environmental Report 2002 (April 2001–March 2002) issued
	Imaging and Information Products Operations Division (Hirooka Plant) issues environmental site report
July 2002	Seiko Epson Corp. participates in Super Science High School (see Topic 6)
Aug. 2002	Epson El Paso, Inc. (U.S.A.) and Epson de Juarez, S.A. de C.V. (Mexico) receive Green Industry certification from Mexico's Environment Ministry for full adherence with environmental and safety laws
Sept. 2002	Epson Group creates quality philosophy and guidelines
Oct. 2002	Second year of Epson Eco-Friendly Forest for the Future tree planting completed in Kalimantan, Indonesia
	Epson Hong Kong Ltd. cosponsors environmental forum with a Hong Kong university
Nov. 2002	Seiko Epson Corp. establishes Job Challenge System to boost employee morale and HR mobility
	Epson Beijing Technical Service Ltd. (China) earns ISO 14001 certification

*Super Science High School (SSH)—see Topic 6
This program, led by Japan's Ministry of Education, Culture, Sports, Science and Technology, aims to develop and implement a high school curriculum with a strong emphasis on science and mathematics. The program also promotes research into fostering science and technology specialists by collaborating with universities and research institutes.

TOPIC 5 Customer Zero Emissions Activity in full force

Epson launched this program to minimize packaging and other materials normally processed by the customer. Epson Service Corporation introduced eco-friendly delivery packages at all repair service centers and now uses the e-Starpack made of 100% recycled paper, which is retrieved on the spot once delivery is made.

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e-Starpack

TOPIC 6 Fostering future scientists and engineers

As part of the SSH* program, Epson engineers gave lectures at Suwa Seiryo High School in Suwa City, Nagano Prefecture, where Epson's Head Office is located. The school was designated an SSH for FY2002, and the students were invited to our plant on field trips, in an initiative to help them experience the enjoyment of science and mathematics.

pp. 53-55

TOPIC 7 Environmental education for employees' children through Kids ISO

We consider it important to take environmental activities beyond the company and into our homes. In FY2002, we began supporting the environmental education assistance program Kids ISO developed by Japan's International Art & Technology Cooperation Organization (ArTech). Thirty-three children of Epson employees completed the beginners' course.

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TOPIC 8 Reading environmental report with stakeholders

With the goal of improving corporate communications, we cosponsored an event with Ricoh Co., Ltd. at which the producers of our environmental report met and communicated directly with stakeholders. The lively discussions produced many suggestions that were to the mutual benefit of all attendees.

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Nov. 2002	Epson Direct's online trade-in system for PCs launched
Dec. 2002	PM-970C and PM4000PX inkjet printers receive Japanese Eco Mark
	Seiko Epson Corp. takes part in Eco-Products 2002 with concept *Rely on Epson for products that are both high performance and eco-friendly*
	Epson Group holds global environmental conference for sales departments in Japan
	Green procurement guidelines replaced by Epson Group Green Procurement Standards
	Epson Industrial (Taiwan) Corp. receives Taiwan's Green Mark eco-label, first printer maker to do so
	Epson Service (Fukuoka, Okinawa and Sapporo) achieves Zero Emissions Level 1
	P.T. Indonesia Epson Industry achieves Zero Emissions Level 1
Feb. 2002	Epson Portland Inc. (U.S.A.) participates in Clean Wind Program
	Customer Zero Emissions, an eco-friendly transportation and packaging system, launched in Japan
	Epson America Inc. (U.S.A.) starts product recycling program (Topic 4)
	Epson Engineering (Shenzhen) Ltd. (China) designated Green Company by Shenzhen City
Mar. 2003	Group companies and affiliates* and overseas manufacturing companies** achieve Zero Emissions Level 1
May 2003	Environmental Management Awards awarded for first time since internal recognition began
	Seiko Epson Corp. receives Occupational Safety & Health Management System certification

* Seiko Lens Service Center Co., Ltd., Injex Corporation, Epson Mizube Corporation, Atmix Corporation
** Epson Engineering (Shenzhen) Ltd. (China), (Plant 1) Po Shen Industrial Factory (China), Fujian Epson Start Electronic Co., Ltd. (China), Epson Industrial (Taiwan) Corp. (Taiwan)

Corporate Profile

Name Seiko Epson Corporation
Established 1942
Head Office 3-3-5 Owa, Suwa-shi, Nagano-ken, 392-8502, Japan
Capitalization 49.091 billion yen (as of June 24, 2003)
No. of Employees 13,084; Epson Group: 73,797 (as of March 31, 2003)

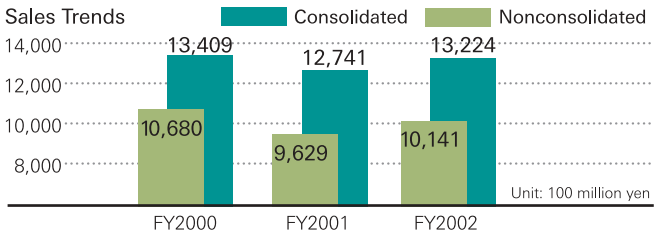
Business Activities
- IT equipment
  Computers and peripherals such as printers; scanners/imaging equipment such as LCD projectors
- Electronic devices
  Semiconductors/LCDs/quartz devices
- Precision instruments
  Watches/optical lenses/factory automation
  Development, manufacturing, marketing and services for other products

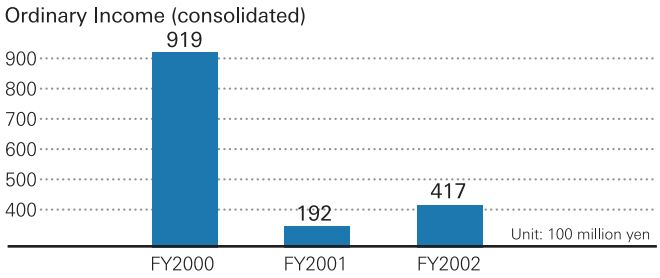
Sales/Ordinary Income (FY2002 actual)
Nonconsolidated: 1,014.1 billion yen/11.2 billion yen
Consolidated: 1,322.4 billion yen/41.7 billion yen

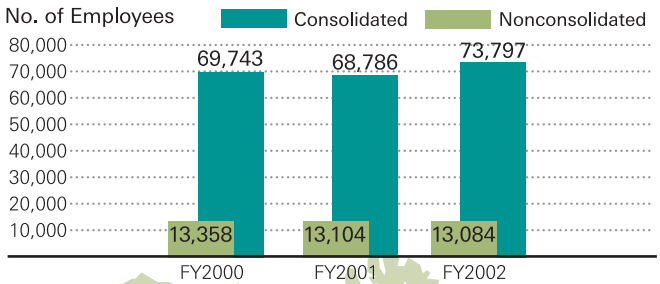
Sales Breakdown (FY2002, consolidated)	Sales (million yen)	Ratio (%)
IT equipment	911,459	68.9%
Electronic devices	328,459	24.9%
Precision instruments	77,154	5.8%
Other	5,379	0.4%

Group Companies
114 (39 in Japan, 75 overseas as of March 31, 2003)

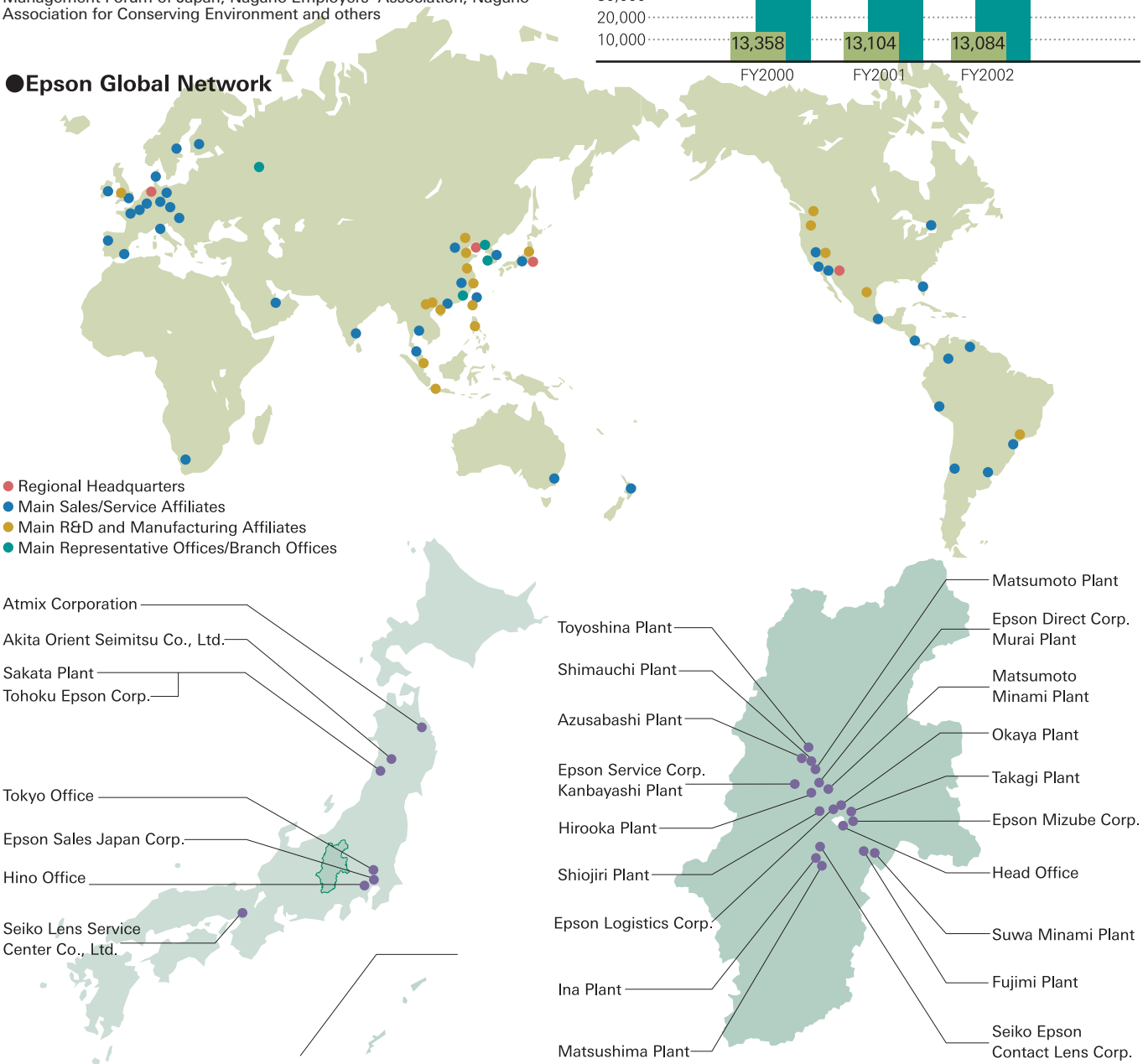
Membership in Environmental Organizations
Japan Electronics and Information Technology Industries Association, Japan Business Machine and Information System Industries Association, Communication and Information network Association of Japan, Japan Environmental Management Association for Industry, Sustainable Management Forum of Japan, Nagano Employers' Association, Nagano Association for Conserving Environment and others







●Epson Global Network



Epson Group Environmental & Social Activities Timeline

Corporate History

1940s

1942 Yamato Kogyo established in Suwa City, Nagano

1950s

1956 Seiko Marvel watch developed

1959 Suwa Seikosha Co., Ltd. established

1960s

1964 Named official timer for Olympic Games in Tokyo, used Crystal Chronometer 951 portable quartz clock and printing timer

1968 Launched manufacturing site in Singapore

1968 EP-101 miniature printer released 【Photo 1】

1969 Commercialized Seiko Quartz 35SQ analog quartz watch 【Photo 2】


Photo 1

1970s

1974 Launched manufacturing sites in Hong Kong, Malaysia

1975 Launched direct sales in U.S.

1975 Epson brand established

1975 Commercialized Vista Plax eyeglasses lens

1976 Released 32 kHz tuning fork-type crystal oscillator


Photo 2

1980s

1980 Launched manufacturing site in Taiwan

1980 MP-80 computer printer released 【Photo 3】

1983 Launched manufacturing site in France

1983 Developed pocketsize LCD color television

1983 Epson Sales Japan Corp. established

1985 Seiko Epson Corporation founded

1985 Launched manufacturing sites in China, U.S.


Photo 3

1987 Launched manufacturing sites in U.K., Mexico

1988 Commercialized world's first watch with self-winding generator

1989 Management Philosophy announced

1990s

1990 Regional headquarters in Europe established

1990 Began world's first mass production of rare-earth magnets

1991 Launched manufacturing site in Indonesia


Photo 4

1993 Developed world's smallest robot, Monsieur, listed in *Guinness Book of World Records* 【Photo 4】

1994 Launched manufacturing site in Philippines

1994 Environmental Policy announced

1994 MJ-700V2C color inkjet printer (Epson Stylus Color) released globally 【Photo 5】

1994 ELP-3000 compact LCD projector developed


Photo 5

1996 Launched manufacturing site in Brazil

1998 Regional headquarters in China established

1998 Epson Stylus Color 800 used on Space Shuttle Discovery

1999 Revised Management Philosophy

1999 Revised Environmental Policy

1999 World's lowest energy-consuming GPS card developed


Photo 6

2000s

2000 MC-9000 large-format printer (Stylus Pro9500) released 【Photo 6】

2001 PM-950C photo Machjet printer with world's highest resolution (2880 dpi) released

2001 New technology for digital camera printing unveiled: PRINT Image Matching

2002 Quality Philosophy announced


Photo 7

2002 50-inch rear projection monitor ELP-RM50W1 released 【Photo 7】

2002 PM-4000PX using next-generation ink technology released

2002 Next-generation high-definition Crystal Fine LCD for mobile devices developed

2003 Bluetooth-compatible Monsieur II-P micro-robot developed

Epson has a total of 31 manufacturing sites and 55 sales sites around the world, with 73,797 employees (as of March 31, 2003)

Environmental Activities

1940s-1950s
- Thorough wastewater processing conducted before drainage to Lake Suwa

1960s
- Activities to improve occupational health and safety implemented

1970s-1980s
- Introduced closed system for harmful substances in wastewater processing in 1973
- Set stricter standards for contamination/pollution than government laws and regulations
- Introduced energy- and resource-saving facilities

1988 Environmental benchmark year

1988 Established CFC Phase-out Center

1988 Announced CFC-free policy, began CFC-free initiatives 【Photo 8】

Posters created to enhance CFC elimination awareness at Epson


Textbooks distributed externally on technology for eliminating CFC-113 and 1,1,1-trichloroethane in cleaning process

Photo 8 CFC Elimination Activities

1991 CFC Phase-out Center reorganized as Environmental Affairs Office

1992 Began activities for complete elimination of 1,1,1-trichloroethane

1992 Established special committee for production of eco-products

1992 Completed elimination of specific CFCs from cleaning processes in domestic production

1993 Completed elimination of specific CFCs from all cleaning processes globally

1993 Achieved complete elimination of 1,1,1-trichloroethane

1993 Began activities for complete elimination of three chlorine-based organic solvents (trichloroethylene, methylene chloride and tetrachloroethylene)

1995 Environmental Affairs Office reorganized as Global Environmental Policy Office

1995 Began recovery/recycling in Japan of used toner cartridges

1997 Introduced new cogeneration system

1998 Second environmental benchmark year

1998 Established General Environmental Policy

1998 Group designated environmentally harmful chemical substances and began elimination activities

1998 Established Epson Recycling Center, demo plant for used products in Japan

1998 Launched six cross-divisional expert committees (environmental products, green procurement, product recycling, energy savings, zero emissions and chemical substance control)

1998 Groundwater contamination studies begun in all business sites in Japan

1998 Began Groupwide green procurement

1999 Completed elimination of three chlorine-based organic solvents

1999 Began Groupwide Zero Emissions Level 1 activities

1999 Lead-Free Promotion Committee added to expert committees

1999 Began activities to eliminate lead from soldering

1999 Began recovery/recycling of printer ink cartridges in Japan

1999 Groundwater contamination levels and cleanup policies announced for each plant; began cleanup activities

1999 Began recovery/recycling of used products in Europe

2001 Major manufacturing/nonmanufacturing sites in Japan/overseas obtained ISO 14001 certification

2001 Implemented Epson Ecology Label program

2001 Accidental release of oxidizing agent outside of premises occurred at Shiojiri Plant during groundwater purification process

2001 Operations divisions implemented reduction process for chemical substances based on Chemical Substance Hazard Evaluation Guidelines

2001 Began recovery/recycling of used products in Taiwan

2001 State-of-the-art energy-saving plant built in Toyoshina Plant

2001 Epson Portland Inc. (U.S.A.) received Green Permit for its green management system


Photo 9
Green Industry certification

2002 Global Environmental Policy Office and Safety Promotion Department merged to become Global Environmental and Safety Policy Office

2002 Imposed stricter restrictions on use of chemical substances in products

2002 Epson El Paso Inc. (U.S.A.) and Epson de Juarez, S.A. de C.V. (Mexico) obtained Green Industry certification 【Photo 9】

2002 19 plants in Japan achieved Zero Emissions Level 1

2003 Epson Service Corporation introduced environmental delivery package at all sites and began full-scale Customer Zero Emissions activities

2003 Began recovery/recycling of used products in U.S.

2003 Seven expert committees reorganized into Environmental Products Committee and Green Factory Committee

Social Activities

1963 Set Occupational Health and Safety Committee regulations

1983 Established Mizube Sagyosho (current Epson Mizube Corp.) to promote employment of disabled

1990 Introduced nursing leave system
1990 Set rating standards for merit-based evaluation/salary system
1990 Introduced personnel rotation system, dubbed in-house open application
1990 Established Epson Foundation (Hong Kong)
1991 Epson Telford Ltd. (U.K.) became first in Group to obtain ISO 9000s certification
1991 Introduced childcare leave system
1991 Opened counseling office

1992 Established Saito Kinen Foundation in Japan (Epson is a leading contributor)
1992 Computer Peripherals Operations Division (currently System Device Operations Division) obtained Epson's first ISO 9000s certification in Japan

1993 Set HR development philosophy
1993 Introduced volunteer leave and rehabilitation leave for disabled

1997 Established Epson International Educational Foundation (Japan)

1998 Set global communications standards


Photo 10
1999

1999 Established Korean Epson Young People's Educational Foundation (Korea)
1999 Established Epson Iberia Foundation (Spain)
1999 Issued first *Environmental Report* 【Photo 10】


2000

2001 Groupwide code of conduct released for all employees in Japan


2001

2001 Groupwide philosophy for occupational health and safety announced
2001 New Epson Safety Program (NESP) began


2002

2002 Introduced career development Job Challenge System


Photo 11
2003

2003 Obtained Occupational Safety and Health Management System (OSHMS) certification from Japan Industrial Safety and Health Association (JISHA)
2003 Issued *Sustainability Report 2003*, combining overviews of environmental and social activities 【Photo 11】

Recognition and Awards

(Names of awards/organizations are the names at the time.)

Category
- : Business site expansion
- : Technology, product development, products
- : Environmental management
- : Elimination of CFCs, chlorine-based organic solvents
- : Eco-products, recycling
- : Production process
- : Soil and underground water purification
- : HR, employment, ethics
- : Foundations
- : Quality control
- : Occupational health and safety
- : Environmental reports and other reports

1991 Seiko Epson Corp.: Mecenat Award, 1st Japan Mecenat Award from Association for Corporate Support of the Arts

1992 Seiko Epson Corp.: Corporate Award, Stratospheric Ozone Protection Award from U.S. Environmental Protection Agency 【Photo 12】


Photo 12

1993 Seiko Epson Corp.: Japan Industrial Journal Award, 2nd Grand Prize for Global Environment Award from Japan Industrial Journal 【Photo 13】


Photo 13

1995 Epson Precision (Hong Kong) Ltd., Epson Hong Kong Ltd.: Corporate Award, Stratospheric Ozone Protection Award from U.S. Environmental Protection Agency

1997 Epson Portland Inc. (U.S.A.): Corporate Award, Stratospheric Ozone Protection Award from U.S. Environmental Protection Agency
1998 Seiko Epson Corp.: Minister of International Trade and Industry Award, 1st Ozone Layer Protection Award from Nikkan Kogyo Shimbun Ltd.

1999 Seiko Epson Corp.: Women and Minors Office Award, for corporations promoting equal employment, from Japan's Labor Ministry


Photo 14

2000 Seiko Epson Corp.: Japanese Labor Minister's Award of Excellence, Family-Friendly Corporation Award
2000 Seiko Epson Corp.: Japan Association for Employment of Persons with Disabilities Award
2000 Epson America Inc.: National Philanthropy Day Award for continued charity efforts
2001 Seiko Epson Corp.: Chairman's Award from Japan Industrial Safety and Health Association
2001 Seiko Epson Corp.: Minister of Economy, Trade and Industry Award, 10th Grand Prize for Global Environment Award from Japan Industrial Journal 【Photo 14】
2001 Seiko Epson Corp.: Top award in Corporate Category and Environment Minister Award, Green Purchasing Grand Prize (Green Purchasing Network, supported by Japanese Ministry of Environment)
2001 Seiko Epson Corp.: First Prize, 4th Green Reporting Award from Toyo Keizai Inc. 【Photo 15】


Photo 15

2001 Seiko Epson Corp. Imaging & Information Products Operations Division: Winner in Large Business Division, Japan Quality Award from Japan Productivity Center for Socio-Economic Development 【Photo 16】


Photo 16

2002 Seiko Epson Corp.: 3rd Prize, 5th Green Reporting Award from Toyo Keizai Inc.
2002 Seiko Epson Corp.: Corporate Innovation Recognition Award from U.S. Institute of Electrical and Electronics Engineers
2003 Seiko Epson Corp.: Excellence Prize, Environmental Report Awards from Global Environmental Forum, supported by Japanese Ministry of Environment
2003 Seiko Epson Corp.: 4th Environment for Tomorrow Award from Asahi Shimbun
2003 Seiko Epson Corp.: 3rd Prize, 6th Green Reporting Award from Toyo Keizai Inc.

Global Milestones

1972 Club of Rome published *Limits to Growth*; UN Conference on Human Environment held under slogan *Only One Earth*; UN Environment Program (UNEP) established
1974 F. Sherwood Rowland and Mario Molina published landmark paper in U.S. on ozone depletion by CFCs

1980 UNEP, World Wide Fund for Nature (WWF) and International Union for Conservation of Nature and Natural Resources (IUCN) introduced concept of "sustainable development"

1984 World Commission on Environment and Development (Brundtland Commission) established
1985 Vienna Convention for Protection of Ozone Layer adopted
1987 Brundtland Commission called for sustainable development in its report *Our Common Future*; Montreal Protocol on Substances that Deplete Ozone Layer adopted
1988 Intergovernmental Panel on Climate Change (IPCC) established
1989 1st Conference of Parties to Vienna Convention and 1st Meeting of Parties to Montreal Protocol held
1990 2nd Meeting of Parties to Montreal Protocol held

1991 2nd Conference of Parties to Vienna Convention and 3rd Meeting of Parties to Montreal Protocol held

1992 4th Meeting of Parties to Montreal Protocol held; United Nations Framework Convention on Climate Change adopted; United Nations Conference on Environment and Development (Earth Summit/Rio Summit) held under sustainable development slogan

1993 UN Commission on Sustainable Development established

1994 UN Framework Convention on Climate Change entered into force; UN University's Zero Emissions Research Initiative announced

1995 1st Conference of Parties to UN Framework Convention on Climate Change (COP1) held
1996 ISO 14000 Series of environmental management standards launched; UN Conference on Human Environment held; 2nd Conference of Parties to UN Framework Convention on Climate Change (COP2) held
1997 3rd Conference of Parties to UN Framework Convention on Climate Change (COP3, Kyoto Conference on Climate Change) held and Kyoto Protocol on Climate Change adopted
1998 4th Conference of Parties to UN Framework Convention on Climate Change (COP4) held

1999 5th Conference of Parties to UN Framework Convention on Climate Change (COP5) held

2000 6th Conference of Parties to UN Framework Convention on Climate Change (COP6) held; Global Reporting Initiative released *Sustainability Reporting Guidelines*

2001 7th Conference of Parties to UN Framework Convention on Climate Change (COP7) held

2002 World Summit on Sustainable Development (Johannesburg Summit) held; 8th Conference of Parties to UN Framework Convention on Climate Change (COP8) held

2003 3rd World Water Forum held in Kyoto

Co-Existing with Nature to Sustain Your Trust

Sixty-one years have passed since Epson began as a watch factory facing beautiful Lake Suwa with the Japanese Alps as a backdrop. Epson's founder was determined never to sully Lake Suwa and to make sure that the local communities trusted that the factory would never cause problems. This credo had a strong impact on our employees, and thus began our corporate activities to care for the environment.

Even as we have expanded the business into IT equipment, electronic devices and precision instruments and grown into a global corporation, this credo has remained unchanged. And the spirit of challenge that led one regional plant to produce quartz watches with world-class precision and credibility is still the Company's driving force.

What heralded Epson's business expansion was development of a printing timer used as the official timer at the 1964 Olympic Games in Tokyo. The timer functioned perfectly in difficult conditions, proving to the world that Epson products were of superior quality. Since then, we have continued to produce world-class printers, quartz devices and electronic devices. I was personally involved in many product development projects and learned through experience that we must avoid complacency and continue to meet challenges with a conviction that no matter how hard it is, a breakthrough will come. I also learned that the courage to complete the projects we start is the driving force of business expansion.

This also applies to our environmental conservation activities. Epson eliminated CFCs in just four years after vowing to do so in 1988 — although this seemed to be an impossible mission at first. But this is where all manufacturers begin their journeys — from a point at which there is not yet an answer. Our pursuit of proprietary technology to solve problems is the basis of our technological superiority and corporate culture. It was crucial that we announced our CFC goal as "complete elimination." A goal of partial reduction, such as 10% or 20%, would compel us to think in the context of evolving existing technology rather than coming up with something completely new. But because we aimed for complete elimination, we had to challenge fundamental principles and alter our thinking, and we achieved a technological breakthrough.

Epson strives to be a company that takes on challenges to reach higher goals and perseveres until it achieves them — always remembering that business operations do impose a burden on the environment and that we must never forget the need to coexist with nature.

We would like to maintain the trust of people around the world by combining the highest quality with our commitment to the environment.

Hideaki Yasukawa

Hideaki Yasukawa
Chairman and CEO
Seiko Epson Corporation

TOWARD 2010: **EPSON'S VISION FOR PREVENTING GLOBAL WARMING PT. 2**

Production innovation leads to major energy savings

Scaleable Minimum Fabs

Seiko Epson Corporation has been making a variety of energy-saving efforts to attain the daunting goal of reducing energy use by 60% (absolute quantity) in FY2010 from the FY1997 level. This demands innovations in the production process itself. Here is a follow-up report on the challenges we faced and the progress we made in tackling process innovations.

Saving energy in clean rooms

The Epson Group has implemented thorough energy management programs to attain our goals. These include switching off unnecessary lights in offices, adjusting room temperatures, and controlling exhaust, thermal insulation and air leakage at our plants. Starting in the year 2000, we set regulations and guidelines for energy-savings management and building/facility energy-saving operations. We use these to assess the energy-savings performance of buildings and facilities prior to their construction or renovation, and reflect the results in their designs.

The continuation of these efforts is vital, but they are not enough to achieve the targeted amount by FY2010. In order to analyze what should be done to fundamentally reform the production process and attain the FY2010 goal, we decided to first study in detail how energy is used in each division and business site.

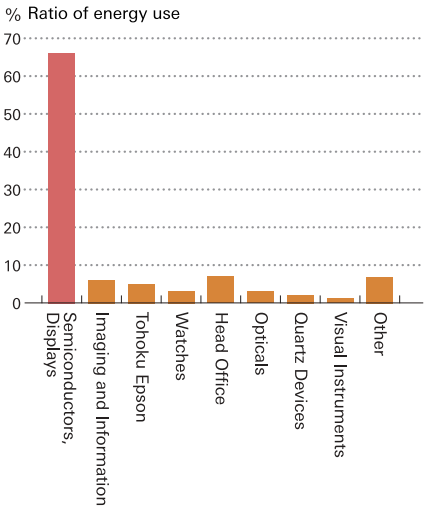
As shown in Graph 1, production of semiconductors, LCDs and other electronic devices is currently consuming 67% of all energy.

The electronic device production process can be outlined as follows: a thin layer of film is deposited on a substrate (film-forming); resin is coated on top of it and photolithography is used to create a wiring pattern on the surface (photolithography); using a chemical solution and plasma, areas of the thin film that are not coated with resin are removed (etching); finally, the resin is removed and the wiring on the surface is revealed (removal). These processes are repeated many times to create an integrated circuit, or IC chip.

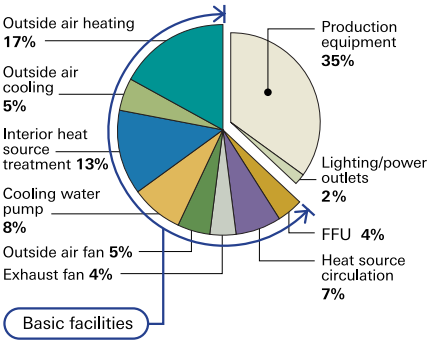
Because this is ultraprecise work in the realm of submicrons, it must be conducted in dust-free clean rooms. Cleaning water needs to be purified; temperature, humidity and pressure have to be carefully calibrated for quality assurance purposes. The construction and maintenance of a clean room therefore demands a tremendous amount of energy and investment.

Graph 2 shows a breakdown of energy use at electronic device plants. A great deal of energy is used for things other than electricity, such as the basic operations that keep clean rooms functioning properly: water purification, air compression, drainage and exhaust facilities ("utilities"). From the perspective of energy use, these basic clean room facilities are grossly inefficient.

Graph 1 Breakdown of Energy Use by Division, Site in Japan FY2002



Graph 2 Breakdown of Energy Use at Electronic Device Plant



Three reforms and innovations for scaleable minimum fab

Scaleable minimum fab(rication) is the expression used to describe futuristic production plants that are free from existing problems and require minimum energy, resources (materials),

space and production time. In a typical large plant, clean rooms are built and production lines are added as production demand increases. But a scaleable minimum fab has clean rooms that are compact and standardized, with one production line with minimum facilities in each room. As demand fluctuates, more minimum fabs are added or dropped to offer speedy adjustments.

Once realized, a small clean room that requires low energy consumption corresponding to the changes in production demand will be possible. This will not only reduce the environmental burden but also production costs, and raise the efficiency of the entire plant and the company's competitiveness.

Epson believes that three gradual reforms and innovations can make this happen: 1. Drastic streamlining of the production process; 2. Innovation in flow pattern (the way substrates are processed/transported); and 3. Innovation in basic facilities (utilities) (Fig. 1).

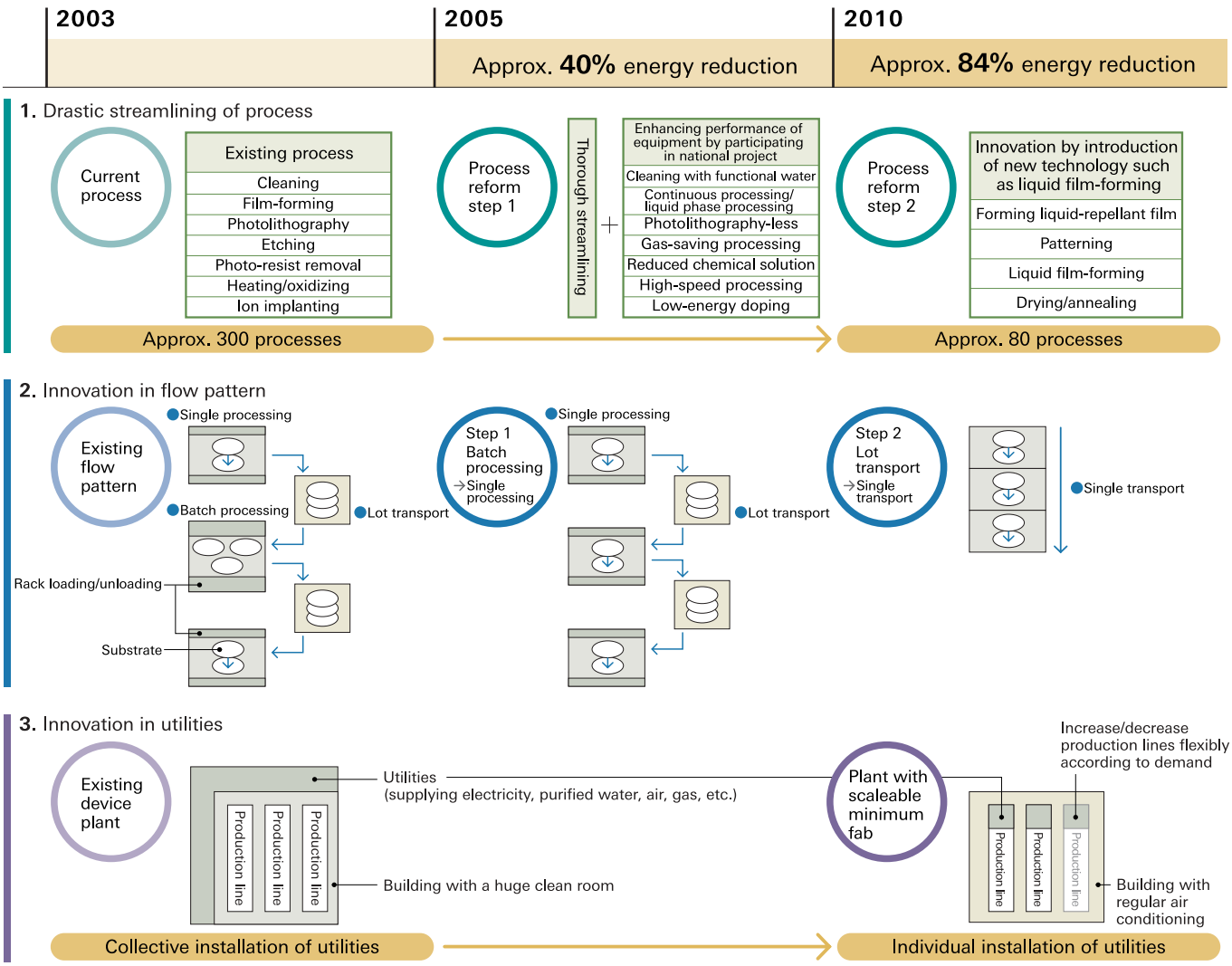
By 2005, we plan to eliminate all replaceable processes in the current production chain and use all available technology to improve equipment performance to streamline the production process. We will also replace batch processing of substrates with single processing. For basic facilities, we will transition as much as possible from collective installation of facilities to individual installation, whereby only the needed function is added to a specific process.

By FY2010, using our proprietary technology, we should be able to reduce the number of production processes from the current 300 to about 80. Liquid film-forming technology using inkjets (p. 6) is a prominent candidate for driving the streamlining.

We plan to make a full transition from the current processing/transporting of substrates to single processing/transporting by FY2010. Currently, racks are used to transport a set quantity of substrates to the next production process (lot transport), but this is inefficient because of the loss of time in between processes and high costs and large space needed for transportation and loading/unloading facilities. Switching to single processing/transporting and eliminating the lot transport and loading/unloading processes would improve efficiency a great deal.

We envision that in FY2010, the transition from collective installation of basic facilities to individual installation will be complete and downsized clean rooms will be possible.

Fig. 1 **Scaleable Minimum Fab**



Step 1: FY2005
Achieving initial 40% energy reduction

In FY2002, Epson ran an LCD manufacturing process simulation to fully analyze how energy is being consumed and the costs when all possible improvements are made.

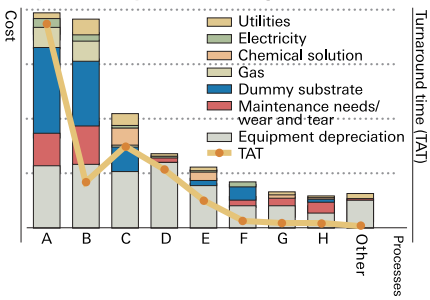
Graph 3 shows a breakdown of those costs by process. The results show that expensive processes include the dummy substrate, which is used to check production conditions throughout the day, to adjust the unevenness of film-forming conditions within the production equipment, and to track maintenance needs/wear and tear. These processes are often done by batch processing (e.g. mass heating), resulting in large energy losses.

The performance of equipment used in each process is shown in Graph 4. This reveals that some equipment is used more than needed, thus wasting energy. Optimizing equipment performance is vital to achieving energy-use reductions.

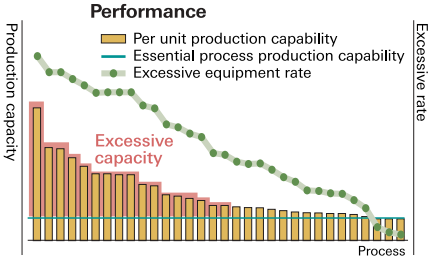
Graph 5 shows the result of a simulation after eliminating such waste completely and replacing batch with single processing. The simulation demonstrates that it is possible to achieve drastic cost cuts and total energy savings of nearly 40% compared to the current process.

These results will be reflected in the current production system to enhance energy savings and to lower costs. We will also be incorporating various energy-saving measures, such as refining equipment performance, by applying the knowledge we gained from our participation in a national project sponsored by the Association of Super-Advanced Electronics Technologies (ASET) and supported by Japan's New Energy and Industrial Technology Development Organization (NEDO).

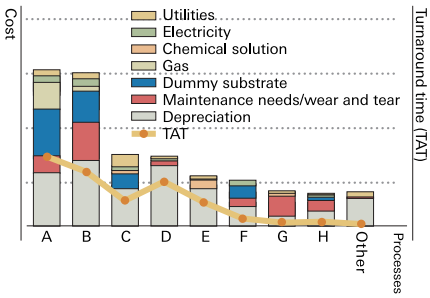
Graph 3 Analysis of Existing Process



Graph 4 Optimization of Equipment Performance



Graph 5 Effects of New Process



Scaleable minimum fab project leaders Yoshiaki Mori (left) and Katsumi Suzuki

Step 2: FY2010
Slashing energy use 84% with liquid film-forming technology

In an attempt to further cut energy use in addition to the 40% reduction we can expect from improving the current process, we will streamline the production process. Playing the pivotal role in this is liquid film-forming technology.

As mentioned above, IC chips are created by repeating the process of film-forming, photolithography and etching. With this method, however, the finished product retains only a portion of materials invested. By using liquid film-forming technology, essential materials can be applied to specific areas, enabling us to save both resources and energy, and to cut costs as well.

Here is the outline of the new, two-part method: 1. A substrate is treated with a process to create areas that attract water and those that repel; 2. the substrate is coated with light emitters and conductive materials. For the first process, a laser beam can be used to create water-attracting areas and for the second process, inkjet equipment can be used to apply light emitters and conductive materials. Because of the first process, coated liquid material is collected in the water-attracting area even if the patterning precision is slightly off. If the hydrophilic treatment is done accurately according to the desired circuit pattern and the liquid material is applied, the intricate wiring pattern can be created. There is almost no material wasted in this method and energy savings are impressive.

We are considering inkjet technology to apply the liquid material because it allows application of highly precise images. To pursue such a possibility, we launched the Inkjet Open Laboratory at our Suwa Minami Plant (Fujimimachi, Nagano Prefecture) in July 2002. The laboratory is a research center equipped with testing facilities for production equipment using inkjet technology. It will be used to conduct joint research with other manufacturers.

Major streamlining of the production process through cutting-edge technology, innovations in flow pattern and basic facilities—all these efforts make scaleable minimum fab possible. We are convinced that it is the key to energy use reductions as well as a driving force to raise corporate competitiveness. Genuine environmental conservation efforts lead us to sustainable economic systems. This is an infrastructure that fundamentally supports the existence of corporations. We are determined to continue these efforts based on this conviction.

Environmental Performance

With an understanding that our business operations impact on the environment, members of the Epson Group in all regions of the world employ unified standards and pursue shared objectives. This section contains a detailed overview of our efforts in running the environmental management system, creating earth-friendly products, building recovery/recycling systems and reducing the environmental burden in the production process.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These photographs capture Group members participating in environmental initiatives.
1. Environmental Committee 2 and 3. Global meeting 4. Energy-savings activity
5. Global meeting 6. Risk communications training 7. Overseas "risk patrol"
8. Plant in China 9. Global meeting

FY2002 Results and FY2003 Objectives

ENVIRONMENTAL POLICY

(Issued October 1994, rev. June 1999)

Environmental Philosophy

The Group will integrate environmental considerations into its corporate activities and actively strive to meet high conservation standards in fulfilling its responsibilities as a good corporate citizen.

Major Activities

The following activities will be pursued in keeping with the Environmental Philosophy:

1. Creating and providing earth-friendly products
2. Transforming all processes to reduce the burden on the environment
3. Recovering and recycling used products
4. Sharing of environmental information and contributing to regional and international preservation efforts
5. Continually improving the environmental management system

2002 Environmental Activities Overview

Making daily environmental efforts through our operations and corporate activities

The Group's core approach to environmental efforts is to contribute to building a sustainable society and to be a recognized leader in each region in which we operate. We have been making such efforts based on our General Environmental Policy. FY2002 was the year we focused on making each promotional organization responsible for incorporating environmental activities into daily operations. As a result, three organizations won Environmental Management Awards, fully qualifying for the first time to attain over 90% of the targets of both the General Environmental Policy and general categories, which include a variety of other assessments.

Of our major stated policies for FY2002, we have seen more than 80% of our new imaging and information-related product models become compliant with the Epson Ecology Label, and progress has been made in the green procurement of raw materials overseas. We recognize the importance of lowering product energy use to alleviate the environmental burden throughout their lifecycles. As proof of our progress, our inkjet printers have now won Grand Prizes for Energy Conservation from the Energy

Policy Category	Mid-Range General Policy (FY2001-2003)	FY2002 Objectives
1. Creating and providing earth-friendly products See pp. 19-24, 28-30	**1–1 Encourage development and production of products that reduce environmental burden throughout their lifecycles** ● Promote products qualified for Epson Ecology Label 50% of products to conform by FY2003 Aim for energy- and resource-saving designs, elimination of hazardous substances • Promote activities to eliminate banned substances Group-designated substances eliminated by FY2005—set deadline for each substance Elimination of lead in solder—promote elimination of lead from FY2001-exempt products ● Improve, implement product assessment ● Establish guidelines for design conforming to 3Rs: Reduce, Reuse, Recycle ● Promote eco-conscious design through LCA; disclose data on environmental burden	• Market release of qualified products by all divisions (achieve divisional objectives) • Use of lead-free terminal plating for electronic products: 50% • Permission from customers to use lead-free solders: 70%
	1–2 Promote green procurement of raw materials for eco-products ● Achieve 100% (consolidated Groupwide) green procurement of production materials by FY2003 ● Assist vendors in improving environmental management	• Green procurement rate for production materials: 98% in Japan, 90% overseas • Green procurement rate for general purchases: 90% in Japan
	1–3 Disclose environmental date for use in green procurement by customers, and promote sales with that data	• Make environmental data available for all products

Conservation Center, Japan for two consecutive years.

Our approach to product recycling has been to pay close attention to legislation changes in the countries in which we operate, and to establish recovery/recycling schemes earlier than implementation of the legislation. In the U.S., we launched a product take-back system to recover used products, and we have new recovery/recycling systems in Europe and Asia. In product development, we are focusing on conforming to higher 3R (reduce, reuse and recycle) objectives.

Although our total consumption of energy on a global, consolidated basis was lower than in the previous year, we were not able to meet our energy-reduction target because of the launch of a new production line for electronic devices. However, a new facility at our Toyoshina Plant, for which we conducted energy-savings research and verifications prior to construction, received a prize for Energy Conservation of a Factory, Building or Office. In FY2002, we began testing a new production process that fundamentally alters the conventional approach. We will continue to work toward our 2010 objectives through all available energy-savings measures.

Regarding the reduction of waste, all business sites in Japan became certified Zero Emissions Level 1 sites. We were reminded, however, of the efforts required in maintaining the Level 1 status, as one of the sites was later disqualified. We are determined to resolve the issue soon. Overseas, five new sites became certified Level 1 sites in FY2002. We plan to complete certification of all 22 overseas sites in FY2003.

In our contributions to society, we have been strengthening ties with local communities in Japan and overseas. Many members of overseas Group companies and affiliates have actively participated in cleanup and tree-planting projects, working together with local communities. We are also an avid supporter of global environmental activities and educational programs.

As a manufacturing company, we consider environmental efforts to be a significant part of our product quality and we are as committed as ever to the creation of earth-friendly products. FY2003 will be the concluding year for our Mid-Range General Environmental Policy. With concerted efforts, we will achieve the targets set forth.

Toshio Kimura
Executive Vice President and
Senior Director of
Environmental Activities
Seiko Epson Corporation

FY2002 Results	Assessment	FY2003 Groupwide Objectives	FY2003 Objectives by Promotional Organization
• 6 out of 9 operations divisions put compliant products on market • Finished products: More than 80% are compliant • Achieved target of 50% (by operations division, 70%) • Permission from customers: moving rather slowly • Began survey in Japan on chemical substances in existing production materials	B	Over 50% of compliant products to be put market (number of models/sales)	Create products with industry-leading level of energy-saving performance Build a system to evaluate products' environmental performance 70% recyclability Stable operation of the system for chemical substances management in products Lead in soldering Terminal plating for electronic products: 90% Permission from customers: 70%
• Production materials Japan: Operations divisions: 99% Group companies and affiliates: 94% Overseas: Operations divisions: 91% • General purchases Japan: Operations divisions: 97% Group companies and affiliates: 98%	B		Establish a green procurement method for production materials that would guarantee the disclosure of environmental specifications of all purchases Green procurement rate for production materials Japan/overseas: 100% Green procurement rate for general purchases Japan: 100%
• Began disclosing environmental data of products through the websites of our sales companies	A	Obtain more environmental labels/information disclosure	

Policy Category	Mid-Range General Policy (FY2001-2003)	FY2002 Objectives
2. Transforming all processes to reduce the burden on the environment See pp. 31-44	**2–1 Help prevent global warming** ● Reduce total energy use 60% (base year FY1997)—FY2010 Gradual reductions through process innovations • Technical developments and pilot line design by FY2003 • Process confirmation of first pilot line and finalize detailed plans by FY2005 • Reduce total energy use by an amount equivalent to 0.2 million tons of CO_2 (base year FY2005) by FY2007 Promote energy savings and productivity improvements at existing plants—ongoing	• Total consumption objectives by promotional organization (base year FY2001) Japan: manufacturing divisions, 5% reduction Overseas: manufacturing sites, lower than the FY2001 level • Implement energy-saving measures: operations divisions 4% (consolidated basis), overseas manufacturing sites 4% (base year FY2001) • Qualitative target: Japan—improved management 90 points, facilities 80 points, production equipment 40 points Overseas—improved management 85 points, facilities 75 points, production equipment 30 points
	● Reduce emissions of global warming substances • 35% reduction (base year FY1997)—FY2003 • 60% reduction (base year FY1997)—FY2010	• Global warming substances: 30% reduction (base year FY1997)
	● Reduce environmental burden from transportation	• Imaging and Information Products Operations Division environmental burden of essential transportation (CO_2 emissions) 0.5% reduction (1,200t)
	2–2 Control and reuse of industrial waste ● Achieve Zero Emissions Level 1 at all business sites Japan: End of FY2002, Overseas: End of FY2003, one year earlier than initial objective ● Reduce total waste generation to FY1997 level—FY2003	• Japan: Achieve Zero Emissions Level 1 • Total waste generation: Japan and overseas 10% reduction (base year FY2001)
	2–3 Control environmental risks and reduce burden of chemical substances ● Implement system for managing data on chemical substances (E-Chem) (until FY2001) ● Promote chemical substance management in each division (reduction and elimination)	• Each division achieves self-imposed targets
	2–4 Effective use of water resources	• Achieve self-imposed objectives
3. Recovering and recycling used products See pp. 25-27	**3–1 Build and operate recovery/recycling systems for used products and consumables** Japan: Implement and improve system for corporate users; build a system for individual users—FY2002 Overseas: Implement action plans ahead of recovery/recycling legislation in each country	• Recycling rate for products recovered from Japanese market: 65% • Establish recycling system for consumables in China and Taiwan
	3–2 Improve product reusability/recyclability at development and design stages ● Recyclability rate: 70%—FY2003	• Introduce Epson Ecology Method (EEM) (Imaging and Information Products Operations Division)
4. Sharing of environmental information and contributing to regional and international preservation efforts See pp. 16-18, 53-55, 58-60	**4–1 Refine the content of environmental data disclosures** ● Refine global environmental data (including environmental accounting data) ● Disclose FY2002 Group consolidated data—2003 *Sustainability Report*	• Groupwide environmental reports: issue in June, release trial site report • Implement environmental accounting at all promotional organizations • Each promotional organization reports environmental news and topics to Head office
	4–2 Strengthen cooperation with/contribute to regional/global communities ● Expand environmental activities in each region	• Each promotional organization plans and implements related activities
5. Continually improving the environmental management system See pp. 12-14	● Continually improve environmental management system of each promotional organization ● Obtain ISO 14001 certification at all new Group companies: achieve within 3 years of startup ● Improve environmental education (until FY2001) ● Establish systems to efficiently manage environmental activity data	• Epson Hatogaya and Atmix obtain certification • Japan: Complete Groupwide deployment of environmental cost compilation systems

Evaluation—A: Target achieved (over 80%) B: Target mostly achieved (at least 50%) C: Target partly achieved (less than 50%) D: Not implemented

FY2002 Results	Assessment	FY2003 Groupwide Objectives	FY2003 Objectives by Promotional Organization
• Total consumption objectives: Japan: manufacturing divisions, 2.6% reduction Overseas: manufacturing sites, 1.4% reduction • Implementation of energy-savings measures by operations divisions (consolidated basis): 2.9% Overseas manufacturing sites: 2.6% • Qualitative target achievement: Japan—improved management 89.6 points, facilities 80.6 points, production equipment 44.6 points Overseas—Had introductory explanation	B	• Total consumption reduction (crude oil equivalent) • Japan: 5% reduction from the FY2002 level Overseas: Below FY2002 level	Operations divisions energy savings (consolidated basis) • 7% (in relation to consumption in FY2002) (Inclusive of 1.3% energy savings in FY2002) • Qualitative targets: Improved management 90 points Facilities 80 points Production equipment 40 points
• Global warming substances: 48.5% reduction	A	35% reduction in global warming substances emissions (base year FY1997)	
• 0.5% reduction (1,245t)	A		Quantitative survey and reduction of total transport volume/environmental burden
• Achieved Zero Emissions Level 1 • Total waste generation Japan: 33% increase (19,472t) (base year FY2001) Overseas: 8% increase (22,684t) (base year FY2001)	A (Level 1) C (Total discharge)	Total generation • Japan: 14,000t • Overseas manufacturing Group companies/affiliates 19,000t (On consolidated basis, 10% reduction, base year FY2001)	Reduction of landfill waste volume • Japan: 5% reduction (absolute quantity) from FY2001 • Overseas: Establish benchmark
• 21 divisions out of 28 achieved their targets (75%) • Set FY2003 reduction targets Out of 25 overseas Group companies/affiliates, 16 set targets, 9 in process	B		Improve promotional organizations' independent management of chemical substances, with individual targets (reduction/elimination)
• Some achieved objectives Water use in Japan (water supply) 8,946,000m^3 (6.4% increase from the previous year)	C		Japan: Set reduction target for each business site Overseas: Establish water use volume
• Recycling rate for products recovered from Japanese market: 75.3% • Designated area in China implemented trial recycling; recycling route established in Taiwan • Overseas: regional action plan set, recycling guidelines established	B	Recycling rate 65%	
• EEM systems completed	A		Recyclability 70% (unified objective with 1-1)
• Groupwide environmental reports: issued in June, site report released in June (Imaging and Information Products Operations Division) • Implemented • Achievement rate 50%	B		Release abridged version of site report
• Each promotional organization planned and implemented related activities	A		Planning/promotion of contribution activities by promotional organization
• Epson Hatogaya: Business terminated • Atmix: Began certification process (plan to obtain in FY2003) • Environmental cost compilation systems: core system building completed; Groupwide deployment not fully completed	C		Global deployment of environmental performance data management systems

Promotion of Environmental Management

(Q + E) ／ C ／ D
(Quality) (Environment) (Cost) (Delivery)

Harmony with the environment is the highest priority of the Epson Group's management. Because we know that our business activities unavoidably impose an environmental burden, we work hard to achieve coexistence of the environment and economy, and the creation of a sustainable economy through good environmental management. To integrate our Groupwide efforts, we share these standards and objectives with all our sites throughout the world.

Our approach to environmental management

It was once said that the fundamentals of business are quality, cost and delivery (QCD). After environmental issues surfaced, this was modified to QCD plus E (environment) to stress the importance of conservation activities. At Epson, we consider "(Q+E)/C/D" the basis of our environmental management, and incorporate the environment into our product quality and services.

To be more specific, we consider all factors involved in all stages of a product's lifecycle — planning, development, material procurement, production, transport, use, recovery and recycling — as contributors to their "quality." The aim of our environmental management is to provide earth-friendly, enhanced-quality products that are trusted and appreciated by our customers.

With this approach, we incorporate each environmental effort into our business activities and treat it as an integral part of our business operations.

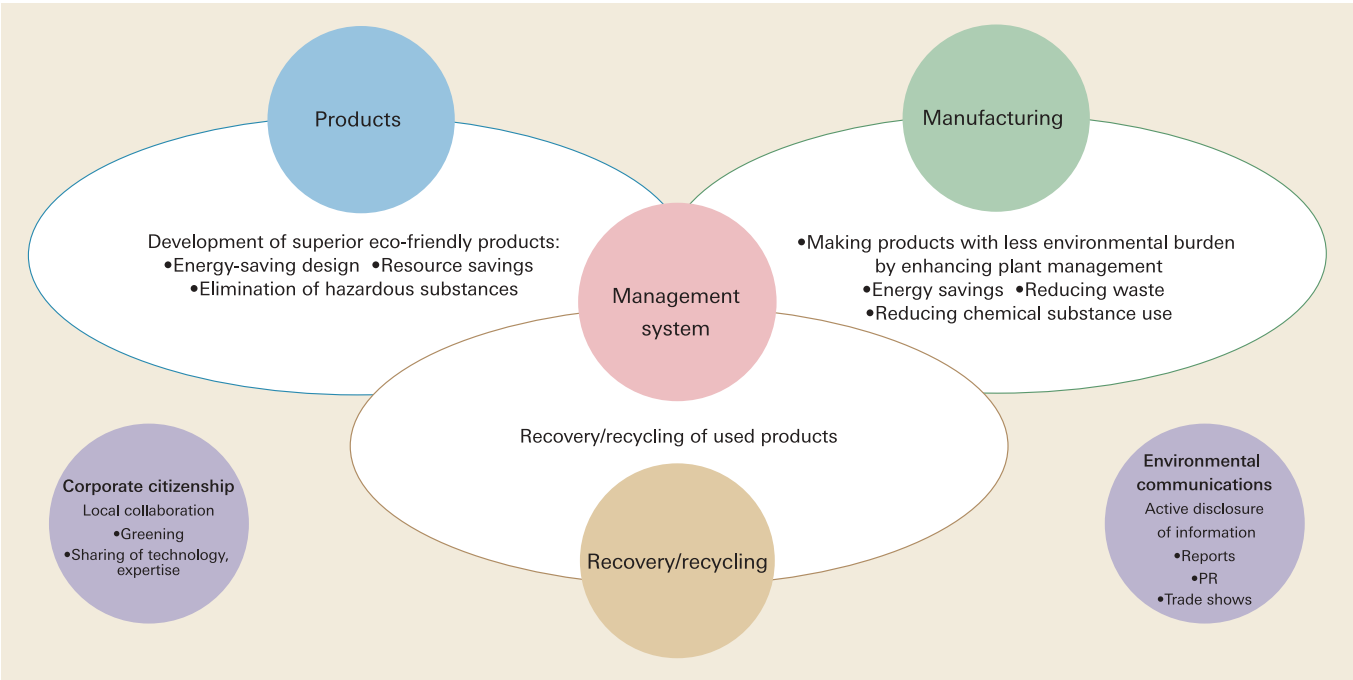
Moreover, we make efforts to quantify environmental conservation costs and effectiveness through environmental accounting. We do this to monitor overall activities and to incorporate the findings into our future activities.

There are three axes to our environmental management:

● Development of earth-friendly products (pp. 19-24, 28-29)
Manufacturers like Epson earn profits through customers' purchase of products. We are integrating energy-saving designs, resource savings and elimination of hazardous substances into our product cycle — from planning, development and design to procurement of materials and parts — to ensure that our products are increasingly eco-friendly. For more efficient product recycling, we are introducing ways to improve recycling rates into product development as early as the design stage.

● Creation of products that impose less burden on the environment (pp. 31-44)
Superior environmental products impose a lower environmental burden during production. We are working toward minimizing environmental burdens such as energy use, wastes and chemical substances. At the plants that produce these products, where our business activities are based, we conduct stringent management of risks associated with plant management and constantly monitor their impact on air, water and soil.

Fig. 1 **Three Axes of Environmental Management**



● Promotion of product recovery/recycling (pp. 25-27)

We are building the most suitable recovery/recycling systems for each country and region in which we operate, ahead of enactment of local laws and regulations. We encourage this to move closer to achieving a sustainable society.

The environmental management system underpinning these three axes should continually improve to assure that they function efficiently and achieve positive results.

In addition, we make contributions to society through the promotion of local community activities and the sharing of environmental technologies and expertise. Disclosing information and communicating with stakeholders through environmental reports and other media are other important aspects of our environmental management process.

Environmental Management System

ISO 14001 environmental management guidance

The Group sets mid-range/annual General Environmental Policy as a vital part of our annual and mid-range business plans, drawn up every three years. Promotional organizations (operations divisions, Head Office and Group companies and affiliates in Japan) then create their own environmental plans (fiscal year and mid-range plans) to undertake environmental activities as part of their business operations. Their efforts are audited internally once or twice a year, and appropriate corrective measures are taken at the promotional organization level. In FY2002, training for environmental auditors was conducted 12 times in Japan with the goal of improving our internal auditing capabilities.

We continuously improve this system by utilizing ISO 14001 guidelines and the Plan-Do-Check-Action cycle. All major manufacturing and non-manufacturing sites in Japan and overseas have acquired the ISO 14001 certification (see p. 66). Newly established companies work toward achieving certification within three years of startup.

Organizational structure

Expert committees integrated into product/production committees

The Executive Vice President leads the Group's entire environmental operations as the Senior Director of Environmental Activities. The Senior Director is supported by the Global Environmental & Safety Policy Department, which is the main Head Office organization for environmental efforts. The Environmental Committee and the Meeting of Environmental Affairs General Managers decide the Groupwide direction of environmental operations. Serious issues identified by General Environmental Policy are dealt with by a cross-divisional Expert Committee that supports each promotional organization.

Starting in FY2003, the seven Expert Committees have been integrated into two committees. The former Environmental Product Committee, Lead-Free Promotion Committee, Green Procurement Committee and Product Recycling Committee merged to become the Environmental Products Committee; and the former Energy Saving Committee, Zero Emissions Committee and Chemical Substance Control Committee became the Green Factory Committee.

Fig. 2 **Seiko Epson Environmental Management System**

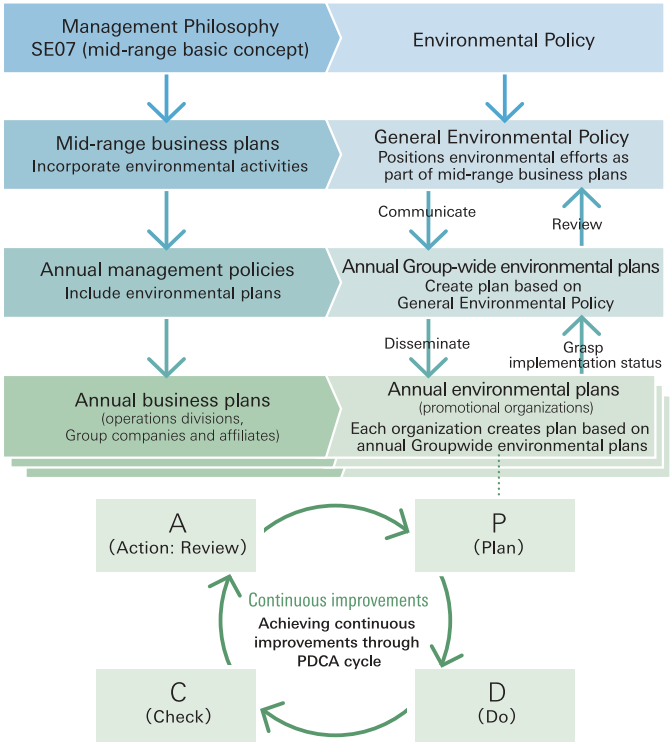
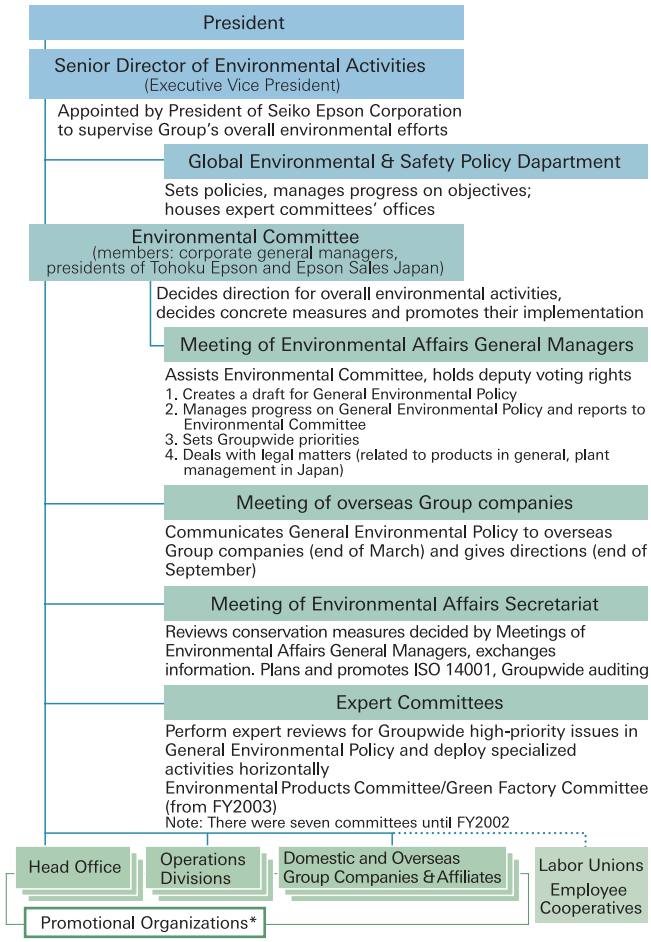


Fig. 3 **Group Organization for Promoting Environmental Activities**



*Operations divisions, Group companies and affiliates implement environmental activities based on the PDCA cycle, planning and implementing each promotional organization's related activities.

These two committees professionally and comprehensively pursue environmental measures for products and production processes/plant operations. Through integration, we have strengthened the working relationship between the two categories, implementing more effective measures and using them to encourage further integration of environmental activities with business operations.

For overseas Group companies and affiliates, we hold global environmental conferences and area conferences (U.S., Europe and China), sponsored by the Head Office to share information and discuss the direction/goals of our environmental undertakings. The FY2002 global environmental conference was held at the Head Office in December with Group companies and affiliates engaged in sales activities.

Measuring environmental impact using Environmental Activity Data System

Understanding the big picture of the environmental burden is crucial to focused environmental efforts. This includes knowing the resource/energy input and waste output. Epson developed an Environmental Activity Data System to centrally monitor activities related to energy, water, waste, chemical substances, exhaust, wastewater, lead, green procurement and other items subject to monitoring at business sites and Group companies and affiliates in Japan. The system started up in FY2002 and will be expanded globally in FY2003.

Fig. 4 shows the Group's global energy use and total waste generation in FY2002.

Environmental and Environmental Management Awards

The Group established internal awards to encourage improvements in continuous environmental efforts and to raise environmental awareness.

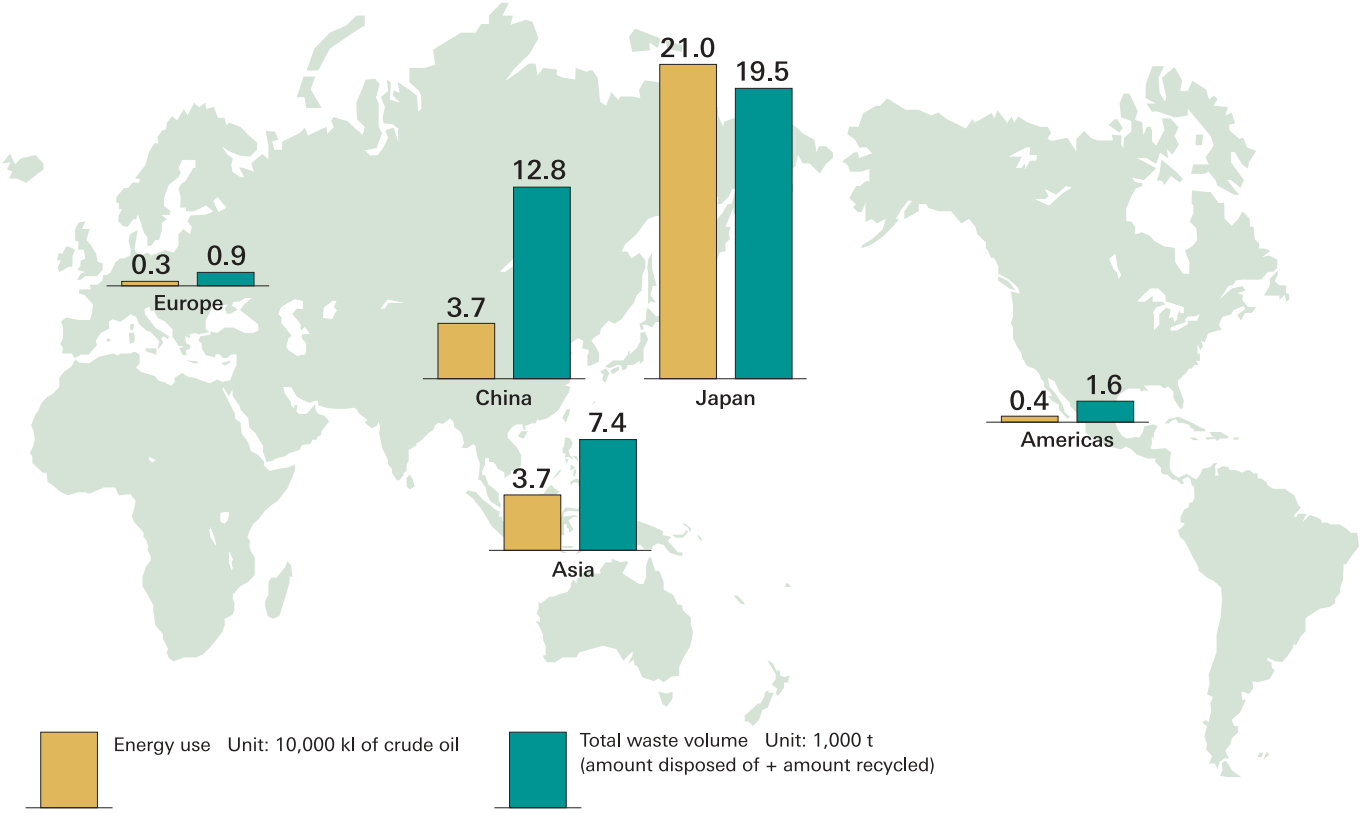
Environmental Management Awards are given to operations divisions, the Head Office, Group companies and affiliates in Japan. The purpose is to encourage each promotional organization to fully incorporate environmental efforts into every area of business operations and to yield outstanding results. The awards are given based on the overall performance of the organization, especially the attainment of targets stated in General Environmental Policy, basic requirements such as adherence to related laws and regulations and other aspects such as improved organizational structures.

Environmental Awards provide recognition for departments, teams, groups or individuals for development of technology, products or systems that have contributed greatly to raising environmental performance, or for activities in education and corporate citizenship that have made a difference in improving environmental awareness.

In FY2002, after detailed scoring and fact-finding trips, Tohoku Epson Corporation, Epson Portland Inc. (U.S.A.) and Epson Engineering (Shenzhen) Ltd. (China) were awarded Environmental Management Awards for their outstanding environmental management performances. Epson Taiwan Technology & Trading Ltd. (Taiwan) was the recipient of the grand prize in the Environmental Awards category, followed by five other organizations, which received honorable mentions.

Photo 1
Judging for Environmental Management Awards

Fig. 4 **Environmental Burden: Energy Use/Total Waste Generation by Region (FY2002)**



Risk Management

Compliance with legislation through Groupwide regulations/standards

Lowering risk by practicing ISO 14001

Groupwide Risk Management Committee

We invest heavily in ensuring complete compliance with pollution-prevention laws and regulations. Based on the Group's unified regulations and standards, each promotional organization practices ISO 14001 to manage risks. For the types of risks that may affect the entire Group, the Risk Management Committee serves as the central body to assess potential risks, take preventive measures and work out scenarios for crisis situations.

Managing risk through unified regulations

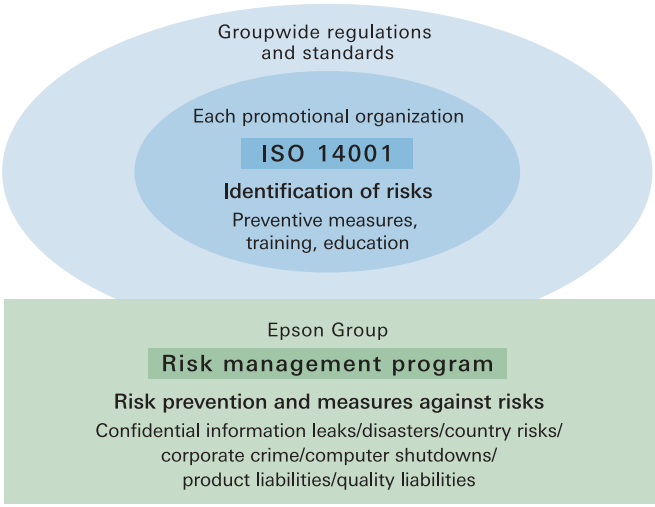
The Epson Group complies with pollution-prevention laws and regulations by adhering uncompromisingly to the Group's unified regulations and standards, which were set based on our Environmental Policy.

Each promotional organization practices ISO 14001 to identify all risks in the workplace, such as potential failure to meet standards, complaints we may receive and accidents that may occur. For each potential risk, we take preventive measures based on the results of risk assessment and work continuously to minimize impact.

Moreover, for disasters, product liabilities, corporate crimes and other Groupwide risks, including those unrelated to the environment, we forecast and assess these to take preventive measures based on our Risk Management Program. If a crisis occurs despite all our efforts, the Risk Management Committee will act as the central body governing the situation (Fig. 1).

Table 1 shows cases that exceeded standard values, complaints and accidents associated with the environment in FY2002. We are pleased to report that we did not receive any fines or penalties in relation to environmental laws or regulations, either in Japan or overseas, and that corrective measures have already been taken.

Fig. 1 Environmental Risk Management Approach



Risk prevention measures

Conducting environmental self-monitoring

Forty-nine major business sites (29 in Japan and 20 overseas) conducted environmental self-monitoring under the same guidelines in June 2002. For 194 checklist items, adherence to laws, regulations and standards, as well as the status of management, were examined and recorded. The items include those associated with basic facilities of plants and plant management, management of exhaust, waste, air and chemical substances, risk communications and occupational health and safety. Each site is responsible for planning and taking action against problems identified in the self-monitoring.

Risk patrol conducted at 10 overseas Group companies and affiliates

After compiling the results of the self-monitoring at the Head Office, the department in charge of supervising environmental activities implemented a risk patrol at 14 overseas manufacturing sites of 10 companies that use chemical substances between August 2002 and February 2003. Having learned a lesson from the accidental discharge of an oxidizing agent outside of our Shiojiri Plant premises in May 2001, we conducted patrols focusing on rainwater pipes and manholes, which could potentially be the instrument of chemical leakage. Where problems were identified, action was taken under the guidance of the Head Office's department in charge.

Ensuring suppliers' waste management procedures

To avoid the risk of illegal disposal of business waste, we consider it our responsibility to ensure proper procedures for our contract manufacturers' waste management. When we order work for the first time or when there are changes in the use of equipment, raw materials or the work process, we audit the vendor's waste management and request improvements if necessary. Meeting certain standards in this auditing is one of the conditions we request before approving a Green Vendor for Green Procurement (see pp. 28-29).

Table 1 FY2002 Reports of Standard Violations, Complaints and Accidents

Failure to meet legal standards (Japan).....Failure to meet wastewater standards	1 case
Failure to meet legal standards (Japan).....Failure to meet noise standards	1 case
Failure to meet legal standards (overseas)...Failure to meet wastewater standards	3 cases

Complaints	0 cases
Accidents	0 cases

Environmental Accounting

To enhance environmental management, we make quantitative assessments of our environmental costs and effects

Our approach to environmental accounting

Epson's environmental accounting statements correspond to the categories in our General Environmental Policy* to quantify the costs and effects of conservation activities, and to clarify the relationship between objectives and results. The scope of accounting has been expanded to cover the entire Group and now includes Seiko Epson Corporation and 37 Group companies and affiliates (16 companies in Japan and 21 companies overseas)**.

* The accounting statement corresponding to the Japanese Environment Ministry's reporting guidelines can be found on our Website: www.epson.co.jp/ecology/

**The companies included in the scope of accounting are ISO 14001 certified and owned more than 50% by Seiko Epson Corporation. For overseas non-manufacturing Group companies and affiliates, only three regional headquarters are included. The list of these companies can be found on our Website: www.epson.co.jp/ecology/

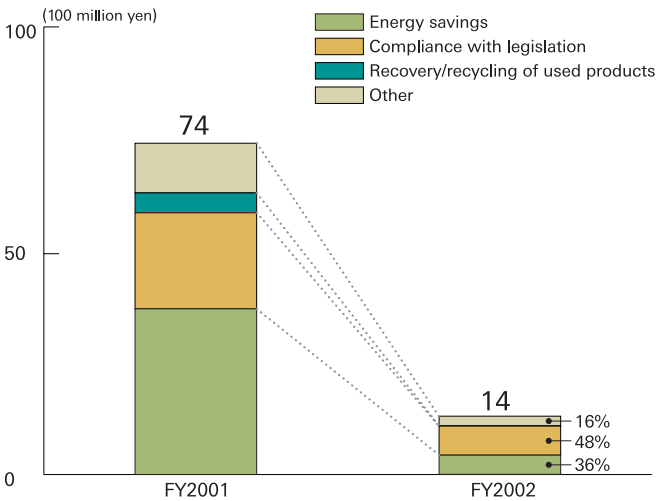
FY2002 results

In FY2002, total investments amounted to 1.4 billion yen, an 81% decline from the previous year. This is attributable to completion of an investment in energy-saving and pollution-preventive measures for a new plant, and to a reduction of 54% in investments in plants and equipment (including non-environment-related investments) from the previous year.

Expenses totaled 19.3 billion yen, a 28% rise from the previous year, owing largely to an increase in R&D spending to develop eco-products and an energy-saving production process. Please see *Development of Eco-Products* (pp. 20-24) and *Toward 2010: Epson's Vision for Preventing Global Warming* (pp. 4-6) for details on our R&D efforts. Recognized economic effects stood at 7.0 billion yen, of which 83% were the effects of energy savings and reuse of wastes.

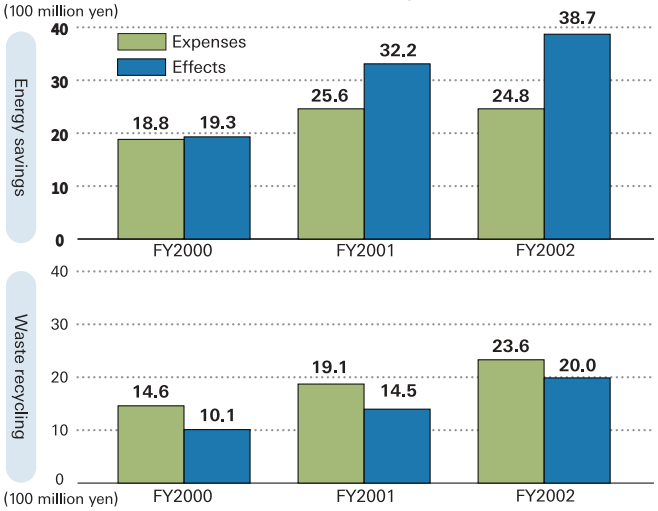
Graph 2 shows the changes in the economic effects in these two categories.

Graph 1 Breakdown of Environmental Investments



Graph 2 Cost Effectiveness

Note: Figures for FY2000 cover Japan only



Our environmental accounting method

Data are compiled using internal guidelines based on the environmental accounting guidelines provided by Japan's Ministry of the Environment.

1. Accounting standards for environmental costs
   a. Investments and expenses: Based on categories used in financial accounting
   b. Expenses: Include depreciation (appropriated for 6 years), labor costs, overall expenses and R&D costs
   c. Combined costs: Costs of environmental conservation associated with production are allocated in differential accounting, apportionment, etc.
   d. R&D costs: Includes all research/development costs associated with environmental conservation, calculated by multiplying an environmental contribution ratio
   e. Contaminated soil cleanup costs: expenses are appropriated on a fiscal-year basis
2. Method of calculating environmental effects
   These are the sum of the effects of conservation measures. In principle, effects of energy savings and reduction of global warming substance emissions are appropriated for six years after implementation of the measures. For others, effects are appropriated for one year.
3. Method of calculating economic effects
   This is the amount equivalent to the sum of the effects of conservation measures.

Future measures

We have been upgrading the environmental accounting cost compilation system introduced in FY2001 and improving its link to other environmental databases. The goal of these efforts is to enable the effective and timely use of data on environmental costs, economic effects and conservation effects. We will continue to work on understanding the more unrecognized economic effects, to review environmental management indices, and to enhance the in-house use of environmental accounting data.

FY2002 Environmental Accounting Statement

Scope: Seiko Epson Corporation, 16 Group companies/affiliates in Japan, 21 overseas Group companies/affiliates

●Environmental Accounting Results

Unit: 100 million yen

Strategy/activity			FY2001 Investments	FY2001 Expenses	FY2002 Investments	FY2002 Expenses	FY2002 Economic effects: Content	FY2002 Economic effects: Sum	FY2002 Balance *3	FY2002 Environmental/other qualitative effects: Item	Unit	Value
General Environmental Policy (mid-range high-priority activities)	Creating, providing earth-friendly products	Environmental products/services	0.2	5.5	0.0	5.0			5.0	Effect of energy-saving products on society	10,000kWh	529
		Green procurement								Green procurement rate (production materials)	%	97
		Lead-free										
	Transforming processes to reduce environmental burden	Energy savings	37.0	25.6	5.1	24.8	Energy-savings effect	38.7	(13.9)	Energy saved	kl	91,694
										Reduction in use of global warming substances	t	23
		Global warming prevention	3.3	3.4	0.0	3.1	Reduction in use of global warming substances	1.3	1.8	CO_2 cut (energy savings+reduction of global warming substances)	t-CO_2	495,017
		Reduction of chemical substances that impose environmental burden	0.0	0.7	0.0	0.6	Savings as result of reduced use of chemical substances that impose environmental burden	2.8	(2.2)	Reduction in use of chemical substances	t	819
		Waste disposal/recycling	1.9	19.1	0.1	23.6	Waste-recycling effect	20.0	3.6	Amount of wastes recycled	t	36,224
		Effective use of water resources	3.6	3.7	0.0	2.6	Water-recycling effect	5.3	(2.7)	Amount of water recycled	1,000 m^3	2,843
		PRTR (chemical substance discharge/transfer registration)	0.0	0.4	—	0.3			0.3	Preparations for compliance with PRTR Law		
		Other conservation costs	0.1	2.1	0.2	2.6			2.6	Promotion of independent management by operations division using Hazard Evaluation Guidelines		
	Recovering, recycling used products	Recycling products/consumables	4.4	8.1	0.0	8.2	Savings as result of reusing parts	1.6	6.6	Increased recovery rate of used products, ink/toner cartridges		
		Recycling containers/packaging					Savings as result of packaging recycling/reuse					
	Sharing environmental data; contributing to conservation	Environmental information disclosure (reports, PR, etc.)	0.0	4.1	0.0	5.5	PR effect, information disclosure effect	0.1	5.4	Uploading Environmental Report on our website		
		Contributions, donations to society								Greening, cleanup activities in local communities		
	Continually improving EMS	Environmental education	0.1	11.4	0.0	10.8	Savings as result of internal education	0.4	10.4	Basic environmental education, auditor training, energy-savings education		
		ISO 14001								ISO 14001 maintenance, management activities		
		Other environmental management activities										
	Environmental R&D	Eco-product development	—	27.3	—	68.4			68.4			
Compliance with laws and regulations (pollution prevention, etc.)			21.8	32.0	6.8	30.2			30.2			
Soil and groundwater cleanup, others			1.2	6.9	1.6	7.2			7.2			
	Total		74.1	151.0	14.2	193.8	Total	70.6				
Rate of environmental investment to total plant and equipment investment (%)			4.6	—	1.9	—						
Total amount of plant/equipment investment			1,628	—	744 *1	—						
Rate of environmental costs to sales (%)			—	1.2	—	1.5 *2	Estimated effect from CO_2 reductions	39.6 *4				

●Material Balance Sheet Related to Business Activities (Scope: consolidated basis)

INPUT

Item	Unit	FY2001	FY2002	Increase/decrease *5
Amount of energy used *6	kl	298,926	292,184	(6,742)
Per unit of sales *2	kl/100 million yen	23	22	(1)
Chemical substances subject to PRTR	t	1,187	1,432	245
Global warming substances	t	32	52	20
Amount of currently used chemical substances targeted for prohibition or reduction *7	t	9	3	(6)
Amount of lead used	kg	44,052	1,062	(42,990)
Amount of water used	1,000 m^3	8,408	12,797	—
Amount of used products recovered *8	t	3,228	4,643	—
Amount of ink/toner cartridges recovered	t	1,405	1,821	—
Amount of IT equipment recovered	t	1,823	2,822	—

OUTPUT

Item	Unit	FY2001	FY2002	Increase/decrease *5
CO_2 emissions	t-CO_2	751,850	815,504	663,654
Per unit of sales *2	t-CO_2/100 million yen	59	62	3
Energy	t-CO_2	657,525	676,933	19,408
Global warming substances	t-CO_2	94,325	138,571	44,246
NOx emissions *9	t	305	309	4
SOx emissions *9	t	146	133	(13)
Wastewater	1,000 m^3	7,195	10,459	—
BOD discharge *10	t	9.1	29.6	—
COD discharge *10	t	10.9	82.4	—
Total waste generated	t	35,750	42,156	6,407
Per unit of sales *2	t/100 million yen	2.8	3.2	0.4
Total waste (landfill, incineration)	t	7,028	5,932	(1,096)
Per unit of sales *2	t/100 million yen	0.6	0.4	(0.1)
Amount recycled	t	28,722	36,224	7,502
Recycling rate	%	80	86	6

*1 Represents Epson Group's consolidated investment.

*2 Calculated based on Group's consolidated sales.

*3 Represents net environmental expenses (total expenses-economic effects). Negative figures represent profit generated as result of measures taken.

*4 Monetary representation of effects resulting from energy savings and reduction of global warming substances (495,017t-CO_2), using average cost of UN Framework Convention on Climate Change's Activities Implemented Jointly (AIJ) project: 8,000 yen/t-CO_2

*5 No figures are available for changes in sections with dashes (—); only FY2001 figures for Japanese sites were available.

*6 Includes energy used by Epson Hatogaya Corporation and Atmix Corporation that are not included in scope of environmental accounting.

*7 Amounts equivalent to 7t in FY2001 and 3t in FY2002 are recorded both here and under *Chemical substances subject to PRTR*.

*8 Internally discarded products are included.

*9 Overseas Group companies/affiliates are not included in FY2001 and FY2002 figures.

*10 Amounts contained in wastewater discharged into rivers.

Considering introduction of environmental management indices

We have been considering the introduction of environmental indices to enhance the efficiency of our environmental efforts. In FY2002, a designated trial year, we formulated eco-efficiency and cost-effectiveness indices.

Our approach to environmental management indices

It is more vital than ever to translate eco-effects into corporate competitiveness and profitability. We are thus considering the introduction of environmental management indices as an effective tool in quantifying the balance of these two aspects of business activities.

In FY2002, we established two indices: the eco-efficiency index (sales divided by environmental burden) and the environmental cost-effectiveness index (reduction in environmental burden divided by costs of environmental activities).

For the eco-efficiency index, we formulated data for three categories: global warming substance emissions, resource output and use of chemical substances. For the environmental cost-effectiveness index, we did the same in two main categories of environmental costs: global warming substance emissions and resource output. For both indices, we collected data for the production phase alone (Fig. 1).

Environmental management indices formulae

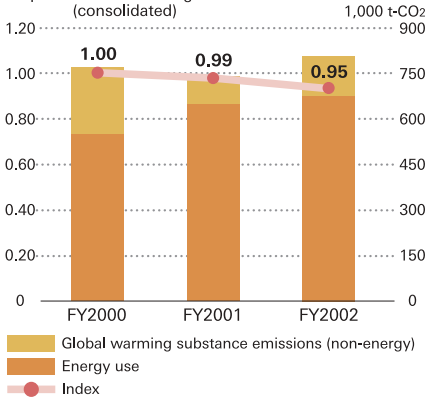
Index	Formula
Eco-efficiency index	Sales / Environmental burden in each category*
Cost-effectiveness index	Reduction of environmental burden in each category** / Environmental cost in each category

* Environmental burden in each category:
- Global warming substance emissions: Energy use (CO_2 equivalent) + global warming substance emissions (non-energy)
- Resource output: Total output of waste (amount disposed of + amount recycled)
- Use of chemical substances: Impact of chemical substance use

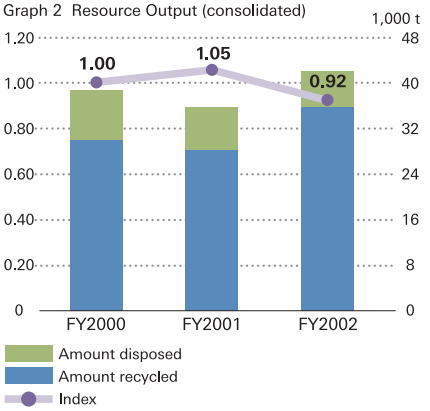
** Reduction of environmental burden in each category:
- Global warming substance emissions: Energy savings + reduction in global warming substance emissions
- Resource output: Reduction in the amount of waste disposed

◆Eco-efficiency index

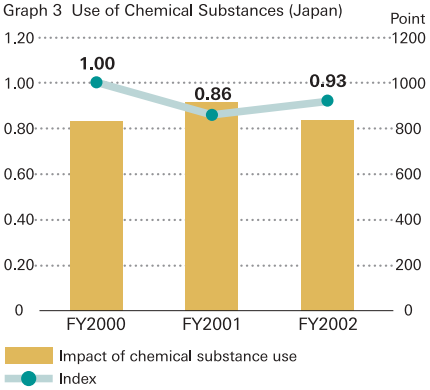
Graph 1 Global Warming Substance Emissions (consolidated)



Graph 2 Resource Output (consolidated)



Graph 3 Use of Chemical Substances (Japan)



Results of FY2002 trial run

◆Eco-efficiency index

1. Global warming substance emissions (Graph 1)

The index dropped owing to an increase in global warming substance emissions that followed a rise in semiconductor production.

2. Resource output (Graph 2)

Overall production increases resulted in a larger total resource output. The index therefore dropped.

3. Use of chemical substances (Graph 3)

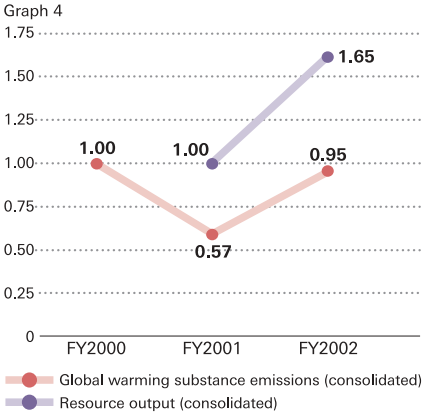
We have been promoting the reduction of chemical substances based on the Hazard Evaluation Guidelines. The index rose as a result of a reduction in substances with high hazard points.

◆Cost-effectiveness index (Graph 4)

Efforts to reduce global warming substance emissions and Zero Emissions Level 1 activities worked together to raise cost effectiveness in both categories.

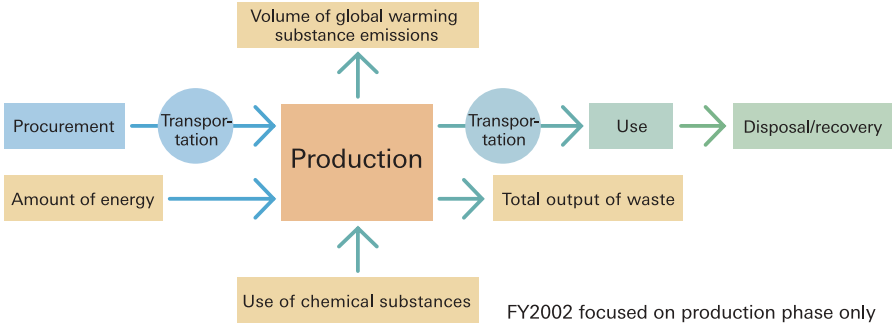
◆Cost-effectiveness index

Graph 4



Notes:
1. FY2000 is the base year for index figures (part of cost-effectiveness index uses FY2001 as its base year)
2. Amount of xylene in fuels is included in use of chemical substances subject to PRTR Law
3. Overseas plants are included based on environmental accounting data (only Japanese plant data are included for use of chemical substances)
4. Impact of chemical substance use is measured using weighted hazard coefficients set for each PRTR substance
5. Amount of reduction in environmental burden for resource output and use of chemical substances are calculated using sales

Fig. 1 **Scope of Data Collection**



FY2002 focused on production phase only

Future measures

Because FY2002 was a trial year, the assessment was limited to the production phase and the two indices that were formulated. In the future, based on the results of the trial, we would like to expand the scope of the indices to include other business activities (from procurement to disposal/recovery) and make wider use of the data for effective environmental activities.

Eco-Product Concept

Eco-consciousness in product quality leads to product lifecycle improvements

Our efforts to reduce environmental impact begin in the planning and design phase, when we determine a product's environmental performance, and span its lifecycle—from materials procurement to recovery/recycling. This enables us to provide products that are in harmony with the environment.

Commitment to improving entire product lifecycle

The concept (Q+E)/C/D is at the heart of our product development, making environmental consciousness a component of product quality. We consider all factors involved in the making of eco-products—planning, design, procurement of raw materials and parts, production, distribution, use, recovery/recycling—as contributors to Epson's superior product quality. By paying attention to the entire product lifecycle we have earned the trust and reliance of customers.

To make sure that eco-consciousness is embodied in the quality of our products, we pre-assess the environmental performance of each product at the planning phase, set high objectives and proceed with development.

In the production phase, every raw material and part has been selected carefully from an eco-conscious perspective. We follow stringent guidelines to further enhance our green procurement.

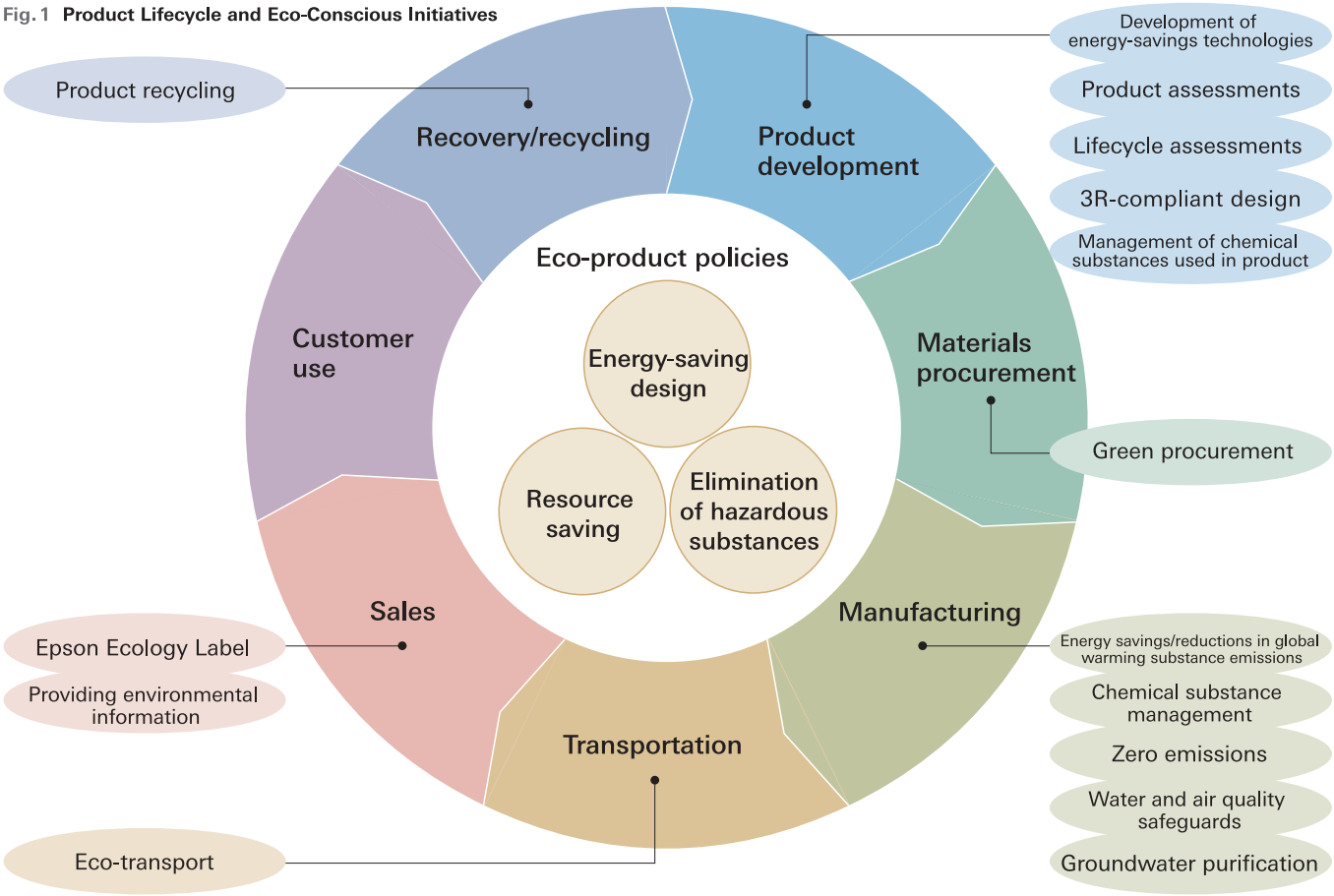
As awareness of the concept of consistent recycling grows, recovery and recycling of used products are becoming more important. Leading this global trend, Epson is developing systems to recover, reuse and recycle the products we manufacture and sell. These systems accommodate the legal requirements of different regions in the world, as well as customers' needs. We do this to assume extended producer responsibilities.

Our products generate value only when they earn our customers' seal of approval. We are therefore committed to disclosing environmental information and engaging in initiatives with our customers that reduce our products' environmental burden.

Developing eco-products under global standards

As a multinational company, we must ensure product quality by maintaining levels of product safety and earth-friendliness that meet the world's strictest laws and regulations. Based on this policy, we set internal standards and share them throughout our global operations.

Fig. 1 Product Lifecycle and Eco-Conscious Initiatives



Development of Eco-Products

We believe environmental performance and eco-consciousness are components of product quality. We build in energy-saving design, resource savings and elimination of hazardous substances from the planning and design phases onward, producing eco-products with enhanced lifecycles.

FY2002 Objectives

- Release of Epson Ecology Label-compliant products from all divisions
- Maintenance of industry-leading level of energy-saving performance
- Disclosure of products' environmental information
- Ratio of lead-free terminal plating for electronic products*: 50%
- Ratio of approval from customers to use lead-free solders**: 70%

* Ratio of number of lead-free parts to total number of parts used for major models/major substrates
** Ratio of sales of lead-free products to total sales of products requiring approval from customers

Results

- 6 of 9 divisions released compliant products; over 80% of finished products are compliant
- Development/release of energy-saving products carried out according to divisional plans
- Finished products' environmental information disclosed, mainly through sales companies' websites and product catalogs
- Lead-free ratios:
  - Lead-free terminal plating for electronic products: 71-94%
  - Customer approval to use lead-free solders: 43.2%

Three basic policies

Because we consider environmental performance to be a component of product quality, we consider all factors involved in making eco-conscious products to be contributors to Epson's superior product quality. This is the basis of our approach to making products that are trusted and appreciated by our customers. Applying the three basic policies that guide product design, energy-saving design, resource savings and elimination of hazardous substances, we carefully assess the environmental burden throughout our products' lifecycles.

1. Energy-saving design

A study of the environmental burden imposed by a product's lifecycle reveals that a significant amount of electricity is consumed when the product is in use. We are currently focusing on improving energy-saving performance during periods of activity. Each operations division is responsible for setting its own energy-saving design objectives based on each product's features in order to achieve continuous improvements in environmental performance.

2. Resource savings

For FY2003, we set a recyclability (a product's calculated recyclable rate, assessed by its configuration and materials used) objective of 70% for all finished products. We are also committed to reducing costs for disassembly and sorting. To achieve this, we reflect suggestions from operators at our recycling sites into the design stage of new products, using *3R Design Guide* as a tool. We are focusing on downsizing and reducing the weight of products in order to minimize use of materials.

3. Elimination of hazardous substances

As concern grows over the hazards of chemical substances and their impact on the environment, demand has increased for the disclosure of data on their use in products. Europe, for one, adopted the RoHS Directive (Directive of the European Parliament and of the Council on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment). This Directive restricts the use of six chemical substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers) in products.

Epson has identified chemical substances subject to prohibition or monitoring through our internal Epson Quality Standards (EQS). We also practice strict control of chemical substances used in raw materials and parts through our Green Procurement Standards.

Commercializing earth-friendly products

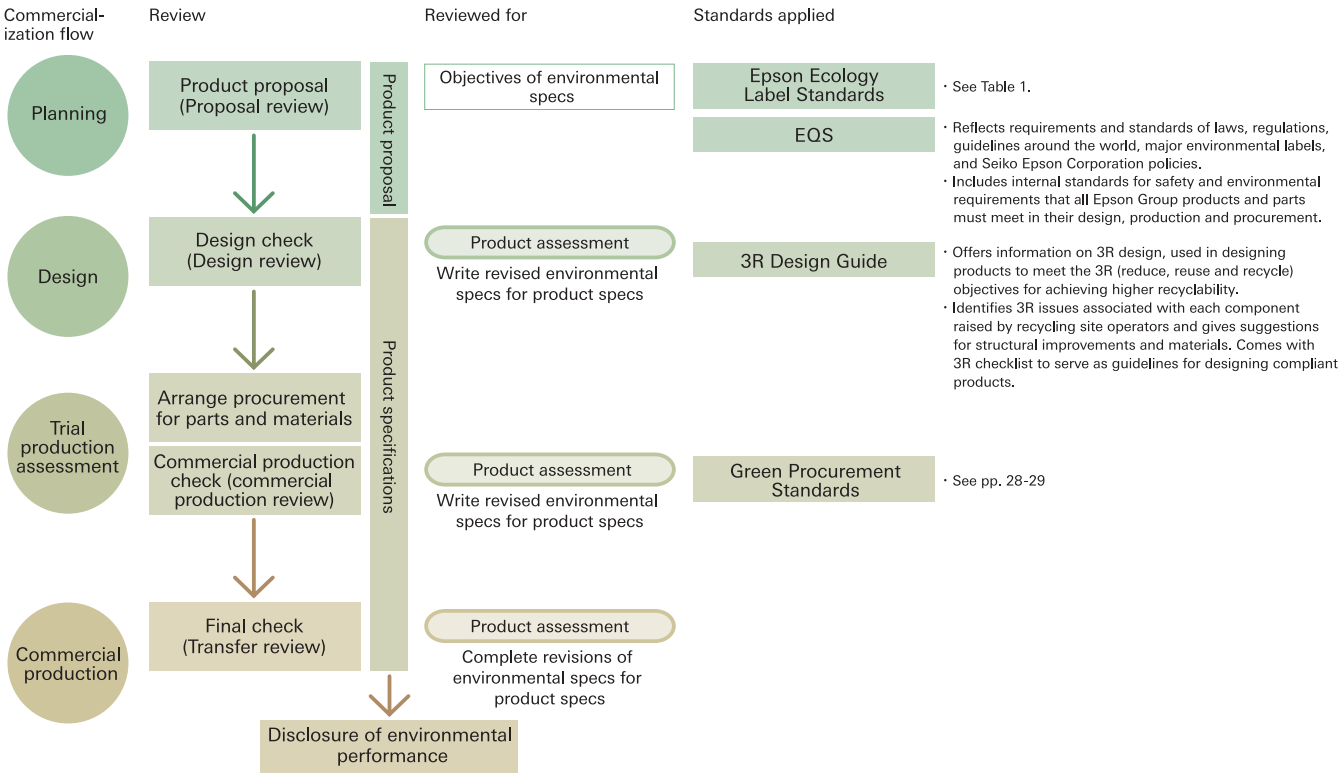
We are facilitating the commercialization of earth-friendly products by defining environmental performance as a component of product quality in our regular quality assurance programs. The following case study from Epson's Imaging and Information Products Operations Division, which manufactures printers and scanners, details how eco-products are commercialized.

1. Planning

Environmental specifications (environmental performance) for a product are stated in the product proposal based on Epson Ecology Label Standards and EQS, both of which reflect the three basic policies guiding production of earth-friendly products.

At this point, we also look into compliance with the Eco Mark, Blue Angel and other Type I environmental labels of other countries. The product proposal is an important step for determining environmental specifications.

Fig. 1 Commercialization of Eco-Products



2. Design

The product design is based on the product proposal and the *3R Design Guide*, which contains information dedicated to raising product recyclability.

The product design is then assessed for its conformity to the environmental specifications and for improvements made from previous models. Finally, environmental specifications are stated as part of the product specifications.

3. Trial production assessment

In the next step, materials/parts purchases are planned, based on Epson's Green Procurement Standards, and the trial production process is reviewed for future commercial production. The Green Procurement Standards eliminate not only hazardous substances from the in-house production process but also from raw materials and electronic parts purchased from other companies. To fulfill this mission, the standards prescribe a two-part review and evaluation process, green vendor certification and green material certification (see pp. 28-29).

4. Commercialization

After the trial production assessment, commercial production begins, followed by finetuning for market release. In all these steps, product and other environmental assessments are conducted to ensure conformity to the environmental specifications set in the product's planning stage.

●Epson Ecology Label

The Epson Ecology Label is a voluntary labeling (Type II) system applicable to all Epson products. We develop new products based on our own evolving set of eco-standards and disclose the products' compliance through the label. It thus serves two purposes: supporting continual improvements in earth-friendly products, and information disclosure. The label has two standards: a Groupwide standard (Table 1) that serves as the basis of the two, and an operations division standard set by each division based on product features.

Epson Ecology Label logo

Table 1 Groupwide Standards for Epson Ecology Label

1	Throughout the product's lifecycle, improve energy savings at time of use, resource savings and elimination of hazardous substances. For existing models, set targets that are superior to industry standards and attain them.
2	Meet the following requirements: ●Reduce power consumption during use and while in standby mode. ●Do not include any chemical substances designated as prohibited by Epson. ●Indicate material used on plastic components weighing 25g or more. ●Indicate material used for compact secondary batteries; design it for easier loading/unloading. ●Indicate packaging materials subject to Law for Containers and Packaging Recycling and EU Packaging Directive. ●Indicate material used for plastic packaging materials. ●Content of specified heavy metals in packaging materials should be below 100 ppm.
3	Conduct product assessments.

FY2002 results

One of our primary objectives for FY2003 is to make 50% of our products compliant with the Epson Ecology Label. In FY2002, six out of nine operations divisions released compliant products, including the PM-970C inkjet printer, TM-J7000 POS printer and ELP-730 LCD projector.

We are determined to further improve the energy-saving performance and recyclability of our products, as well as the management of chemical substances contained in them. Revising the Epson Ecology Label standards to better respond to customer needs is another of our objectives, as well as improving disclosure of environmental information through acquisition of third-party environmental labels. Behind these efforts is our commitment to communicate the eco-consciousness of Epson products.

Synthesis of three basic eco-product policies

ELP-730 LCD projector

Developed in FY2002 by the Imaging and Information Products Operations Division, this LCD projector achieves high levels of energy-saving design and resource savings, as well as eliminating hazardous substances. Here is an example of how the three basic policies of eco-products are embodied in Epson products.

Resource savings

Weighing just 1.9 kg, the ELP-730 is one of the world's lightest projectors in the 2000 ANSI lumen brightness range. It delivers high performance despite minimum parts and resource use. Following design reviews for each component, we shortened the light path, lightened the power unit and used plastics for the projection lens barrel. These efforts all contributed to making the projector lighter. Compared to our previous models, the ELP-730 has 50% fewer parts that are unrecyclable.

Energy-saving design

By raising light efficiency, the ELP-730 consumes 20% less power than previous models of the same luminance. This is attributable to the development of concentrating optics using the proprietary LCD Panel DII with an aperture ratio 20% higher than previous models. Also contributing to the energy-saving performance is a cut in warm-up time (from power on to image projection) to two-thirds and a more than 50% reduction in cool-down time, thanks to higher cooling efficiency achieved by the improved positioning of the fan.

Elimination of hazardous substances

The ELP-730 uses a lead-free lens and lead-free solders, with the exception of the fan and some electronic parts.

Driving eco-consciousness by enhancing competitiveness

Kazuhiro Nishida
ELP-730 developer and designer

We conceived of the ELP-730 as a compact, lightweight, high-luminance projector with high usability. Originally, these objectives were set to enhance product competitiveness, but many of our ideas led to greater eco-consciousness. For example, making the product lighter and more compact required minimum materials and thus resulted in resource savings. Size restrictions compelled us to use a light source that generates less heat; this resulted in achieving higher luminance with a low-energy lamp and thus higher efficiency through energy savings. Improvements in usability meant reductions in start-up and cool-down times, which also reduced electricity use. Development went smoothly because our objectives supported higher environmental performance. I look forward to producing similar superior eco-products in the future.

Sales/energy savings of earth-friendly products

Epson designates products that comply with the Epson Ecology Label or that have attained internal energy-saving targets as earth-friendly products, and monitors their sales. Consumer IT equipment is also monitored for estimated reductions in power consumption during use. The table below shows the results for products sold in FY2002.

Sales of Epson Ecology Label products
262.5 billion yen/year (20% of total sales)
Sales of energy-saving products
136.3 billion yen/year (10% of total sales)
Energy savings from earth-friendly products
5,290,000 kWh/year (1,250 households*)

*Average power consumption per household = 4,227 kWh/year

Energy-saving design

To continually improve the energy-savings performance of our products, each operations division sets its own design objectives. Some of the FY2002 objectives and results for finished products can be seen in Table 2. For products like printers, our focus is on reducing total energy consumption — not only during use, but also when the power is off or in standby mode, when the printers are waiting for data from the computer.

Table 2 Energy-Saving Objectives and Results (finished products)

Product group	Energy-saving objective	FY2002 result
Inkjet printers	Electricity use/day: up 5% over previous model	Up 27% (PX-V700)
Impact printers	Electricity use/day: up 30% over previous model	Up 42% (LQ-630)
Page printers	Electricity use/day: up 15% over previous model	Up 32% (LP-1500C)
Scanners	Energy-saving rate: up 40% from the previous model	Up 37% (GT-8300UF)
POS printers	Energy-saving rate: up 50% from the previous model	Up 66% (TM-J7000)
LCD projectors	Electricity use per unit of brightness Below 16 W/100 lm	11.3W/100lm (ELP-730)

Energy-saving design in finished products

Energy-saving, award-winning large-format printer PX-9000, PX-7000 MAXART

Epson's MAXART printer featuring B0+/A1+ size printing capabilities achieves outstanding energy savings through reductions in the number of digital circuits (integrated functions) and in power consumption during standby and low-power mode. Eliminating the internal motor and integrating printing head circuits contributed to reducing power consumption of the power-related circuits. Daily consumption for the PX-9000 now averages 155 Wh, 43% of our previous models.

Thanks to these excellent energy-saving features, the MAXART was awarded the FY2002 Chairman's Award for Energy Conservation sponsored by the Energy Conservation Center, Japan.

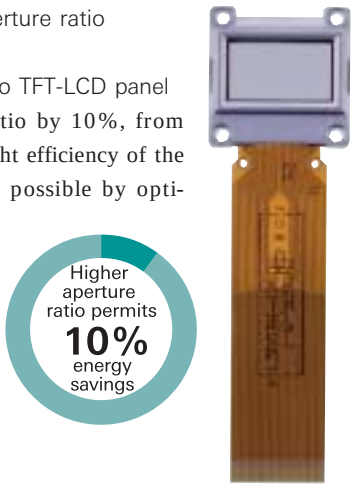
New technology enables ultralow-power operation Compact, ultralow-power TM-J7000 Point-Of-Sale (POS) printer

We developed new inkjet technology, SEAJet (Static Electricity Actuated InkJet), for the POS printers used in retail shop cash registers. With this technology, the printing head is driven by electrostatic power, which allows the printer to operate on ultralow power — an amazing one one-thousandth that of printers using other formats. Microfabrication technology for semiconductors is used to make the heads. With the development of an energy-saving control system, the printer achieves industry-leading low power consumption in the standby mode, below 1W. In FY2003, we plan to deploy this technology in new products from other divisions.

Energy-saving design in electronic devices

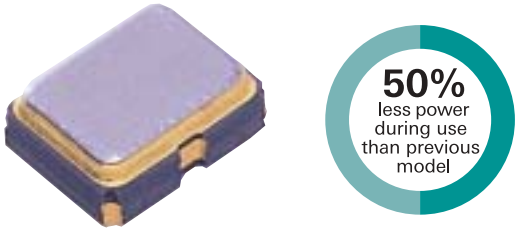
Panel with 10% higher aperture ratio enables energy savings Dream III high aperture ratio TFT-LCD panel

Raising the panel aperture ratio by 10%, from 42% to 52%, enhances the light efficiency of the LCD projector. This is made possible by optimization of the shaded areas within the pixels, resulting in a low-power, brighter image LCD projector.



Power consumption halved during use SG-310 quartz crystal oscillator

An ultrasmall quartz crystal oscillator was developed to further downsize compact mobile devices in response to the market's growing demands for more compact components. Epson's proprietary circuit technology allows the oscillator to use less power when the device is in use. Because of the compact size, it contributes to resource savings as well. Through this promising technology, we are determined to make greater contributions to lowering power consumption and downsizing mobile devices.



Resource-saving design

Utilizing *3R Design Guide*, we achieve higher recyclability.

80% recyclability
PM-970C printer

Plastic parts used in the PM-970C that weigh 5g or more are marked to facilitate sorting. Exterior parts are coated with recyclable soluble coating to raise recyclability. For cable-fixing parts, plastics that have been recycled 100% from recovered ink cartridges are used. Holes and notches have been made so that rubber feet and logo mark parts come off easily. Connectors are integrated at the edge of the substrate and C-rings, which are hard to disassemble, have been eliminated to streamline the disassembling and sorting process. To eliminate hazardous substances, substrates produced in house with lead-free soldering and chrome-free steel plates are used.

Elimination of hazardous substances

Epson leads other companies in focusing on the elimination of lead, a dangerous substance that is subject to the RoHS Directive.

Eliminating lead from soldering

We established a Lead-Free Committee in June 1999 to promote three activities: 1. Eliminate lead from soldering in in-house production; 2. Eliminate lead from electronic parts purchased from other manufacturers; and 3. Get approval from customers to use lead-free soldering for products. Without the combined focus of in-house production, suppliers of raw materials and parts, and customers, lead-free activities would not have been effective.

In FY2001, we developed technology to eliminate lead from the soldering used on circuit boards (lead in mounting solder and terminal plating for electronic parts). With the exception of some products for which customers did not approve lead-free solder use, we established a mass production system for lead-free products in April 2002.

In FY2002, the lead-free ratio of terminal plating for electronic parts was 71-94% and the customer approval rate for lead-free soldering was 43.2% (see p. 20).

Disclosure of environmental information

We promote not only product compliance with the Epson Ecology Label, but also with other ecology labels in Japan and overseas.

The status of compliance with the following labels can be found on two Web sites below:

- Epson Ecology Label
- Eco Mark (Japan Environment Association)
- PC Green Label (Japan Electronics and Information Technology Industries Association)

Epson Sales Japan website:
www.i-love-epson.co.jp/pro_rec/index.html
Epson Direct website:
www.epsondirect.co.jp/

Personal computers, printers, printer consumables and scanners that comply with the Law on Promoting Green Purchasing can be found on both Web sites and in product catalogs.

In the Green Purchasing Network (GPN) database of specified procurement items for corporations, local governments and private organizations, we list our compliant printers, scanners and PCs.

Green Purchasing Network website:
http://eco.goo.ne.jp/gpn/

Epson printers compliant with Germany's Blue Angel Mark can be found on the following Web site.

For products compliant with Germany's Blue Angel Mark:
www.blauer-engel.de/englisch/navigation/body_blauer_engel.htm

Epson laser printers and toner cartridges are compliant with Taiwan's Green Mark, a Type I environmental label. Information on the compliant products can be found on the Epson Taiwan Technology & Trading Ltd. Web site.

For products compliant with Taiwan's Green Mark:
www.epson.com.tw/

Eco-Label: A bridge between corporations, government and consumers

Mark Chiu, project leader for promoting certification of Taiwan's Green Mark

"Cycling Chain" is a crucial concept if one wishes to prolong the life of the enterprise, as well as that of the earth itself. The most effective algorithm for solving environmental issues that involve multiple beneficiaries (enterprises, government and consumers) would be to complete the Green Value Chain. The steps of this chain are controlled by vendors and we await consumers' cooperation to complete it. The Green Mark (or other eco-labels) provides a perfect differentiation element to form the bridge between Green Marketing and Green consumers. We earned the Green Mark by proving the eco-specifications of Epson products and convincing the government of the validity of our Green Value Chain concept. We will actively invite our customers to be Green consumers by strong Green Marketing activities from now on.

Product Recycling

Building recycling systems
that satisfy legislative and customer
requirements around the world

Creating a society that constantly recycles requires manufacturers to work together with consumers and governments, and to assume responsibility for used products. With a commitment to extended producer responsibility, the Epson Group is building recovery/recycling systems that meet local regulations and the needs of consumers in each region in which we manufacture and sell products.

FY2002 Objective

- Maintain 65% recycling rate of products recovered in Japan

Result

- 75% recycling rate of products recovered in Japan

Global movement to recover/recycle products

Epson companies across the world have been building optimum recovery/recycling systems that fit local customers' needs, and satisfy social and legislative trends in each region (Fig. 1).

Europe

The Directive of the European Parliament and of the Council on Waste Electrical and Electronic Equipment (WEEE) was published in the *Official Journal of the European Union* on February 13, 2003, and, therefore entered into force. The Directive requires EU member states to transform it into national law by August 2004. It also requires electronic/electrical equipment manufacturers and importers subject to the Directive to set up recovery/recycling systems for their products.

Ahead of the trend, we have been working on systems in seven European countries. In FY2002, as one of our efforts to comply with the WEEE Directive, Epson financed and participated in SCRELEC (Society for the Collection and Recycling of Electrical and Electronic Equipment), an experimental project to recover, sort and recycle home-use electrical/electronic equipment in Nantes, France.

North America

North America is also active in pursuing producer responsibilities in recovery/recycling of disposed equipment. In Canada, we joined 14 other companies to establish Electronics Products Stewardship Canada (EPS) in preparation for the launch of a joint recovery/recycling program.

In the U.S., one of our affiliates launched its own product take-back program to recover/recycle Epson products at a flat 10-dollar fee. Customers can apply for the program by contacting the company via telephone or its Web site. After paying the fee, a label is sent to the customer, who attaches it to the product and sends it to the recycling facilities. The program covers printers, scanners and LCD projectors.

Photo 1
Website announcement of recovery/recycling program

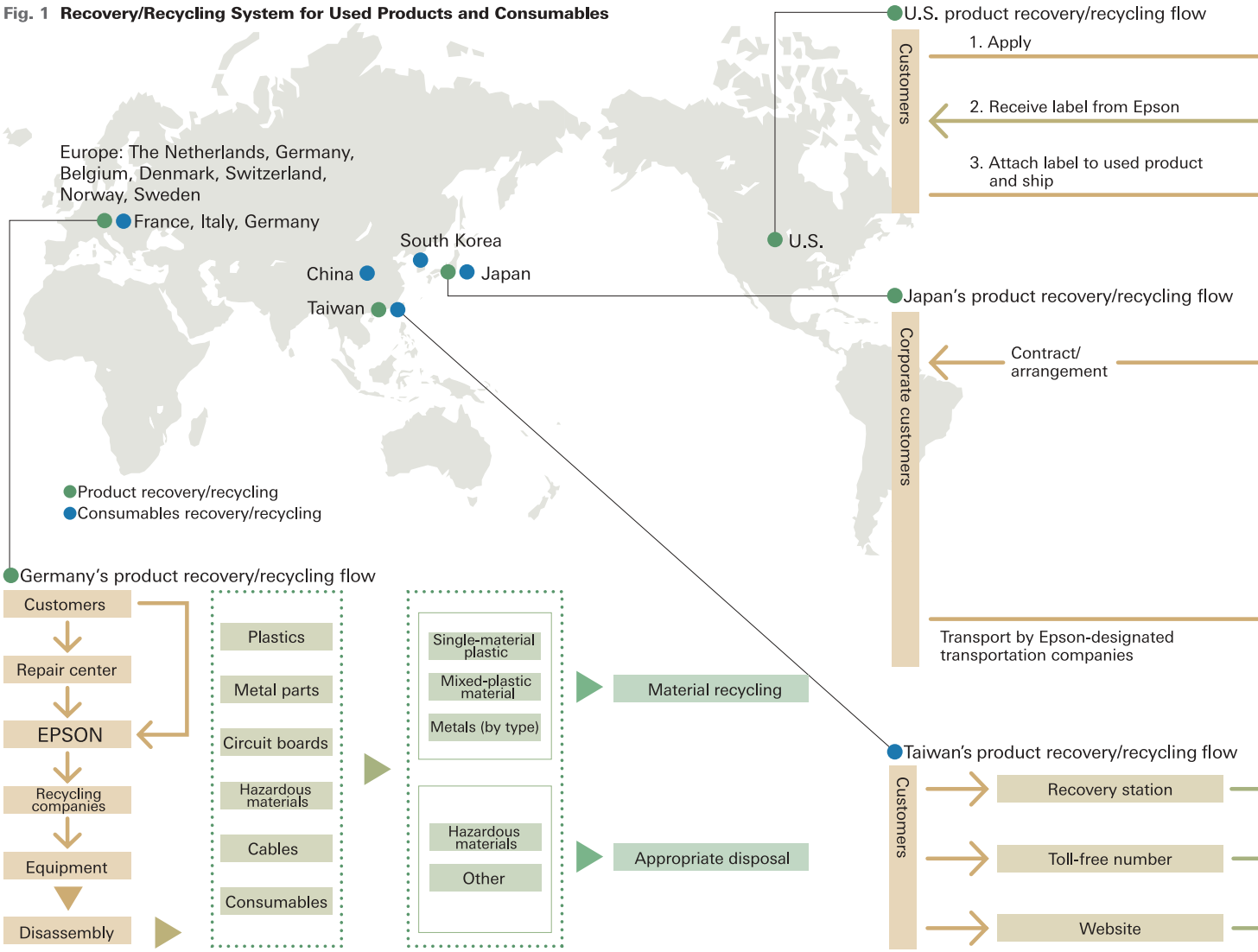
Web-based, simple and low-cost program for recycling

Randy McEvers, leader U.S. Environmental Committee of the Americas

In 2001, the U.S. Epson Environmental Committee (USEEC) was formed, comprising representatives from all of the U.S.-based sales, manufacturing and R&D companies. The initial six-member committee — which has since expanded to a committee of 16, including representatives from all North and South American affiliates — is now called the Environmental Committee of the Americas. In FY2002, after nearly a year of research with several goals in mind (low cost and ease of use for the consumer; cost-effectiveness and sustainability for Epson; the determination of proper avenues for reusing/recycling waste), the Committee settled upon a product take-back program model. Epson America has now implemented its Web-based program for recycling electronic hardware.

Meanwhile, the Committee has also had representation within Canada's Product Stewardship Organization and on the board of NEPSI, the National Electronic Product Stewardship Initiative (U.S.). These groups have as their goal the establishment of a standardized, mutually beneficial system — for producers, retailers and consumers — of reclamation, reuse and recycling of electronic products within their respective countries.

Fig. 1 Recovery/Recycling System for Used Products and Consumables



Asia/Oceania

Japan

In Japan, under the Law for Promotion of Effective Utilization of Resources enacted in April 2001, manufacturers are required to recover/recycle corporate PCs. Epson has a nationwide network of recovery/recycling centers for these products (Fig. 1). To continually improve our recycling/recovery initiatives, we define a recycling rate (resource reuse rate)* for corporate products. In FY2002, the recycling rate was 75%, surpassing the objective of 65%.

*** Definition of recycling rate**

$$\text{Recycling rate} = \frac{\text{Weight of items directly reused as products or parts (units)} + \text{Weight of items recycled as materials such as iron, copper, aluminum, precious metals, glass and plastics**}}{\text{Weight of reused/recycled product}}$$

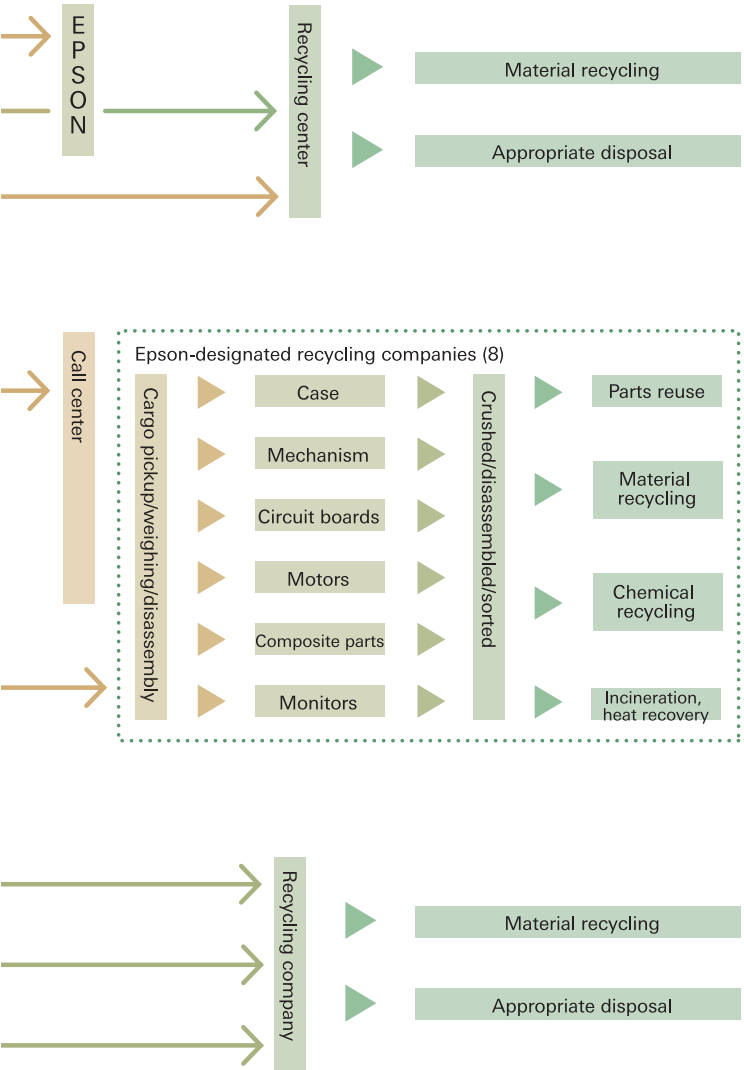
** For composite parts (circuit boards, motors, HDD, FDD, etc.) before sorting, weight is calculated by multiplying the ratio of the weight of precious metals recovered from the parts.

FY2002 corporate user product recovery/reuse website:
www.epson.co.jp/ecology/

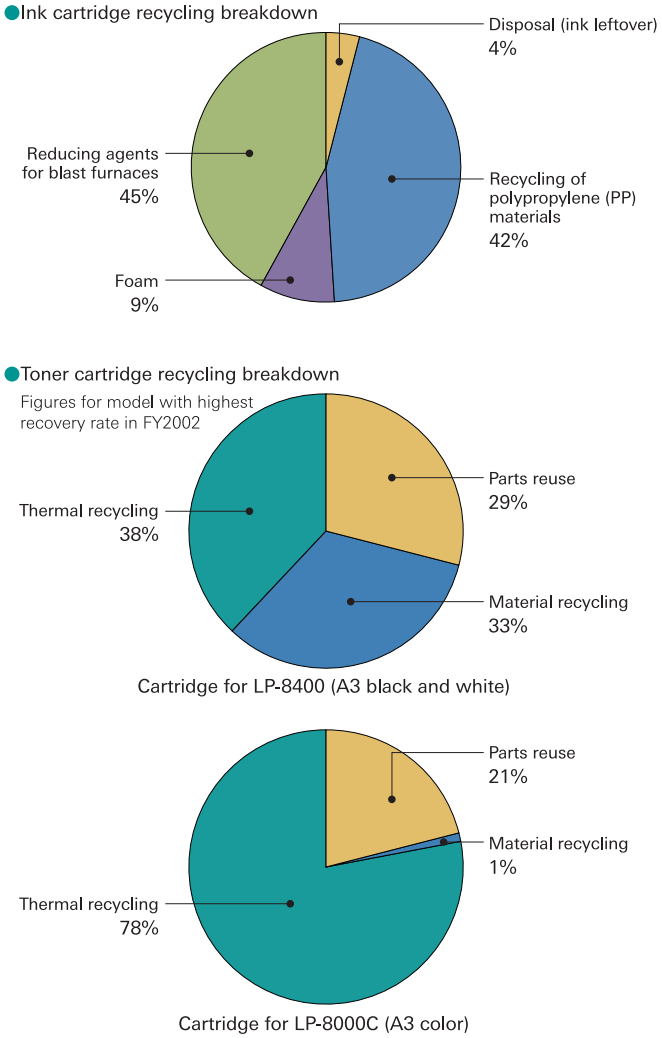
The planned amendment to the Resources Law in October 2003 will require manufacturers to recover/recycle personal PCs. Acting ahead of the enactment, Group company Epson Direct launched a trade-in service in FY2002. Covering customers who purchase PCs through Epson Direct's online shop, a trade-in price is offered for PCs from Epson and other manufacturers, and Epson Direct recovers the used products free of charge. They are recycled after all data stored in the hardware have been erased.

Photo 2 PC trade-in service (Japan)

Epson Direct website:
www.epsondirect.co.jp/



Graph 1 **Consumables Recycling**



Australia

As a member of the Australian Information Industry Association (AIIA), our affiliate participated in RecycleIT!, a pilot collection of electrical/electronic equipment held in western Sydney in FY2002. The pilot project assessed the efficiency of collection models for households and small businesses.

Taiwan

The Epson affiliate in Taiwan was quick to adapt to a revision of the Waste Disposal Act and established a recovery/recycling system in FY2001.

Consumables recovery/recycling

Japan

Printer consumables, such as ink and toner cartridges, are collected at recovery posts installed in shops across the nation, and we also provide a toll-free number for direct recovery. The number of recovery posts reached 2,305 as of March 31, 2003, an increase of 240 from the previous year. As a result of publicity campaigns in newspapers, magazines, brochures and on our website, we have seen a year-on-year increase in recovery rates of 3.0% for ink cartridges, to 7.6%, and of 3.8% for toner cartridges, to 56.6%.

Taiwan

In Taiwan, Epson established a recovery/recycling system for ink and toner cartridges in FY2001. We also set up a system using a toll-free number and a website to accept collection requests directly from customers to facilitate on-the-spot collection. In FY2002, we enhanced the use of these systems and launched campaigns to raise recyclability.

Photo 3
Consumables recovery boxes (Taiwan)

China

In FY2002, a new system to recover/recycle ink cartridges was launched.

Photo 4
Online info on recovery/recycling system (China)

Enhancing Eco-Consciousness in Procurement

Certification of eco-conscious vendors

Procurement from certified vendors

Priority: saving resources; eliminating hazardous substances

In making earth-friendly products, every part and raw material must be chosen carefully from the environmental perspective so that we achieve maximum results. Epson follows a set of strict standards to achieve green procurement of production materials and general purchases.

FY2002 Objectives

Production material green procurement rate*
- Japan Seiko Epson Corporation: 98%
  Manufacturing Group companies/affiliates: 98%
- Overseas Manufacturing Group companies/affiliates: 90%

General purchasing green procurement rate
Seiko Epson Corporation: 90%
Domestic Group companies and affiliates: 90%

*Rate of green procurement of production materials, by value, out of total production material procurement subject to green procurement, by value.

Results

Production material green procurement rate
- Japan Seiko Epson Corporation: 99%
  Manufacturing Group companies/affiliates: 94%
- Overseas Manufacturing Group companies/affiliates: 91%

General purchasing green procurement rate
Seiko Epson Corporation: 97%
Domestic Group companies and affiliates: 98%

Green procurement of production materials and FY2002 results

As a multinational company, we must maintain product safety and earth-friendliness at levels that meet the requirements of the world's strictest laws and regulations, and share such standards globally.

We categorize all parts and raw materials (including packaging and OEM products) as Production Materials and under the same standards deploy a procurement program globally to pursue one of our Environmental Policies, "Creating and providing earth-friendly products." This program is called Green Procurement of Production Materials and focuses on placing a higher priority on purchasing production materials with lower environmental burdens to enable us to meet our goals for eliminating hazardous substances and saving resources.

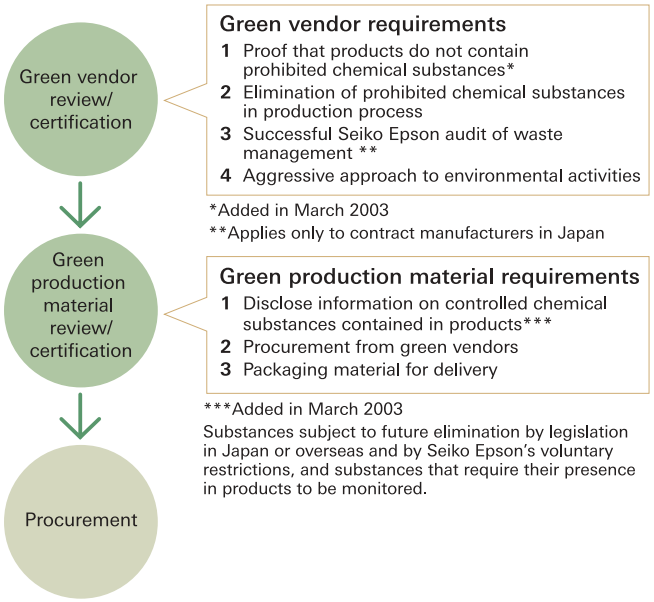
We certify as green vendors those suppliers who are active participants in conservation activities and chemical substance elimination initiatives. We also assess the eco-consciousness of materials and certify them as green production materials. As shown in Fig. 1, green procurement of production materials begins only after suppliers and their products have undergone a review and evaluation process for certification of themselves and their materials.

Green procurement of production materials in Japan

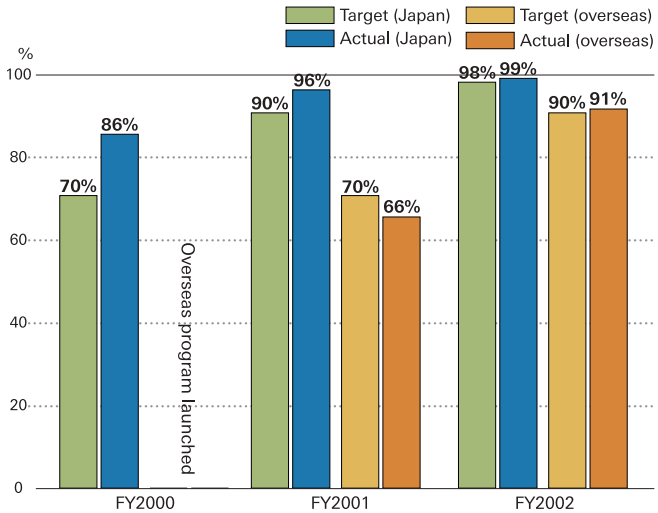
Since FY1999, we have conducted green vendor reviews/evaluations on 2,400 vendors in Japan. Initially, the green vendor rate stayed low at 24% but as a result of consistently providing information encouraging conservation activities and sharing expertise, the rate rose to 94% of 2,644 vendors in FY2002.

While the green procurement rate in the first year of the survey in FY1999 was 63%, it jumped to 99% in FY2002 and attained our target.

Fig. 1 Green Procurement of Production Materials



Graph 1 Rate of Green Procurement of Production Materials (by value)



Green procurement of production materials overseas

Green procurement of production materials overseas reached 91% in FY2002 and attained its target. Regional results are shown in Table 1.

In some regions, environmental management is not fully practiced and some materials are unavailable locally. We make extra efforts to promote the green procurement of production materials in these regions. For procurement of materials from Japanese vendors overseas, for example, we request their headquarters in Japan to help them supply compliant products. We also provide information on substitute materials to overseas vendors.

In November 2002, we invited 68 vendors of our manufacturing affiliate in Shenzhen, China, to a presentation on our green procurement program. This resulted in greater support from the vendors and an increase in the rate of response to our green vendor survey from 38% to 89%.

Table 1 **Overseas Procurement of Green Production Materials**

			Suppliers	Green vendor rate	Green procurement rate
Asia	China	Shenzhen 1	375	71%	98%
		Shenzhen 2	9	100%	100%
		Shanghai	11	68%	99%
		Fuzhou	34	56%	88%
		Suzhou 1	2	50%	87%
		Suzhou 2	41	61%	98%
		Tianjin	3	100%	100%
	Malaysia		32	98%	92%
	Singapore area		308	62%	77%
	Taiwan		52	100%	100%
	Indonesia		81	68%	97%
	Philippines		41	66%	53%
Americas	U.S.		58	100%	100%
	Mexico		50	92%	89%
	Brazil		11	72%	98%
Europe	U.K.		14	86%	87%

Stricter standards for chemical substances to be imposed in FY2003

Globally, environmental laws and regulations are being strengthened to better manage the chemical substances used in products. The adoption of the RoHS Directive in Europe (see p. 20) is just one example. In response to these trends, we decided to employ stricter management of chemical substances in the production materials we use, and set new Groupwide green procurement standards for these materials in January 2003. We unveiled the standards at a presentation for about 800 vendors in Japan.

The new standards require vendors to prove that their production materials do not contain any illegal chemical substances and to provide information on chemical substances used in the production materials, starting in March 2003. For overseas vendors, we plan to hold a presentation meeting in June-July 2003.

Green procurement of general purchases

For general purchases such as office machines and supplies, fixtures and furniture, we greatly encourage green procurement to foster "green consumers" within the company. In FY1999 we established guidelines for these purchases, and these were partially amended in April 2001 to accommodate the enactment of Japan's Law on Promoting Green Purchasing. For the 12 products subject to the Law, we certify those in conformance as green products. Other products are reviewed against Epson's own standards and given certified status. Green products are given higher priority in purchasing.

In FY2002, all business sites joined a system we call RERES (reduce, reuse system) to target and utilize unused materials and to reduce unnecessary consumption This intranet-based system allows registration and search for unused or idle materials throughout our network.

As a result, green procurement of general purchases in FY2002 was 98% at Seiko Epson Corporation and 97% at Group companies and affiliates, both meeting our targets.

Our slogan: Co-existence, co-prosperity and social contribution

Mitsuru Nagai, leader of green procurement for electronic device production materials

During my two years as leader of green procurement in my section, as I responded to requests from customers regarding green procurement and made requests to vendors, I realized the importance of this initiative. Competing in a market that constantly demands cost cuts and higher performance, companies cannot survive without making environmental conservation efforts. It is not too much of an exaggeration to say that "environment" is the keyword for corporate survival. We must also comply with laws, regulations, WEEE and RoHS Directives, and speed up our efforts. It is a tough situation, but guided by our team slogan *Co-existence, co-prosperity and social contribution*, I plan to keep working on green procurement with our customers and vendors.

Collaboration with Our Customers

Building a recycling system that customers take part in

Epson contributes to building a society that continuously recycles with our customers' help. Reusing packaging boxes and the collection of used printer cartridges are just two examples.

Customer Zero Emissions activity

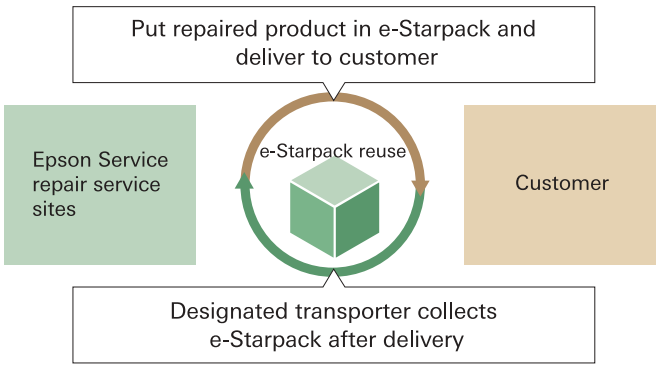
To eliminate waste generation on the customer side, Epson is pursuing Customer Zero Emissions and reviewing the product transportation system and packaging materials.

Epson Service Corporation, one of our Group companies, launched a service in February 2003 called Environmental Delivery Pack, which uses reusable e-Starpack boxes to deliver repaired products. The service is available at all repair service centers (Sapporo, Hino, Matsumoto, Fukuoka and Naha repair centers; and Akihabara and Osaka Nipponbashi Service Spots). Developed by Starway Co., Ltd., e-Starpack is a made of 100% compressed recycled paper and treated with an antistatic agent. This durable, water-resistant box is used to deliver repaired printers and is recovered at the time of delivery.

The repaired printer is fixed into the box with a special film and does not require any cushioning materials. Packaging time has been shortened to less than one minute from 10 minutes. Costs for packaging material have been reduced 55% from conventional packaging, and packaging materials have been cut to one-third.

Photo 1 Earth-friendly e-Starpack

Fig. 1 Reuse of e-Starpack



Epson also reuses packaging materials when it delivers large-format printers such as the PX-10000, MC-10000 and PM-10000. The packaging material is collected at the time of delivery or on another day specified by the customer. To facilitate recycling of packaging materials, we have switched from mixed-material packaging to single-material packaging (cardboard).

Resource reuse services

Epson is committed to the effective use/reuse of resources. In addition to the collection of printer cartridges and recovery/recycling of business information equipment, we recover and recycle compact secondary (rechargeable) batteries and have launched a trade-in service for PCs (see p. 26).

Compact secondary batteries are used in some of our products, including digital cameras, laptop computers and handheld information terminals. We joined the Japan Portable Rechargeable Battery Recycle Center to jointly collect and recycle these batteries. We have been requesting corporate customers to include them when the products are recovered and ask individual customers to use our recycling boxes at participating retail shops.

We accept requests for post-sales services and repair by telephone and the Internet, and offer various applications. We believe maximizing customer use of our products is another important aspect of environmental conservation.

Avoiding the delivery of excess packaging

Hideki Fujimatsu
leader of Environmental Delivery Pack

We discovered e-Starpack packaging when we were responding to customer complaints about the excess packaging of our repaired products, and were wondering how we could make it simpler and recover it. This is an ideal earth-friendly packaging box that does not use cushioning materials, is reusable and made of 100% recycled paper. We introduced the box on a trial basis in FY2001 at a service site in Osaka Nipponbashi. In FY2002, we introduced it at all sites as a tool for achieving Customer Zero Emissions. Reduced packaging time has also contributed to cost cutting. I think its best feature is that we no long deliver packaging that could turn into garbage. The results of our customer surveys show they are also quite pleased with the new eco-boxes.

Production Process Reforms: Green Factory

Integrated activities to reduce environmental burden of manufacturing
↓
Green factory

As we constantly raise the bar on our initiatives to reduce the environmental burden of our production processes, Epson has integrated three categories of efforts — energy savings, zero emissions and chemical substance reduction — into one fundamental production process reform: the green factory.

Green factory concept

Until FY2002, cross-divisional expert committees specializing in energy savings, zero emissions and chemical substance reduction were working independently to reduce the environmental burden in production processes and plant management.

As we made progress and witnessed environmental efforts taking root in daily operations, we began to see the correlations of core issues in these three categories. For example, if new equipment to reduce production waste was to be introduced, we had to consider the reduction in energy use for that equipment as well. If a new chemical reaction was to be applied to cut energy use, we had to look into appropriate input and management of chemical substances. It would not be justifiable if a reduction in waste induced an increase in energy use, or a cut in energy use called for the use of more chemical substances.

We learned we must identify the optimum correlation between production processes to reduce energy use, waste and chemical substances all together. An integrated production process reform was called for to minimize both input (energy, water, raw materials, etc.) and output (waste, wastewater, exhaust, etc.).

Thus, we developed the concept of a green factory that would impose the minimum environmental burden. In FY2003, Seiko Epson launches integrated and fundamental production process reform to materialize such a factory. To this end, we consolidated Groupwide expert committees related to production process and plant management into the Green Factory Committee. The Committee will guide and support each promotional organization.

Trial integration of environmental burden indicators

To create a green factory, we must first understand the total energy use, resource input and waste output for each production process.

Epson plans to integrate environmental burden indicators using the CO_2 conversion co-efficient to compare the combined environmental burdens of energy use (electricity), resources and wastes in terms of their effect on global warming, and to identify the processes that impose the heaviest environmental burdens. These processes will then be subject to reform and re-review. In FY2002, we tried this integration of environmental burden indicators for the Optical Products Operations Division using the Lifecycle Assessment (LCA) method.

Graph 1 Integration of Environmental Burden Assessment by LCA
(Energy use, resource input and waste output per month, t-CO_2 equivalent, at Matsushima Plant)

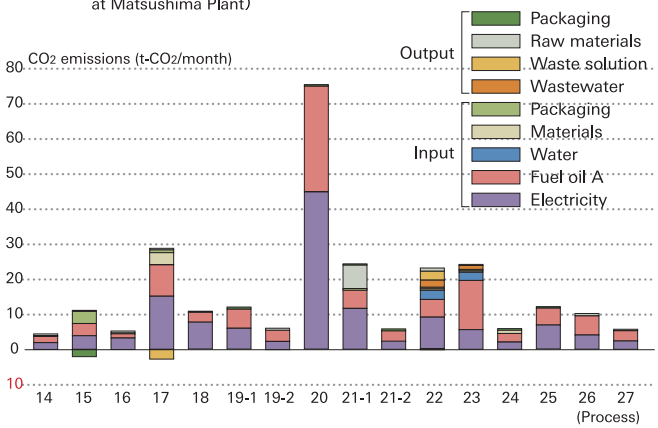
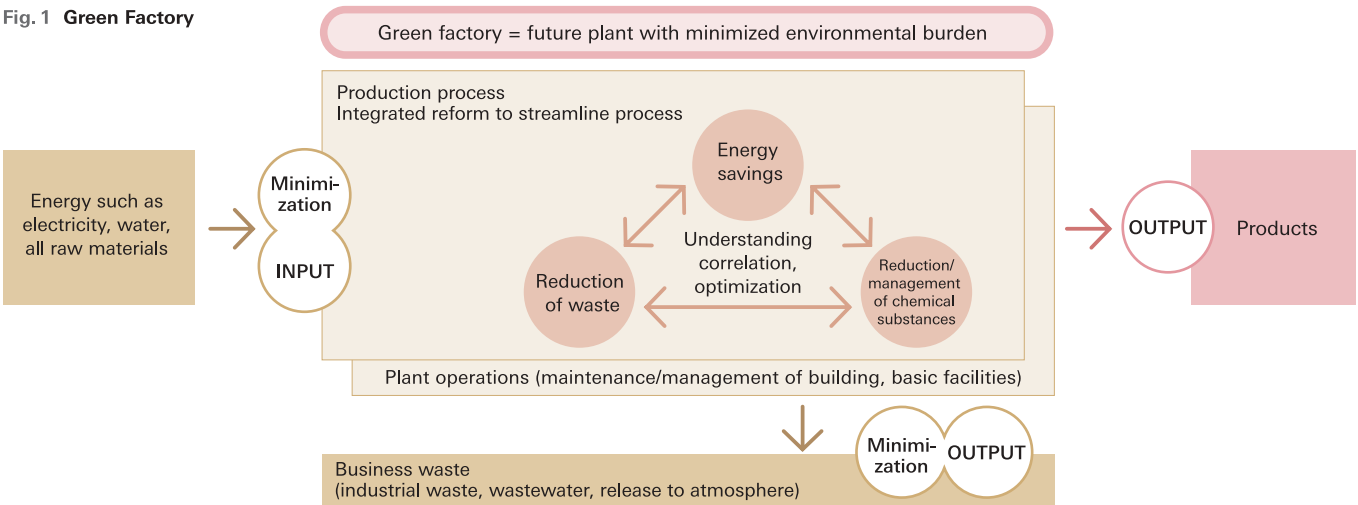


Fig. 1 **Green Factory**



Preventing Global Warming

Reduction of CO_2 emissions by cutting energy use

Reduction of non-CO_2 global warming substances

Epson aims to reduce global warming substances emissions by 60% in FY2010 (base year = FY1997, consolidated globally), in absolute quantity. To achieve this challenging goal, we are cutting energy use to reduce CO_2 emissions and cutting emissions of non-CO_2 substances that contribute to global warming.

FY2002 Objectives

Total energy use
- Operations divisions/manufacturing Group companies/affiliates in Japan: 5% reduction (from FY2001)
- Overseas manufacturing Group companies/affiliates: below FY2001 level

Energy savings (effects of energy-saving measures in terms of crude oil)
- Consolidated operations divisions (global): 4% of total energy use in FY2001

Qualitative targets
- Japan: improved management 90 points, facilities 80 points, production equipment 40 points
- Overseas: improved management 85 points, facilities 75 points, production equipment 30 points

Global warming substance emissions (excluding CO_2)
- Emissions: 30% reduction (from FY1997)

Results

Total energy use
- Operations divisions, manufacturing Group companies/affiliates in Japan: 2.6% reduction (from FY2001)
- Overseas manufacturing Group companies/affiliates: 1.4% reduction

Energy savings
- Consolidated operations divisions (global): 2.9%
- Operations divisions in Japan: 3.1% of total energy use in FY2001
- Overseas manufacturing sites: 2.6% of total energy use in FY2001

Qualitative targets
- Japan: improved management 89.6 points, facilities 80.6 points, production equipment 44.6 points
- Overseas: provided introductory explanation

Global warming substances emissions (except energy-generated CO_2)
- Emissions: 48.3% reduction (from FY1997)

Our approach to preventing global warming and FY2002 overview

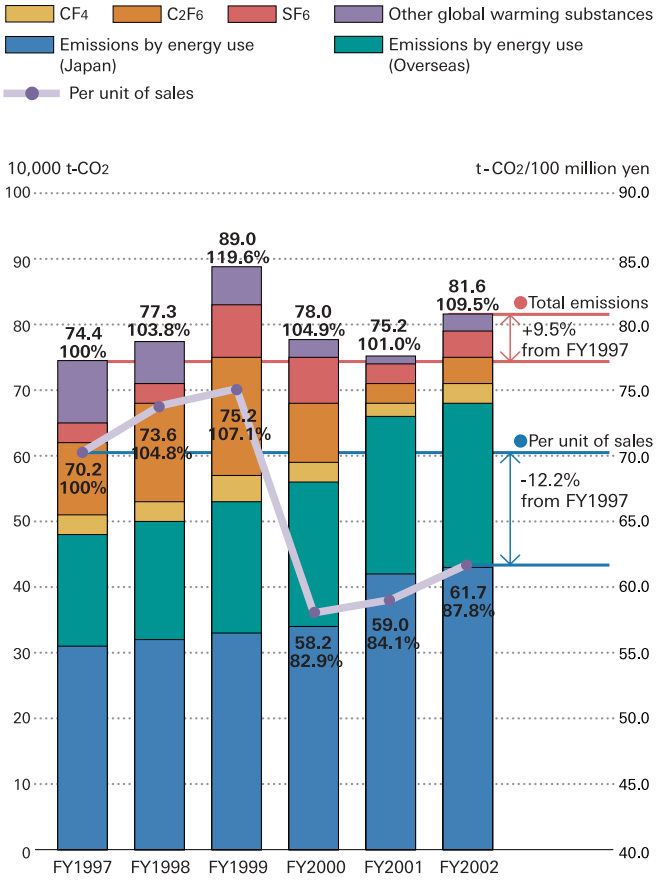
Reduction of CO_2 emissions is the best-known measure for the prevention of global warming. The Kyoto Protocol, however, designates five additional substances as contributors to global warming: nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). Because CO_2 emissions derive largely from the use of energy (purchased power, kerosene, fuel oil, etc.), CO_2 reduction basically calls for less energy use. Other substances also require urgent attention because of their impact on global warming. For example, the global warming effect of a type of PFC gas, C_2F_6, is 9,200 times higher than CO_2. SF_6 is 23,900 times higher. PFCs and SF_6 are used at Epson for cleaning and etching processes in semiconductor and LCD manufacturing.

Epson is therefore committed to reducing both CO_2 emissions, through energy-saving measures, and emissions of other global warming substances. Energy use and emissions of global warming substances other than CO_2 are both converted to a CO_2 emissions equivalent (10,000 t-CO_2) and the total of these two, the total global warming substances emissions, are subject to an ambitious 60% reduction in absolute quantity by FY2010 (base year = FY1997, global consolidated).

In FY2002, the total global warming substances emissions in absolute quantity was 816,000 t-CO_2, up 9.5% from FY1997, due to an increase in production volumes of semiconductors, LCDs and other electronic devices. Emissions per unit of sales were 61.7 t-CO_2 per 100 million yen, down 12.2% from FY1997 (Graph 1).

Epson plans to further enhance its reduction efforts for PFC gases and other global warming substances by introducing more abatement equipment and optimizing their use. It also plans to seek production process innovations to slash overall energy use and is currently working on developing related technologies.

Graph 1 Total Global Warming Substances Emissions/Emissions Per Unit of Sales (consolidated)



FY2002 energy use and future measures

At Epson, we have four approaches to implementing energy-saving measures, to assure that we use only the necessary amount, at the necessary time, in the necessary place. These four approaches are:

1. Maintenance and improvement of management
2. Cutting energy use in basic facilities and buildings at plants
3. Cutting energy use through production equipment and process innovations
4. Introduction of new types of energy.

In FY2002, Epson's energy use in Japan decreased 2.6% (from FY2001), failing to meet our target of a 5% reduction. Overseas, on the other hand, energy use declined 1.4% and reached the targeted level lower than the FY2001 level. Global energy use on a consolidated basis was 2.3% lower (Graph 2).

Energy savings in FY2002 were 2.9% (global consolidated), 3.1% for Japan and 2.6% for overseas, all failing to meet the target of 4% (Graph 3).

Of total energy use in FY2002, semiconductors, LCD and other electronic device production accounted for 57%. As discussed in the feature story (pp. 4-6), our focus is now on fundamental reform of the electronic device production process to reduce total energy use, which is currently on the rise. With the expected process reforms, we are working toward 60% reduction in energy use by FY2010 (base year = FY1997).

Using qualitative targets to quantify energy-savings progress

A qualitative target approach was introduced at all business sites in Japan and at some overseas affiliates and Group companies in FY2001.

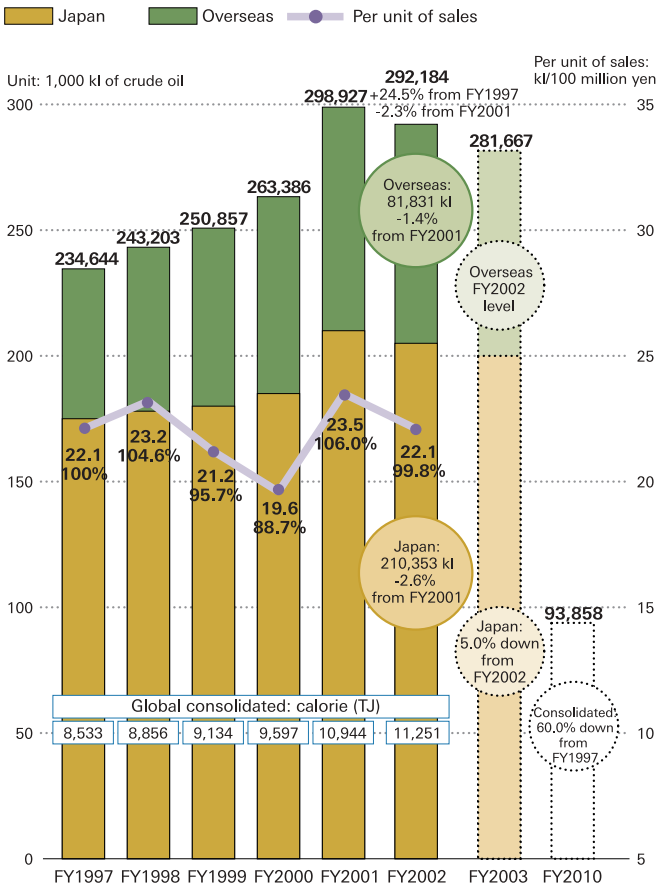
This innovation assesses how close we are to achieving our targets. We have 132 checklist items associated directly with employee behavior in the following three of the four energy-saving approaches:

1. Maintenance and improvement of management
   Sample items: Air conditioner and lighting management, disclosure of successful energy-saving cases, etc.
2. Cutting energy use in basic facilities and buildings at plants
   Sample items: Reduction in equipment, waste heat recovery, etc.
3. Cutting energy use through production equipment and process innovations
   Sample items: Heat insulation and low-pressure operations of injection molding machines, etc.

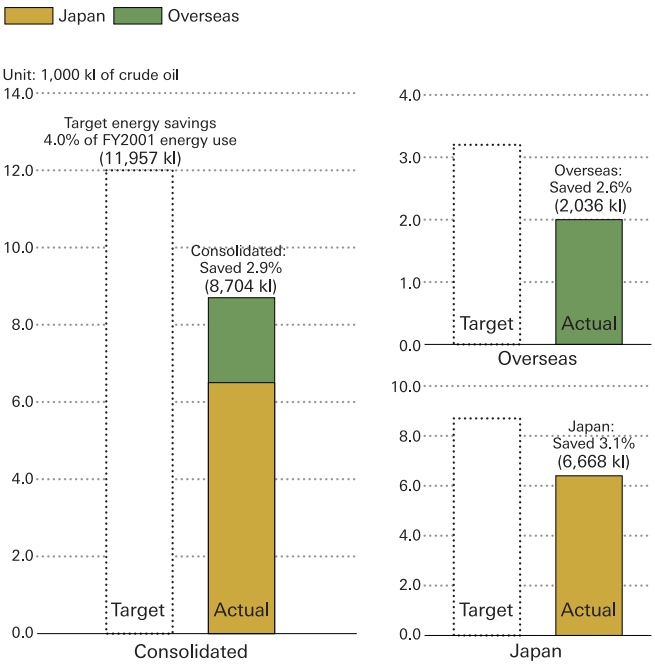
Each promotional organization is responsible for self-ratings on a scale of 1 to 5. The department in charge of supervising environmental activities at the Head Office reviews the results and discloses the status of qualitative target achievements in each promotional organization to improve environmental efforts.

In FY2002, qualitative target achievements in Japan by category were: 1. Maintenance and improvement of management: 89.6 points (target 90 points); 2. Cutting energy use in basic facilities and buildings at plants: 80.6 points (target 80 points); and 3. Cutting energy use through production equipment and process innovations: 44.6 points (target 40 points).

Graph 2 **Energy Use/Use Per Unit of Sales (consolidated)**



Graph 3 **Energy Savings (consolidated)**



FY2002 energy-saving activities

Production-related energy savings: Assembly line with local clean booth

Assembly of LCD projectors requires an ultraclean environment. However, building and maintaining clean rooms is costly and their energy consumption is enormous. Fushun Industrial Factory in Shenzhen, China built an assembly line in which some processes that require a highly dust-free environment are performed in a clean booth "locally" and the rest is performed in a regular environment. Investments in plant and equipment, when compared with a full clean room for the same production capabilities, were 96% lower and space productivity doubled. Construction time for the facility was also half that of a typical clean room.

Production-related energy savings: Glass sealing using halogen lamps

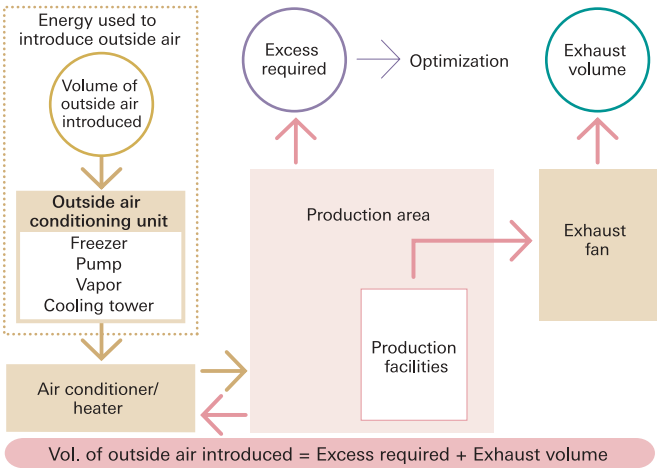
Quartz crystal oscillators are key devices for watches, mobile phones, telecommunications equipment and many other products. At Ina Plant, the glass-sealing process for the oscillator, which conventionally used a heat furnace with conveyer belt, is now handled by compact equipment using heat irradiation from a halogen lamp. Switching to the compact equipment enabled batch processing and reduced equipment costs, operations costs and space needs. An 83.6% reduction in energy use on an annual basis was achieved.

Photo 1
Compact equipment for halogen lamp heat irradiation

Facilities-related energy savings: Exhaust volume optimization

Air-conditioners and heaters consume approximately 60% of the total energy used by Epson's basic facilities. Changing the conditions of air in the production process, however, requires more than an approval of members in the basic facilities department, as it directly affects product quality. At Tohoku Epson, a project team of all related departments was formed to work on the optimization of excess exhaust in order to reduce the overall exhaust volume. As a result, approximately 21% of the outside air introduced was cut, an equivalent to 0.6% of annual energy use.

Fig. 1 Optimization of Exhaust Volume



Plant-related energy savings: One of the largest color LCD plants

In response to growing demand for color LCDs for mobile phones, we built a new production facility at the Toyoshina Plant in FY2001. The facility was designed with the idea of integrating the elements required for production equipment (compressed air, cooling water, purified water, exhaust and electricity); the basic facilities that provide these elements; and the building. We conducted forecast and verification studies for energy consumption as well. As a result, the completed facility's energy productivity doubled from that of a conventional plant. It was awarded the FY2002 Minister of Economy, Trade and Industry Prize for Energy Conservation of a Factory, Building, or Office, sponsored by the Energy Conservation Center, Japan.

Photo 2 (left) Toyoshina Plant doubled energy productivity of a conventional plant
Photo 3 (right) Award ceremony for Energy Conservation prize

Introduction of new energy

Along with its effort to cut energy consumption, the Epson Group is introducing new types of energy to its global operations. Under its initiative to make company facilities earth-friendly, Epson Portland Inc. (U.S.A.) joined the Clean Wind Program run by Portland General Electric (PGE), which encourages the purchase of wind power. Wind power is now generating 10% of Epson Portland's power needs. Since the remaining 90% is provided by hydroelectricity, the plant uses virtually no power source that contributes to global warming.

Photo 4
Clean Wind Program induction ceremony

Experience and expertise drive successful teamwork

Hideki Hoshikawa, leader of exhaust volume optimization project

After an energy-savings study, we learned that production equipment is largely responsible for how basic facilities are set up at a plant. The employees in charge of the equipment and facilities decided to form a project team to further slash energy use. We were committed to not compromising on quality or allowing downtime while achieving energy savings in the plant's operation. After sharing our expertise on air conditioning equipment, quality assurance and the working environment, we reviewed the current system. Our focus was to optimize the exhaust volume. There were many concerns, but we felt we had the technical expertise to guarantee product quality and the working environment. Measurements taken shortly before and after the optimization verified that we have achieved that.

Table 1 **New Energy Introductions**

Type	Location	Details
Solar power generation	Ina Plant	Max. power generation 50 kW
	Head Office	Max. power generation 10 kW
Fuel cell (Cogeneration)	Toyoshina Plant	Reuses waste alcohol from cleaning process as fuel; self-generating system, as well as cogeneration system that uses waste heat for clean room air conditioning. Introduced 2 units with max. capacity of 200 kW.
	Ina Plant	Introduced 2 units with max. capacity of 200 kW with fuel cell using liquefied petroleum gas (LPG).
Gas turbine (Cogeneration)	Sakata Plant	Kerosene-powered, has one of the largest capacities for a semiconductor plant in Japan: 18,000 kW.
	Suwa Minami Plant	Introduced unit using kerosene as fuel with capacity of 7,200 kW.
Snow air conditioning	Sapporo Software Center	System stores 140 m3 snow during winter, which drives air conditioning in summer using heat exchanger to extract energy.
Green Power Certification System (Wind power)	Seiko Epson Corporation	Japan Natural Energy Co., Ltd. provides wind power; we purchase Green Power Certification and are recognized for replacing part of our power supply with wind power.
Green Energy (Wind, hydro, solar powers)	Epson Deutschland GmbH (Germany)	Contract with power companies to receive renewable energy that does not produce CO_2, such as wind, hydro and solar power.
Clean Wind Program (Wind power)	Epson Portland Inc. (U.S.A.)	Purchase wind energy that covers 10% of total energy use from wind power company.

Reduction in global warming substance emissions

Epson works to reduce global warming substances other than CO_2, such as PFCs and SF_6, in two ways: by decomposing the gases and slashing use. This dual approach is yielding good results: in FY2002 a 48.3% reduction or 139,000 t-CO_2 (from FY1997) was achieved, surpassing the target of a 30% reduction from FY1997 (Graph 4).

The reduction was attributable to the introduction of equipment to reduce these substances and improvements in treatment processes.

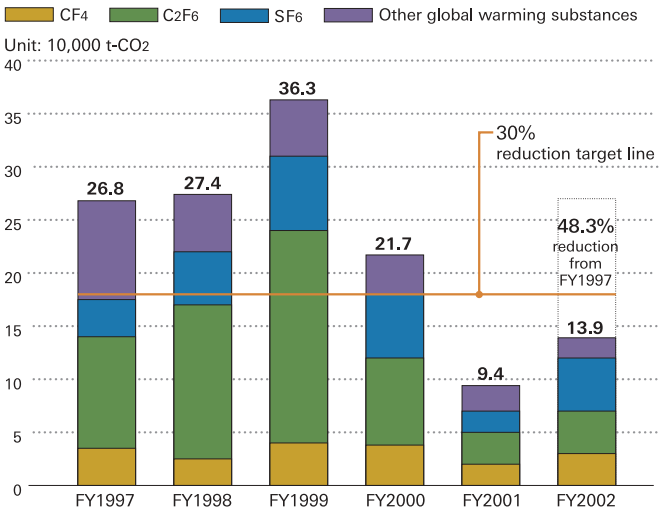
Reduction by decomposition

Either a thermal or plasma abatement system is applied, depending on the type and usage of the substance, to optimize reduction.

Reduction of consumption

Measuring C_2F_6, which is used in semiconductor manufacturing and accounts for 70% of the PFC gases Epson consumes, has been very difficult in the past. We thus devised a simple measuring method, dubbed the Epson Method, to optimize the consumption of C_2F_6. As a result, emissions of C_2F_6 were reduced to one-fourth. We are sharing this method through our website (in Japanese and English) with other companies committed to reducing emissions of PFC gases and welcome suggestions from other companies and research organizations to further improve the method.

Graph 4 **Total Global Warming Substances Emissions (excluding CO_2)**



Achieving satisfactory results while spending less on analysis

Toshikazu Sugiura, creator of the Epson Method and disclosure project leader

The Epson Method was developed to measure PFCs at production sites in a simple manner. There are more than a dozen PFCs and byproduct gases in the semiconductor production process and many of them are subject to erroneous measurements because of interference in their infrared absorption areas. Our mission was to develop a method that requires minimum analysis cost but produces the required results. After a series of attempts, my boss at the time, Mr. Isamu Namose, and I developed an uncomplicated, satisfactory method with a good balance of accuracy, cost and usability. It is easy to use and anyone can achieve accurate results. I strongly recommend using this method to reduce PFCs.

Integrated Management of Chemical Substances

Assessing risks with Chemical Substance Hazard Evaluation Guidelines

Independent management/reduction initiatives by each operations division

Disclosure of PRTR data

Chemical substances are indispensable to production processes, but they pose significant risks to the environment. Mindful that the use of any chemical substance is inherently risky, we set strict, independent guidelines and practice chemical management with acute awareness of future risks to assure the proper use of chemicals.

FY2002 Objectives

- Eliminate all 9 substances subject to Groupwide prohibition
- Achieve each division's self-imposed target

Results

- Elimination of 8 of 9 substances subject to Groupwide prohibition achieved in Japan and overseas
- 21 divisions out of 28 achieved their targets (75%)

Our approach to chemical substance management

Understanding that the use of any chemical substance is risky, Epson closely studies the status of all chemicals used in the production process and practices hazard assessment. We also set rules and regulations restricting chemical use, in which prohibition and reduction guidelines are clearly stated.

Groupwide management specifies which chemical substances are prohibited for use (to be eliminated), substances targeted for prohibition (eliminated before set deadlines) and global warming substances subject to reduction (see p. 35).

In addition, our promotional organizations designate substances subject to reduction. Each organization independently sets targets and timeframes for reduction (or elimination), following risk assessments.

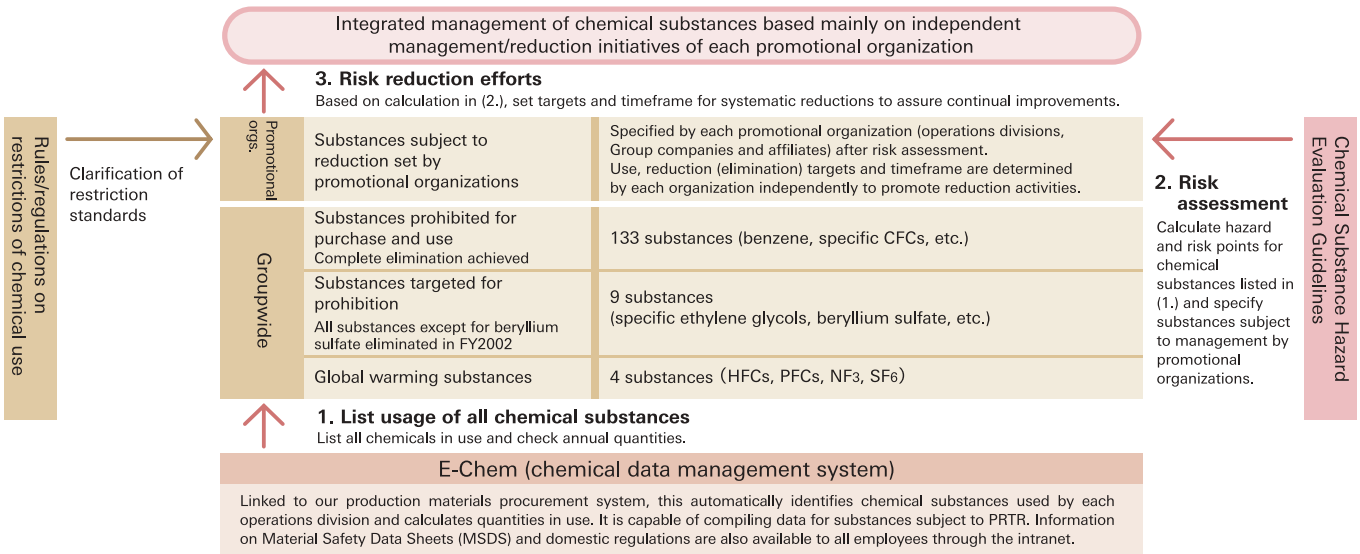
FY2002 results

As of the end of FY2002, business sites in Japan were successful in eliminating all nine substances prohibited for use, and overseas

Table 1 Chemical Substances Hazard Categories

Major classifications	Secondary classifications	Minor classifications	Laws, regulations, etc.
Environment	Global environment	Ozone layer	Meeting of the Parties to the Montreal Protocol on Ozone Depleting Substances: Appendix
		Global warming	*PFCs Global Warming Potential* published by IPCC in 1995
	Air quality	Hazardous substances	Substances targeted by Clean Air Law
		Odorous substances	Odor Control Law enforcement ordinance
		Volatile solvent	Definition of VOC in EPA 905/271-001 Guide
	Water quality	Water quality	Water Pollution Control Law
Health	Substance toxicity	Specified substances	Law Concerning the Examination and Regulation of Manufacture etc. of Chemical Substances enforcement ordinance
		Poisonous and deleterious substances	Poisonous and Deleterious Substances Control Law
		Carcinogenicity	Carcinogenic Classification of International Agency for Research on Cancer (IARC)
		Proligerous toxicity (harmful to reproductive organs)	Category Classification of EU Directives (Council Directive 67/54/EEC)
		Endocrine disruptor	SPEED 98, list of 67 suspected endocrine disruptors, Ministry of Environment
	Occupational health	Production prohibited	Industrial Safety and Health Law, Industrial Safety and Health Law enforcement ordinance
		Specified chemical substances	Industrial Safety and Health Law, Ordinance on the Prevention of Hazards Due to Specified Chemical Substances
		Organic solvent	Industrial Safety and Health Law, Ordinance on the Prevention of Organic Solvent Poisoning
Hazard	Inflammability	Inflammability	Japanese Fire Service Law
	Explosiveness	Explosiveness	High Pressure Gas Control Law
Others	European regulations		Chemical substances subject to EU Directives
	PRTR		Substances subject to PRTR Law

Fig. 1 Our Management of Chemical Substances



sites achieved eight, failing to eliminate the use of beryllium sulfate. This substance is scheduled for complete elimination in FY2003. We did attain the FY2002 targets for global warming substances subject to reduction, as we discussed in the chapter on the prevention of global warming (see p. 35). Encouraged by these results, the focus of chemical reduction initiatives is now shifting to independent management and reduction by each promotional organization. This is an outline of the reduction activities:

1. List all chemical substances in use using the E-Chem chemical data management system, and check the annual quantities of use.
2. Based on the Chemical Substance Hazard Evaluation Guidelines (Table 1), calculate hazard and risk points for substances listed and decide which are subject to management by promotional organizations.

> Chemical substance hazard points indicate the danger a substance may pose to the environment, over a wide area and on a long-term basis. Points are attached to the chemical substances subject to evaluation corresponding to the seriousness of the hazard.

3. Based on the calculation, set targets and a timeframe for systematic reductions to assure continual improvements.

In FY2002, of 28 reduction targets set by each operations division, we attained 21 (75%) targets.

Disclosure of PRTR data

Prior to the enactment of Japan's Pollutant Release and Transfer Register (PRTR) Law in April 2001, we introduced PRTR in 1998 and participated actively in voluntary PRTR surveys conducted by the Japan Electronics and Information Technology Industries Association (JEITA). Table 2 shows the results for FY2002. We submitted a performance report to the government and are using the data to improve our control over substance emissions.

> Pollutant Release and Transfer Register (PRTR)
> Unlike the conventional method of setting standards to restrict production, use and emissions of individual substances, PRTR requires the comprehensive collection and disclosure of information on many substances to encourage reduction efforts by the parties involved and to reduce the overall environmental risks.
>
> PRTR works as follows:
> For each chemical substance subject to reporting, companies determine the status and collect information on the amounts of chemical substances released or transferred into the atmosphere, water or soil as emissions or waste and report them to the national government through local governments → The national government organizes and compiles the collected information and makes it available to the public → Citizens, NGOs and companies are entitled to request the data for their use.

Chemical substance risk communications study session held

Following the enactment of Japan's PRTR Law, companies are responsible for explaining the risks associated with chemical substances to local communities and NGOs. In December 2002, Epson conducted a study session for employees in charge of PRTR issues at business sites, Group companies and affiliates subject to PRTR reporting, to help them improve their skills in accurately communicating risks. We plan to continue improving our skills to respond to customer inquiries (see p. 65 for contact information on each business site, Group companies and affiliates).

Active communications reassure local residents

Toshiyuki Mukaiyama, General Affairs Division, participant in risk communications study session

We decided to improve our communications with local residents when construction for a new facility began at the Toyoshina Plant. We held about 20 intensive briefings for the community, and we are still holding meetings twice a year to share detailed environmental data. In managing our business site, we try to minimize the impact our plants may have on the local environment and try to restore it to its original state. It is managed under internal standards stricter than related laws and regulations, and we actively share eco-expertise with local communities and local businesses. We are convinced that swiftly attending to any problems that may arise, explaining the facts in a user-friendly manner, and faithfully repeating these processes will reassure local stakeholders.

Table 2 FY2002 PRTR Data – combined figures for sites subject to reporting

354 PRTR substances subject to PRTR Law (Unit: kg)

Substance No.	Chemical substance	Amount used	Amount emitted/discharged				Amount transferred		Consumed	Eliminated	Recycled
			Released to atmosphere	Released to public water system	Released to soil	Sent to landfill	Transferred to sewage	Transferred as waste			
16	2-aminoethanol	249,421	11,714				19,416	198,446		20,114	
24	n-alkylbenzenesulfonic acid and its salts (alkyl C=10-14)	27,377						27,377			
25	Antimony and its compounds	1,042						667	375		
27	3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	18,702	7					108	18,587		
43	Ethylene glycol	27,718					207	2,019	25,492		
63	Xylene	213,146	2,724					3,823		206,599	
67	Cresol	1,150	1				6	1,130		13	
68	Chromium and chromium (III) compounds	298,053						304	281,856		15,893
100	Cobalt and its compounds	17,800						721	15,615		1,464
101	Ethylene glycol monoethyl ether acetate	3,416	403					2,663		351	
172	N, N-dimethyl formamide	48,204	133					24,072		23,999	
231	Nickel	294,804		4				730	274,667		19,403
232	Nickel compounds	6,060						574	5,486		
260	Pyrocatechol	26,068						20,854		5,214	
266	Phenol	27,377	4,107					21,901		1,369	
283	Hydrogen fluoride and its water-soluble salts	118,043	159	2,933			4,288	11,959		98,704	
309	Poly(oxyethylene) nonylphenyl ether	6,497						66	6,432		
311	Manganese and its compounds	6,505		10					5,258		1,237
341	Methylenebis (4,1-cyclohexylene) diisocyanate	18,702	7					108	18,587		
346	Molybdenum and its compounds	21,431		3					20,660		768
	Total	1,431,516	19,254	2,950			23,647	317,523	673,014	356,362	38,766

Notes: 1. Contains substances used in quantities of over 1 ton/year (in transitional legal stage, those used in quantities of over 5 tons/year are subject to reporting)
2. Discloses data on consumption and elimination (not required by law) 3. Amount used is disclosed (not required by law) 4. Blank entries = 0.0

Zero Emissions

Level 1
100% recycling of waste

Level 2
Reduction of total waste generation

Level 2
More sophisticated recycling

The Epson Group has vigorously sought to recycle all business waste and reduce its total generation since 1997. In FY2002, we began reduction initiatives to further reduce waste sent to landfill.

FY2002 Objectives

- Japan: Achieve Zero Emissions Level 1
- Total waste generation
  (amount disposed of + amount recycled*)
  Japan: 10% reduction (from FY2001)
  Overseas: 10% reduction (from FY2001)
  *Including valuable materials

Results

- Japan: Achieved Zero Emissions Level 1
- Total waste generation
  (amount disposed of + amount recycled*)
  Japan: 33% increase (from FY2001)
  Overseas: 8% increase (from FY2001)

Dual-level Zero Emissions activities

Epson's Zero Emissions initiatives are divided into Level 1 and Level 2.

Level 1: Bring all waste into recycling-bound channel

Level 1 seeks 100% recycling of business waste (excluding general waste) and therefore aims to put all waste in the recycling-bound channel. After in-house sorting (crushing and compressing), treatment of waste fluid and other processes, waste is sent to intermediate processors and recycling companies with specialized technologies. Major recycling processes are listed in Table 1.

In addition, we are trying to reduce plastic packaging, food wrappers and other combustible waste. It is a Level 1 requirement to reduce such waste to below 50g per person per day. In FY2002, the average generation of combustible waste was 37g per person per day at business sites in Japan. In FY1997, it was estimated at approximately 500g per person per day.

●Recycling Process at Level 1-Certified Sites

Category	Recycled waste	Application	Recycling process
Sludge	Wastewater treatment sludge	Metal recovery	Recovered by mining company, residue used as roadbed material
Waste oil	Developing solution	Reuse	Vapor recycling by third party, reused in-house
	Machine oil	Fuel additive	Used as furnace fuel by third party
Plastics	Polystyrene foams	Recycled material	Volume reduced by intermediate processor, recycled as plastic products
	Metal/plastic composite materials	After sorting, recovered or smelted	Combustible waste (including metal/plastic composite) thermally decomposed. Gas from decomposition used as furnace fuel. Residue after decomposition sent to metal recovery or used as roadbed material.
	Sheet/solid/ sponge plastics	Fuel additive, reductant for blast furnaces	Recycled into solid fuel by intermediate processor, used as fuel by third party, or as reductant for blast furnace by steelmaker.
Wood scraps	Pallets, desks, etc.	Fuel additive	Used as fuel by third party
Metals	Iron scraps	Recycled metal	Recycled by recycling company
Paper	Used paper, cardboard, magazines, paper containers, mixed paper	Recycled paper material	Recycled by paper company
Glass	Fluorescent tubes, mercury lamps	Recovery of mercury, metal, glass	Decomposed by mining company and recycled

●Level 1 actvitity: Recycling sludge generated from wastewater treatment

Epson Industrial (Taiwan) Corp. is recycling the sludge generated from rinsewater used for etching transparent electrodes on LCD panels. The sludge is sold to a fertilizer manufacturer and recycled as fertilizer.

Fig. 1 Recycling of Sludge Generated from Wastewater Treatment

1
Etching process of transparent electrode on LCD panels

2
Treatment of LCD panel rinsewater after etching

3
Fertilizer company makes fertilizer by mixing sludge and fertilizer materials

4
Fertilizer made from sludge

Level 1 activity: Recycling metal polishing sludge

At Epson Engineering (Shenzhen) Ltd. in China, metal polishing sludge generated from metal parts processing is recycled with the help of the city's hazardous materials processing center. The center reuses the sludge as an agent to recover copper in substrate etching waste fluid. With iron in the sludge acting as a reducing agent, the copper is reduced and recycled into copper sulfate. Iron is also recycled into iron chloride.

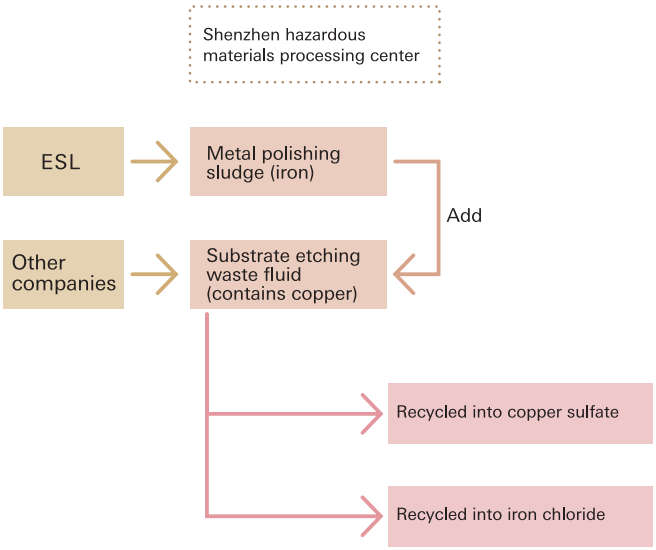


Photo 1 Recycling reduced copper into copper sulfate

Level 2: Reducing the creation of waste

Level 2 defines our mission as reducing the total volume of waste and achieving more sophisticated recycling. We do this mainly by minimizing resource input and thus reduce waste through manufacturing process reforms and improvement of internal reuse.

For unavoidable waste that is generated, we are seeking more sophisticated recycling processes to utilize it fully.

●Level 2 activity: Reducing waste by purchasing recycled solvent

Epson is encouraging internal reuse of materials to reduce waste generation. This includes reusing various solutions used in production processes or applying them as flocculants or neutralizing agents. We also purchase recycled products from companies who recycle them from materials that we generate but cannot recycle in house.

Materials sent out to these vendors are included in our total waste generation. However, we view the purchasing of recycled products made from our waste as part of our waste reduction efforts and are determined to seek more opportunities to do so.

In FY2002, we sent approximately 650 tons of solvents to recycling companies and purchased back and used 90 tons of recycled products.

Fig. 3 Waste Reduction through Purchasing of Recycled Solvents

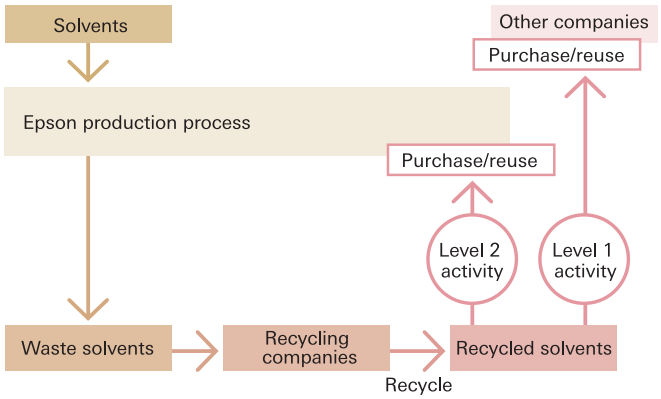
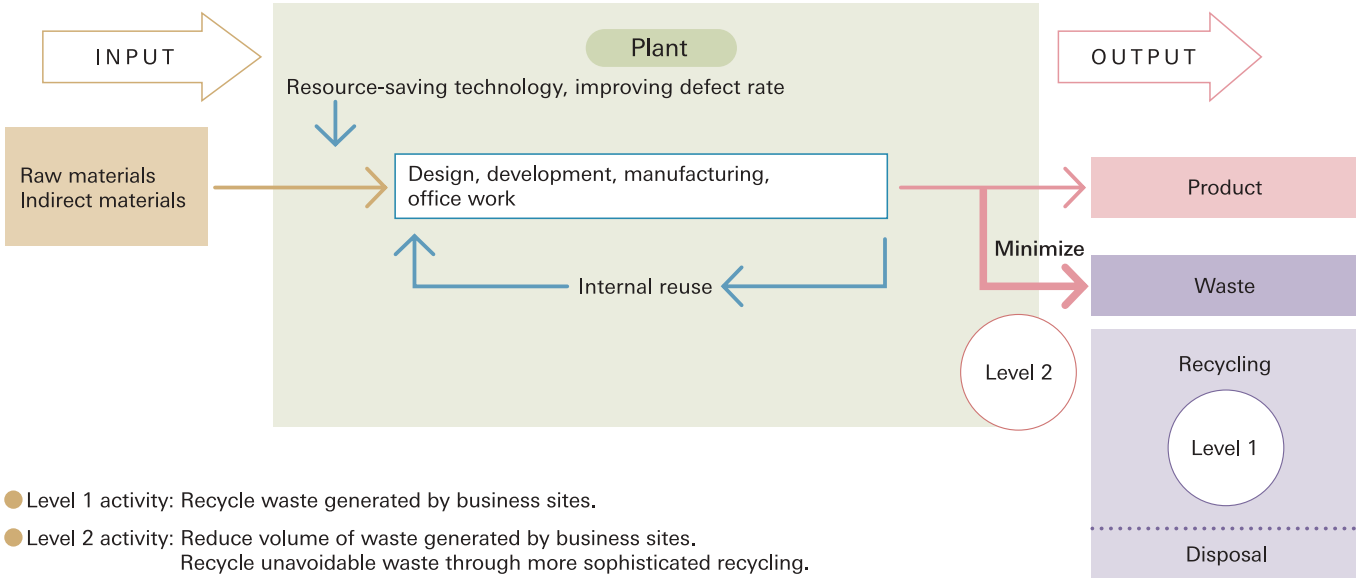


Fig. 2 Zero Emissions Activities



●Level 1 activity: Recycle waste generated by business sites.

●Level 2 activity: Reduce volume of waste generated by business sites.
Recycle unavoidable waste through more sophisticated recycling.

FY2002 Zero Emissions results

In FY2002, five more Group companies and affiliates in Japan and five more manufacturing companies overseas qualified for Level 1 (Table 1).

In FY2003, technological support and expertise will be provided to the uncertified sites to help them achieve Level 1. We will work toward certification of all manufacturers overseas. Simultaneously, Level 1-certified sites will maintain their status and work toward attaining Level 2.

As a result of Level 2 activity, total waste generation in Japan amounted to 19,472 tons, up 33% from the previous year, and overseas, 22,684 tons, up 8%, due to an increase in production volume, and thus we failed to meet the targets.

Waste sent to the landfill in Japan was estimated at 883 tons (total amount of waste including residue generated in the recycling process).

To meet our goal of reducing the combined total of waste generation and recycled materials in Japan to the FY1997 level, or 14,000 tons, we will continue improving Level 1 activities and promoting Level 2 activities, as well as establishing technology to minimize the generation of waste.

Photo 2 Onsite inspection for Level 1 qualification

Table 1 **Zero Emissions Level 1 Status (no. of sites)**

	FY2000	FY2001	FY2002	Total / participating sites	FY2003 plan
Seiko Epson Corporation business sites in Japan	2	17	0	19※ / 19	–
Group companies/ affiliates in Japan	1	3	5	9 / 9	–
Overseas manufacturers	3	2	5	10 / 22	12

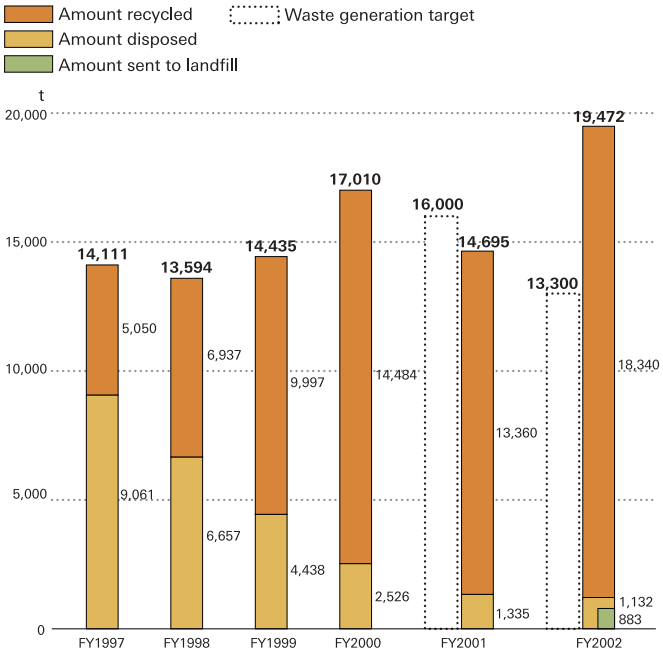
Fujimi Plant, which became Level 1-certified in FY2000, has not been meeting the requirements from the second half of FY2002 due to a halt in sludge recycling as the result of a disagreement with the recycling company over the quality of the sludge. Measures are being taken to re-meet the Level 1 requirements with all possible speed.

Future measures

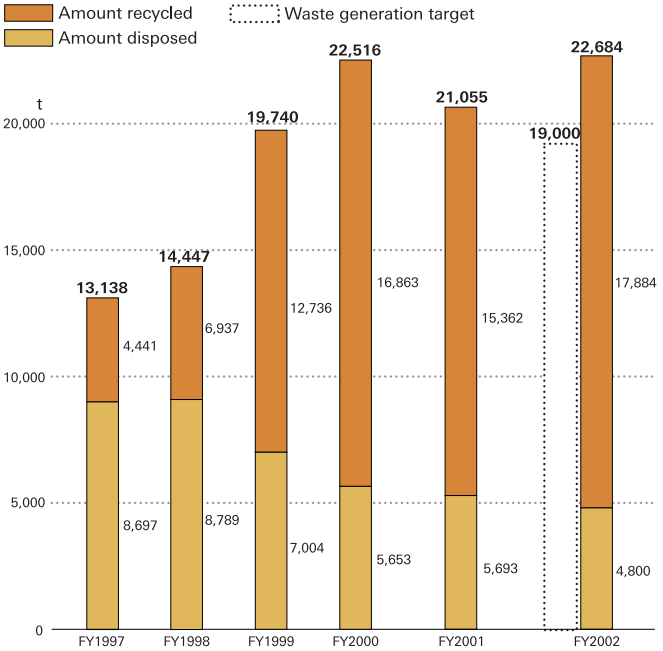
Our focus for FY2003 is on helping all overseas manufacturers achieve Level 1 and on reducing total waste generation. In Japan, where we are experiencing a shortage of landfill sites, we will speed up our efforts to reduce the amount of waste sent to landfill for final disposal* by setting concrete targets.

*Estimated weight of waste not recycled and sent to landfill + estimated weight of residue generated in the recycling process and sent to landfill

Graph 1 **Waste Generation in Japan**



Graph 2 **Waste Generation Overseas**



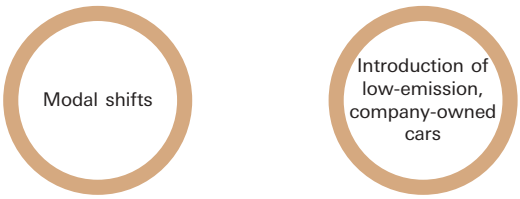
Achieving targets through innovative thinking and cross-industry efforts

J.S. Hung, Zero Emissions project leader, Epson Industrial (Taiwan) Corp.

EIT generates about 400 tons of waste annually, which includes hazardous waste from LCD panel production. Paying the utmost attention to adherence to related laws, we are working with 13 government-certified industrial waste processors to process this waste.

However, deciding on these 13 companies was not an easy process. We faced a number of challenging situations, from analysis of waste materials and long discussions with processors, to seeking recycling possibilities in unknown industries. Two cases in particular called for a drastic change in our thinking and cross-industry efforts. Whereas the final destination of sludge and acid waste was landfill sites before, we turned the sludge into fertilizer and found a way to reuse acid waste. By innovative thinking, we realized that metals in the sludge would make good fertilizer and that the steel industry consumes a great deal of hydrochloric acid waste.

Reducing the Environmental Burden of Transportation



Epson is dedicated to reducing emissions of CO_2 and air pollutants in the product distribution stage. Switching to low-impact transportation is one example of our efforts.

Switching to lower-impact transportation

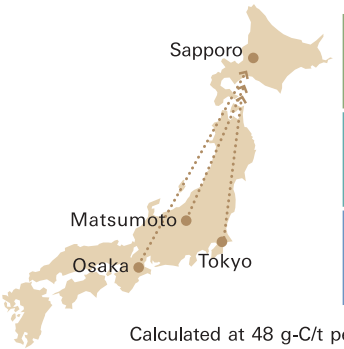
We have been working hard to reduce the environmental burden imposed by emissions of CO_2 and air pollutants from automobile transportation. Our efforts include increasing the use of trains and other low-impact methods (modal shifts) and cutting vehicular mileage by partially switching to cooperative transportation.

Modal shifts were introduced at Epson in 1999. We have been using Japan Railway (JR) freight trains between Matsumoto and Sapporo for product distribution. In addition, we have increased the use of the trains for long-distance routes between distribution centers in Tokyo/Osaka and Sapporo.

Products manufactured overseas are now shipped first to Tokyo/Osaka, stored temporarily in port warehouses and then transported to distribution centers in Sapporo and Sendai by JR freight trains.

As a result of the modal shifts, CO_2 emissions were reduced by 1,245 tons in FY2002 compared to the amount that would have been emitted from conventional trucking methods. We have also reviewed the use of distribution centers and consolidated them to reduce transportation between centers.

Table 1 CO_2 Reductions from Shift to Rail (April 2002 — March 2003)



CO_2 emissions by JR transport	178 tons
CO_2 emissions by trucks	1,423 tons
Reduction of CO_2 emissions	1,245 tons

Calculated at 48 g-C/t per km for a sales force truck and 6 g-C/t per km for a JR freight train. The unit has been changed from C equivalent to CO_2 equivalent. (Source: Environment and Transport/Transportation, Institute for Transport Policy Studies)

Using rail transport for recycling of waste plastic in blast furnace

Fujimi Plant has been committed to recycling solid plastic, plastic films and other waste plastic materials by utilizing them as a reductant in the blast furnace of a steel plant in Kawasaki. The plant first crushes the waste plastic materials to reduce the volume and loads them onto JR cargo containers. The containers are then transported by truck to the nearest station, Minami Matsumoto Station, and sent to Kawasaki via railway. In FY2002, approximately 16 tons of plastics were recoverd.

The use of rail contributed to reducing CO_2 emissions to one-seventh and transportation costs to two-thirds that of conventional trucking methods.

Photo 1 JR cargo container, also loadable on trucks

Environmental efforts aimed at company-owned cars

Seiko Epson Corporation and Epson Sales Japan own a total of 300 vehicles. We have been campaigning to turn off the engines when the vehicles are stopped to reduce environmental impact. We have also been requesting our customers and vendors to do the same.

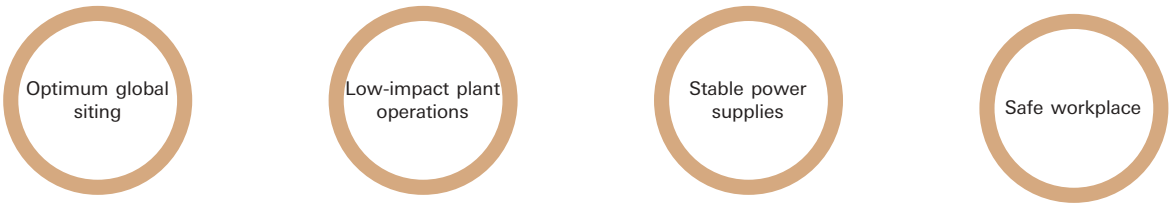
To enhance our efforts, we are currently changing to hybrid and low fuel consumption/emission cars. These vehicles are included in our green procurement guidelines for general purchases (see p. 29) as requirements for future purchases.

Seiko Epson Corporation has purchased 12 hybrid vehicles (three are buses) and 13 low fuel consumption/emission cars, while Epson Sales Japan has introduced 86 low fuel consumption/emission cars.

The hybrid buses, which have both diesel and electric engines, are used to connect plants and stations in Suwa City, Nagano Prefecture, and between the Matsumoto Minami Plant and the closest train station.

Photo 2
Company-owned hybrid bus with diesel/electric engines

Office Locations and Factory Management



The Epson Group's decisions about where to site our plants are made after extensive research. Once a plant is built, we operate it with the utmost care for the local environment, stable supply of power and safety in the workplace.

In-depth research for strategic siting

The Epson Group operates internationally. We choose locations for our manufacturing and sales sites after comprehensive analysis of a variety of factors, assuring that they are strategically and optimally located to complement each other in their contributions to overall operations. The factors include infrastructure conditions, workforce availability, security, costs, environment, incentives and other local attributes (Table 1).

Thorough assessment before construction

Prior to designing a plant, we conduct extensive studies to assess its probable impact on the surrounding community, resource and energy-saving performance, and necessary safety and disaster prevention measures. Plants are built based on the results of these assessments (Fig. 1).

Improving plant operation and maintenance

Basic facilities are planned and laid out according to operations and maintenance plans that will assure stable power supplies and plant operations (Fig.1). Protecting the environment in the local community is a precondition. To ensure this, we follow all related laws and regulations, in addition to meeting our own, stricter standards for air and water quality, and noise levels. In FY2002, to reinforce our plant operations, we consolidated several Group companies and established Epson Facility Engineering Corporation.

Fig. 1 Plant Operations

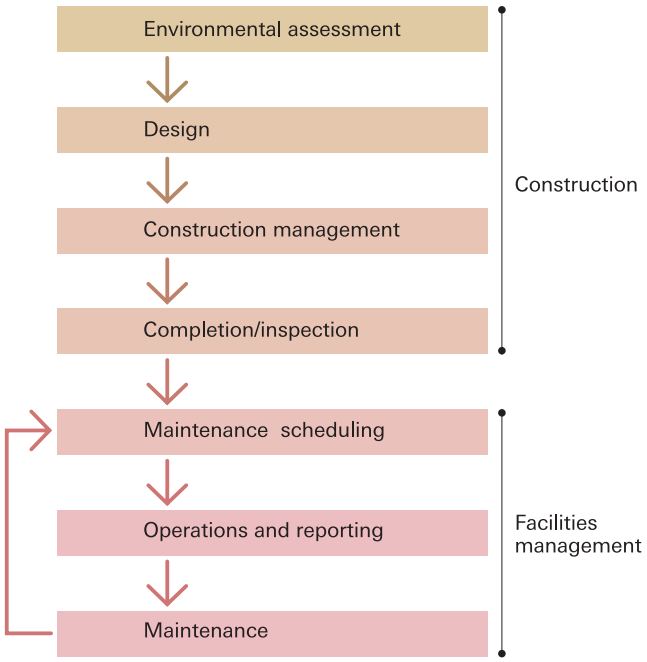


Table 1 Plant Siting and Building Guidelines

Item	Guideline
1. Select production method, including distribution and procurement	Enhance effective use of management resources, streamlining of distribution, etc. a. Direct connection to market—production in location of consumption (mainly information equipment) b. Distribution in multiple markets—concentrated production (mainly electronic devices, small parts) c. Middle-cost production: between a. and b.
2. Set production mix ratio	Take measures for political turmoil, natural disasters and other risks→Set ratio for production volume for each product
3. Set workforce size	Take measures for political turmoil, natural disasters and other risks, improve management
4. Set number of main businesses	Establish system whereby operations divisions are responsible for plant operations, improving management→Keep number to three or less (imaging and information products, electronic devices, precision instruments)
5. Improve plant functions	Improve overseas sites to raise competitiveness, attain substantial globalization (localization) and establish system whereby operations divisions are responsible for plant operations
6. Review basic conditions for siting	Review siting conditions for plant premises, status of infrastructure, security and environment

Plant Operations

Maintenance

Maintenance of buildings and facilities ensures proper operations and accident prevention. Maintenance is conducted on a variety of strict monthly, annual and long-term schedules for each building and facility. If any problems are found, we swiftly change parts, repair, record and review maintenance checklist and intervals. We do this to completely eliminate major facility-related accidents.

Air pollution prevention

A cogeneration system was introduced to our Suwa Minami Plant to make effective use of energy and prevent downtime from power outages. To prevent air pollution, we use kerosene so that smoke emissions will not contain SOx. To prevent NOx emissions, we use abatement equipment on the exhaust system and conduct continuous emissions monitoring.

Construction management

We constantly have new construction projects, whether for new plants, changes in production lines or personnel changes. These projects are carried out with the utmost regard for safety, and for the requests of employees who will be working there. High on our checklist is adherence to specifications, quality assurance, safety, eco-consciousness, being economical and meeting the delivery date.

Wastewater treatment facility and monitoring

At Epson, wastewater is treated twice, first during the process of generation and later by an integrated treatment system. Twenty-four-hour monitoring assures there are no hazardous substances. To make sure that it meets effluent standards, we also check wastewater samples on a regular basis and assure the system is functioning appropriately. Our monitoring standards are stricter than existing laws and regulations.

Centralized management

Plants are equipped with central monitoring systems to ensure the stable supply of electricity, gas and water, as well as sound operation of wastewater treatment systems, air conditioning and chemical supply systems. These 24-hour monitoring systems enable us to operate plants safely and efficiently, and to respond to accidents and emergencies promptly.

Greenery management

Each business site is responsible for keeping it green for employees and local communities. We systematically plan the greening of sites and carry out tree planting that matches the scenery, minimize use of chemicals and ensure frequent gardening care. At our Matsumoto Minami Plant, which has a forest on its premises, planned gardening keeps the forest healthy and prevents trees from falling when natural disasters occur.

Measures for Soil and Water Contamination

Prevention of accidental release of contaminated groundwater

Safe and effective cleaning measures

Early completion of cleaning

Since 1998, Epson has been voluntarily conducting soil and groundwater surveys, and has conducted cleanups following these guidelines: 1. Never allow the accidental release of contaminated groundwater outside the plant premises; 2. Take safe and effective measures for cleaning; and 3. Complete cleaning in the shortest period.

Follow-up report on Shiojiri Plant's accidental release of potassium permanganate

The following final report outlines measures taken in FY2002 to prevent a recurrence of the accident at the Shiojiri Plant in May 2001.*

*Accidental release of potassium permanganate at Shiojiri Plant
During the cleaning of trichloroethylene from soil and groundwater using an in situ method introduced at the plant in February 2001, potassium permanganate solution was accidentally released outside of the premises. The cleaning method is no longer used at Epson.

For details, please read the *Environmental Report 2002* or visit our website.

Website with report on accidental release of potassium permanganate solution:
www.epson.co.jp/ecology/

Preventive measures taken in FY2002

1. Improved assessment for construction work

On top of the environmental assessment conducted prior to construction work on plant premises, we decided to implement Groupwide highly specialized assessments for any work that involves chemicals, oils or other untried projects. These strict requirements are now included in each business site's construction assessment standards to ensure full compliance.

2. Installation of monitoring tanks

To eliminate all risk of environmentally hazardous substance leakage, such as through rainwater or underground pipes, monitoring tanks were installed at the Shiojiri and Suwa Minami plants.

Photo 1 Monitoring tank

Status of soil and groundwater cleaning

Since 1998, Epson has been conducting soil and groundwater surveys and carrying out cleanups (Table. 1). One of the new measures introduced at the Matsushima Plant is soil excavation work.

We select methods that are the most safe and suitable for each site's soil and groundwater, and systematically conduct the cleanup process.

Soil Contamination Control Law

Japan's Soil and Contamination Control Law, enacted February 15, 2003, requires soil surveys whenever plants that used hazardous substances terminate operations. We strictly abide by this law and other related laws in our pursuit of optimum operations that will never induce soil or groundwater contamination.

Eight plants are currently using hazardous substances subject to the Law: the Head Office, Suwa Minami, Fujimi, Hirooka, Ina, Okaya, Tohoku Epson and Atmix. We are prepared to conduct surveys if any of these plants closes.

Table 1 **Average Values of Trichloroethylene Concentration in Groundwater (Regulation: below 0.03)**

Unit: mg/l

Business site	1998	1999	2000	2001	2002	Methods currently in use
Head Office	340	380	290	121	87.0	Permeable reactive barrier, pump-and-treat, soil gas absorption, monitoring
Matsushima	11	9.7	6.5	4.2	Under construction	Soil excavation, permeable reactive barrier, pump-and-treat, monitoring
Shiojiri	3.3	0.81	0.39	4.5 ※	4.4	Permeable reactive barrier, pump-and-treat, monitoring
Okaya	0.11	0.084	0.064	0.039	0.078	Pump-and-treat, monitoring
Suwa Minami	2.4	3.2	2.2	0.61	0.94	Permeable reactive barrier, pump-and-treat, monitoring
Fujimi	0.77	3.5	2.6	0.96	0.86	Permeable reactive barrier, pump-and-treat, monitoring
Okaya 2nd	0.4	0.33	0.27	0.43	0.32	Monitoring
Epson Logistics Corp. Headquarters	0.25	0.25	0.22	0.21	0.25	Monitoring
Murai	0.064	0.036	Completed	–	–	Monitoring
Toyoshina	0.054	Completed	–	–	–	Monitoring

Correction: *Environmental Report 2002* reads *1.08*. We apologize for the error.

Social Performance

The Epson Group is committed to our social responsibilities around the world and candid communications with all our stakeholders. We strive to build relationships of trust with them, which underlie all our business activities. This chapter outlines our approach to corporate ethics and social responsibilities, as well as specific activities in which we are engaged.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Epson Group members and their families participate in myriad social activities.
1. *Shiatsu* lesson 2. Bird-watching charity walk 3. Community cleanup
4. Donation to Down Syndrome association 5. "Cash for Cans" Program
6. Distribution of shopping bags on Environment Day
7. Participating in facility maintenance program 8 and 9. Community cleanups

Business Operations and Society

Philosophy, policies and guidelines for trust-based management

The Epson Group is deeply committed to trust-based management. We cite it in our Management Philosophy and manifest it in all plans for business activities—from the corporate to the individual employee level. To execute these plans, we establish policies and guidelines that lead each employee and support their relationships with our stakeholders and society.

Trust-based management practiced by each employee

Epson expresses its goal to be a "progressive company, trusted throughout the world" in its Management Philosophy. To realize this goal, we place trust-based management at the heart of our business activities. We practice it through social responsibilities, information disclosure and active communications with our stakeholders, including customers across the world, shareholders, investors, business partners and residents of local communities.

Two facets of trust-based management are the concept of coexistence with nature, expressed in our Management Philosophy, and business activities in harmony with the environment, included in our Environmental Philosophy.

Trust-based management is carried out through all business plans: long-term management vision, mid-range business plans, annual management policy, annual business plans, divisional plans and individual business plans. Fig. 1 shows how our philosophies, policies and guidelines are directing each employee's execution of these plans. We recognize that the actions of each employee reflect on Epson's reputation, and encourage daily efforts to build stakeholder confidence.

Quality-first policy for customers

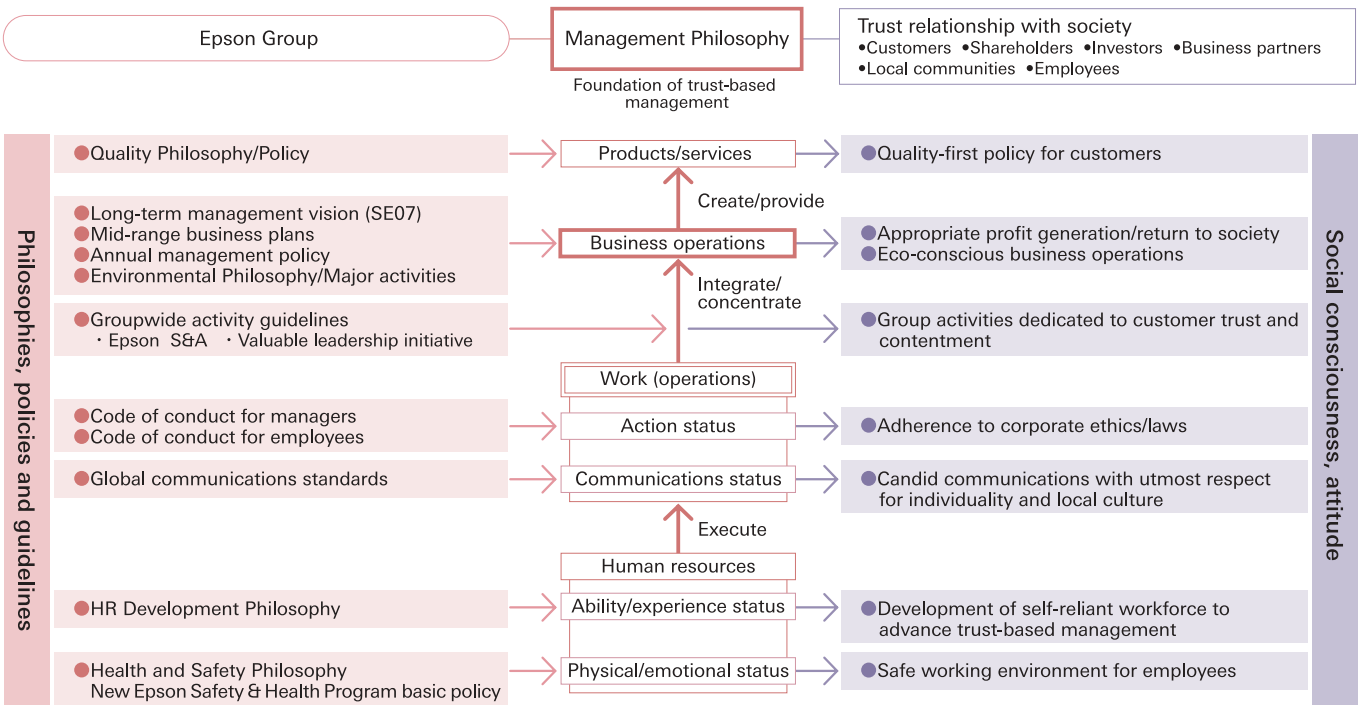
In the Epson Group, each employee is responsible for ensuring customer satisfaction by paying special attention to customer needs, in keeping with the Company's commitment to customer satisfaction cited in our Management Philosophy. To push the idea further, we set a Quality Philosophy in September 2002, a Quality Policy and guidelines. We believe quality is not only demonstrated in our products; each employee's approach and attitude, and all corporate activity, are also components of quality.

In FY2003, we are making "(Q+E)/C/D" the basis of our management to achieve further progress in the creation of eco-products.

Quality Philosophy

The Epson Group views products from the customer's viewpoint and places top priority on quality of service. We urge each and every employee in our global network to approach business with a quality-first attitude as an outgrowth of their individual spirits, and to continue creating products/services that are appreciated and trusted by customers.

Fig. 1 **Business Operations and Society**



Groupwide activities dedicated to customer trust and contentment

We focus on providing products and services that are trustworthy as well as profitable, so that the appropriate returns can be collected and redistributed to society. Our business vision and plans shape these activities, and guide our employees to undertake their business with perseverance and a challenging spirit, as well as dynamism and responsiveness.

Our corporate culture can be characterized by its respect for individuality and teamwork, and its willingness to meet challenges with innovative and creative solutions, as reflected in our Management Philosophy. To translate this philosophy into guidelines that would provide a Groupwide code of conduct, we established Epson S&A in 1994 for organizational collaboration, and established valuable leaders initiatives in 2000 for leaders who direct organizational activities.

Groupwide activity guidelines (excerpts)

Epson S&A: Start Together & Achieve Together
Leaders demonstrate strong leadership, concentrate Groupwide strength, form a scrum in a speedy manner and achieve.
S: Start, Scrum, Scramble, Speed A: Achieve

Valuable leadership initiative
The leaders of the Epson Group are trusted by all to take the initiative with candor and an invincible spirit.

Codes of conduct for corporate ethics

For Epson Group to be trusted and be a truly "open" company, each employee must have a high, global standard of corporate ethics and morals. Managers who lead other employees are called on to have even higher standards. The Epson Group released a code of conduct manual for managers in 1997, which became the basis of the employee code of conduct. This was released in Japan in 2001, to help familiarize employees with corporate ethics. The list below shows the items included in the employee code of conduct.

To ensure that the Group is taking measures to prevent legal misconduct and to respond swiftly if misdeeds are found, we established a legal committee and regulations. We take advantage of every available opportunity to help raise employee awareness of these rules and preventive measures, such as during training sessions for new employees and managers.

Examples included in employee code of conduct

Adherence to laws:
Bribery and bid-rigging are prohibited; antitrust and tax laws must be adhered to

Adherence to company regulations:
Confidentiality must be maintained (potential contracts, intellectual property, etc.)

Adherence to corporate ethics:
Discrimination and harassment are prohibited; privacy is protected; health and safety, disaster prevention and environmental regulations must be adhered to

Personal guidelines:
Procurement, gifts, entertaining, political/religious activities, insider trading, etc.

Candid communications with utmost respect for individuality and local culture

Cultural diversity is another characteristic of the Epson Group, which operates globally. We believe internal communications should be carried out with the awareness that people from different cultures perceive things differently. We also believe, however, that we agree on most of the criteria for candid communications no matter the cultural background.

Mindful of cultural similarities and differences, we established standards for the Group's global corporate communications in July 1998.

These standards are based on such fundamental policies as respect for individuality and cultural differences, high morality, ethical communications, high standards of perception and judgment for global communications, and proactiveness. By sharing these standards Groupwide, we seek communications valued by people across the world and building of the "trusted Epson" brand.

Development of a self-reliant workforce to advance trust-based management

The way we view human resources is reflected in our Management Philosophy and Groupwide activity guidelines. It is also incorporated in our HR development philosophy, which is the basis of our employee development, capacity building and education (pp. 50-52). Our HR systems also support human resource development (pp. 48-49).

Safe working environment for employees

A safe working environment is a necessity for employees to nurture their individuality (ability and experience) and to work (operations) to achieve results. In 2001, we established an occupational Safety and Health Philosophy to improve the status of these workplace attributes. Emphasizing these values is another significant part of our corporate culture. The New Epson Safety & Health Program (NESP) and its guidelines, NESP basic policy, were also put into place to improve the Groupwide status of occupational health and safety (pp. 56-57).

Corporate citizenship activities

The Epson Group is committed to being a good corporate citizen and to mutual prosperity with society. In each region in which the Group operates, we participate in community activities with a vision to further deepening society's trust in us (pp. 53-55).

Human Resources Policies and Working Conditions

The Epson Group's human resources policies are essentially merit based, and we also work hard to eliminate all types of discrimination and to offer strong support for employees with disabilities.

Our approach to human resources

Even in the first years of our business, when Epson mainly produced watches and employed mostly women, we were acutely aware that without valuing people we would not be able to hire and keep a quality labor force, nor to improve productivity. As we grew into a multibusiness, global corporation, our policy of valuing people remains the same.

We also value creativity and the spirit to take on challenges, as cited in our Management Philosophy. Driven by these values, Epson's proprietary technologies and innovative products propelled growth. We believe the commitment to work toward higher goals and the perseverance to attain them are what bring people to higher ground. That is why Epson gives a lot of credit to those who voluntarily take on challenges. This value is part of our corporate culture Groupwide.

Our HR policies reflect these values. They are principally merit based and focused on recognizing demonstrated individual competence (achievements). However, we work equally hard toward eliminating all types of discrimination (sex, education, age, ideology, beliefs, religion, nationality or race) and advocate this Groupwide. For those who are burdened with childcare or nursing needs, or have physical handicaps, we offer assistance and supportive working arrangements.

Never allowing ourselves to be complacent about our present corporate culture and established systems, Epson strives to attain higher levels of corporate ethics and human rights protections (elimination of discrimination and harassment, equal opportunity, protection of privacy, etc.) through our codes of conduct for employees and managers (pp. 46-47).

Photo 1 Employee code of conduct

In-house open application and Job Challenge systems

Epson believes that difficult challenges compel people to grow, so our HR policies strongly support employees with a desire for self-actualization. We work hard to listen to their individual goals and to create a working environment that enhances their abilities. We promote personnel rotations as one incentive for employee growth. In 1990, we introduced an in-house open application system* as another way to support career development and a Job Challenge system**, which started out with four participants in FY2002. An average of 30 employees takes advantage of the in-house application system annually. In FY2002, because of an expansion in the department that deals with intellectual property and patents, approximately100 employees took advantage of the system.

*In-house open application
A department looking for personnel posts job descriptions and qualifications on the intranet. Interested applicants, with the permission of their superiors, apply to the HR department and undergo screening and interviews by the recruiting departments. Transfer decisions are made within six months of the application.

**Job Challenge
Employees interested in changing their positions submit descriptions of their desired jobs, experience and expertise to the HR department, with the permission of their superiors. A list of the applicants is made available to management-level employees higher than department heads, and interviews are arranged if there are applicants they are interested in. Transfers are then arranged.

Corporate culture always puts individuals first

Toshiji Nakajo
Human Resources

Since its foundation, Epson has been operating on a merit-based system. To produce high value-added products such as watches, we needed quality workers. After working hard to find productive people and taking good care of them, our superior approach to human resources began gaining public recognition. This recognition allowed us to consistently attract good people. Having many women on our staff in our early days also helped us foster a discrimination-free environment. Our present people-centric corporate culture, therefore, was a result of the necessity to produce quality products and our recognition that our most valuable resource was our people. We would like to inject these founding traditions into our human resource system Groupwide.

Evaluation/salary system focusing on results and process

In 1987, we set rating standards for a merit-based evaluation system and introduced a corresponding salary system as an incentive for individual growth. The standards include eight categories, such as management, sales, engineering, design and manufacturing, with 50 subcategories under them. Each subcategory has performance grades from 1 to 8. Requirements and qualifications are defined for each grade and employees are evaluated for qualifications against these requirements.

Upon introduction of this merit-based system, we abolished existing age- and gender-linked systems.

In FY2003, we are revising the rating standards into job and action standards to directly reflect individual achievements in evaluations and salaries. The new standards will define expected accomplishments/actions for each grade. Based on these goals, objectives and themes are set for each employee, with a view to materializing annual business plans. Evaluations are conducted with a focus on both accomplishments and the process behind them. Factors such as age, gender and educational background are no longer relevant.

Equal opportunity

Another characteristic of our corporate culture is equality between the sexes in employment. We began implementing equal opportunity employment ahead of other companies in Japan. In 1999 we received the Women and Minors Office Award, nationwide recognition for practicing equal opportunity in HR systems and eliminating sexual discrimination.

Currently, women account for 19.3% of the Seiko Epson Corporation workforce, and 0.8% are at the management level.

Childcare and nursing assistance

Because we listen to the needs of our employees, we are always ahead of legislative moves to assist Japanese workers. The Law Concerning the Welfare of Workers Who Take Care of Children or Other Family Members, Including Child Care and Family Care Leave was introduced in 1992. But we introduced maternity/childcare leave in 1991 and nursing leave in 1990, allowing longer leave periods than the law stipulated (maternity leave until the child's first birthday; nursing leave for up to 18 months). Shorter working hours are also allowed until March of the child's third year, and for nursing, for a total of three years including the period of nursing leave. Employees can combine these with our flextime system or divide up the nursing leave. Employees can also apply for financial assistance for childcare and nursing services. Information on services and systems are available through the intranet.

For our extensive care systems and their popularity among employees, as well as men's use of the systems, Seiko Epson Corporation received the Minister's Prize for Family Friendly Company sponsored by Japan's Ministry of Health, Labor and Welfare for FY2000. This is the highest honor, only the second time it was awarded, given to only one company in Japan annually. The official recognition was for "establishing a corporate culture that permits both work and family lives."

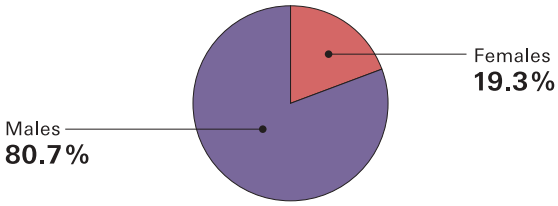
Approximately 100 employees take childcare leave each year and 93% of them, on average, return to work. Nursing leave has been used by an average of four employees per year, with a 70% return to work rate.

Photo 2
Seiko Epson Corporation's award for being family friendly, Welfare Ministry's highest honor

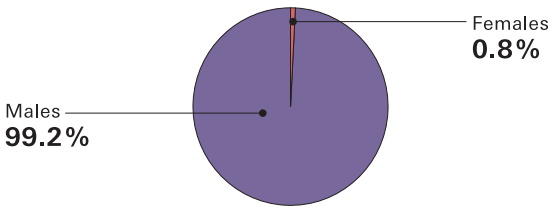
Physically disabled employees

Epson established Epson Mizube in 1984 to promote the employment and assignment of positions to the mentally and physically handicapped, and to create comfortable working environments. As of March 2002, 2.29% of our employees are handicapped, surpassing the legal requirement of 1.9%. The Japan Association for Employment of Persons with Disabilities presented us with an award in FY2000 for our outstanding program.

Graph 1 Employee Gender Ratio (as of March 2003)



Graph 2 Management-Level Gender Ratio (as of March 2003)



Notes: 1. Breakdown of management-level employees by sex.
2. Management-level employees include managers and above.

Table 1 Retention Rate of Employees

Average years at Epson (fulltime employees, as of March 31, 2002)	16.3 Years
FY2002 resignation rate (fulltime employees)	2.3 %

FY2002 reason for resigning			
	Fulltime employees		Contract workers
Retirement	120	Retirement	7
Voluntary retirement	21	Voluntary retirement	0
Voluntary resignation	156	Voluntary resignation	16
Involuntary resignation	0	Involuntary resignation	2
Total	297	Total	25

Table 2 FY2002 Total Number of Newly Hired Employees

New graduates, fulltime	468
Mid-career, fulltime	133
Contract workers	5
Total	606

Human Resources Development and Education

Our basic approach to human resources development and education is based on the ideas that work nurtures employees and that employees must make efforts to nurture themselves. The Epson Group is carrying out systematic and continuous environmental education to impart employees with the knowledge to implement appropriate initiatives.

Our approach to HR development and education

Each employee conducts business and fulfills our Management Philosophy. To support them, we define organizational activities and leadership roles in Groupwide activity guidelines such as the Epson S&A and valuable leadership initiative (pp. 46-47). We have also established three expectations for an Epson employee — someone who embodies the Management Philosophy and the Groupwide activity guidelines — as follows:

An Epson employee is expected to:
1. Attain high-level goals with perseverance and foster achievements in a speedy manner with a spirit of teamwork.
2. Possess a broad perspective and capabilities backed by highly specialized expertise, and be able to work effectively in the global arena.
3. Be a self-reliant individual who demonstrates creativity and takes on challenges.

To foster such employees, we announced our HR Development Philosophy in 1993.

HR Development Philosophy

Our basic approach is to support employees who have aspirations for self-actualization, to connect all the companies in the Group with people, and to nurture employees so that both corporate and individual objectives are met.

The following is our philosophy for human resources development.
1. The Company positions human resources as an indispensable resource and aims to integrate employee aspirations for high-level achievements with the highest interests of the Company.
2. HR development is a very important instrument for materializing the Management Philosophy and business plans. It is the key to forming a good management cycle.
3. Each level of employee therefore assumes the following roles:
   a. Executives, as drivers of HR development, must serve as role models for employees in all business activities and must work toward fulfillment of Company philosophies.
   b. Management-level personnel must practice OJT systematically and continuously with a clear objective for the training. Nurturing of employees must be done principally on an individual basis in a comprehensive manner through the setting of detailed objectives, evaluation of results and acceptance of individual experiences of success. At the same time, management-level personnel must prepare their successors.
   c. Employees should voluntarily pursue self-improvement.
   d. Departments in charge of education must promote HR development through off-the-job training, as well as OJT.

Various HR systems are in place to fulfill our HR philosophy (pp. 48-49). We also provide training for different job positions and for career development such as acquiring new qualifications and skills in management, business, safety, quality assurance, environment and information management. Other specialized training is available as well.

Our support for self-motivated employees includes covering up to 50% of tuition for distance learning programs and subsidizing the expenses for various training sessions in which employees voluntarily participate.

We also help overseas Group companies/affiliates in developing human resources by disseminating Epson S&A at annual global meetings and supporting the efforts of each company.

New employee training: Experiencing Epson's manufacturing foundations

In FY2003, we incorporated a course to provide new employees with first-hand experience in manufacturing. This is to help those who will become our future leaders understand that we are a manufacturer.

For two weeks, 132 new employees underwent lectures as well as skills training for filing, assembly/disassembly of watches, assembly of ballpoint pens and printers. For our flagship print-

Learning to be self-motivated and self-reliant

Miwako Koshiishi
HR Development and Education

The direction of Epson's human resources development can be characterized as bringing employees to the "can't help learning, can't help changing" mode. The point is not to make them feel they ought to change, but rather to encourage them to teach themselves so that they will be self-motivated and self-reliant. HR development tends to rely on such educational resources as training and textbooks, but we focus on instigating self-improvement efforts for all employees. This is partially in response to our desire to make up for overstressing achievements. We are now trying to create a scheme where organizational strength is enhanced through work accomplished. This scheme should also provide each employee with a sense of fulfillment and accomplishment from the synergy of working together, rather than from single-mindedly pursuing their own goals. We have returned to the idea that both individuals and organizations must be empowered. We believe sticking to these basics will enable us to build the foundations for a long-lasting, always reliable company.

ers, we asked the group to come up with more efficient ways to assemble them after they watched a video to review the current assembly method. They apparently found spending an entire day filing and generating chips to be physically demanding. However, it helped them understand the basic approach to each process of manufacturing and the importance of discipline, as well as how objectives motivate work. On the last day of training, Seiko Epson Corporation President Saburo Kusama met with them to discuss their experiences.

Photo 1
New employees experience manufacturing

Our approach to environmental education

Our Global Environmental & Safety Policy Department Office implements systematic and continuous environmental education to help each employee use environmental conservation as a basis of judgment and take initiative in environmental efforts, both at work and at home. We provide three types of environmental education: a program based on employment levels, education for specialists, and education to promote awareness.

1. Program based on employment level

This program offers training tailored for all job types, from entry to management level, to teach each employee how to approach environmental issues and take action based on their position.

Basic education

Basic environmental education is a mandatory program for all Epson Group employees. A Japanese textbook on environmental basics called *Co-Existence with Nature* was revised completely and uploaded onto the intranet in FY2002. Using animation, the site is designed to help users follow the textbook easily. It has now been upgraded to a web-based educational system called Epson Web Campus.

The campus consists of four sections: environmental issues, environmental issues and corporations, individual environmental efforts and Epson Group environmental activities. A test menu is provided as well. Users can take the web-based course without the restrictions of time or pace of understanding. Supervisors can also monitor each employee's progress on the web.

Photo 2 Epson Web Campus

Seminars for new general managers and managers

New managers' seminars provide the opportunity to discuss environmental activity trends and Epson's efforts, as well as their relation to General Environmental Policy. The seminars are conducted so that new managers can direct our environmental activities. A seminar for general managers, led by the general manager in charge of environmental activities, focuses on the significance of environmental management.

For employees transferred overseas

Management directors (heads of overseas Group companies/affiliates) are trained to gain expertise in environmental management, including knowledge of legislation and eco-activities in the countries to which they are transferred. Management-level and regular employees transferred overseas are provided with in-depth training in local environmental activities and tips for active participation in the initiatives.

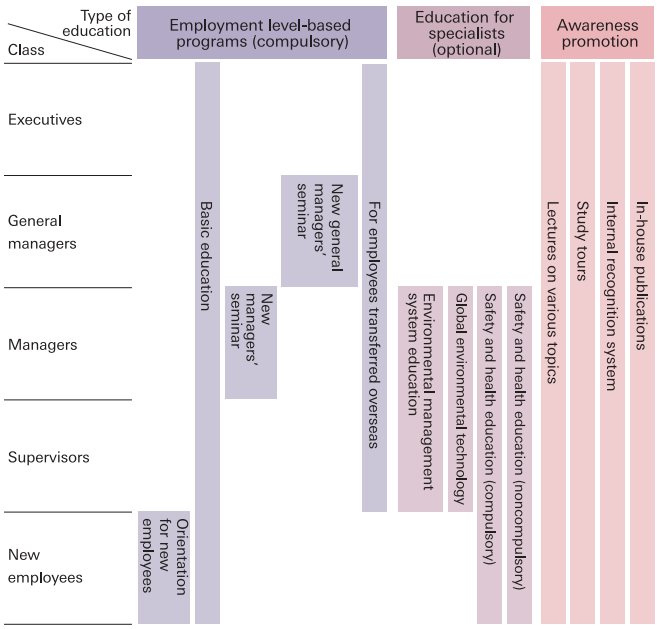
Orientation for new employees

For new members of Epson, we provide basic education on environmental issues and our own efforts through which we help each employee understand the importance of participating in eco-activities.

2. Education for specialists

This program aims to provide skills training for environmental activities in certain job positions. These include, for example, training for internal auditors and energy-saving initiatives. In FY2002, 217 employees were newly registered as auditors.

Fig. 1 Environmental Education System



3. Awareness promotion programs

This category is designed to raise the environmental awareness of all employees through activities such as featuring related articles in the *Harmony* newsletter, establishing honors such as Environmental Awards and Environmental Management Awards (p. 14), provision of environmental information and education through the intranet, hanging awareness posters at all business sites and running seminars and other events.

In FY2002, we created the third in our series of awareness posters on sustainable development. In November, we held a seminar on restrictions related to environmental conservation in Europe.

Photo 3
In-house awareness posters (left to right, FY1998, FY1999, FY2002)

Environmental education and activities at Group companies/affiliates

Group companies/affiliates take the initiative in engaging in unique environmental education and awareness activities that accommodate environmental trends, local legislation and social needs.

Japan

Tohoku Epson Corporation formed Tohoku Epson Kenaf Society to help employees and their families, especially children, become aware of environmental concerns. Members of the society sow kenaf seeds, water and harvest them together. In November 2002, they made paper from the harvested kenaf and had a lot of fun learning about the environment.

Photo 4
Children of Epson employees make paper from kenaf using pressing machines

Europe

Europe's regional headquarters, Epson Europe B.V. in the Netherlands, coordinates environmental education in the region. In FY2002, in addition to providing textbooks, they introduced the Web-based e-Campus on a trial basis using the intranet.

Other promotional activities include hanging awareness posters and displaying environmental information on all employee computers whenever they're turned on.

Photo 5 e-Campus in Europe

Americas

Epson Portland Inc. (U.S.), Epson El Paso, Inc. (U.S.) and Epson de Juarez, S.A. de C.V. (Mexico) have been conducting all-employee training on a regular basis. In FY2002, they focused on chemical substance management. They also included environmental articles in their newsletters and implemented other eco-activities.

Photo 6 All-employee training

Asia

・China

Epson Engineering (Shenzhen) Ltd. (China) sponsored an in-house contest on environmental knowledge in September, during Environmental Awareness Month. The contest tested participants' knowledge of environmental conservation, ISO 14001, laws and regulations, international pledges, green consumption, daily conservation activities and Epson eco-activities. A total of 13 departments participated in the contest.

Photo 7 Environmental knowledge contest

・Taiwan

Epson Taiwan Technology & Trading Ltd. and Epson Industrial (Taiwan) Corp. jointly sponsored an ecology study fieldtrip to Taipei Kuantu Nature Park in March 2003 as part of its nature conservation education. Over 200 participants from the companies observed marshland animal and plant life and viewed a video and materials prepared by the Nature Center.

Photo 8
Participants of ecology fieldtrip in Taiwan

Corporate Citizenship

Conservation of local communities

Mecenat/ sponsorship/ donations

Supporting culture with technology

Corporations are supported by and grow together with society. It is our mission as a good corporate citizen to contribute to the building of a healthy and prosperous society. In this way, the Epson Group actively serves its many local communities in Japan and overseas through a variety of activities.

Social activities in local communities

The Epson Group focuses on community-based activities in the countries in which we operate, and on returning accumulated technologies and expertise to society.

We are dedicated to assuming our responsibility as a global corporate citizen through our support for the environment, art, culture and sports activities, and to building a better relationship with our stakeholders.

Raising eco-awareness of children

Children are our future. We consider it an important responsibility for adults to communicate the importance of nature and the environment to them, and to foster eco-consciousness in their daily life.

Kids ISO 14000s

Photo:
Beginners' course completion ceremony at UN University, Tokyo

Seiko Epson and its labor union are cosponsoring the environmental education assistance program Kids ISO 14000s, developed by Japan's International Art & Technology Cooperation Organization (ArTech). In FY2002, 50 children of Epson employees attended introductory and beginners' courses. In an effort to increase its popularity in local communities, 10 employees participated in training to become Eco Kids Instructors and became certified.

On another occasion, 33 fifth graders from Kawagishi Elementary School in Okaya City, Nagano Prefecture, took part in the Kids ISO program. Instructors from Epson looked after coordination and evaluation feedback.

Fujimi Plant shares environmental activities with Fujimi fifth graders

The Fujimi Plant and other companies in the community invited 68 elementary school pupils to the plant in July 2002. The children observed the waste sorting process and experiments to clean wastewater, and learned about new findings related to the environment.

Tohoku Epson sponsors elementary school fieldtrip

Tohoku Epson invited 55 sixth graders from a local elementary school in January 2003 to show its conservation facilities and explain its activities. The students also enjoyed participating in an eco-quiz to learn more about the environment.

Seiko Epson Corporation Korea Office eco-theme painting event

Photo:
Grand Prix-winning painting by Yoon Hee-Jung

Seiko Epson Corporation Korea Office held its second outdoor painting event to foster an environmental spirit among elementary school pupils. Some 1,000 eco-themed works were submitted to the painting contest.

Plant tours

Visitors flock to recycling center at Kanbayashi Plant

In FY2002, Kanbayashi Plant accepted 54 groups, a total of 781 visitors, to watch the disassembly and sorting of used printers and computers. The plant is registered as a 3R study site with the Clean Japan Center.

Delegation from Singaporean government visits model water-quality conservation plant

Singapore Epson Industrial Pte. Ltd. was designated as a model plant for water-quality conservation by the Singaporean Ministry of the Environment and other organizations (Singapore Confederation of Industries, Public Service Commission, U.S.-Asia Environmental Partnership). In May 2002, a government delegation and multinational corporations visited the plant.

Eco-activities with local businesses

Conservation activities in local communities can never be achieved by just one corporation. We are a member of several organizations in Nagano Prefecture, where our major business sites are located, and share our expertise in energy savings with local businesses and governments.

A shortlist of organizations Epson participates in includes: Nagano Association for Conserving the Environment, Nagano Employers' Association, Nagano Environmentally Conscious Technology Association (NECTA), Nagano Techno Foundation and Nagano Industrial Waste Association.

Energy-Saving Diagnoses

Since 2000, we have conducted a program called Energy-Saving Diagnoses, sponsored by the Nagano Association for Conserving the Environment. We head a patrol team which we formed with other companies to conduct energy-savings consulting at local companies and hospitals free of charge. In FY2002, we visited six companies and organizations. It has become a very popular service and we are receiving requests from other regions as well.

Cleanup activities around the world

We consider cleanup activities the foundation of all other environmental activities. Many Epson plants conducted cleanup activities in FY2002.

Participation in Lake Suwa adopt-a-block program

In this program, sponsored by a prefectural construction office, the Lake Suwa lakeshore is divided into 30 "blocks" and participating groups are responsible for cleaning assigned blocks. Our business sites and Group companies/affiliates in the vicinity were assigned one block and we cleaned it nine times in FY2002. We are responsible for cleaning it until the end of FY2004.

Other volunteer FY2002 cleanup activities

- May — Hino Office: Spring volunteer cleanup (also Nov.)
- May — Matsumoto Minami Plant: Local communities cleanups
- May — Epson Portland Inc. (U.S.): Highway 26 cleanup (also in Aug., Nov.)
- May — Epson Software Development Laboratory (ESD): Cleanup activity
- May — Epson Industrial (Taiwan) Corp.: 3-day cleanup of mountain area/towns
- June — Ina Plant and Matsushima Plant: Eco-picnic at Tenryu River
- June — Tohoku Epson: Cleanup operation (also in Oct.)
- June — Shiojiri Plant: Eco- and health walk for cleanup and exercise (also Sept.)
- July — Tohoku Epson: Jurizuka Beach cleanup
- July-Aug. — ESD Software Laboratory Beppu: "Refresh Setouchi"
  Software Laboratory Ueda: Cleanup activity
  Software Laboratory Kagoshima: Kinkowan fireworks event cleanup
- Oct. — Shiojiri Plant: Eco-Walk Clean Shioriji (11 participants)
- Nov. — Singapore Epson Industrial Pte. Ltd. (Singapore): Local cleanup activity
- Dec. — Epson Engineering (Shenzhen) Ltd., Po Shen Industrial Factory, Fu Shun Industrial Factory (China): Cleanup in Sihai Park in Shenzhen
- Jan. 2003 — Epson Industrial (Taiwan) Corp. (Taiwan): Cleanup in Tan Tzu Hsiang (3 times in FY2002)

Donations supporting local organizations

We provide material and financial assistance to local volunteer, educational, cultural and welfare organizations.

Epson Trading (Malaysia) Sdn. Bhd. donates PCs and printers

In July 2002, the company donated PCs and printers that were no longer in use due to its office relocation to several organizations.

Other major FY2002 donations

- June — Epson Engineering (Shenzhen) Ltd. (China): 100 recovery boxes for used batteries to Shenzhen City
- July — Epson Precision (Johor) Sdn. Bhd. (Malaysia): Employee-raised and corporate donation to a welfare institution; cash and daily necessities also donated in Oct.
- Oct. — Epson America, Inc.: Printers to 10 junior high schools and vocational schools in the Long Beach, California area
- Nov. — Epson Chile S.A.: Donation to renovate dining hall and other facilities at Escuela Ensenad elementary school
- Nov. — Epson Hong Kong Ltd.: Participated in fundraising charity walk for World Wide Fund for Nature (WWF) Hong Kong
- Nov. — Epson Portland Inc. (U.S.): Donated used electronic equipment to recycling organization for students
- Dec. — Suzhou Epson Co., Ltd. (China): Provided volunteers, vacuum cleaner and juicer to a welfare institution of Suzhou City
- Dec. — Epson Telford Ltd. (U.K.): Donated proceedings from can recovery/recycling to local schools
- Feb. 2003 — Epson Portland Inc.: Covered part of expenses to build local education center

Greening activities

Greening support for desertified areas in China

Photo: Breeding block

Epson began offering financial assistance to a research project of Shinshu University's Faculty of Agriculture on the greening of desertified land using a breeding-block method of seeding. Epson (China) Co., Ltd. is also part of the project.

Third year of greening initiative in Kalimantan, Indonesia

Epson is the donor of trees for this tree-planting project, which began in November 2000. Tree planting is conducted by volunteers organized by local residents.

Participation in Rio Grande River restoration project

Epson El Paso, Inc. (U.S.) and Epson de Juarez, S.A. de C.V. (Mexico) took part in the Rio Grande River restoration project sponsored by the Center for Environmental Resource Management (CERM) in El Paso, and conducted tree planting in November 2002 and February 2003. The companies are also offering part of their premises to be used to grow nursery trees. They are also replacing naturalized plants with native plants to restore the original environment, and distributing newsletters about their activities.

● Other major greening activities

- Dec. 2002 Epson Engineering (Shenzhen) Ltd., Po Shen Industrial Factory and Fu Shun Industrial Factory (China): 600 employees participated in removing mikania weeds at Sihai Park in Shenzhen
- Mar. 2003 Shanghai Epson Magnetics Co., Ltd. (China): 100 employees participated in tree planting

● Supporting and enhancing artistic creativity

Taking part in the creation of new visual expression is a great opportunity for Epson to improve its standard of technology. We are active in cosponsoring art exhibitions and providing technical support, and in collaborating with painters and graphic artists.

PiezoGraph of works by Taizi Harada

With Taizi Harada, a painter from Suwa City, Nagano Prefecture, where our Head Office is located, we conducted joint research to develop proprietary digital printing technology, called PiezoGraph. We then reproduced his paintings and donated them to Yatsugatake Ryo, an institution for the physically and mentally handicapped in Chino City, Takashima Elementary School and the Taizi Harada Art Museum in Suwa.

PiezoGraph
In regular printing, colors are reproduced on four films in four different colors (yellow, magenta, cyan and black). This makes it difficult to express an extensive range of colors and results in a loss of color quality. The PiezoGraph digitally separates original art into particles that have hue, saturation and lightness, and reproduces it with six or seven colors of inks. The result is a far more realistic reproduction.

Versailles Exhibition at Tokyo Metropolitan Art Museum

We printed large-format photographs of interiors from the Palace of Versailles, which were hung throughout the Versailles Exhibition held at the Tokyo Metropolitan Art Museum from January-March 2003.

The *Bino Kyojin Tachi* (art giants) Exhibition

Seiko Epson Corporation reproduced a 40-meter long scroll of Taikan Yokoyama's work, *Seisei Ruten*, for the *Bino Kyojin Tachi* TV show, which we sponsor, using our large-format printer. It was also displayed at Landmark Tower in Yokohama.

● Other major FY2002 technical support

- Apr. Epson (Thailand) Co., Ltd.: Provided large-format output of 30 photographs for exhibition by photojournalist Masaru Goto
- June Epson Singapore Pte. Ltd.: Supported replica-making project for important asset preservation project at Lian Shan Shuang Lin Monastery
- July Seiko Epson Corporation: Provided large-format output of insect photographs by Satoshi Kuribayashi for his exhibition *Lenzu Ga Toraeta Odoroki No Shouchu* (Amazing Microcosmos Captured in the Lens)
- July Epson Singapore Pte. Ltd.: Provided production support for all 40 photographs by Terence Yeung for Le Mois de la Photo (photography month)
- July Epson Singapore Pte. Ltd.: Provided digital printing service of large-format photographs for exhibition at Asian Civilisations Museum
- Sept. Seiko Epson Corporation: Provided PiezoGraph service to reproduce Chihiro Iwasaki's paintings
- Mar. 2003 Seiko Epson Corporation: Cosponsored *Ichikawa Ennosuke Super Kabuki: Shin Sangokushi Kanketsuhen* photo exhibition by Yu Kaida and provided large-format printing of all photographs

● Supporting art, education, academic research and sports

Epson is committed to the promotion of art, education, academic research and sports in different regions. We provide support through Groupwide sponsorship activities, participation in collaboration projects with schools and technical support for sports events.

Saito Kinen Orchestra

Seiko Epson Corporation has been sponsoring the Saito Kinen Orchestra since 1989 and became one of the main sponsors of the Saito Kinen Foundation in 1992. We also cosponsor the annual Saito Kinen Festival Matsumoto, held in Nagano Prefecture.

Super Science High School Program

In FY2002, Japan's Ministry of Education, Culture, Sports, Science and Technology launched the Super Science High School (SSH) Program to foster future science and technology specialists at designated high schools through educational collaboration between schools and corporations. Suwa Seiryo High School in Suwa City, Nagano Prefecture, where Epson's Head Office is located, was designated an SSH. We are fully supporting this program and sending our engineers as lecturers to the school.

World Championships in Athletics

Epson's main products, such as printers, derive originally from timing instruments developed for the 1964 Olympic Games in Tokyo. Our progress in technological development is deeply tied to our support for sports events. We have been an official information system partner of the World Championships in Athletics since the sixth game in Athens in August 1997. We provide a system to distribute information such as the start list, results and other data. In FY2002, we supported many events as a sponsor of the International Association of Athletics Federations.

● Other major FY2002 support for art, education and sports

- June Epson Hong Kong Ltd.: Supported International Dragon Boat Race
- Aug. Epson Deutschland GmbH (Germany): Supported 18th European Track and Field Championships
- Sept. Epson Philippines Corp.: Served as main sponsor of 35th Shell National Students Art Competition
- Oct. Tohoku Epson Corporation: Board member served as visiting lecturer at Tohoku University of Community Service and Science
- Oct. Epson Hong Kong Ltd.: Jointly sponsored environmental forum with Hong Kong University of Science and Technology's Department of Industrial and System Engineering
- Nov. Epson (China) Co., Ltd.: Sponsored Japanese traditional music concert held to commemorate 30th anniversary of Sino-Japan ties; displayed photographs of traditional art printed on latest large-format printers
- Dec. Epson Hong Kong Ltd.: Sponsored Color is Live digital photo contest
- Dec. Epson Singapore Pte. Ltd.: Supported digital art production and related exhibition Chasing Light, a collection of video and photographs depicting water and light by British artist Simon James
- 2002 Epson Australia Pty. Ltd.: Supported SBS Youth Orchestra
- 2002 Epson Italia S.p.A. (Italy): Supported Epson Meteo Centro, NPO providing weather information to Italy's major TV/radio stations

Occupational Health and Safety

Creating a safe working environment

Supporting employee well-being

The Epson Group is active in creating a safe and healthy working environment for its employees. We recently established a Safety and Health Philosophy, and started the New Epson Safety and Health Program (NESP) based on the Japanese Ministry of Health, Labor and Welfare's guidelines for occupational health and safety management systems.

NESP occupational health and safety management

Since FY2000, the Epson Group has been operating its own occupational health and safety management program, NESP. In 2001, we also established the Epson Group Safety and Health Philosophy, which demonstrates our commitment to safe, healthy working environments for our employees around the world.

The NESP management system is a three-phase system aimed at ensuring health and safety in daily operations. These are: 1. Health and safety education for employees; 2. Identification of hazardous factors and their risks through risk assessment; and 3. Continuous improvements under the Plan-Do-Check-Action (P-D-C-A) cycle.

Table 1 shows how NESP is implemented. As of the second half of FY2002, the system has been fully implemented at all Group companies/affiliates in Japan and at overseas manufacturing Group companies/affiliates (overseas sales Group companies/affiliates have their own systems meeting local requirements). Our NESP activities received certification as an Occupational Safety and Health Management System (OSHMS) from the Japan Industrial Safety and Health Association (JISHA) on May 9, 2003, which is granted based on the Ministry of Health, Labor and Welfare guidelines.

In April 2003, we also revised our Epson Group Safety and Health Philosophy to assume deeper corporate responsibility for the management of chemical substances and improvements in the safety of buildings, production and basic facilities plants. The revised philosophy calls for the prohibition of hazardous chemical substances, the removal of any hazardous factors from facilities and other fundamental improvement measures, rather than simply ensuring employees' safe use of equipment/facilities and materials. At the same time, we added management of physical/mental health to the basic policies of NESP and made NESP more comprehensive to improve the working environment (Fig. 1).

In July 2002, the Safety Promotion Department was established (renamed the Safety and Health Promotion Department in April 2003) to create measures, tools and standards that support the activities of promotional organizations (operations divisions and Group companies/affiliates).

Our Safety and Health Philosophy

The Epson Group established basic NESP policies with the conviction that a solid foundation of business activities is established through the creation of a safe and healthy working environment for, and improvements in the health of, our employees around the world. NESP became a reliable system for each region and country and continues to prove effective.

Fig. 1 New Epson Safety & Health Program Concept

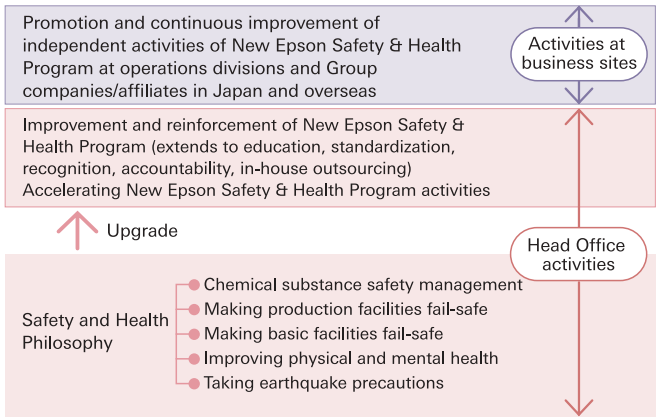


Table 1 New Epson Safety & Health Program Implementation Schedule

		FY2000	FY2001		FY2002		FY2003
			1st half	2nd half	1st half	2nd half	
Operations divisions, Group companies/ affiliates in Japan	Kickoff	February					Continuous improvement
	●Safety and Health Philosophy		▶				
	●Education		→				
	●Identification of risks/assessment			→			
	●Improvement				→	→	
Overseas manufacturing Group companies/ affiliates	Kickoff		July				
	●Education			→			
	●Identification of risks/assessment				→		
	●Improvement					→	

● In FY2003, NESP is revised and renamed the New Epson Safety & Health Program. It now includes health management and is therefore a more comprehensive occupational health and safety program.

Accident- and disaster-free workplaces

Risk assessment is one of the most popular methods used to improve the safety of working environments. In NESP, we use this method for the identification and assessment of hazardous factors (risks), and combine these with other efforts to continuously improve our safety status.

We educate employees by first training management-level employees, who become the instructors for other employees in each workplace. They use an internally developed textbook and distribute wallet-size cards with risk estimation/assessment tables (Photo 1). As shown in Fig. 2, points are assigned for "degree of injury/illness," "frequency of hazard exposure" and "possibility of being injured/falling ill." Based on the total of these risk points, each process is rated a risk level from 1 to 5.

In the identification of risks and the risk assessment phase, employees in each workplace identify, estimate and assess the risks in such work processes as moving inside the plant, operation of production equipment, use of chemical substances and their storage. This risk identification/assessment is done for every single process, along with an analysis of work and analysis of risk, and the results are recorded in the risk assessment table.

In the phase to eliminate or lower risks, we work out measures for risk level 3 and higher (levels that require safety measures) and forecast risk values. Assessment is done annually to continuously improve the safety status. Realtime information on risk assessment status is made available through the intranet.

In FY2002, we strove to maintain at or below level 2 all the risks identified at operations divisions and Group companies/affiliates in Japan. As a result, we reduced the number of processes at level 3 or higher by 76% by the end of FY2002. At overseas manufacturing Group companies/affiliates, we met the objective of identifying and assessing all the risks. We will aim at lowering the risks of all processes to level 2 or lower.

Graph 1 shows the frequency rate of occupational accidents (number of casualties from occupational accidents that caused more than one day of work loss per million total working hours).

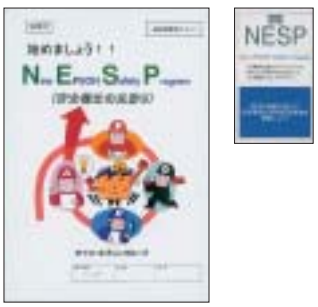


Photo 1
NESP textbook and wallet-size card

Improving employee physical/mental health

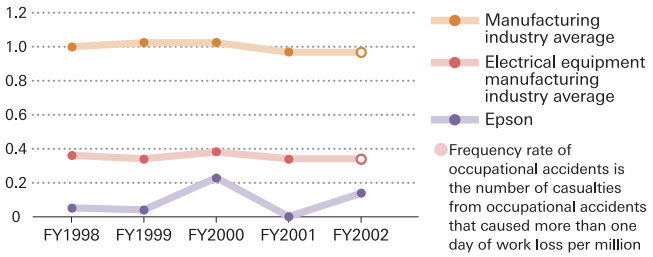
Employees are valuable assets, so their physical and mental health deserve the utmost attention. At Epson, we conduct regular checkups, fitness tests and vaccinations, as well as providing mental care.

To enhance our health management in FY2002 we reorganized the system and moved industrial physicians, nurses and physical therapists into the Safety and Health Promotion Department, instead of being assigned to each business site. Employees are now receiving standardized healthcare services with higher protection of privacy.

Training is provided so that management-level employees can spot emotional problems their employees may be having, and deal with them promptly. On our intranet, we also provide mental health-related information on a page called "mental and physical health."

For employees transferred overseas, we conducted physical/mental health follow-up visits in FY2002. We sent a group of physicians, nurses and counselors to Group companies/affiliates in Indonesia, Singapore, China (Shenzhen) and Malaysia to offer advice on mental and physical health imbalances caused by cultural differences. We plan to continue offering these follow-up visits.

Graph 1 Trends in Occupational Accident Frequency



$$\text{Frequency rate of occupational accidents} = \frac{\text{Number of casualties that caused more than one day of work loss}}{\text{Total working hours}} \times 1{,}000{,}000$$

Fig. 2 Risk Assessment

Estimation and assessment of risks

Degree of injury/illness

Degree	Estimated points
Fatal	10
Serious	8
Miss work	6
See doctor	4
Mild injury	1

+

Frequency of hazard exposure

Exposure frequency	Estimated points
Frequent	4
Occasional	2
Infrequent	1

+

Possibility of being injured/falling ill

Possibility	Estimated points
Certain	6
High	4
Possible	2
Low	1

=

Risk assessment (level determined by points)

Total estimated points	Risk level	Assessment result
15–20	5	Fatally defective
13–14	4	Seriously defective
10–12	3	Highly problematic
7–9	2	Problematic
3–6	1	Not problematic

Risk assessment sample

Analysis of work		Analysis of risk		Estimation of risk			Assessment		Estimated risk/risk assessment (forecast) of improvement measures		Estimate/ assessment after measure is taken
Work description	Work procedure	Cause and effect	Risks (injury/illness)	Degree	Frequency	Possibility	Total	Level	Improvement measures	X	X
Fixing mold	Fix a mold on a bolster	Neck trapped by front/rear cover when air used to close it	Bruise	1	2	2	5	1	Install stoppers	X	X
		Stumbled over pit cover handle when fixing the mold	Bruise	4	4	2	10	3	Make sure handles are removed after use	X	X
Commercial production	Commercial production processing										

Risk level that requires measures be taken

X= Estimate and assess risks in same way as current procedure

Communications Activities

Respect for individuals and local cultures

Trusted throughout the world

Accurate and candid reporting

We communicate with our stakeholders around the world guided by the utmost respect for individuals and local cultures. Behind this is our commitment to be a progressive company, trusted throughout the world, as expressed in our Management Philosophy.

Trusted communications

Corporate reports, advertisements and other types of corporate communications are vital tools to talk to our stakeholders. The Epson Group follows global communications standards, and is constantly upgrading the way we communicate to assure that we continue to win the confidence of people across the world (pp. 46-47).

Environmental communications are conducted in the same way, with information disclosed through various media and at all available opportunities. Suggestions from our stakeholders are incorporated in our efforts to improve our eco-activities.

At Epson, personal information on customers is heavily protected, since we make protection of privacy a top priority. Epson Sales, which often handles customers' personal information, is also committed to protecting privacy, as is enumerated in the privacy policy on its Web site.

Reports and Web site

We published an Environmental Report in Japanese and English starting in 1999, and now have a Chinese version. This new *Sustainability Report* includes both environmental and social activities. In FY2002, the Imaging and Information Products Operations Division (Hirooka Plant is the main plant) which designs, develops and produces IT equipment, Epson's main products, released a site report.

On our website, detailed environmental data on each site is available, as well as the latest information on the Group's conservation activities.

Photo 1 (from left)
Sustainability Report 2003, Environmental Report 2002 Chinese version, *Imaging and Information Products Operations Division Environmental Report 2002*

Environmental advertisements and commercials

We have been using animals as mascot characters for eco-advertisements in newspapers, magazines and on television commercials. At the end of FY2002, we began using a sheep, the zodiac sign of 2003, in ads that call on customers to return used cartridges. We believe this will improve our recovery rate of the cartridges.

Photo 2 Newspaper/magazine ads

Photo 3 TV commercial

Communicating clear messages, not abstract images

Katsuko Koyama, program leader for eco-advertisements

We designated 1998 as the second threshold year for our environmental activities. We reviewed all our targets and empowered employees to conduct eco-activities. As part of the renewed program, we began placing a series of eco-ads in newspapers and magazines. We have released 24 different ads so far, with memorable animal characters that comment on Epson's eco-activities. This conveys our message clearly in a friendly manner, rather than giving readers an abstract image of our eco-efforts. Starting in 2000, we linked the ads with television commercials to reach out to a broader range of customers and call for the return of used cartridges. Many customers rated our communication efforts highly and as a result, the recovery rate of cartridges has been increasing.

Product catalogs

It is important for us to communicate product environmental information to customers who are considering purchasing our products. We have included an environmental page in printer catalogs to help customers understand their environmental performance and the recovery/recycling systems.

We also list contacts for questions, consultation and repairs, and provide information that enables customers to use the products more effectively.

Photo 4 Product catalogs

Trade shows

Epson took part in the Eco-Products 2002 trade show in December. Our booth theme was *Rely on Epson for products that are both high performance and eco-friendly*, and we communicated the performance, functions and eco-design features of our products.

In Nagano Prefecture, where our Head Office and major sites are located, we actively participated in eco-events such as the Suwa Environmental Conservation Conference, Environmental Fair for Lake Suwa, Shinshu Environmental Fair 2002 and the Nordic-Japan Environmental Conference 2002. We also exchanged information with local residents.

Photo 5
Epson booth at Eco-Products 2002

Photo 6
Suwa Environmental Conservation Conference

Photo 7
Environmental Fair for Lake Suwa

Seminars

The Epson Group seizes every opportunity to communicate its environmental activities to its stakeholders. In October 2002, Epson Hong Kong Ltd. jointly sponsored an environmental forum with Hong Kong University of Science and Technology's Department of Industrial Engineering and Engineering Management on how eco-design would change business. Three experts from Epson spoke on how eco-designs have raised corporate competitiveness in Japan. They had the opportunity to interact with the audience of industrial designers, related companies and organizations, and students. In June 2002, Epson took part in the Nikkei BP Environmental Management Forum Open Symposium on the management of corporations aiming to coexist with the nature. An Epson expert also spoke on our conservation activities at Shinshu University.

Photo 8 (left) How Eco-Design Would Change Business forum
Photo 9 Nikkei BP Environmental Management Forum

Recognition

In the Third Eco Brand Survey sponsored by Nikkei Business Publications, Inc., businesspeople ranked Epson eighth, and consumers ranked it 17th, in the list of corporations making good eco-efforts. The results surpassed the last survey, in which we ranked 12th and 193rd, respectively. Also in FY2002, Seiko Epson Corporation received its first sustainable management rating from Japan's Sustainable Management Rating Institute (SMRI). Under the system, a company is rated in three categories (economy, environmental conservation and society/ethics) from three perspectives (strategy, organization and accomplishments) to assess its sustainability. We carefully reviewed the results and are committed to reflecting them in our future management, and to improving communications with our stakeholders.

Interacting with stakeholders: environmental report event

We cosponsored an event with Ricoh Co., Ltd. during which we discussed our environmental reports with stakeholders in December 2002. It was the first time that the reports' producers had communicated directly with readers, and it further improved corporate communications. Both Ricoh and Seiko Epson Corporation had been publishing a digest version of their environmental reports, along with the longer versions, but the event enabled us to see the shortened versions' shortcomings. With the publication of the *Sustainability Report 2003*, we reorganized information and suspended the digest's release until a suitable alternative is found. We hope to create greater opportunities to communicate with our stakeholders and to serve them with more effective communications.

Environmental report event

Event details

Sponsors: Ricoh Co., Ltd. and Seiko Epson Corporation, with the support of General Press Corporation
Date: December 21, 2002 (Sat.), 13:00-17:00
Venue: Conference Room, General Press Corporation
Participants: 20 (4 students, 1 teacher, 15 company workers)

Program

1 The reports' producers (General Press) explained their approach and intentions

2 Participants evaluated messages from the management
We asked the participants to read and evaluate the management messages in the reports, which encompassed the concepts of the report. Opinions greatly differed.

3 Participants produced digest versions of the reports
Participants were asked to enact roles as salespeople for the two companies and to produce digest versions of the reports. In four teams, they created their own digest reports.

Suggestions from participants and our responses

Message from the management

Participants commented positively on Epson's management message, saying it displayed an original philosophy and was written in a down-to-earth manner. However, they also felt that there were platitudes, and that it was confusing to have one message given by two people (the president and the chairman) since it was not possible to tell who was saying what. To resolve that, we separated the messages in this report, and asked the president to explain the responsibilities of environmental and social activities and what we must do.

Regarding the overall content of the report

Many of the suggestions from participants were related to our products. They commented on how Epson products and eco-activities benefit consumers in their everyday lives and how they themselves could contribute to more effective conservation of the environment. In this report, we provided more detailed information on eco-products and concrete examples of conservation activities involving customers, such as our reduction of packaging boxes and trade-in service for used products (p. 30).

Photo 1
Reports' producers explain their approach (right, Seiko Epson Global Environmental & Safety Policy Department Manager Ono)

Photo 2
Participants evaluate management messages

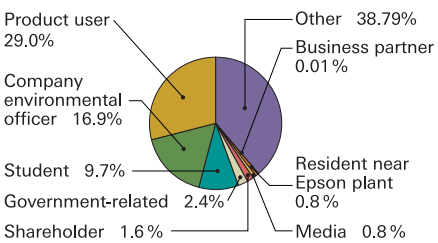
Photo 3
Participants become one-day Epson sales force to create digest Environmental Reports

Photo 4
Presentation of digest report

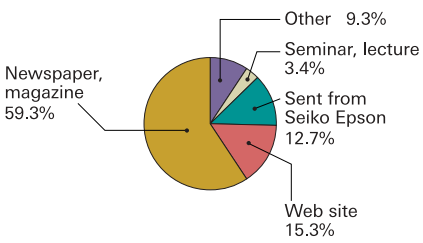
Environmental Report 2002 Questionnaire Results

Valuable comments were sent to us by 124 respondents to the questionnaire at the back of our *Environmental Report 2002* (April 2001-March 2002), issued in June 2002 (English version in August 2002). We are grateful for these contributions. Here are the results and what we have done in response.

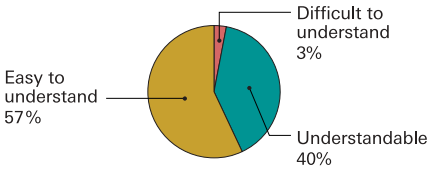
Q. What is your affiliation with/relationship to Epson?



Q. How did you learn about the report?



Q. What did you think of the report?



Suggestions from respondents and our responses:

・Readers may not read everything but look for keywords to locate where they would like to read.
→We listed keywords for each activity and used many graphs, tables and figures, instead of trying to explain in the text.

・We could not understand how you respond to outside suggestions.
→We held an event to discuss the environmental report with our stakeholders.

Questionnaire responses

Reference Data

Data in this section are representative but incomplete.
Please visit our website for further details:
www.epson.co.jp/ecology/

Environmental Data by Location

For further details, please visit our website:
www.epson.co.jp/ecology/

Location Business activities	Address Telephone	Year operations began	Site Building sizes	Zoning	Energy consumption (10,000 kWh)
Head Office ●Headquarters, R&D	3-3-5 Owa, Suwa-shi, Nagano-ken 392-8502 Tel: +81-266-52-3131	1942	46,910.48m^2 57,459.96m^2	Semi-industrial	1,267
Hirooka Plant ●Development, design and manufacturing of IT equipment	80 Hirookaharashinden, Shiojiri-shi, Nagano-ken 399-0785 Tel: +81-263-52-2552	1970	209,116.42m^2 108,027.85m^2	Industrial only (No. 6 building is industrial site)	3,780
Fujimi Plant ●R&D, design and manufacturing of semiconductors	281 Fujimi, Fujimi-machi, Suwa-gun, Nagano-ken 399-0293 Tel: +81-266-61-1211	1980	247.335.97m^2 128,143.03m^2	Unspecified	12,715
Suwa Minami Plant ●R&D of production technology; manufacturing of TFT panels and watch parts	1010 Fujimi, Fujimi-machi, Suwa-gun, Nagano-ken 399-0295 Tel: +81-266-62-6622	1985	147,065.04m^2 87,309.32m^2	Unspecified	7,790
Shiojiri Plant ●Development and manufacturing of watches	390 Shiojiri-cho, Shiojiri-shi, Nagano-ken 399-0796 Tel: +81-263-52-0620	1961	45,871.00m^2 23,421.41m^2	Semi-industrial	1,188
Matsumoto Minami Plant ●R&D of system devices	2070 Kotobuki Koaka, Matsumoto-shi, Nagano-ken 399-8702 Tel: +81-263-86-5353	1995	182,337.65m^2 16,300.72m^2	Controlled development	261
Ina Plant ●Development, design and manufacturing of quartz devices	8548 Nakaminowa, Minowa-machi, Kamiina-gun, Nagano-ken 399-4696 Tel: +81-265-79-2481	1959	41,065.42m^2 27,302.27m^2	Semi-industrial	1,420
Murai Plant ●Development of portable IT equipment	1059 Yoshikawa Murai-cho, Matsumoto-shi, Nagano-ken 399-8707 Tel: +81-263-58-3141	1963	34,235.58m^2 19,804.88m^2	Semi-industrial	242
Shimauchi Plant ●Development, design and manufacturing of visual instruments	4897 Shimauchi, Matsumoto-shi, Nagano-ken 390-8640 Tel: +81-263-47-0500	1971	32,258.12m^2 18,805.46m^2	Unspecified	320
Toyoshina Plant ●Development, design and manufacturing of LCD panels, modules	6925 Tazawa,Toyoshina-machi, Minami Azumi-gun, Nagano-ken 399-8285 Tel: +81-263-72-1447	1983	89,736.06m^2 77,529.85m^2	Industrial	7,702
Matsushima Plant ●Development, design and manufacturing of lenses for glasses and optical devices	8793 Nakaminowa, Minowa-machi, Kamiina-gun, Nagano-ken 399-4693 Tel: +81-265-79-8121	1980	41,311.31m^2 20,743.92m^2	Semi-industrial	2,235
Okaya Plant ●Manufacturing of exterior parts of watches	2-1-43 Osachi Shibamiya, Okaya-shi, Nagano-ken 394-0083 Tel: +81-266-23-0888	1985	27,754.31m^2 17,914.50m^2	Semi-industrial	464
Takagi Plant ●Element development	8953 Shimosuwa-machi, Suwa-gun, Nagano-ken 393-0033 Tel: +81-266-27-8911	1956	26,999.53m^2 19,519.40m^2	Semi-industrial	170
Matsumoto Plant ●Development of software; product design and sales	2-4-14 Shiraita, Matsumoto-shi, Nagano-ken 390-0863 Tel: +81-263-36-1811	1976	14,463.39m^2 21,265.18m^2	Semi-industrial	158
Kanbayashi Plant ●Printer repairing	1563 Kanbayashi, Matsumoto-shi, Nagano-ken 390-1243 Tel: +81-263-58-6001	1973	8,192.10m^2 10,249.95m^2	Unspecified	82
Azusabashi Plant ●Manufacturing of visual instruments	5209-1 Takibe, Toyoshina-machi, Minami Azumi-gun, Nagano-ken 399-8204 Tel: +81-263-72-7620	1976	20,695.56m^2 5,298.9m^2	Semi-industrial	144
Okaya 2nd Plant *1	1-16-15 Daiei-cho, Okaya-shi, Nagano-ken 394-0025	1991	13,965m^2 5,428.16m^2	Semi-industrial	114
Hino Office ●Sales of electronic devices; IC design; development of software, etc.	421-8 Hino, Hino-shi, Tokyo 191-8501 Tel: +81-42-586-6226	1985	42,452.34m^2 32,990.88m^2	Semi-industrial	362
Tohoku Epson Corporation ●Manufacturing of semiconductors and printing heads	166-3 Jurizuka, Sakata-shi, Yamagata-ken 998-0194 Tel: +81-234-31-3131	1987	538,764.74m^2 133,077.58m^2	Industrial	20,779
Atmix Corporation ●Development, manufacturing and sales of metallic powders and artificial crystals	4-44 Kaigan, Kawaragi Aza, Hachinohe-shi, Aomori-ken 039-1161 Tel: +81-178-73-2801	2000	13,076.30m^2 2,619.45m^2	Industrial	1,042
Epson Hatogaya Corporation *2	3-18-36 Minami, Hatogaya-shi, Saitama-ken 334-0013	2000	13,877.00m^2 5,272.00m^2	Industrial	1,481
Seiko Epson Contact Lens Corporation ●Manufacturing of contact lens	1545 Nakaminowa, Minowa-machi, Kamiina-gun, Nagano-ken 399-4601 Tel: +81-265-79-6623	1987	7,800.00m^2 3,520.00m^2	Unspecified	130
Seiko Lens Service Center Co., Ltd. ●Manufacturing of eyeglass lenses	1-9-30 Setoguchi, Hirano-ku, Osaka 547-0034 Tel: +81-6-6703-7618	1965	1,750.00m^2 3,499.23m^2	Semi-industrial	560
Epson Logistics Corporation ●Distribution and transport services for Epson Group	2-1-18 Tsukama-cho, Okaya-shi, Nagano-ken 394-0026 Tel: +81-266-22-8466	1997	4,901.54m^2 6,922.64m^2	Semi-industrial	44
Epson Mizube Corporation ●Assembly and inspection of electronic equipment and precision instruments	1-18-12 Kogandori, Suwa-shi, Nagano-ken 392-0027 Tel: +81-266-58-8833	1984	4,992.70m^2 *3 3,321.62m^2	Semi-industrial	6
Injex Corporation ●Development, manufacturing and sales of metal injection molding parts	1-18-12 Kogandori, Suwa-shi, Nagano-ken 392-0027 Tel: +81-266-52-8100	1989	4,992.70m^2 *3 2,027.73m^2	Semi-industrial	408

◆Value: Maximum values measured are shown for every item. Values exceeding the legal standards are indicated in red. Water quality data is based on plant wastewater measurements, except when there is a mixture of plant and domestic wastewaters, for which data represent mixed water.
◆ND: Not detected
◆–: No restriction, so no measurement performed
◆Others:
*1 Feb. 2003 Plant closed
*2 Mar. 2003 Company terminated
*3 On same premises
*4 Disposed of together on same premises
*5 Has not been meeting requirements since second half of FY2002 due to halted sludge recycling, resulting from a disagreement with recycling company over quality of recycled sludge. Measures are being taken to re-meet Level 1 requirements with all possible speed.
◆PRTR data: ★Sites subject to reporting. See p. 65 for data.
*6 PRTR data for Injex Corporation Okaya Plant, p. 65
*7 PRTR data for Tohoku Epson Corporation and Sakata Plant, p. 65
*8 PRTR data for Injex Corporation headquarters, p. 65

Waste		Water consumption (m³)	Wastewater outlet	Water quality							Air				PCBs stored (No. of)	PRTR data
Total generation (t)	Amount sent to landfill (t)			PH	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Mineral oils (mg/l)	Animal, plant oils (mg/l)	Coliform group (group/cm³)	Boiler (No. of)	NOx (cm³/m³N)	SOx (Nm³/h)	Soot and dust (g/m³N)		
283	8.7	192,501	Sewer	7.1-7.4	5	1.2	ND	ND	0.91	22	6	89	0.066	0.009	128	
5,072	142.3	500,789	Sewer	6.6-7.9	210	200	140	0.6	21	-	11	91	0.058	0.008	2	★
2,013	602.9 *5	1,469,513	Sewer	6.8-7.8	110	53	71	ND	5.5	-	20	90	0.34	ND	6	★
1,213	16.5	1,078,524	Sewer	6.7-7.3	140	67	35	ND	3.4	-	14	97	0.31	0.11	0	★
294	4.8	278,225	Sewer	7.8-8.3	100	-	57	ND	9.6	-	2	110	0.056	ND	0	
305	12.2	17,722	River	6.7-7.7	29	25.5	17	1.4	1.4	ND	2	65	0.09	ND	0	
301	14.0	109,406	River	6.9-7.4	4	6.3	4	3	2.4	ND	4	99	0.11	ND	56	★
81	0.7	33,160	Sewer	7.7-8.9	310	120	450	ND	6.4	-	3	100	0.16	ND	24	
253	8.1	21,207	Sewer	6.7-8.4	92	-	68	ND	23	ND	2	74	0.048	ND	1	
2,884	11.2	1,216,105	River, Sewer	6.3-8.3	210	8.4	58	ND	ND	18	22	110	0.069	0.017	0	★
775	3.1	435,093	River, Sewer	7.1-7.3	23	29	4	ND	0.5	46	4	78	0.13	0.013	0	★
128	2.4	53,459	Sewer	6.9-7.5	37	-	24	ND	7.7	-	3	100	0.17	0.0001	0	
24	0.6	24,217	Sewer	6.4-7.8	72	-	27	-	8.3	-	1	26	0.025	0.0023	1	
183	2.5	60,818	River, Sewer	7.6-8.0	0.7	1.2	8.5	ND	-	1	3	81	0.09	0.006	1	
150	0.8	13,693	Sewer	6.3-8.8	180	23	104	ND	29	-	1	87	0.037	ND	0	
109	3.2	9,939	Underseepage	7.0-7.4	18	29	10	ND	2.2	1	2	44	0.024	ND	0	
33	-	5,384	Sewer	-	-	-	-	-	-	-	-	-	-	-	0	★*6
151	2.5	25,671	Sewer	7.1-7.6	140	79	68	ND	ND	-	-	-	-	-	8	
4,304	0.2	2,978,313	Waterfront	7.7-7.9	4.5	4.7	4.5	ND	ND	6	12	97	1.77	0.005	0	★*7
536	0.9	208,552	Canal	6.9-7.3	-	2.7	8	1.5	-	-	0	-	-	-	0	★
Data unavailable	-	203,308	River	6.8-7.3	24	9.6	23	ND	-	ND	5	ND	- (Utility gas)	0.063	0	
18	0.3	10,216	Underseepage	-	1.4	-	4.6	ND	-	-	-	-	-	-	0	
277	43.1	48,587	Sewer	6.6-7.8	52.5	-	262	0.4	5.8	-	-	-	-	-	0	
27	0.1	6,489	Sewer	8.0-8.8	-	-	-	ND	26	-	2	69	0.033	0.008	3	
4	1.6 *4	2,144	Sewer	7.4	240	110	40	ND	1.8	-	-	-	-	-	0	
56	1.6 *4	8,553	Sewer	-	-	-	-	-	-	-	2	39	ND	ND	0	★*8

Summary of Groupwide Environmental Data

Energy

●Energy Use (unit: kl of crude oil)

Japan	FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
Energy use	176,073	187,016	215,939	210,353	-2.6
(CO_2 equivalent unit: 10,000 tons CO_2)	(31.7)	(34.5)	(41.6)	(42.6)	2.5
Breakdown ●Oil/gas	56,204	67,377	92,306	103,509	12.1
●Electricity	119,869	119,640	123,633	106,844	-13.6

CO_2 equivalent for FY1997-2001 calculated using Japanese Federation of Electric Power Companies coefficient

Overseas	FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
Energy use	58,572	76,369	82,987	81,831	-1.4
(CO_2 equivalent unit: 10,000 tons CO_2)	(16.0)	(21.5)	(24.2)	(25.1)	3.5
Breakdown ●Oil/gas	4,888	6,693	6,977	9,459	35.6
●Electricity	53,684	69,676	76,010	72,372	-4.8

Global Warming Substances

●Global Warming Substance Emissions (unit: 10,000 tons CO_2)

Japan	FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
CF_4	3.3	3.1	2.0	2.9	0.9
C_2F_6	10.7	8.4	3.0	3.6	0.6
SF_6	3.9	7.2	3.0	4.7	1.7
Liquid PFC (C_6F_{14})	4.8	1.2	0.5	1.4	0.9
Other (C_4F_8,CHF_3, etc.)	4.1	1.8	0.9	1.3	0.4
Total	26.8	21.7	9.4	13.9	4.5

●Overseas = 0

Harmful Chemical Substances

●Harmful Chemical Substance Use (targeted for prohibition; unit: tons)

Japan	FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
HCFC-225	19.2	0.0	0.0	0.0	0.0
Cellosolve	73.4	30.6	8.1	3.4	-4.7
Methylene chloride	91.4	0.0	0.0	0.0	0.0
Other	3.0	1.4	0.2	0.0	-0.2
Total	187.0	32.0	8.4	3.4	-5.0

Overseas	FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
HCFC-225	-	39.2	0.0	0.0	0.0
Cellosolve	-	6.1	0.9	0.0	-0.9
Methylene chloride	-	0.0	0.0	0.0	0.0
Other	-	0.0	0.0	0.018	0.018
Total	-	45.3	0.9	0.018	-0.882

Water

●Water Use (unit: 1,000m^3)

Japan	FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
	7,607	8,152	8,408	8,946	538

Overseas	FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
	-	-	-	3,850	-

Industrial Waste

●Waste Disposed of (unit: tons)

Japan		FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
Industrial waste	Sludge	1,865	969	743	877	134
	Oil waste	997	46	12	0	-12
	Acid	382	109	41	0	-41
	Alkali	509	69	84	0	-84
	Plastics	2,242	366	60	13	-47
	Wood scraps	90	9	3	2	-1
	Metals	243	27	3	0	-3
	Glass and ceramics	298	77	7	1	-6
	Other	58	5	13	3	-10
General waste	Combustible waste	1,480	687	241	168	-73
	Plastics	223	19	9	0	-9
	Incombustible waste	263	61	4	0	-4
	Other	411	82	115	68	-47
	●Total	9,061	2,526	1,335	1132	-203

●Waste Recycled (unit: tons)

Japan		FY1997 (base year)	FY2000	FY2001	FY2002	Increase/ decrease over FY2001(%)
Industrial waste	Sludge	2,010	3,712	2,902	3,891	989
	Oil waste	793	2,682	2,579	3,433	854
	Acid	0	639	564	749	185
	Alkali	0	937	895	1,900	1,005
	Plastics	499	2,148	2,401	3,139	738
	Wood scraps	73	161	140	156	16
	Metals	213	1,524	1,630	2,307	677
	Glass and ceramics	1	114	176	172	-4
	Other	27	478	55	700	645
General waste	Confidential documents	303	433	456	511	55
	Used paper, magazines, newspaper, cardboard, etc.	828	1,320	1,208	1,026	-182
	Plastics	45	6	1	0	-1
	Metal scraps	258	2	0	0	0
	Raw refuse	0	98	76	102	26
	Other (*)	-	230	277	253	-24
	●Total	5,050	14,484	13,360	18,340 *	4,980

* Amount of valuable resources in FY2002: 1,554 tons

●Amount Sent to Landfill (unit: tons)

Japan	FY2002	Increase/decrease over FY2001(%)
Amount sent to landfill (assessed from FY2002)	883	—

●Waste Disposed of (unit: tons)

Overseas		FY2000	FY2001	FY2002	Increase/decrease over FY2001(%)
Industrial waste	Sludge			442	—
	Oil waste			3,646	—
	Acid			9	—
	Alkali			0	—
	Plastics			127	—
	Wood scraps			17	—
	Metals			3	—
	Glass and ceramics			43	—
	Other			34	—
General waste	Combustible waste			432	—
	Raw refuse			47	—
	●Total	5,653	5,693	4,800	-893

●Waste Recycled (unit: tons)

Overseas		FY2000	FY2001	FY2002	Increase/decrease over FY2001(%)
Industrial waste	Sludge			639	—
	Oil waste			1,849	—
	Acid			98	—
	Alkali			72	—
	Plastics			2,490	—
	Wood scraps			756	—
	Metals			6,097	—
	Glass and ceramics			461	—
	Other			1,452	—
General waste	Confidential documents, used paper, magazines, newspaper, cardboard, etc.			3,561	—
	Raw refuse			409	—
	●Total	15,863	16,863	17,884 *	2,522

* Amount of valuable resources in FY2002: 12,173 tons

●Pollutant Release and Transfer Register (PRTR) Data by Location

354 PRTR substances subject to PRTR Law (unit: kg)

Sub-stance #	Substance	Amount used	Amount emitted/discharged				Amount transferred		Consumed	Eliminated	Recycled
			Released to atmosphere	Released to public water system	Released to soil	Sent to landfill	Transferred to sewage	Transferred as waste			
	●Hirooka Plant Contact: Tel. +81-263-52-2552										
43	Ethylene glycol	25,750						258	25,492		
231	Nickel	10,127						400	1,506		8,221
283	Hydrogen fluoride and its water-soluble salts	6,401						6,401			
309	Poly (oxyethylene) = nonylphenol ether	6,497						66	6,432		
	●Fujimi Plant Contact: Tel. +81-266-61-1211										
16	2-aminoethanol	41,572	79					39,372		2,120	
24	n-alkylbenzenesulfonic acid and its salts (alkyl C=10-14)	27,377						27,377			
63	Xylene	6,718	2,724					3,319		675	
101	Ethylene glycol monoethyl ether acetate	3,416	403					2,663		351	
172	N, N-dimethyl formamide	2,664	133					2,264		266	
266	Phenol	27,377	4,107					21,901		1,369	
283	Hydrogen fluoride and its water-soluble salts	34,821	121				2,847	2		31,851	
	●Suwa Minami Plant Contact: Tel. +81-266-62-6622										
16	2-aminoethanol	63,587	11,013				789	44,676		7,109	
63	Xylene	205,400								205,400	
283	Hydrogen fluoride and its water-soluble salts	27,178	4				1,355			25,819	
	●Ina Plant Contact: Tel. +81-265-79-2481										
283	Hydrogen fluoride and its water-soluble salts	6,818	34					5,557		1,227	
	●Toyoshina Plant Contact: Tel. +81-263-72-1447										
16	2-aminoethanol	102,016	621				18,358	80,601		2,436	
43	Ethylene glycol	1,968					207	1,761			
67	Cresol	1,150	1				6	1,130		13	
283	Hydrogen fluoride and its water-soluble salts	2,673		144			86			2,443	
	●Matsushima Plant Contact: Tel. +81-265-79-8121										
27	3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	18,702	7					108	18,587		
341	Methylenebis (4,1-cyclohexylene) diisocyanate	18,702	7					108	18,587		
	●Sakata Plant Contact: Tel. +81-234-31-3131										
16	2-aminoethanol	42,246						33,797		8,449	
63	Xylene	1,028						504		524	
172	N, N-dimethyl formamide	45,540						21,808		23,732	
260	Catechol	26,068						20,854		5,214	
283	Hydrogen fluoride and its water-soluble salts	40,153		2,789						37,364	
	●Tohoku Epson Corporation Contact: Tel. +81-234-31-3131										
25	Antimony and its compounds	1,042						667	375		
232	Nickel compounds	6,060						574	5,486		
	●Atmix Corporation Contact: Tel. +81-178-73-2801										
68	Chrome and trivalent chrome compounds	282,470							267,667		14,803
100	Cobalt and its compounds	15,290							14,809		482
231	Nickel	277,614		4					267,611		10,000
311	Manganese and its compounds	6,505		10					5,258		1,237
346	Molybdenum and its compounds	21,431		3					20,660		768
	●Injex Corporation Headquarters Contact: Tel. +81-266-52-8100										
68	Chrome and trivalent chrome compounds	8,361							7,685		676
231	Nickel	3,468							2,734		733
	●Injex Corporation Okaya Plant Contact: Tel. +81-266-52-8100										
68	Chrome and trivalent chrome compounds	7,223						304	6,504		415
100	Cobalt and its compounds	2,510						721	806		983
231	Nickel	3,595						330	2,816		450

ISO 14001 Certification List

●ISO 14001 Certification List

As of Mar. 31, 2003

	Certified operations	Date of certification	Certifying organization
●Japan			
Manufacturing industry	System Device Operations Division	1996.12.26	JQA
	Imaging and Information Products Operations Division	1997.2.26	JQA
	Optical Products Operations Division	1997.7.19	BVQI
	Semiconductor Operations Division	1997.9.27	BVQI
	Display Operations Division	1997.11.1	BVQI
	Quartz Device Division	1997.11.7	BVQI
	Watch Operations Division	1998.1.11	BVQI
	Visual Instruments Operations Division	1998.1.19	BVQI
	FA Device Operations Division	1998.4.18	BVQI
	●Group companies		
	Seiko Lens Service Center Co., Ltd.	1998.4.13	BVQI
	Tohoku Epson Corporation	1998.4.18	BVQI
	Seiko Epson Contact Lens Corporation	1998.12.29	BVQI
	Epson Service Corporation	1999.1.15	BVQI
	Epson Logistics Corporation	2000.2.26	BVQI
	Injex Corporation	2000.3.20	BVQI
	Epson Mizube Corporation	2000.4.21	BVQI
	Akita Orient Seimitsu Co., Ltd.	2001.3.11	BVQI
Non-manufacturing industry	Head Office	1999.4.3	BVQI
	Hino Office	2001.2.11	BVQI
	●Group companies		
	Epson Sales Japan Corp.	1999.4.8	BVQI
	Epson OA Supply Corporation	1999.12.22	BVQI
	A.I. Soft, Inc.	2000.11.26	BVQI
	Epson Software Development Laboratory, Inc.	2000.12.23	BVQI
	Epson Direct Corporation	2001.2.15	BVQI
●Overseas			
Manufacturing industry	●Asia/Oceania		
	P.T. Epson Batam	1997.11.25	BVQI
	Epson Industrial (Taiwan) Corp.	1998.12.29	Bureau of Commodity Inspection & Quarantine
	Singapore Epson Industrial Pte. Ltd.	1999.1.12	SGS/BVQI
	P.T. Indonesia Epson Industry	1999.3.26	BVQI
	Epson Precision (Johor) Sdn. Bhd.	1999.3.26	BVQI
	Po Shen Industrial Factory	1999.4.22	SZEC
	Epson Precision (Malaysia) Sdn. Bhd.	1999.4.29	SIRIM
	Suzhou Epson Co., Ltd.	1999.6.28	CCEMS
	Tianjin Epson Co., Ltd.	1999.8.8	Chinese Research Academy of Environmental Sciences
	Epson Precision (Hong Kong) Ltd.	1999.9.27	BVQI
	Epson Precision (Philippines) Inc.	2000.2.21	TÜV
	Fu Shun Industrial Factory	2000.3.26	SZEC
	Epson Engineering (Shenzhen) Ltd.	2000.4.19	SZEC
	E&G Hong Kong Limited / E&G Electronic (Shenzhen) Ltd.	2000.6.26	CCEMS
	Shanghai Epson Magnetics Co., Ltd.	2000.7.2	EIQA
	Fujian Epson Start Electronic Co., Ltd.	2001.2.20	CEPREI
	●Europe		
	Epson Telford Ltd.	1995.11.28	Lloyd's
	●Americas		
	Epson Portland Inc.	1998.6.9	UL
	Epson El Paso, Inc./Epson de Juarez, S.A. de C.V.	1999.3.11	PJR
	Epson Paulista Limitada	2000.2.2	ABS
Non-manufacturing industry	●Asia/Oceania		
	Epson Taiwan Technology & Trading Ltd.	1999.10.5	DNV
	Epson Hong Kong Ltd.	2000.2.17	BVQI
	Epson Singapore Pte. Ltd.	2000.3.1	PSB
	Shanghai Epson Electronics Co., Ltd.	2000.9.11	CCEMS
	Epson (China) Co., Ltd./ Seiko Epson Corp. Beijing Representative Office	2000.9.25	CCEMS
	Epson (Shanghai) Information Equipment Co., Ltd.	2000.9.25	CCEMS
	Beijing Epson Electronics Co., Ltd.	2000.9.25	CCEMS
	Epson Korea Co., Ltd.	2000.9.30	BVQI
	Seiko Epson Corporation Korea Office	2001.3.22	BVQI
	Epson Trading (Malaysia) Sdn. Bhd.	2001.3.31	International Ltd.
	Epson Australia Pty. Ltd.	2001.5.25	QAS
	Epson(Beijing)Technology Service Co.,Ltd.	2001.11.4	CCCI
	●Europe		
	Epson Engineering Europe S.A.	1999.12.10	BVQI
	Epson Europe B.V.	2001.3.20	BVQI
	・Epson Europe Electronics GmbH		
	・Epson Portugal-Infomatica, S.A.		
	・Epson Italia S.p.A.		
	・Epson Iberica, S.A.		
	・Epson France S.A.		
	・Epson Deutschland GmbH		
	・Epson (U.K.) Ltd.		
	●Americas		
	Epson America, Inc.	2000.11.10	QMI/NSF-ISR
	Epson Electronics America, Inc.	2001.3.7	BVQI
	Epson Research and Development, Inc.	2001.3.8	BVQI

Environmental Awards

Date	Recognition	Sponsor	Recipient
April 2002	Environmental Management in Industry	BILIK Batam, BIC (Batamindo Invesment Cakrawala)	PT. Epson Batam (Factory Facility Department)
May 2002	Third Prize - 5th Green Reporting Awards	Toyo Keizai Inc.	Seiko Epson Corp.
June 2002	Grand Prize (Governor's Prize) - Yamagata Environment Conservation Promotion Award	Yamagata Environment Conservation Council	Tohoku Epson Corp.
July 2002	Industrial Use Division Award - 5th Thermal Storage Gathering	Heat Pump & Thermal Storage Technology Center of Japan	Seiko Epson Corp.
September 2002 Photo 1→	Recycler of the Year	Association of Oregon Recyclers	Epson Portland Inc.
October 2002	EcoHitech Award	Ecoqual'It Consortium	Epson Italia (ECOQUAL'IT)
November 2002 Photo 2→	FY2002 Excellent Enterprise - Award for Operating and Sustaining Antipollution Facility	Department of Industrial Technology, Ministry of Economic Affairs, R.O.C.	Epson Industrial (Taiwan) Corp.
November 2002 Photo 3→	Governor's Award - Excellent Plants for Manufacture and Safety of High Pressure Gas, FY2002 Nagano High Pressure Gas Convention	Nagano Prefecture	Ina Plant
December 2002	The Nikkei Weekly Advertising Awards	Nihon Keizai Shimbun, Inc.	Seiko Epson Corp. for Energy Savings Advertising
December 2002 Photo 4→	Minister's Award for Dissemination and Adoption of Prevention Technology Division - FY2002 Minister's Award for Global Warming Prevention Activities	Japanese Ministry of the Environment	Tohoku Epson Corp.
January 2003 Photo 5→	Light of Environment Prize - Tan Tzu Hsiang Social Contribution Award	Republic of China Government	Epson Industrial (Taiwan) Corp.
January 2003 Photo 6→	Excellence Prize - 6th Environmental Report Awards	Global Environmental Forum (Sponsor: Japanese Ministry of the Environment)	Seiko Epson Corp.
January 2003	Environmental Report Promotion Prize - 6th Environmental Report Awards	Global Environmental Forum (Sponsor: Japanese Ministry of the Environment)	Imaging and Information Products Operations Division, Hirooka Plant
January 2003	Chairman's Award for Energy Conservation	The Energy Conservation Center, Japan	Epson MAXART PX-9000 Epson MAXART PX-7000
January 2003	Award of Excellence for Energy Conservation in a Factory, Building, or Office	The Energy Conservation Center, Japan (Sponsor: METI Agency for Natural Resources and Energy)	Tohoku Epson Corp.
January 2003	Minister of Economy, Trade and Industry Prize for Energy Conservation in a Factory, Building or Office	The Energy Conservation Center, Japan (Sponsor: METI Agency for Natural Resources and Energy)	Toyoshina Plant
January 2003	Special Prize - DIF Program	DIF (Integran Family Development Organization)	Epson de Juarez, S.A. de C.V.
February 2003	Director's Award for Factory Energy Management Excellence (Electrical Division)	Chubu Bureau of Economy, Trade and Industry	Suwa Minami Plant
February 2003	Green Enterprise – 1st Shenzhen Green Enterprise, Hotel, Hospital, Shop and Town Award	City of Shenzhen	Epson Engineering (Shenzhen) Ltd.
February 2003	National Reforestation Program (Forest Recovery Activity)	National Mexican Army	Epson El Paso, Inc./ Epson de Juarez, S.A. de C.V.
April 2003 Photo 7→	Ecology Division Prize - Nikkei BP Technology Awards	Nikkei Business Publications, Inc.	Seiko Epson Corp. for inkjet technology applicable to organic EL plasma display and semiconductor circuit wiring
April 2003 Photo 8→	Environment for Tomorrow Award	Asahi Shimbun	Seiko Epson Corp.
June 2003	Third Prize - 6th Green Reporting Awards	Toyo Keizai Inc.	Seiko Epson Corp.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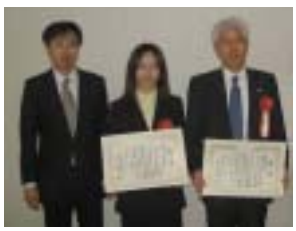
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Independent Verification of Environmental Activities

BVQI has conducted an independent verification of the Epson Group's environmental activities to ensure the credibility and transparency of information disclosure and to provide the results so that environmental management can be further improved.

The scope of verification until FY2001 was limited to environmental accounting (including quantified data). For the fiscal year under review, however, we requested that BVQI verify the credibility of the disclosed information overall and of the legitimacy of our environmental management (including objectives setting to deployment, progress management, relevance to environmental management system and achievements). Their comments will be incorporated into our efforts to enhance our future environmental activities and our sustainable business management.

A summary of BVQI's report and comments are presented in this section so as to share with our stakeholders the results of the credibility verification and the third-party view of the Group's environmental management. We will present a follow-up report in the next issue of our *Sustainability Report*.

30th May 2003

Verification Report for EPSON Sustainability Report 2003

To: SEIKO EPSON Corporation
President
Sahuro Kusuna

BVQI Japan Co., Ltd.
General Manager
Osamu Nakamori

SEIKO EPSON CORPORATION (EPSON) will issue "EPSON Sustainability Report 2003", under the authority of EPSON. BVQI Japan Co., Ltd. (BVQI) has verified the reliability of management of 'Mid-range General Environmental Policy and Objectives' and 'Summary Group-wide Environmental Data' selected by EPSON from the viewpoint of intended purpose of the report.

Verification Methodology

There are no generally accepted international standards for environmental and sustainability reporting and the verification of these reports. Therefore, BVQI used a verification methodology based on sorting practices and guidelines.

1 BVQI verified 'Objectives in 2002 based on 'Mid-range General Environmental Policy', 'Environmental accounting' and 'Summary Group-wide Environmental Data'.
2 As to objectives, BVQI verified objective setting, current management situation (by using Environmental Management System (EMS)), accomplishment and reliability of data.
3 As to Environmental accounting and Summary Group-wide Environmental Data, BVQI verified basic data collection and aggregation method at site and final consolidation method at head office.
4 BVQI conducted overall verification at head office and visited HIROOKA plant (info-graphic operational headquarters), and FUJIMI plant (semiconductor operational headquarters).
5 BVQI applied sampling method as to reliability of management and data.

Opinion

BVQI reports as follows:

1 'Objectives in 2002' were appropriately managed through program deployment, implementation and achievement management by using EMS. The data examined were reliable and adequate for the purpose of the report.
2 As to 'Environmental accounting' overseas plant data were included in the report so that EPSON group overall picture was able to be grasped. Data were appropriately collected based on EPSON data collection guideline and were consistent with 'Summary Group-wide Environmental Data'. Hence data examined were reliable and adequate for the purpose of the report.
3 'Summary Group-wide Environmental Data' were appropriately managed by accounting dips or within EMS and reliable for the purpose of the report.

● Reference View

As a preparation of verification, BVQI reviewed 2002 audit reports for EPSON group's EMS certified by BVQI and fundamental data. Based on these BVQI prepared checklist and conducted verification. BVQI has reported findings and opinions regarding environmental activity through this third party verification for the 'EPSON Sustainability Report 2003'. BVQI has concluded the following:

1 Good points

1) Response to 'EPSON energy saving 2010'

EPSON has set high objective for reducing energy usage with the goal of 60% reduction by 2010 as compared to 1997. EPSON's management technique, including establishing and controlling practical targets, has become more effective. 'Green Factory Activity' as technical innovation of manufacturing processes has become apparent throughout EPSON.

2) As a result of review of the EMS audit reports BVQI confirmed that the EMS were appropriately implemented and managed at each site. The 'Mid-Range General Environmental Policy and objectives' deployment were effectively implemented by utilizing EMS at each business site.

2 Issues

1) Environmental committee has established the 'Mid-Range General Environmental Policy', which was deployed to each business site. EPSON utilize EMS in order to set up practical targets, implement and manage program. Internal audit required for EMS is compliance audit and are implemented accordingly. Therefore effectiveness of management of Mid-range General Environmental policy will be enhanced through performance oriented audit.

2) The level of understanding of the data collection procedures and data definitions for overseas sites was somewhat insufficient. Although there are over sea's top management committee as a promotional function. The establishment of internal communication system between head office and involved person at site is needed.

3) As to credibility of data, data processing has been dependent on a spreadsheet program and linkage between each data file is weak. Therefore, data collection system needs refined to include high linkage program.

4) EPSON promotes data disclosure through Internet. EPSON deals with requests and opinions from its customers individually. However, the analysis of requests and opinion and its utilization for business development were insufficient.

On the Role of This Report

The Epson Group released an annual *Environmental Report* as a tool for presenting our environmental activities in Japan and overseas to our stakeholders.

As a corporation whose business operations must be fully trusted by our stakeholders, however, we realized the need to disclose information on our approach to and the status of corporate ethics, the working environment and social responsibilities in a more comprehensive manner, in addition to disclosing environmental information. We thus decided to expand the *Environmental Report* and create a *Sustainability Report*.

This publication contains a follow-up report on last year's feature story *Toward 2010: Epson's Vision for Preventing Global Warming*, featuring production process innovations.

For the fiscal year under review, BVQI conducted an independent auditor's review of our environmental activities and four points were brought to our attention as issues to be improved. We will take measures immediately.

The *Sustainability Report* is published in Japanese, English and Chinese for stakeholders across the world. Please visit our Web site for more detailed information on our global activities.

We sincerely hope this report deepens your understanding of our sustainability efforts, and that you will share with us your thoughts and suggestions.

Nobuo Hashizume
Seiko Epson Director and General Manager
Global Environmental & Safety Policy Department
Seiko Epson Corporation

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http://www.epson.co.jp/ecology/

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Next issue: August 2004

●Corresponding Guidelines

◆Following are required sections as per the Japanese Ministry of the Environment *Environmental Reporting Guidelines* (2000) and corresponding sections in this report:

◆Following are required sections as per the Global Reporting Initiative (GRI) *Sustainability Reporting Guidelines* (2002) Social Performance Indicators and corresponding sections in this report (only the required items are listed):

Sustainability Report 2003

Co-Existence with Nature

About the design of our logo:

Seiko Epson's ecological spirit is
rooted in our desire to coexist with nature.
The fish, flower and water
in this logo represent the animals,
plants and resources that exist
in our natural environment.

SEIKO EPSON CORP.
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http://www.epson.co.jp

•Printed on 100% recycled, elemental chlorine-free (ECF) pulp paper with 70% brightness using petroleum solvent-free, zero-VOC soy-based ink and waterless printing free of hazardous wastewater.
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