Contents & Basic Policy of the 2001 Environmental Report

Contents

New : This mark signifies sections newly added to the 2001 Environmental Report or those that have been significantly revised.

Basic Policy of the 2001 Environmental Report

■Editorial Policy

The following segments were newly added to this report.

- The introduction contains a section on topics covered during environmental activities in fiscal 2000.
- The material flow charts for the DNP Group's main businesses is included for three business operations. (Owing to the diversity and complexity of DNP's business activities, it was necessary to classify environmental impacts.)
- An easy to understand review of environmental conservation activities at our business sites. (In this report we only present a few examples. We plan to introduce more activities at different sites in the future.)
- Toward the close of the report we incorporated a section on environmental targets for fiscal 2001. (This is to show our awareness of the importance for continued disclosure.)
- To make this report easier to understand, we have added a glossary to explain the technical terms related to environmental issues and the printing industry.

■Coverage

- The number of business sites covered under this report has expanded to 53 (compared to the 43 plants and places of businesses reported in the 2000 edition).
- Outcome of activities from April 2000 to March 2001.

Message from the President

Emergent Evolution of a Corporation in the 21st Century

Emergent evolution: A technical term used in biology and sociology. This is defined as the materialization of an unexpected special characteristic through the synergistic effect of individual elements that comprise an overall object. This newly developed special characteristic in turn has an impact on each element. As a result of repeated synergies between the overall object and its individual elements, something new evolves.

On October 2001, DNP celebrated the 125th anniversary of its founding. In commemoration of this milestone, in May of this year we established the "DNP's Vision for the 21st Century." In our vision, we proposed "the DNP Group will contribute to the intellectually active, rich, 21st century society with emergent evolution." The phrase "contributing to the creation of a emergently evolving society" also denotes dealing with the global environment.

Advancement in Activities

In 1972, the DNP Group was the first in the industry to establish an Environment Department, enabling us to tackle environmental issues from an early stage. In 1992, as part of our Codes of Conduct, the entire DNP Group made an environmental declaration expressing its will to make every effort to protect the prosperity and future of the human race by protecting the environment and using resources effectively. In 1993, we instituted a proprietary environmental management system, dubbed the "Eco-Report System." The system supports our efforts to promote the continual improvement of environmental activities through the aggressive reduction of industrial waste, energy conservation and the assessment and reduction of harmful substances. In March 2000, the DNP Environmental Committee was launched. In addition to improving the environmental performance of our manufacturing division, the committee also helped fortify our planning and development of environmentally conscious products. The number of factories participating in the environmental management system increased to 53, from previous 43, and now covers almost all domestic Group manufacturers, including affiliated companies.

Awareness essential for working toward a recycling-oriented society

This report, as part of our DNP Group environmental targets, in addition to voluntary target values, also assess total emissions as part of our contribution to preventing global warming and creating a recycling-oriented society. In regard to the prevention of global warming, we utilize the absolute volume of total energy consumption and greenhouse gas emissions as an environmental impact indicator, and focus our activities not only for improving energy efficiency but also on the reduction of the absolute volume of emissions. In addition, for the reduction of industrial waste, we have adopted the volume of total waste generated and the rates of reduction as indicators. We use them as guidelines to reduce waste generation per production, to achieve zero emissions and to reduce waste generation.

Determined to be a corporation dedicated to environmental management

As an "emergently evolving" corporation in the 21st century, the DNP Group is working to promote the minimization of environmental impact through the development and sale of environmentally conscious products, the achievement of zero emissions, the reduction of greenhouse gases and harmful substance emissions. We are making a full-fledged commitment to contribute to a sustainable recycling-oriented society. We are working to establish our reputation as a corporation that implements environmental management throughout all stages of its business operations.

Environmental performance
This describes the environmental impact created by the business itself or the results from measures to counter such impacts.

Greenhouse gas
A gas that traps heat caused by infrared radiation from the earth's surface. Typical types of gases include CO_2, methane, nitrous oxide and CFC.

Reduction of waste generation per production
Amount of waste generated for total production output (E + F on page 19), expressed in tons per million yen.

Zero emissions
Generally defined as a society with no waste, as waste generated from production operations is reused. Please refer to page 18 for the DNP Group's definition.

Yoshitoshi Kitajima
Chairman of the Board
President and Chief Executive Officer

DNP Corporate Overview

(As of March 31, 2001)

Dai Nippon Printing Co., Ltd.

1-1, Ichigaya Kagacho 1-chome
Shinjuku-ku, Tokyo 162-8001, Japan
Phone: +81-3-3266-2111
Home page: http://www.dnp.co.jp/

Established: October 1876

Incorporated: January 19, 1894

Capitalization: ¥114.464 billion

Employees:
10,698 (DNP)
34,094 (Including DNP Consolidated Group Affiliates in the printing business)

Business Sites:
Branches in Japan: 56
Overseas offices and affiliates: 16

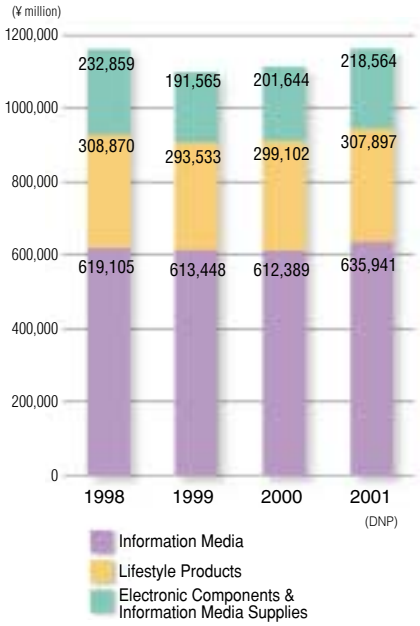
Main production plants (including affiliates):
Japan: 33
Overseas: 7

Research Institutes:
Japan: 11

Main Businesses

- **Information Media**
  Books; dictionaries; commemorative books; schoolbooks; magazines; PR brochures; electronic publications; product catalogs; advertising leaflets; pamphlets; calendars; posters; bonds; stock certificates; bank books; credit, banking and prepaid cards; business forms; multimedia software; satellite broadcasting; others.
- **Lifestyle Products**
  Packaging for general foods, beverages, desserts, general merchandise, and pharmaceutical products; cups; plastic bottles; laminated tubes; plastic containers; paneling and other materials for housing and furniture; 3-D printed products; decorative metal paneling; transfer-printed products; others.
- **Electronic Components & Information Media Supplies**
  Shadowmasks; lead frames; photomasks; color filters for liquid crystal displays; projection television screens; printer ribbons; electrodes for lithium-ion rechargeable batteries; others.

Net Sales



Note: In 1999, operations sales categories were changed, but totals for each operations are retroactive to 1998.

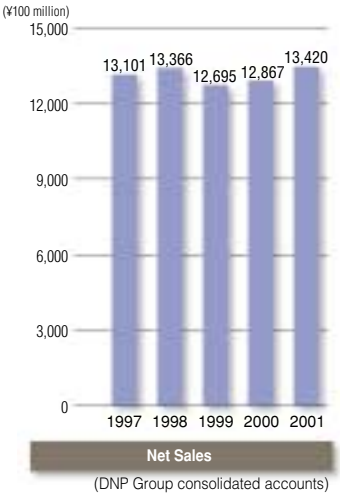
Business form
A document with a predetermined format used in business procedures and office management.

Shadow mask
An electronic component used in monitors such as TVs and desktop PCs that contain cathode-ray tubes (CRTs). A shadow mask is a metal plate with many holes in it.

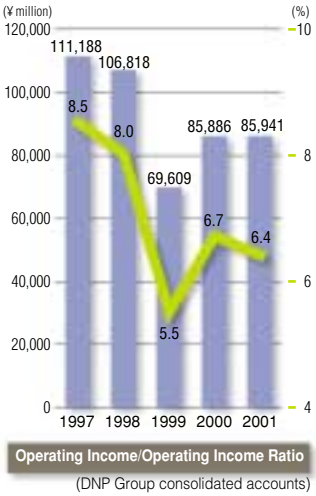
Lead frame
A semiconductor chip connector used to connect the chip with external parts.

Photomask
Used in IC or LSI production, the photomask is a substrate used when creating minute circuit patterns on a silicon wafer.

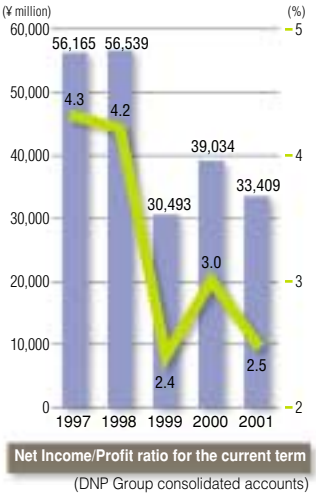
Color filter
An electronic component used in the LCD (liquid crystal device) display of products such as a notebook PC. The glass sheet has layers in red, blue and green to allow for color imagery.



Net Sales
(DNP Group consolidated accounts)

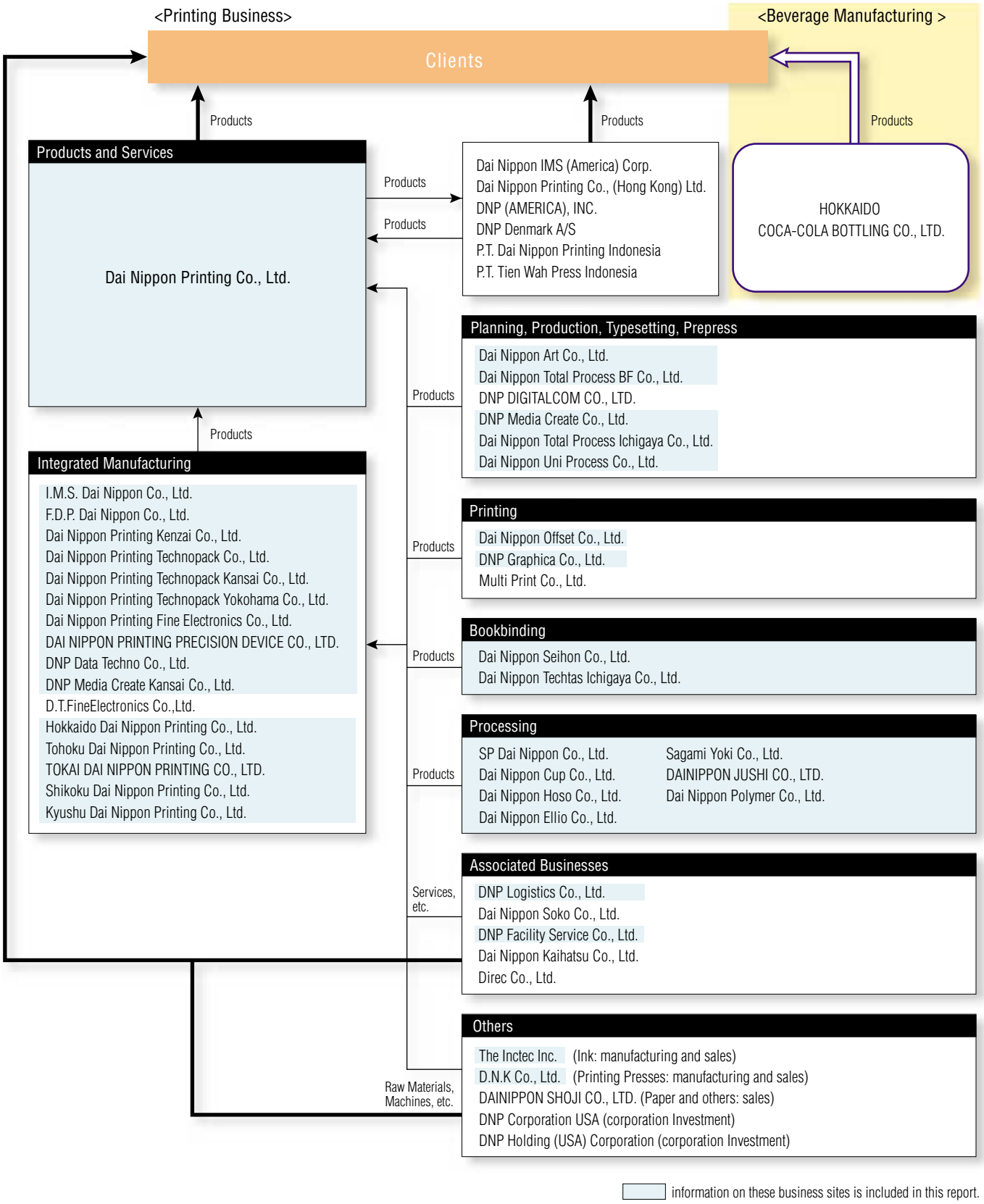


Operating Income/Operating Income Ratio
(DNP Group consolidated accounts)



Net Income/Profit ratio for the current term
(DNP Group consolidated accounts)

DNP Organizational Chart



Message from the Managing Director in Charge of the Environment

To Our Stakeholders

As a corporation practicing environmental management, we believe it is necessary to gain the support of the society as a company contributing to the building of a sustainable and recycling-oriented society in the 21st century. This Environmental Report is an important tool to give our stakeholders on the outside concrete details on the content of DNP's environmental activities. Since the overall revisions made to the 2000 report, this is our second publication. In the 2001 report, our basic editorial policy was to improve both the comprehensiveness and clarity of the information provided herein.

Revisions to environmental activities

Since the start of the Eco-Report System, the DNP Group's own unique environmental management system, in 1993, the seventh round of revisions to the DNP Group's Environmental Targets was made in April 1998, at which time reduction of waste processing plant utilization rate was added to waste reduction targets and reduction of CO_2 emissions was included under energy conservation targets.

In March 2000, the expansion of the development and sales of environmentally conscious products was added as a new target. In March 2001, as part of our 12th revision, we reviewed all our environmental targets in response to the Ministry of the Environment's Environmental Performance Indicators for Businesses, fiscal 2000 version. In line with this revision, new numerical targets were set regarding the reduction rates and improvement of recycling rates for the reduction of wastes, the promotion of green purchasing and the reduction of environmental impact from transports.

Regarding environmental accounting, from fiscal 1993, we began assessing environmental facilities investment, energy consumption volume and expense, waste emissions and disposal cost, and recycling sales. From April 1999, we began using the Ministry of the Environment's Environmental Reporting Guidelines, fiscal 2000 version, and also began implementing expense, outcome and target values for improvement as data for decision-making at the management level. Working toward the achievement of our DNP Group's Environmental Targets, we aim to strive for continued improvement as a group, checking the effectiveness of our environmental conservation activities as we go along.

Introduction of an independent review

This report covers the DNP Group's environmental conservation activities in fiscal 2000 and the results of those efforts. The contents was reviewed by Shin Nihon & Co., just as it was in fiscal 1999, and found to be in order.

We hope this report provides a better comprehension of the DNP Group's environmental conservation activities. In closing, we hope you will continue to give us your understanding and cooperation in the future.

Green purchasing
When purchasing products and services, priority is not just placed on price and quality, but focus is also given to the purchase of those goods which have the least impact on the environment.

Independent review
A review by a third party which does not maintain an invested interest in the company. The third party reviews the organization based on a specific set of standards on behalf of those who maintain an invested interest in the organization.

Kazuyasu Uchiyama
Chairman, Environmental Committee
Managing Director

New Topics in Fiscal 2000

▶ Launch of new environmental management system

The DNP Environmental Committee was started in March 2000. **At this time the sales, planning and R&D divisions were added to an environmental management system originally structured for the manufacturing division.** With this, DNP commenced groupwide participation in environmental conservation activities.

▶ Development and Sales of Environmentally Conscious Products

We engaged in promoting the development of environmentally conscious products and strived to increase the sale of these products groupwide by 10% compared to the previous year. In fiscal 2000, the following environmentally conscious products were developed. **This represents JPY63.0 billion in products or 2.1 times over fiscal 1999.**

1. Materials for credit cards that do not emit harmful substances when incinerated.
2. Invoice slips used in shipping that do not leave traces of glue when removed from wrapping paper or cardboard boxes.
3. Event tickets created from non-pulp kenaf and printed with soybean oil ink.
4. Environmentally conscious polyester-coated decorative steel sheeting (a non-chloroethylene product)
5. Recyclable ceramic vapor deposition paper containers (do not use aluminum foil)
6. Soybean oil ink that does not contain any volatile organic compounds (VOC)

▶ Environmental Education using IT Technology

From April 2000, an **environmental educational program was started via intranet** for the DNP Group's employees that number around 35,000. The use of intranet is an effective method for environmental education as it allows workers to take courses anytime and anyplace, as long as they have access to a computer. Entitled "Environmental Issues and Businesses," the program covers a wide range of topics from basic environmental matters to proposing environmentally conscious products to customers. **In fiscal 2000, around 3,200 employees completed this program.**

▶ ISO14001 Certification

In July 2000, the Okayama plant was **the fourth DNP Group site** to obtain certification. By fiscal 2005, management aims to have 30 sites certified under ISO environmental management standards.

Non-pulp kenaf
Also known as a white hibiscus, kenaf is a member of the Mallow or Malvaceae family, hibiscus genus, and grows year-round. A fast growing flora, the plant can grow up to 3-5 meters in 4 to 5 months.

Soybean oil ink
A printing ink that utilizes soybean oil as its main ingredient. When used in the printing process, the amount of VOC is less than that of other inks that use petroleum-based solvents. Soybean oil ink maintains superior deinking and biodegradation properties.

Volatile Organic Compounds (VOC)
Refers to commonly used solvents that easily give off vapor or gases.

■ Newspaper Articles on the DNP Group's Achievements (April 2000 - March 2001)

Date	Newspaper	Content
April 21, 2000	Nikkei Business Daily	Begin supply of an environmentally conscious credit card for JR East. The card's base material is made from a PET-G (amorphous co-polyester) resin, which is similar to chloroethylene resin, but does not emit chlorine gas when incinerated.
	Nikkan Kogyo Shimbun	
May 10	Nihon Keizai Shimbun	Development of shipping slips that can be cleanly removed and do not leave traces of glue on wrapping paper or cardboard. This makes it possible to recycle wrapping paper and cardboard.
	Nikkei Business Daily	
	Nikkan Kogyo Shimbun	
May 12	Japan Industrial Journal	
May 17	Nihon Keizai Shimbun	Established the DNP Environmental Committee. This was done following the review of the environmental management system originally derived primarily for the company's manufacturing division. Coverage was expanded to include DNP's planning and R&D divisions and its affiliated companies. The committee is chaired by the managing director in charge of the environment.
June 26	Nikkei Business Daily	Event tickets for Japan Expo in Fukushima 2001-- Beautiful Utsukushima Future Expo in Fukushima were made from 100% non- pulp kenaf paper and printed with soybean oil ink.
	Nikkan Kogyo Shimbun	
July 4	Japan Industrial Journal	
July 12	Japan Industrial Journal	While using proprietary technologies to print decorative patterns directly onto to steel sheets, DNP also developed Clerio, a decorative, steel sheeting coated with a non-chloroethylene polyester that is environmentally friendly.
July 13	Nikkei Business Daily	
	Chemical Daily	
July 21	Japan Industrial Journal	Developed a paper container using a ceramic (silicon oxide) vapor deposition type solution which is as capable of shutting out oxygen as aluminum coating. (Containers coated with aluminum are difficult to recycle.)
July 28	Nihon Keizai Shimbun	Aim to achieve zero emissions at all 10 domestic plants by fiscal 2001.
August 2	Nikkei Business Daily	Okayama plant obtains ISO14001 certification for its decorative interiors operations.
	Japan Industrial Journal	
August 9	Nikkei Business Daily	Joint development of a food container with Kikkoman using LCA.
September 4	Nikkei Business Daily	Speeds up development of environmentally conscious, "green products". Begins to target 10% annual sales growth of in-house developed products that satisfy certain standards for eight items, including the use of recycled materials and conservation of raw materials.
September 14	Nikkei Business Daily	Implementing environmental impact assessment using LCA for products such as paper containers and PET bottles sold to food and daily commodity manufacturers from 1996.
		Ranked 13th in fiscal 2000 for its environment-related investments. Did not enter the ranking in fiscal 1999.
September 18	Nikkei Business Daily	Jointly developed a soybean oil ink that contains absolutely no volatile organic compounds with DaiNippon Ink and Chemicals. Developed a technology making high quality commercial printing of catalogs and calendars possible.
September 20	Nikkei Business Daily	Environmental accounting report for fiscal 1999 covered 43 sites including key domestic affiliated companies. Environmental conservation cost was around JPY12.8 billion, of which about JPY2.1 billion represented facilities investment.
September 28	Nikkei Business Daily	Developed an environment education system using intranet. Reduced the time and cost related to holding lectures at each business site, while at the same time fully providing employees with knowledge about environmental conservation, related management policies and targets.
October 8	Nihon Keizai Shimbun	Plan an annual 10% increase in sales of green products, such as printed matter and packaging made of recycled materials that meet in-house standards.
December 5	Nikkei Business Daily	DNP ranked 31st among manufacturers in the 4th environmental management survey.
December 25	Japan Industrial Journal	Full-scale involvement in a project to recycle sake (Japanese rice wine) paper containers, in cooperation with a group from the package making industry and a private association.
February 5, 2001	Nikkan Kogyo Shimbun	Introduces a new style of sales. Proposes product packages that minimize environmental impact through assessment of packaging using LCA.
March 19	Yomiuri Shimbun	Create a rooftop garden consisting mainly of evergreens (A roof garden was first established at the Ichigaya plant in 1990.)

The DNP Group's Basic Environmental Philosophy

The DNP Group's environmental activities began in earnest in 1972, with the establishment of the Environment Department at Dai Nippon Printing Co., Ltd. Since then, we have endeavored to reduce industrial waste and save energy, as well as develop products from an environmental protection perspective.

In 1992, the entire DNP Group embraced environmental conservation activities, declaring its intention to strive to protect the global environment and use resources effectively, and making this part of its Codes of Conduct.

Our environmental management system, which started in the manufacturing division, experienced a major change in March 2000. The DNP Group's Environmental Committee was established, and now the extensive management system includes the sales, planning and R&D divisions in addition to the manufacturing divisions.

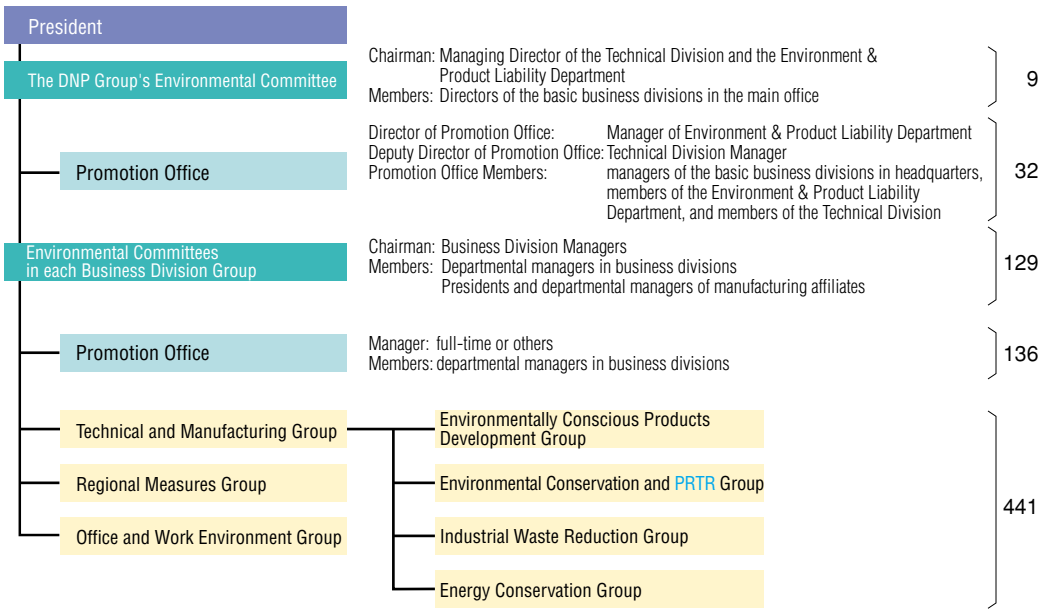
The DNP Group's Environmental Declaration

"We will make every effort to protect the prosperity and future of the human race by protecting the environment and using resources effectively."

Today we face the serious issue of how to protect the global environment. Due to the dramatic economic growth of recent years, our ecosystem is being destroyed through the depletion of the ozone layer, global warming, increasing volumes of industrial waste, and the careless consumption of natural resources. As a result, our earth's circulatory system is beginning to be affected. These problems, together with the rapid depletion of natural resources, should be a source of concern, since they threaten our daily life and may even stifle economic growth. We will act aggressively in addressing environmental issues, using our comprehensive technological resources to safeguard the prosperity and future of the human race.
(Excerpt from the DNP Group Codes of Conduct)

DNP Group's Environmental Management Structure

(As of End of March 2001)



PRTR
(Pollutant Release and Transfer Register)
The register and disclosure of chemical substances emitted into the environment and thought to be possible pollutants or the transfer of waste. Herein the term PRTR is used for the reduction of the release and transfer of class 1 designated chemical substances in accordance with the Law Concerning Reporting, etc., of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Management.

The DNP Group's Environmental Policies

The DNP Group's efforts are directed towards the continuous prosperity of a world economy with limited resources and for the development of a society that recirculates resources. The DNP Group is making every effort to minimize the impact our business operations have on the environment, and this includes compliance with environmental laws and regulations as well as recognizing the relationship that each of our business activities has to the environment.

(1) Each member of the DNP Group establishes and periodically reviews its own environmental policies and environmental targets, and puts into effect continuous improvement of its activities and the prevention of environmental pollution.
(2) For all construction projects, and before designing and commissioning new facilities, we carry out a full and detailed environmental survey to assess the impact that the project will have on the environment, to make proper efforts to protect the environment.
(3) When carrying out research, development and design for a new product, we consider the impact of the product on the environment throughout its life cycle, including the ordering of raw materials, production, distribution, use, and disposal. We give special consideration to energy conservation, resource conservation, and reducing the use of harmful chemicals.
(4) When purchasing raw materials, stationery, and equipment, we choose items that are ecologically-friendly and easy to recycle.
(5) In manufacturing a product, we aim to comply with environmental laws and regulations, and moreover we set up more stringent standards to reduce the emissions of pollutants into the air, watershed, and soil, and to prevent unpleasant odors, noise, vibration, and land subsidence. We are constantly improving facilities, techniques and manufacturing processes to promote the targets of energy conservation, resource conservation and the reduction of industrial waste.
(6) When generating waste from business operations, we strive to achieve zero emissions by separating and recycling waste as much as possible.

The DNP Group's Environmental Targets

Targets for Fiscal 2001	Achievements
Development and Sales of Environmentally Conscious Products • Increase the sales of environmentally conscious products by 10% over the last fiscal year.	Sales of environmentally conscious products to our customers in fiscal 2000 amounted to JPY63.0 billion. By taking up the sale of environmentally conscious products, sales improved 110% over the JPY29.9billion recorded in fiscal 1999. This far exceeds management's target of a 10% yearly increase in sales of environmentally conscious products.
Reduction of Industrial Waste • Reduce waste generation per production by 50% over 1991 levels by fiscal 2001. • Achieve zero emissions (the zero generation of industrial waste) at 10 business sites and reach a final waste disposal rate (final waste disposal volume divided by total waste output) of 5% by fiscal 2001. • Establish internal industrial waste standards that are more stringent than mandatory standards, and establish appropriate processing and self-management practices.	In fiscal 2000, waste generation per production was 0.322, 51.5% compared to fiscal 1999. This nearly meets the 50% reduction target. During the term, 4 sites accomplished zero emissions (Ichigaya Plant's Kuki operations, Gotanda, Ichigaya Plant's Akabane operations and Hokkaido). Meanwhile, the DNP Group's overall achieved final waste disposal rate was 5.1%, meaning that it achieved its set target a year earlier than planned. Implement earlier targets for the observation of waste processors and dioxin regulations as part of internal standards that are more stringent than legal compliance.
Energy Conservation • Reduce energy consumption per production by 15% and CO_2 emissions per production by 20% of 1990 levels by fiscal 2010. • Establish internal standards that are more stringent than those set out in the Law concerning the Rational Use of Energy, and institute rational energy use and self-management.	In fiscal 2000, energy consumption per production was 4.93. This is 109.6% compared to fiscal 1990. This was below its target of 92.5%. CO_2 emissions per production was 177, or 96.9% compared to fiscal 1990. While this was a reduction year-on-year, the company did not meet its targets. Created an energy management manual and implemented management mainly at its class-1 energy management designated plants, as a part of internal standards that are more stringent than the Law concerning the Rational Use of Energy.
Environmental Conservation • Each site must set up voluntary standards, taking the actual environmental impact into consideration. Such voluntary standards must be more stringent than regulation standards.	Internal standards were established on air pollution for 24 sites, for water quality at 21 sites, for noise at 20 sites, and vibration at 18 sites. This means standards for a total of 138 items and sites were created.
PRTR • Identify chemicals that are specified as class-1 chemicals in PRTR and reduce the release and transport volumes by 50% of 1998 levels by fiscal 2001.	Identify 354 class-1 designated chemical substances stipulated under law in fiscal 2000. Release and transfer results were reduced 13% compared to the 174 chemical substances in fiscal 1998.
Office Environmental Conservation Targets • Maintain a waste paper separation and collection rate of 70% or higher for recyclable paper and 65% for municipal waste. • Carry out a half-yearly assessment of recyclable paper.	Separation and collection of waste paper was conducted at 13 sites. The collection rate was 65.3% compared to waste generation, slightly higher than targets. During the 1st half of fiscal 2000, eco-products were identified at 11 sites and at 13 sites in the 2nd half.
Green Purchasing • Establish a database of harmful chemicals used in materials by fiscal 2001. • Promote the use of environmentally conscious office equipment and stationery.	Database system under the development based on fiscal 2000 data. A 94% shift to recycled paper used for copier and printer paper. 34% of office equipment environmentally friendly and 61% of all employee uniforms bear the Eco-Mark.
Environmental Management System • Obtain ISO14001 certification at 15 business sites by fiscal 2001. • Carry out an Eco-Audit at all sites.	In April 2000, DNP Facility Service and in July the Decorative Interiors Operations of the Okayama plant acquired certification. Furthermore, in May 2001, Tokai Dai Nippon Printing, acquired certification. This made a total of five sites which acquired ISO certification. Eco-audits were conducted at all sites.

Prepared: December 18, 1992
Tenth revision: March 21, 2000

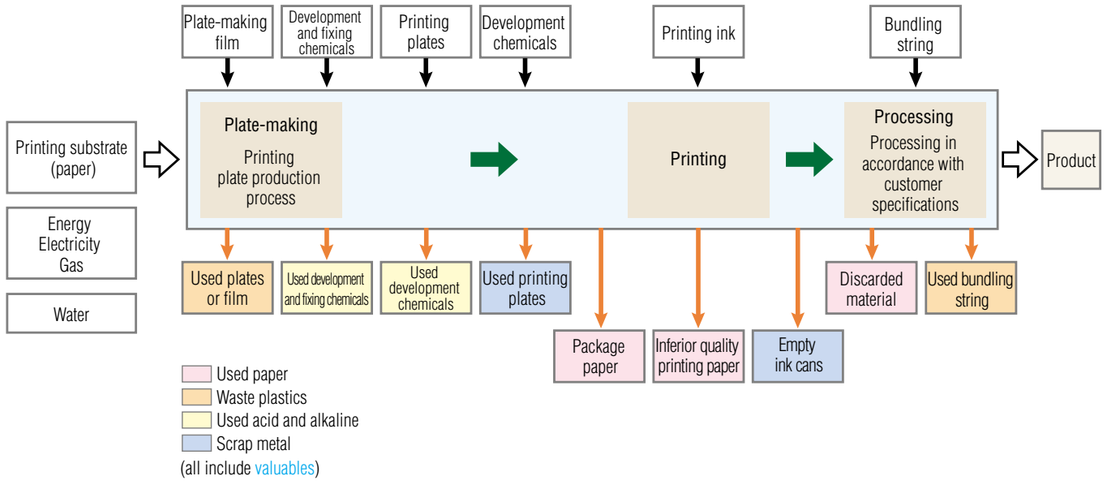
Site
This is the minimum management unit of the DNP Group's environmental management system.

Eco-audit
See page 25.

Material Flow Charts for the DNP Group's Main Businesses (By Division)

The following shows key raw materials, energy and major waste used or generated in processing carried out by the DNP Group' various divisions. The products manufactured by each division are shown on page 2 in the DNP summary.

● Information Media Division



●Information Media Division

The main raw material used by this business division is paper. Plastic films are also used as a raw material. Operations are basically divided into three major categories, "plate-making," the production of plates used in printing, "printing" includes such processes as letterpress, offset and photo-gravure printing, and "processing" which consists of the inserting of postcards and binding.

Environmental facilities and devices used in the plate-making process include a device to develop and fix photographic film for plate making, a device to "burn" a design onto the plate for offset printing, a device to burn a design onto a plate for gravure printing, and a device to coat the plate in copper or chrome for use in gravure printing. These devices require the use of chemicals (development and fixing chemicals, etching solvent). Once used these chemicals are disposed of as used acid or alkaline. The DNP Group consigns the disposal of these wastes to an outside company. For those sites that have a high volume of such wastes, disposal is made using on-site wastewater disposal facilities. For those unusable items, such as used photographic film for plates, they are disposed of as valuables, collected by companies dealing in the recycling of silver.

In the printing process, the printing machine itself is a facility designated under laws and regulations on noise and vibrations. Electricity is used to power this facility and gas is used as a heat source for drying and cooling processes. The unusable items generated in the printing process consist mainly of defective parts that are a result of adjusting colors when switching to the printing of different items or when changing printing substarts. When paper is used as a raw material, it is recycled back into a raw material for manufacturing recycled paper. Other waste includes ink cans.

Processing does not utilize any facilities designated under the environmental laws and regulations. The environmental impact consists of electricity consumption, the generation of unusable items, and noise. The creation of excess paper arises when cutting off unneeded portions during the binding process for books and magazines. This is unavoidable and therefore a certain amount of unusable items is produced. However, this is turned back into recycled paper.

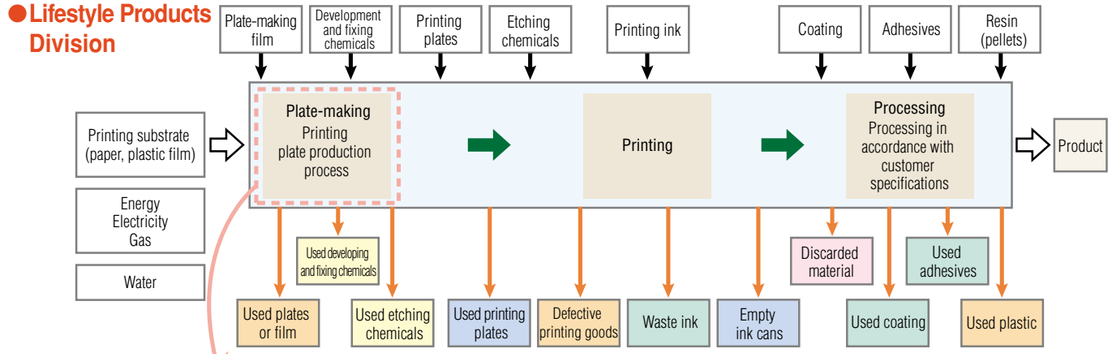
Valuables
Unusable items (items that can not be sold as products) derived from the manufacturing process that can be sold.

Letterpress printing
The printing of letters. Ink is placed on the raised surface and then pressed onto paper.

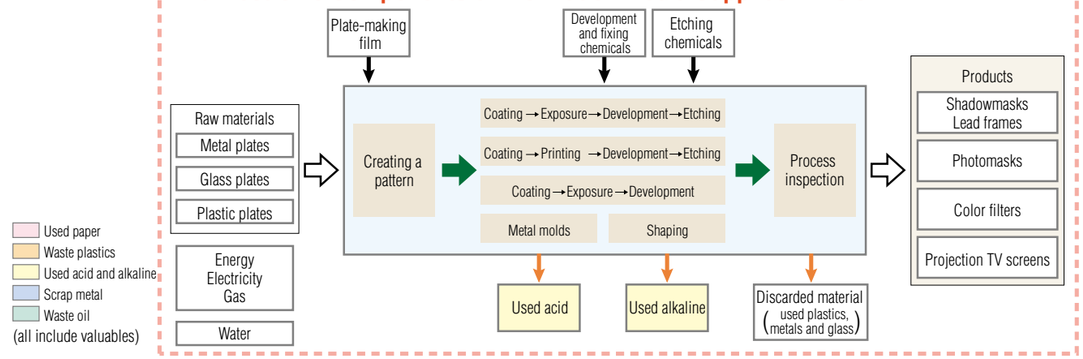
Offset printing
A printing process that takes advantage of the fact that water and oil repel one another. The plate retains water. The plate is divided into the non-image area that repels oil-based ink and the image area that receives oil-based ink. The ink is then transferred to a "rubber blanket" (the off process) and then transferred to paper (the set process). This is how the method derived its name.

Gravure printing
This printing method uses a plate with an engraved surface. The surface is metallic owing to chemical treatment or some physical trait. Ink is poured into the channels or sunken areas. Excess ink is then removed, pressure is applied and the ink remaining in the channels is then transferred to paper.

● Lifestyle Products Division



● Electronic Components & Information Media Supplies Division



●Lifestyle Products Division

The products in this division are mainly produced from paper and plastic films.

The processes in this division are largely divided into three categories. This division differs widely from the Information Media Division owing to the fact that it mainly uses gravure printing. In addition, the processes used in this division not only include cutting, packaging (wrapping), molding, but also coating and lamination.

The environmental facilities are the same as those in the Information Media Division.

In gravure printing, coating and laminating processes are used. For this reason, inks containing organic solvents are utilized. The vaporization and recycling of inks containing organic solvents is consigned to an outside party.

Furthermore, this division requires the use of various plastics, paper, aluminum coating and lamination from the standpoint of protecting and preserving the product being wrapped. Because the material recycling is difficult, we achieve heat recovery by installing on-site incinerators and consign an outside party for solid fuel.

●Electronic Components & Information Media Supplies Division

This division applies the use of film and plate-making technologies. The key raw materials used here are metals, glass and plastics (resin).

Shadowmasks and lead frames use a metal plate as their raw material. After coating with a photographic sensitive resin, the plate is exposed to light and developed, and then the etching process takes place using acid.

Photomasks are made using a glass plate which is coated with resin and printed by using an electron beam. The electron beam draws an image onto the plate after which it is developed and then etched.

A color filter is manufactured by coating a glass plate with a colored photographic sensitive resin, exposing it to light, and developing in the order of red, blue and green.

A lenticular lens for projection TV screens is made by extrusion using a metal mold. In contrast a fresnel lens is created by using a metal mold and then shaped using a UV hardening resin or a FRTP resin.

A large amount of acid is used in the manufacturing of shadowmasks and lead frames owing to the etching process. Neutralization is done on site, as is disposal via wastewater treatment facilities.

In this division, raw materials that become waste and are not usable as product are recycled.

Material recycling
The collection of waste for reuse as raw materials. Plastics from plastics, paper from paper, those materials that can be reused as materials just the way they are. This includes materials that are reused after changing their physical substance using some chemical process.

Shadowmask
An electronic component used in monitors such as TVs and desktop PCs that contain cathode-ray tubes (CRTs). A shadow mask is a metal plate with many holes in it.

Lead frame
A semiconductor chip connector used to connect the chip with external parts.

Photomask
Used in IC or LSI production, the photomask is a substrate used when creating minute circuit patterns on a silicon wafer.

Color filter
An electronic component used in the LCD (liquid crystal device) display of products such as a notebook PC. The glass sheet has layers in red, blue and green to allow for color imagery.

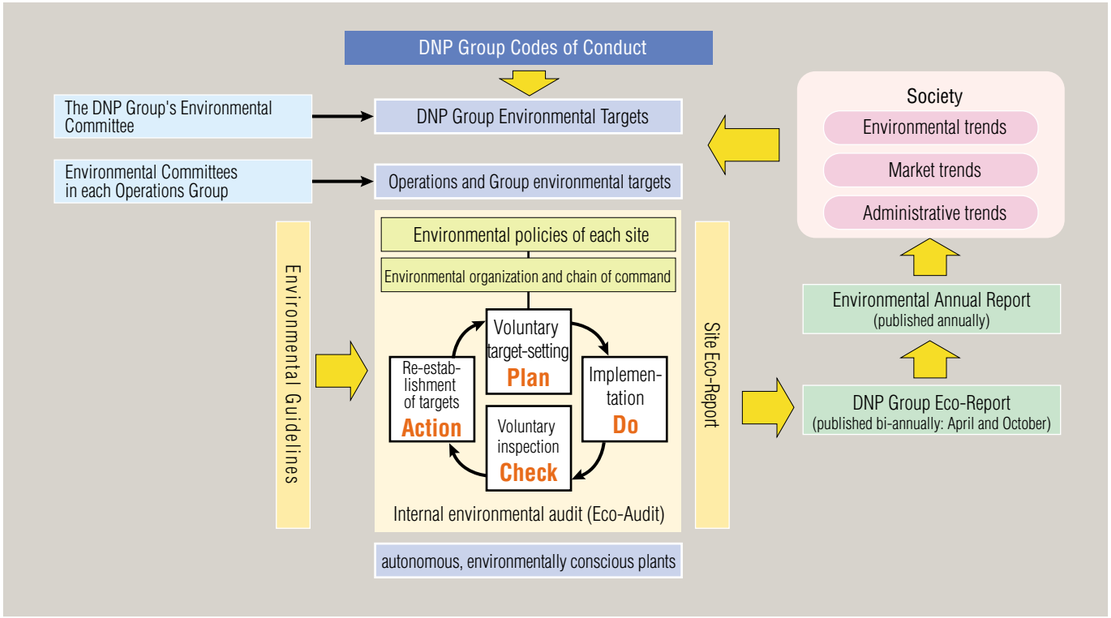
Lenticular lens
One lens that is a part of a projection TV screen. This lens mainly diffuses elements horizontally.

Fresnel lens
One lens that is a part of a projection TV screen. This lens works on a nearly flat sheet, much in the same way as a convex lens.

DNP's Unique Environmental Management System "Eco-Report System"

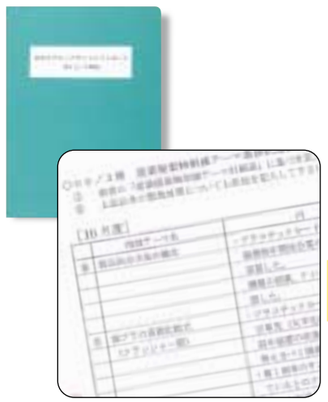
The Eco-Report system was created to help achieve the DNP Group's environmental targets. It is the DNP Group's own unique environmental management system and the base of the Group's environmental activities.

The Eco-Report System



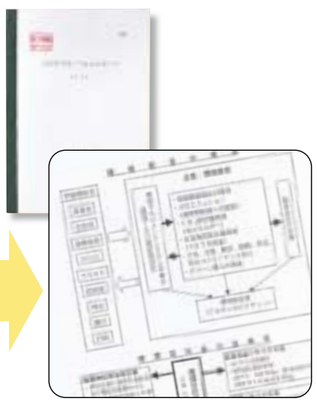
Environmental Guidelines

This publication describes various standards and guidelines (such as industrial waste processing standards, energy-saving standards, voluntary inspection standards for environmental protection, standards for office waste sorting and collection, and Eco-Audit checklists) for establishing the Eco-Report System.



Site Eco-Report

This report serves as a registry of Eco-Plan Activities. Each DNP business site must submit it twice a year (April and October)



DNP Group Eco-Report

Based on the social movements concerning environmental issues, the DNP Group's semiannual activity policies, and "Site Eco-Reports," the Promotion Office of the DNP Group Environmental Committee (Environment & Product Liability Department) publishes a summary of all the environmental activities of the entire DNP Group twice a year (April and October).

DNP's Unique Environmental Management System (EMS)

● Establishing environmental policies and targets

The DNP Group's environmental policies and targets are decided by the DNP Group's Environmental Committee at its headquarters and reviewed on a regular basis in light of global and customer trends, and the status of companywide activities.

The policies and targets specified herein are widely communicated throughout the company from the headquarters' promotion office to the environmental committee and promotion office of each business.

The environmental committee of each operations then establishes its own policies and targets based on those passed down from the headquarters and in consideration of business trends. It then carries out specific activities based on each division's polices and targets.

● Implementing activities at the site

When implementing specific activities, each site conducts environmental management activities as stipulated in the DNP Group's environmental guidelines. Activities are recorded monthly in a site eco-report. On a six-month basis, results are assessed and targets are set for the next six-month period. In addition, site activities are audited once a year to ascertain if they comply with legal regulations and to see that they promote the achievement of targets for the overall Group. This is done to ensure the improvement of environmental management activities.

● Flow for the disclosure of environmental information

Meanwhile, the headquarters' promotion office publishes a biannual DNP Group Eco-Report covering companywide activities, based on changes in social environmental trends and the site eco-reports from each business division. This is the Group's white paper on environmental activities. Following publication of the report, management goes out to each site to resolve problems at a particular site or the positioning of sites within the Group for the purpose of mutually understanding environmental information and pinpointing important issues that exist among business divisions. The paper also supports the sharing of information and ascertaining future key topics. Furthermore, once a year, this Environmental Report is published to inform our stakeholders of our environmental management activities over the past year.

● Achieving autonomous, environmentally conscious plants

The DNP Group uses three tools, its site eco-reports, the DNP Group eco-report and environmental guidelines. Once every six months PDCA (Plan→Do→Check→Act) practices are carried out. This helps each site become more independent in conducting management and controlling environmentally conscious procedures and aiming toward the achievement of autonomous, environmentally conscious plants.

● Eco-Report System

In 1972, the DNP Group established an Environment Department and began full-fledged environmental management activities. In 1993, the Group developed its own eco-report system as part of its unique environmental management system. The system initially covered 23 sites nationwide. Today the system has been expanded to encompass 53 sites. Over this time, management methods have continually been improved and the content of activities broadened.

The DNP Group continues to implement this system and expand it in line with the changing times. This allows all business divisions of the DNP Group to have access to and share the same environmental information. It also achieves uniform standards for environmental management activities and aims to improve such actions throughout the Group.

Development and Sales of Environmentally Conscious Products

At the DNP Group, our guidelines for the development and sales of environmentally conscious products is based on the Green Purchasing Principles (established November 7, 1996) by the Green Purchasing Network. In fiscal 2000, we recorded JPY63.0 billion in sales of environmentally conscious products.

<Development guidelines for environmentally conscious products>

1. Reduction of environmental pollutants

– Exclusion of ozone depleting substances, heavy metals and organic chlorine compounds. Controlling the release of such substances as greenhouse gases and NOx into the environment by using LCA.

<Example>
- Products do not contain organic solvents
- Use of raw materials that do not contain chlorine
- Use of soybean oil ink in printing
- Use of raw materials that do not contain heavy metals such as chrome or lead.

<Products>
- Prearmour, IB film, PET-G card, environmentally conscious ink (page 13)

2. Conservation of resources and energy

– Control the use of metallic resources and fossil fuels

<Example>
- Lighter weight products

<Products>
- PET bottles: in-line forming sterilized filling system, spouch (pages 13-14)

3. Procuring sustainable resources

– Use of forest resources and other resources

<Example>
- Products that use paper not made from wood pulp
- Shift from the use of plastic to paper in products

<Products>
- HI-CUP (insulated cup), P-DISH (paper trays), (page 14)

4. Making long-term use possible

– Consider easy to repair or replace parts, long maintenance and repair periods, and expanded functions

<Example>
- Cards that displays information that can be changed

<Products>
- Laser-type, heat-sensitive rewritable cards (page 14)

5. Reusable

– Consider the disassembly, washing or refilling of a portion or parts of a product and establish a system for the collection and reuse of products which is easy to use for customers.

<Example>
- Refill bottles

<Products>
- Stand pouch refills (page 15)

6. Recyclable

– Use materials that will make products easy to recycle. A design that makes it simple to separate, disassemble or divide up. A collection and recycling system easy for customers to use.

<Example>
- Products with simplified materials

<Products>
- Environmentally conscious calendars, e-videos, POP (eco cut out) (page 15)

7. Use of recycled materials

– Wide use of materials and parts that were collected and recycled

<Example>
- Use of 100% recycled paper in printed material
- Products which use paper as insulation material
- Products using recycled plastic

<Products>
- Magazines and pamphlets made from 100% recycled paper (page 15)

8. Easy disposal

– Consideration given to minimize impact on incinerator facilities and landfills

<Example>
- Products that can easily be taken apart and their materials separated
- Product that use biodegradable plastic

<Products>
- Bag in Box, Bag in Carton, stretch labels (page 15)

1.Reduction of environmental pollutants

■ Prearmour [a VOC countermeasure]

"Sick houses" have recently become an issue. Illness is caused by harsh odors or allergic reactions which usually occur when people move into new houses. Volatile Organic Compounds (VOCs) have been cited as one reason for this ailment. The Ministry of Health, Labour and Welfare designated 12 substances (of which guidelines are currently being proposed for 4) and released guideline values for density regulations regarding indoor air contamination. DNP has developed and sells "prearmour," an environmentally conscious decorative paneling that does not contain any of the 12 designated VOCs.

Prearmour utilizes a proprietary coating technology based on an electronic beam curing technology. This product does not use any of the 12 VOCs designated by the ministry. The product is unique in that it has a rigid surface. This solves the problem of scratches to the surface during processing or during transport, a problem that occurred with conventional types of color panels. In addition, for the purpose of design and to cover up the uneven surface of the paneling, a design is printed onto the surface of the paneling. As a result, compared to conventional decorative panels, the level of design freedom is much higher.

Prearmour

■ IB Films [Eliminating organic chlorine compounds]

We have developed a barrier film for packaging that is free of chlorinous resin, which is one of the sources of dioxin emissions. This product has been used for food packages that require barriers and liquid soups, and for small bags for liquid seasoning.

IB Film

■ PET-G cards [Eliminating organic chlorine compounds]

Conventional plastic cards include PVC in the material, which emits chlorinous gas when burned improperly.

Our newly-developed plastic cards are made from a new material, "PET-G" (amorphous co-polyester). The "PET-G Cards" break down into water and CO_2 when incinerated with no emission of chlorinous gases. Newly-developed IC cards made from anti-heat PET-G have been used for electronic toll collection (ETC) on highways.

PET-G cards

■ Environmentally conscious ink [a VOC countermeasure]

The key ingredient for conventional types of printing ink is a petroleum solvent. However, owing to the heightened interest in environmental issues, there is a growing desire even within the printing industry itself to find an environmentally conscious alternative to petroleum solvents. The DNP Group has developed and sells such inks, including its soybean oil ink, aroma-free ink and water-soluble ink.

Soybean oil ink

Water-soluble gravure ink

2. Conservation of resources and energy

■ PET Bottles: In-line Forming Sterilized Filling System [Reduction of energy related to transport and bottle weight]

The PET bottle in-line forming sterilized filling system reduces environmental impact using LCA (life cycle assessment). LCA is analyzes and assesses a product's impact on the environment over a lifecycle. It is a comprehensive assessment system used for the purpose of reducing environmental impact.

PET Bottles


Preform


Sterilized filing system line

The system begins by analyzing and assessing direct stages such as package manufacturing, filling and packaging. It also surveys, analyzes and assesses the selection of raw materials all the way to transport and recycling. By doing this, a objective view on the environmental impact of a product can be obtained.

In general PET bottles for beverages are usually molded by the PET bottle manufacturer and then shipped to the beverage maker where they are filled. PET bottles are formed by melting resins in an injection-molding machine. Pressure is applied and the resin is then poured into a metal mold. It is then cooled to form a preformed bottle as shown in the picture to the left. The preformed bottle is then heated and put into a mold where air is inserted to blow the bottle into shape.

DNP delivers PET bottles in this preformed condition. The beverage maker then uses the in-line forming sterilized filing system, developed and sold by DNP, to form bottles and then fill them. This allows for a wide curtailment of transportation costs and reduces CO_2 and NOx emissions. In addition by using the unique sterilized filling technology, bottles can be filled at room temperature. This results in a vast reduction in bottle weight compared to conventional types.

■ Spouch [Reduction of manufacturing energy]

Beverage pouches have a spout attached. The cap on the spout makes it possible to open and close the container multiple times, therefore giving greater portability than the conventional packaging. As a result of LCA analysis, it was found that the amount of energy consumed and emissions into the atmosphere at the time of packaging and manufacturing were minimal. This indicates that our spouches are environmentally conscious and that we could also handle the manufacturing of those pouches that required disinfecting.


Spouch®

3. Procuring sustainable resources

■ HI-Cup(Heat-insulated Paper Cups) [Shift from plastics to paper]

The two layers-the main paper cup and outer paper sleeve-provide heat insulation. They can be compressed to reduce volume after use and can be made from recycled paper.

■ P-DISH (Paper Trays) [Shift from plastics to paper]

Paper trays are suitable for prepared foods and frozen foods. Patterns can be printed on the inside and outside of the trays and they are more esthetically pleasing than plastic trays. They can be folded to reduce volume after use and can be made from recycled paper. Some of our paper trays are microwavable.


HI-CUP


P-DISH

4. Making long-term use possible

■ Laser-type, heat-sensitive rewritable card

Conventionally rewritable cards have a heat-sensitive head which the printer comes in contact with to rewrite the card. For this reason the durability of the card is limited. The number of times the card can be rewritten varies between 300 to 500 times. However with the laser-type, heat-sensitive rewritable card, a laser is used and there is no direct contact with the printer. Because of this, the card is more durable. Compared to conventional cards, the laser-type card can be rewritten more than 4,000 times, nearly 10 times that of conventional cards.

Laser-type, heat-sensitive rewritable card

5. Reusable

■ Stand pouch refills [Contributing to a system promoting the reuse of resources]

We have improved the mechanisms to open and pour from a new type of stand pouch refill. After refilling the original bottle, the empty pouch can be flattened to reduce the volume of waste.

Stand pouch refills

6. Recyclable

■ Environmentally Conscious Calendars [Making it unnecessary to separate and divide parts]

These are environmentally conscious calendars which are made from recycled paper and printed with ink with lower environmental impact. They have no metal or plastic parts.

■ e-video [use of easy-to-recycle materials]

By using polystyrene which is a recyclable material, the product does not emit dioxin. In addition, a “no-metal e-video” has been developed. The company plans to develop further proposals.

■ POP (eco cut out) [Making it unnecessary to separate and divide parts]

These POPs do not use any cardboard. The POP is made completely of cardboard. It does not use any plywood or metal plates such as in conventional models. Therefore there is no need to disassemble them when throwing them away.

Environmentally Conscious Calendars

e-vdeo

eco cut out

7. Use of recycled materials

■ Magazines and pamphlets made from 100% recycled paper

The DNP Group is recommending the use of recycled paper that contains 100% used paper. Previously, during the recycling process there were a few problems such as a deterioration in the strength of the paper because the pulp was damaged during recycling or a brownish tint to the paper due to the inability to completely de-ink waste paper. For this reason, most recycled paper only contains 40-60% used paper. However, DNP’s recycled paper is 100% used paper and was developed jointly with Oji Paper Co., Ltd. The paper is used for many purposes.

Magazines and pamphlets made from 100% recycled paper

8. Easy disposal

■ Bag in Box (BIB) /Bag in Carton (BIC) [Easy to disassemble]

These containers are made by attaching two layers together: a plastic inner bag and a paper outer box. They can be folded separately before and after use, saving greatly on storage space. They can be easily separated after use for recycling.

■ Stretch Labels [Easy to disassemble]

These labels are not glued to the bottles, therefore they are easy to peel off after use. They can be separated by weight when used for PET bottles. Compared with other labels, stretch labels are more energy- and cost-efficient, and easier to design.

Bag in Box
Bag in Carton

Stretch Labels

Environmental Conservation Activities

Targets for Environmental Protection
Each site must set up voluntary standards, taking actual environmental impacts into consideration. Such standards must be stricter than legally-binding standards.

Key Measures

The DNP Group uses its eco-report system to prevent seven typical types of pollution affecting the air or water, or related to noise, vibration or foul odors. The group is also involved in preserving the ozone layer.

DNP not only complies with the laws related to these areas, but aims to set voluntary standards which exceed legal mandates when considering the construction of a new plant site and plans the implementation of the strict management of inspection standards for its facilities.

Measures to battle air pollutants

<Reducing flue gas from boilers or solvents>

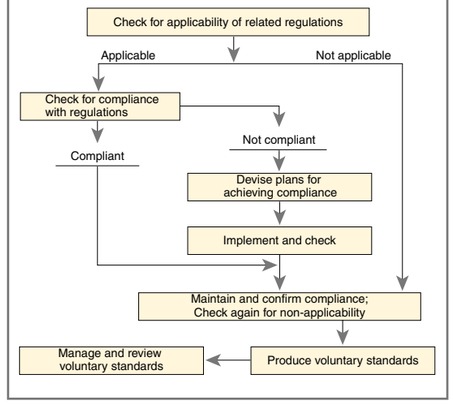
At each business site, incinerator facilities such as boilers are used. These emit NOx, SOx and dust into the atmosphere. Emission levels are checked on a regular basis and measures are taken to find alternative fuel sources with less environmental impact or improvements are made to facilities or operating procedures to lower the level of emissions. Furthermore, vehicles going in and out of the plant are asked to turn off their engines in the parking lot to stop pollution from idling.

From the standpoint of preventing foul odors, gas emissions from the printing process are decomposed using an incinerator or collected and reused by gas treatment equipment using the absorption process. For processes using solvents, DNP is shifting to solvents that have a smaller impact on the environment or to water-soluble materials.

<Measures to battle harmful air pollutants>

In 1996, trichloroethylene was added to a list for mandatory measurements under the Air Pollution Control Law, followed by tetrachloroethylene in 1997. Because of this, the DNP Group terminated the use of both chemicals. Currently, dichloroethane is used to wash gravure plates. Up until recently a cooling and coagulation device was installed to reduce emissions. However, in May 2000, the Tsuruse plant, which had used dichloroethane, installed a washing device and consequently stopped using the chemical. Improvements are being made at other sites still using the chemical and efforts are being made to stop usage throughout the group.

Steps in Establishing Voluntary Standards



Measure to battle water pollution

In printing, water is widely used for various purposes such as in development, washing facilities and plating facilities, in addition to the numerous cooling processes involved. DNP is obviously working to recycle wastewater for the effective use of water resources but the group has also installed wastewater treatment facilities to ensure that wastewater is made safe. Computerized plate-making makes the process filmless, guaranteeing that no waste water is released into the environment. For those sites releasing wastewater into rivers which run into closed water areas or lakes a higher level of water quality is required compared to other rivers. For this reason, wastewater treatment facilities are installed and wastewater management is being conducted. The wastewater route at the Tanabe plant was revised. The wastewater is now being reused. At the Okayama plant, the construction material division's production process has achieved zero emissions for wastewater.


Ichigaya plant: Asking parked trucks to turn off their engines


Dai Nippon Technopack Izumisaki plant: Incinerator

Measures to battle noise pollution and vibrations

In printing plants, machinery have parts that rotate at high speeds, such as rotary presses and binding machines. In addition, to power this type of machinery there are compressors and processing facilities. These all create noise. In addition, the in-house transportation of products or the piling of pallets is also another source of noise. Because of this we have received complaints from residents in the surrounding area.

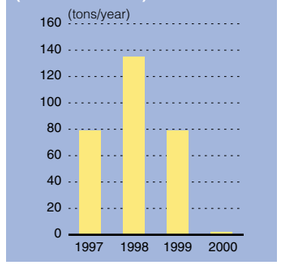
To deal with this problem, the DNP Group has assessed the conditions of the business site's location and the noise levels at the site. The group is working to alleviate the noise problems owing to faulty machinery as early as possible and also carrying out a variety of other activities. This includes the daily inspection of facilities, improvements to facilities responsible for generating noise, soundproofing the buildings, rerouting the direction in which noise is transmitted, changing working hours, and improving distribution methods. Moreover, we maintain roads located at our business site and have made improvements to alarms used in on-site vehicles, also a source of noise and vibrations.

Measures for preserving the ozone layer

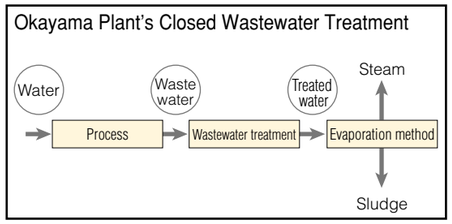
The DNP Group uses turbo freezer units as part of its air conditioning related facilities. As a coolant, these units use CFC-11 and CFC-12, both of which are ozone depleting substances. Currently there are 19 such air conditioning related facilities packed with these substances. The group is working to install freezer units with gas absorbers or shift to coolants that have a smaller adverse effect on the ozone, to reduce impact on the ozone. The group terminated the use of 1,1,1-trichloroethane in 1994, another ozone depleting substance.

CFC = chlorofluorocarbon

Dichloromethane Emissions (Tsuruse Plant)



Okayama Plant's Closed Wastewater Treatment



Ichigaya plant: Digital editing; DTP

Dai Nippon Cup, Sayama plant: Oil-water separation compressor drain


Ichigaya plant: Electric forklift


Dai Nippon Printing Technopack Kansai Kyoto plant: Sound-proof wall


Ichigaya plant: Creating barrier-free roadways

Reducing Industrial Waste

Targets for Reducing Industrial Waste

- Reduce waste generation per production (the rate of industrial waste generation for total production output) by 50% by fiscal 2001, compared with the fiscal 1991 level.
- Achieve zero emissions (zero generation of industrial waste) at 10 business sites and achieve a final waste disposal rate (final waste disposal quantity divided by total waste output) of 5% by fiscal 2001.

In view of the growing constraints on landfill capacity, the DNP Group is working to reduce industrial waste and achieve zero utilization of final disposal sites, with the ultimate target of realizing the "zero emissions" (zero generation of industrial waste) ideal. Namely, as shown in the chart on the next page, the total of the weight taken directly from sites for final disposal [I] and the weight of waste sent indirectly by outsourcing companies for final disposal [J] is zero. Our activities focuses on 4 areas:

1. Targeting waste sources(improving production systems to minimize the generation of waste)
2. Separating waste for collection and recycling (reinforce recycling, including converting into products with commodity value).
3. Reduction of the weight and volume of waste at sites.
4. Strengthening management methods and the establishment of educational systems.

DNP Group reduces the weight and volume of waste at the sites by incineration and the dehydration of sludge. The heat from incinerators is converted into steam for maximum energy use.

In fiscal 2000 we worked to separate, collect and recycle waste.

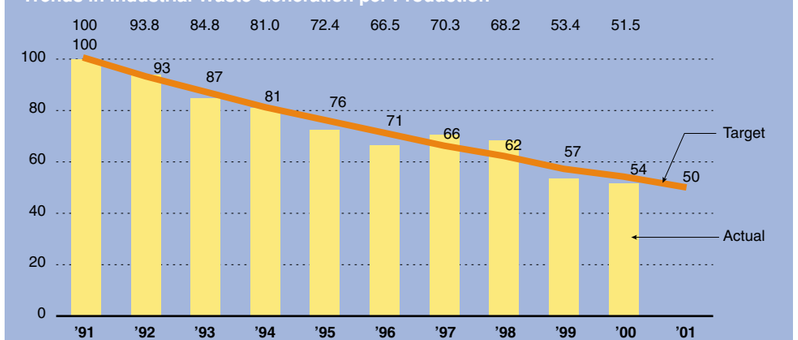
The total amount of discarded material [A] in fiscal 2000 was 650,100 tons. This was 25,300 more than the 624,800 tons produced in fiscal 1999, due to an increase in the number of sites being counted, 53 in the current as opposed to 46 a year earlier. However, the total waste generation decreased by 4,400 tons, from fiscal 1999, owing to an increase in valuable material [C] (15,500 tons) and on-site interim processing [D] 14,200 tons. Consequently, the total waste generated in fiscal 2000, was 51.5% less than in fiscal 1991. This shows that we are approaching target values.

Meanwhile, in fiscal 2000 the amount of final waste disposal [I+J] was 33,000 tons. Despite the increase in business sites, we were able to reduce final waste disposal by 11,700 tons, from the 45,000 tons disposal of in fiscal 1999, owing to the promotion of the recycling of material into resources [increase in G], the efficient use of residuals from interim processing and a shift in outsourcing to thermal recycling [decrease in J]. By doing this, the rate of final waste disposal was 5.1%, meaning we achieved our targets one year earlier than planned. In addition, we achieved zero emissions at 4 sites in fiscal 2000 (the Ichigaya plant's operations at Kuki, Gotanda, Ichigaya plant's operations at Akabane, and Hokkaido). There are 11 sites which have a final waste disposal rate of under 1%.

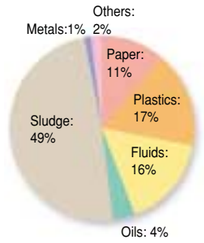
Furthermore, the amount of recycling including the creation of solid fuels (443,100 tons), accounted for 68.2% [(C+G)/A] of discarded materials [A]. The rate of on-site thermal recycling (28,400 tons, 4,800 tons produced as incinerator ash) was 4.4%. Excluding the amount of incinerator ash recycled for use as a raw material in cement, the recycling rate was 71.8%.

Thermal recycling
The recycling of heat energy collected from incinerators where scrap paper and waste plastics are burned.

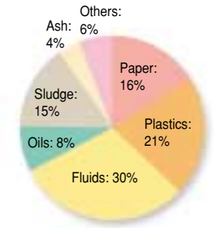
Trends in Industrial Waste Generation per Production



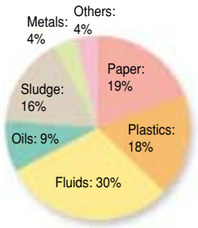
Breakdown of Waste [B]



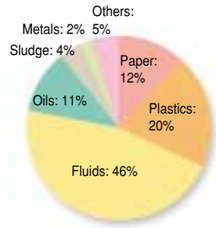
Breakdown of Waste Generation [E+F]



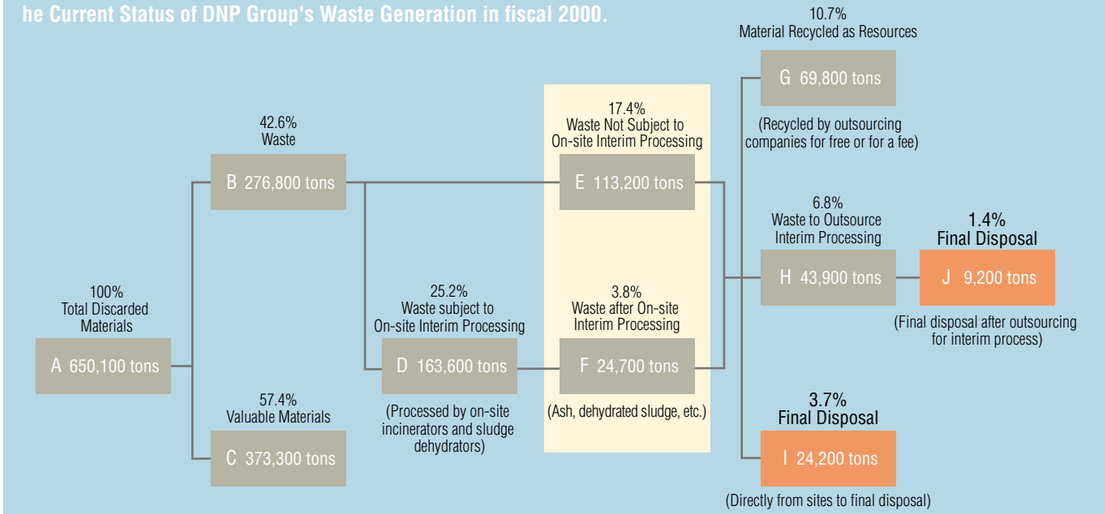
Breakdown of Material Recycled as Resources [G]



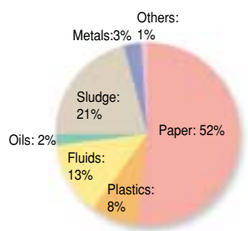
Breakdown of Waste to Outsource Interim Processing [H]



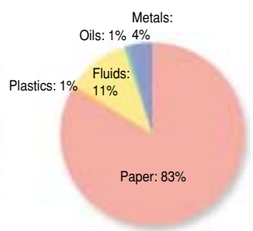
he Current Status of DNP Group's Waste Generation in fiscal 2000.



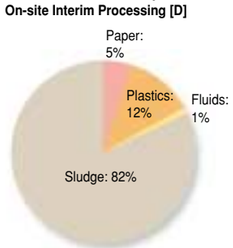
Breakdown of Discarded Material [A]



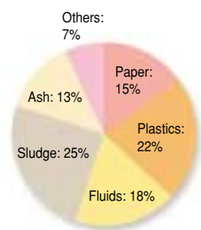
Breakdown of Valuable Material [C]



Breakdown of Waste subject to On-site Interim Processing [D]



Breakdown of Final Disposal [I+J]



■ Fiscal 2001 Targets

From fiscal 2001, in addition to our targets for reducing waste generation and our zero emission targets, we set new targets for the reduction of discarded materials [A] and to reduce ratios [A/amount of materials] for the promotion of better efficient usage of resources and for the improvement of our recycling rate [(C+G)/A] to promote the enhanced recycling of discarded materials.

Energy Reduction

(1) DNP Group's Environmental Targets

Reduce energy consumption per production by 15%, and CO_2 emissions per production by 20% over fiscal 1990 levels by fiscal 2010.

$$\text{Energy consumption per production} = \frac{\text{Energy average heat value converted consumption value (terra joule)}}{\text{Production output (¥100 million)}}$$

$$\text{CO_2 emissions per production} = \frac{\text{CO_2 emissions (t – CO_2)}}{\text{Production output (¥100 million)}}$$

Establish internal standards that are more stringent than evaluation criteria set out in the Law Concerning the Rational Use of Energy, and institute rational energy use and voluntary management.

(2) Current energy consumption

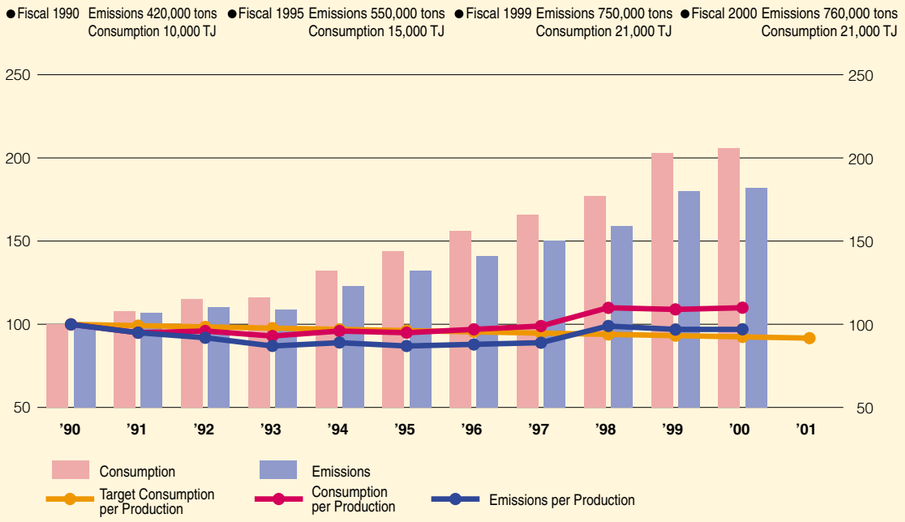
During fiscal 1997, as the average heat value and CO_2 emissions climbed, we worked toward reducing the CO_2 emissions.

However, despite continued efforts to lower CO_2 emissions starting in fiscal 1998, changes in our business environment caused these values to rise.

In fiscal 2000, to cap this rise in emissions, we implemented energy conservation strategies based on a new system. As a result, CO_2 emissions were kept to a minimum, only rising 0.8% year-on-year. The CO_2 emissions per production climbed by a mere 0.3%.

Despite the various factors boosting emissions, the CO_2 emissions per production has declined 3% in contrast to fiscal 1990.

■ **Total and Unit Energy Consumption, CO_2 Emissions : Comparison with fiscal 1990 (%)**



- Consumption: The energy consumption is calculated based on the conversion of the average heat value (joule) based on conversion rates used in the Energy Conservation law and by the Energy Conservation Center, Japan.
- Emissions: CO_2 emissions are calculated based on the September 2000 results from studies on greenhouse gas calculations produced by the working group on calculating greenhouse gas emissions.
- Consumption per Production: Energy consumed/value added amount (TJ/¥100 million)
- Emissions per Production: CO_2 emissions/value added amount (t-CO_2/¥100 million)
- Production output: A value added amount (¥100 million)

Joule
An international standard measurement for heat value. This mark must be used when implementing this method of measurement. 1 calorie equals 4.19606 joules.

TJ: terra joules
10 to the 12th power of a joule.

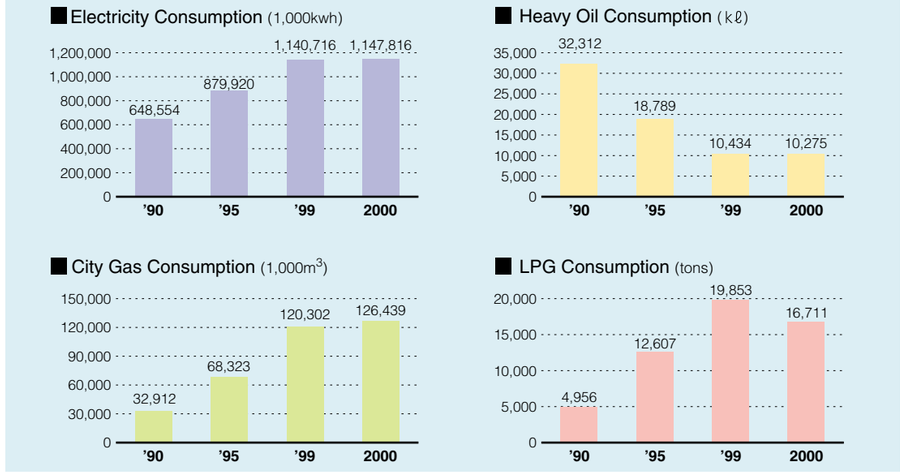
■Consumption by Type of Energy

1. Electricity: Since 1990, we increased the number of new plants in conjunction with the expansion of our businesses. Because of this, consumption took a sharp rise. As a result of our efforts to conserve energy, in fiscal 2000 our electricity consumption increased by a marginal 0.6 % year-on-year
2. Fuel: From 1990, we have been working to shift from heavy oil, which has a high level of CO_2 emissions per unit of heat, to other fuel sources.

The heavy oil cunsumption in fiscal 2000 was nearly one-third that of fiscal 1990 and was reduced by 1.5% over the previous year.

As an alternative fuel for heavy oil, we selected city gas and LPG. To the best of our ability, we are giving priority to the use of city gas because of its lower CO_2 emissions.

In fiscal 2000, CO_2 emissions resulting from fuel consumption increased by only 0.9% over the prior year reflecting our efforts to shift to new energy sources and conserve on the consumption of energy.



(3) Energy conservation measures and results in fiscal 2000

In accordance with the DNP Group's environmental guidelines, 390 energy conservation themes were implemented at all 53 sites. The results are shown in Table 1.

<Table 1>

	Fiscal 1999 results	Fiscal 2000 results	Change
Number of energy conservation themes	277	390	141%
Reductions by energy conservation themes (kl/year) Note 1	5,375	10,168	189%
Reductions by energy conservation themes (t-CO_2/year) Note 2	8,944	16,713	186%
Energy conservation rate (%) Note 3	1.10	2.05	

Note 1: Conversion to crude oil
Note 2: CO_2 emissions (conversion to carbon X 44/12)
Note 3: The energy conservation rate is based on the following formula for evaluating the reduction by implementation of energy conservation themes

$$\text{Energy conservation rate} = \frac{\text{Reduction after conversion to crude oil}}{\text{Energy consumption based on conversion to crude oil} + \text{Reduction after conversion to crude oil}}$$

Crude oil conversion: Based on calculations shown in Appendix 1 of Article 3 of the Enforcement Regulations under the Energy Conservation Law

Carbon conversion: Based on data in Table 1 of the Ministry of Environment's environmental activities assessment program

(4) Energy conservation measures and results in fiscal 2001

From fiscal 2001, we expanded the coverage of our energy reduction activities. We are placing a heavier focus on the prevention of global warming.

During the term, we plan to introduce large-scale energy conservation facilities (a co-generation system), improve the efficiency of production facilities, and install various types of energy conservation devices. In addition, to make full implementation of the energy management manual, we plan significant reductions in energy consumption and CO_2 emissions as indicated in Table 2 below.

<Table 2>

	Fiscal 2001 plans	Change
Number of energy conservation themes	303	78%
Projected reductions by energy conservation themes (kl/year)	32,815	323%
Projected reductions by energy conservation themes (t-CO_2/year)	55,002	329%

Co-generation system
Extracting various types of energy (electricity and heat) from a single energy source.

PRTR: Chemical Substance Management

● Target for PRTR

Identify the chemical substances that are specified as “Class 1 designated chemical substances” in PRTR and reduce the discharge and transport of those substances by 50% over fiscal 1998 levels by fiscal 2001.

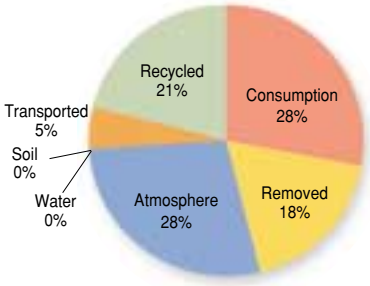
The DNP Group, prior to the establishment of the Law to Promote Improved Tracking and Management of Emissions Volumes for Designated Chemical Substances Released into the Environment (PRTR Law), began its own in-house surveys (DN-PRTR) from 1998. We set targets for reducing emissions into the environment, such as into the atmosphere or water bodies, including decreasing waste.

In fiscal 2000, of the 354 substances designated as class-1 chemicals under the PRTR Law, we reported the use of 28 (Fiscal 2001 and Fiscal 2002 Environmental Reports) of these substances, mainly solvents such as toluene, and also reported the release and transport of these substances at 35 of our business sites.

Furthermore, we found that emissions of these class-1 chemical designated substances, contained in raw materials, are equivalent to 28% of the usage and that all are being emitted into the atmosphere. Reducing emissions into the atmosphere is the next issue we need to solve.

The basic idea for solving this problem is not to use these designated chemical substances, reduce the amount used, shift to a less harmful substance or prevent the used chemical from being emitted into the atmosphere as much as possible (collection and reuse, decomposition and conversion into a non-harmful substance).

Pollutant Release and Transfer Register (PRTR)



Ratio of emissions and transport of class-1 substances

PRTR(Pollutant Release and Transfer Register)Law
Law requiring the reporting of emissions and transport of harmful substances into the environment. (refer to Page 6)

Class-1 designated chemical substances
Consists of 354 chemical substances listed in Article 2, Section 2 of the Law to Promote Improved Tracking and Management of Emissions Volumes for Designated Chemical Substances Released into the Environment (PRTR Law)

The Inctec Kansai plant:
Prior to shutting down the incinerator

After removal of the incinerator

< Measure currently being undertaken >

- Boosting the rate of collection for recovery devices
- Installing and promoting the use of removal devices
- Making solvents water soluble or finding alternative solvents
- Terminate usage of compact waste incinerators
- Separation of incinerator waste
- Reduction of waste

Office environmental conservation

Separate Collection and Recycling of Office Waste

At the DNP Group, from fiscal 1993 used paper has been separated into 4 categories, high-quality, newspaper, magazines and cardboard. The Group set targets for separating and collecting used paper and continues to work to improve its collection rate.

Office environmental conservation targets

The separation and collection of used paper accounts for over 65% of all domestic waste disposed of.

Comparison to domestic waste means...

Volume of used paper in the office that is separated and collected (A)
Waste which has the same properties as municipal office waste or waste emitted from the office (this includes the used paper not collected and excludes cans, bottles and food waste) (B)

The formula used is [A/(A+B)] X 100.

In fiscal 2000, used paper was separated and collected at 13 sites. This means 960 tons Note of used paper were collected. The rate of separated and collected used paper was 65.3%. The group has achieved its targets since fiscal 1997. The collected used paper is recycled for use as a raw material.

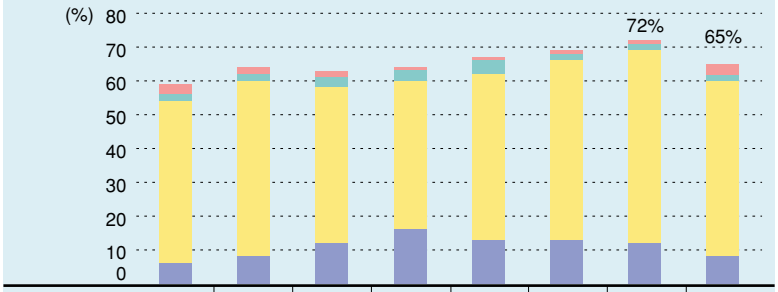
Note: Aside from this, about 1,100 tons of used paper was collected from 24 sites. This includes paper not generated by offices and not separated. This is the reason these sites were not included along with the above sites.

The main activities related to the separation and collection of used paper are aimed at improving the collection rate. 1) Survey how used paper is being separated (see how much used paper is not being collected in municipal waste). 2) Patrol to check separation and collection activities. 3) Use posters to enlighten employees on the merits of recycling used paper. 4) Recycle shredded paper. 5) Set up special boxes for separating and collecting used paper. 6) Review written procedures for separation.

As a measure to reduce domestic waste, aside from collecting used paper, 1) reduce paper usage by increasing computer network utilization, 2) use both sides of copier paper, and 3) use a scanner instead of a copier to copy data.

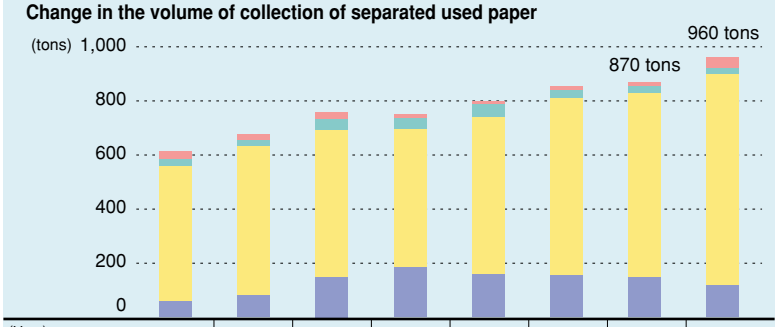
While not directly related to the separation and collection of used paper, the Ichigaya plant, the DAI NIPPON PRINTING PRECISION DEVICE plant at Mihara, and the C&I headquarters all introduced food waste processing machines and are creating into compost. In this way, they are controlling the generation of municipal waste.

Changes in the used paper separation and collection rate for municipal waste



(Year)	1993	1994	1995	1996	1997	1998	1999	2000
Wood-free paper	6%	8%	12%	16%	13%	13%	12%	**8%**
Newspaper	48%	52%	46%	44%	49%	53%	57%	**52%**
Miscellaneous paper	2%	2%	3%	3%	4%	2%	2%	**2%**
Cardboard	3%	2%	2%	1%	1%	1%	1%	**3%**

Change in the volume of collection of separated used paper



(Year)	1993	1994	1995	1996	1997	1998	1999	2000
Wood-free paper	30	22	25	16	13	14	17	**39**
Newspaper	25	24	39	39	48	30	24	**22**
Miscellaneous paper	500	552	545	513	581	655	682	**781**
Cardboard	58	80	148	184	158	155	147	**118**

Note: Total for separation and collection rate and volume at the 5 Tokyo sites through fiscal 1999.

Current status survey of office waste separation

Food waste processing machine (located in the basement of the C&I headquarters)

Introduction of ISO 14001 environmental management standards

The DNP Group is implementing its own unique environmental management system, the Eco-Report System, in an effort to improve the environment.

Moreover, in fiscal 2001, the Group aims to acquire the ISO14001, a globally recognized environmental standard, for 15 sites, and plans to introduce the standards to 30 sites by fiscal 2005.

TOKAI DAI NIPPON PRINTING CO., LTD.

Current status of ISO14001 certification

In November 1997, the DNP Group's Okayama plant, a part of the Information Media Supplies Operations, was not only the first DNP Group site to acquire the ISO 14001, but was also the first in the printing industry. Since then, as of the end of fiscal 2000, 4 sites have obtained certification.

Recently, in May 2001, TOKAI DAI NIPPON PRINTING CO., LTD. was certified.

Currently 12 sites are constructing systems in hopes of acquiring certification.

ISO14001 Certified Sites	Date of Acquisition	Surveying Organization
Okayama plant, Information Media Supplies Operations	Nov. 1997	JIA Note 2
Mihara plant, Display Components Products Operations	July 1998	DNV Note 3
DNP Facility Service Co., Ltd.Note 1	Apr. 2000	JIC-QA Note 4
Okayama plant, Decorative Interiors Operations	July 2000	JIA
TOKAI DAI NIPPON PRINTING CO., LTD.	May 2001	JIA

Note 1: Aside from ISO 14001, also acquired certification for its comprehensive management system covering quality, environment, health & safety and food sanitation
Note 2: Japan Gas Appliances Inspection Association
Note 3: Det Norske Veritas (Norway)
Note 4: JIC Quality Assurance

Green Purchasing

Targets for Green Purchasing

- Construct a database of toxic chemical substances in raw materials by fiscal 2001.
- Encourage the purchase of environmentally conscious products for office equipment and stationery

Current status of use of environmentally conscious products for office equipment and stationery

We refer to the Green Purchasing Network's "Green Purchasing Principles" when choosing office equipment and stationery. That means we selectively purchase equipment and stationery to satisfy the following criteria: reducing environmental pollutants, conserving resources and energy, maintaining a renewable harvest of resources, using products that have a long life, reusability and recyclability, use of recycled material, easy to treat as waste, etc.

By fiscal 2000, the Group had boosted its usage of recycled paper in copiers and printers to 94% (the headquarters is in charge of purchasing for 34 sites). This is 9 points above fiscal 1999. We have switched to using office envelopes, notepaper, letter paper, and business cards made from recycled paper. Regarding office supplies, we are aiming to shift to goods made from recycled materials, items that are easy to utilize and dispose of or that can be recycled. Currently 34% of our office supplies are environmentally friendly. Along with our efforts to promote the use of Eco-Mark products, in fiscal 2000, 61% of all our uniforms were labeled with the Eco-Mark. In fiscal 2001 we plan to only purchase those items that bear the Eco-Mark.

Green purchasing activities during fiscal 2001 are not only to include office equipment and supplies but will also be extended to raw materials and supplies.

Database of Toxic Chemical Substances in Raw Materials

We added the results of our reports on the emissions and transport of PRTR class-1 designated chemicals in fiscal 2000 to our database.

The Current Status of Internal Audits

The internal audit system “Eco-Audits” was started in fiscal 1996 in order to support our environmental conservation activities.

An Eco-Audit seeks to assure that environmental management is being implemented properly. This is the center of our eco-report system in which all of our sites participate. We began our Eco-Audits in fiscal 1996 and from fiscal 1999 have conducted them annually for each site.

In fiscal 2000, Eco-Audits were carried out at 53 sites, involving 143 persons and taking 259 hours.

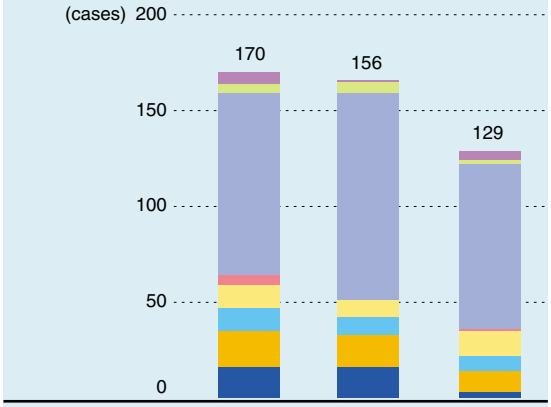
As a result, we found 129 areas that required improvement. Among these, there were legal problems, such as the failure of designated facilities to submit documentation or improper markers for waste storage facilities.

Those sites identified as having problems proposed plans for improvement and adopted all necessary measures.

In fiscal 2000, the DNP Group was not fined or penalized for environmental infractions.

In addition, in February 2001, the second Eco-Auditor training session was held. 46 employees passed the course and became new eco-auditors. The DNP Group currently has 92 eco-auditors.

Number of cases requiring improvement



	Fiscal 1996-1998	Fiscal 1999	Fiscal 2000
Pollution prevention organization	6	1	5
Energy	5	6	2
Waste	95	108	86
Odor	5	0	1
Vibration	12	9	13
Noise	12	9	8
Water quality	19	17	11
Air	16	6	3
Number of sites audited	43	43	53
Sites with no problems	3	4	13

July 26, 2000
Ichigaya Publication Printing Operations: Tsuruse plant

July 27 2000
Dai Nippon Printing Technopack Kansai: Kyoto plant

October 4, 2000
Dai Nippon Printing Technopack: Izumisaki plant

December 19, 2000
DNP Logistics

February 17, 2001
Eco-Auditor training session

February 22, 2001
The Inctec: Kansai plant

Environmental Education

The DNP Group offers a training program on environmental education for different levels. Each course has its own textbook.

Training	Course	Target	Eligibility	Length	No. of Times Held	No. of People Attended in Fiscal 2000
Introductory education	Dealing with the environment	Education on the DNP Group's environmental activities	Full and part-time workers in fiscal 2000 (required)	1 hour	Once a year	224
Technical seminar	How DNP deals with the environment	Aimed at technicians. An overall look at how DNP deals with the environment.	1st and 2nd year technicians, all employees (required)	2 hours	3 times a year	171
Technical seminar	Environment	Aimed at technicians. Knowledge of laws and regulations related to the environment.	Technicians (optional)	3.5 hours	Once a year	26
Network learning	Environmental problems and business	Basic knowledge of environmental issues and gaining understanding of the connection between environmental issues and business and consideration of new business chances.	Employees with more than 2 years experience in the sales and planning division (required)	Approx. 2 hours	—	3,195
Correspondence course	—	Considering environmental issues as a part of self-enlightenment	All employees from DNP and its affiliates (optional)	—	Signs ups twice a year	10

Network learning: Environmental education any time and at your own convenience

Environmental education is provided over the intranet for the Group's approximately 4,500 sales and planning staff nationwide. Basic knowledge of environmental issues can be obtained, as well as an understanding of the relationship between environmental issues and business. By taking the course, employees can provide detailed explanations to customers and acquire knowledge necessary to make proposals and create new business opportunities.

For those sales and planning staff that are busy on a regular basis, the system allows employees to study on their own anytime and at their own convenience. The system, which also allows for Q&A, was developed in-house from planning all the way to contents. 3,200 employees have taken the course.

Network Learning (first screen)


Network Learning (Main text)


Network Learning (An employee studying)

Employees with Certifications related to Environmental Laws and Regulations

In accordance with laws on pollution prevention, waste, electricity, gas and energy, depending on the size of the business and the type of substances being handled, sites must hire employees with certain qualifications. The table below exhibits the number of qualified and certified workers within the DNP Group.

(1) Pollution prevention management

	Air	Water quality	Noise	Vibration
Number of sites	22	11	0	0
Number of certified workers	91	74	30	16

(2) Waste management

	Managers in charge of special management of industrial waste	Managers in charge of industrial waste treatment facilities and technology
Number of sites	50	10
Number of certified workers	96	26

(3) Management of Electricity, Gas and Energy

	Electrical technicians	Persons in charge of gas safety	Energy managers	
			Heat	Electricity
Number of sites	49	17	23	33
Number of certified workers	103	149	75	86

Number of cases related to environmentally-related special facilities and measurements

At the 53 sites, DNP maintains the following special facilities in compliance with environmental laws. All of the sites work to reduce environmental impact under the guidance and supervision of an environmental committee.

(1) Laws related to the environment special facilities

Air (boiler, freezer)	288 units
Water quality (plating facilities, plate-making, printing plate washing facilities)	637 units
Noise (printing press, air compressor, ventilation)	2,471 units
Vibration (printing press, air compressor, extrusion molding)	920 units

(2) Measurements and analysis related to the environment

Air	123 cases
Water quality	570 cases
Noise	27 cases
Vibration	13 cases
Odor	30 cases
Waste	48 cases

Dealing with Product Liability

Comparable to the reduction of environmental impact, the supply of products that are safe is another responsibility of corporations. The PL (product liability) Law requires that manufacturers always provide safe products.

The DNP Group places the same amount of priority on creating safe products as it does on environmental conservation.

1. Basic policy

Product specifications must meet laws and regulations. By manufacturing products that exceed the safety expectations of customers, it allows the company to meet its responsibilities. This is the basic policy.

2. In-house system

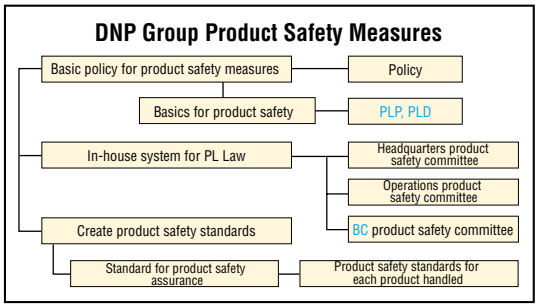
The in-house system was established on November 1, 1994, and consists of product safety committees in its headquarters, operations and Group companies.

3. Product safety standard documents

Based on guidelines for product safety measures by the headquarters' product safety committee, the product safety committees in each operations and Group company develop standards such as product safety assurance, sales activities and product safety standards for each product handled. These documents help to clearly state the roles of the product safety committee and sales division and measures for dealing with product safety.

4. PL management system

Product safety assurance is not a one-time event but must be continually carried out. From this standpoint, we created and operate a PL management system, the PDCA cycle for product safety.



Product Liability (PL)
This means manufacturers or designers are responsible for product safety.

Product Liability Prevention (PLP)
By taking precautions to prevent defects and the reoccurrence of defects. This specifically includes improvement of product safety, detailed labeling and manuals and full after-care.

Product Liability Defense (PLD)
Quick and positive actions to take care of consumers that might have been injured by a product. Create a system to take care of disputes and a full lineup of measures to compensate for damages.

Brother Company (BC)
A DNP Group affiliate.

Review of Environmental Conservation Activities by Business Site

Hokkaido Dai Nippon Printing Co.,Ltd. / Sapporo, Hokkaido

Established: June 1940

(commercial printing, packaging, bonds)

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
Dust (g/Nm^3)	Through-flow boiler A	<0.01	0.10
	Through-flow boiler B	<0.01	0.10
	Through-flow boiler C	<0.01	0.10
NOx (ppm)	Through-flow boiler A	53	150
	Through-flow boiler B	47	150
	Through-flow boiler C	52	150

■ Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Standard Value (Sewage Water Law)
BOD (mg/l)	420	81.2	600
Suspended Matter (mg/l)	530	73.7	600
n-hexane Extract Mineral oil (mg/l)	3.6	1.9	5
Iodine consumption (mg/l)	130	27.9	220
Copper (mg/l)	0.075	0.057	3
Chrome (mg/l)	0.05	0.05	2

■Release and Transport of PRTR Chemicals (tons/year)

Chemical	Emissions volume			Transport volume	
	Atmosphere	Water	Soil	Sewer	Waste
Toluene	149.8	0	0	0	29.0

■Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation per Production (ton / ¥ million)	0.602	0.519
Final Waste Disposal Rate (%)	0.0	0.0

■Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Crude Oil Energy Consumption per Production (kilo liter / ¥100 million)	102.9	93.9
CO_2 Emissions per Production (Carbon tons / ¥100 million)	152.6	142.4

Environmental Manager Review

Masakatsu Noda, Managing Director, Plant Manager, Hokkaido Dai Nippon Printing Co., Ltd.

We established an environmental committee chaired by the plant manager. The activities of this committee are linked with the HD21 program, which analyses problems by stage and is used to boost production efficiency. Furthermore, we take on environmental issues working closely with the local community.

In fiscal 2000, in the area of waste reduction, we worked to improve productivity and improve various types of loss. Owing to the launch of the No. 3 plant we were not able to achieve our targets for the year. However, we accomplished zero emissions with a final waste disposal rate of 0%.

In regard to energy conservation, we improved productivity, cut back on various types of loss, and introduced an inverter-type motor. Moreover, we improved our energy consumption by employing the drying process. Once again, owing to the start up of our No. 3 plant we did not meet our targets.

Our environmental activities were carried out in line with the environmental laws and regulations and based on our responsibility to society. We made careful considerations to obtain the understanding of local residents when constructing the No. 3 plant and when new facilities were delivered. Thanks to these efforts, the new plant was safely launched.

In accordance with the revised DNP Group environmental targets for fiscal 2001, we introduced new indicators and reviewed and established new targets. Among these new targets, in conjunction with the start of full-scale operations at our No. 3 plant, we installed a catalytic incinerator and aim to reduce our emissions of toluene into the atmosphere by about 40% by 2002 and by approximately 75% by 2003. We plan to make further reductions to environmental impacts and also make stable progress with manufacturing solutions, while pushing forward with improving the structure of our plant.

Inverter

An inverter converts direct current to alternating current. The inverter makes it possible to control voltage and frequency. It is an effective method for energy conservation.

■Environmental Accounting Report (Unit: ¥1,000)

Environmental Conservation Costs		
Content	Capital investment	Expenditure
1) Prevention of Air Pollution		17,096
2) Prevention of Water Pollution		
3) Noise Prevention		
4) Vibration Prevention		
5) Odor Prevention		3,231
6) Prevention of Global Warming	35,986	32,401
7) Prevention of Ozone Layer Depletion		
8) Reduction, Recycling, Disposal of Waste		44,277
9) Environmental Management Activities		1,180
10) Tree Planting, Beautification, Cleaning		
11) Others		
Total: Environmental Conservation Costs	35,986	98,187
Economic Benefits related to Environmental Conservation Activities		
1) Proceeds from the sales of recyclable materials	7,683	

Environmental Manager Review

Yoshiaki Nagano, President,
F.D.P. Dai Nippon Co., Ltd.

This site stands in the northeastern area of Saitama prefecture. The area is a rich suburban agricultural area with rural landscape near the magnificent Tone river and strawberry fields. The region holds a great reverence for water. Following the construction of the plant in 1995, we began contributing to the development of an information-based society as a key manufacturing site of color filters for LCD displays, indispensable for image devices for information communication.

In taking on environmental issues, in 1996 we established the eco-promotional committee. Activities centered around this committee include the pinpointing and promotion of key issues that will link to cost cutting methods including industrial waste reduction and energy conservation.

In the area of industrial waste reduction, in fiscal 2000 we were able to turn used solvents, mostly consisting of sludge and waste liquid, into valuables. Moreover, to reduce discarded glass, to promote the recycling of glass, we actively reviewed manufacturing steps to locate the source of the problem. In this fashion, we are steadily working toward the reduction of waste.

To save energy, from the start we have been working to reduce wasteful loss through a meticulous operation and management. We also promote other measures such as the effective use of exhaust gas heat and the use of an inverter control in the water coolant pump.

As a new step in this first year of the 21st century, we aim to promote the creation of a recycling-oriented society and compliance with environmental laws and ordinances, we move forward with our environmental activities on both a global and local scale. We are going back to our origins by focusing on basic themes such as industrial waste reduction and energy conservation. To the best of our ability we are working to encourage the achievement of zero emissions and zero energy loss.

■Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation per Production (ton / ¥ million)	0.063	0.05
Final Waste Disposal Rate (%)	1.4	0.0

■Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Crude Oil Energy Consumption per Production (kilo liter / ¥100 million)	83.92	74.6
CO_2 Emissions per Production (Carbon tons / ¥100 million)	123.7	121.7

■Environmental Accounting Report (Unit: ¥1,000)

Environmental Conservation Costs		
Content	Capital investment	Expenditure
1) Prevention of Air Pollution		36,758
2) Prevention of Water Pollution	64,830	266,773
3) Noise Prevention		7,910
4) Vibration Prevention		7,150
5) Odor Prevention		
6) Prevention of Global Warming	50,161	5,978
7) Prevention of Ozone Layer Depletion		
8) Reduction, Recycling, Disposal of Waste		41,377
9) Environmental Management Activities		1,437
10) Tree Planting, Beautification, Cleaning		415
11) Others		
Total: Environmental Conservation Costs	114,991	367,798
Economic Benefits related to Environmental Conservation Activities		
1) Proceeds from the sales of recyclable materials	3,122	

F.D.P. Dai Nippon Co., Ltd., Otone Plant

Otone, Kita Saitama-gun, Saitama Prefecture
Established: April 1995
(color filter for LCD displays)

■Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
Dust (g/Nm^3)	First Boiler	<0.002	0.1
	Second Boiler	<0.003	0.1
	Third Boiler	<0.003	0.1
	Fourth Boiler	<0.003	0.1
	Fifth Boiler	<0.002	0.1
	Sixth Boiler	<0.003	0.1
	Seventh Boiler	<0.002	0.1
	Eighth Boiler	<0.004	0.1
	Ninth Boiler	<0.003	0.1
	Tenth Boiler	<0.002	0.1
	Eleventh Boiler	<0.002	0.1
NOx (ppm)	First Boiler	38	150
	Second Boiler	39	150
	Third Boiler	73	150
	Fourth Boiler	70	150
	Fifth Boiler	30	150
	Sixth Boiler	43	150
	Seventh Boiler	34	150
	Eighth Boiler	20	150
	Ninth Boiler	32	150
	Tenth Boiler	42	150
	Eleventh Boiler	81	150

■Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD (mg/l)	2.1	2.01	20
COD (mg/l)	5.8	3.97	10
Suspended Matter (mg/l)	7.8	4.29	60
n-hexane Extract Mineral oil (mg/l)	1.6	1.14	5
Nitrogen (mg/l)	8.0	4.54	60
Phophorus (mg/l)	0.33	0.12	8
Cadmium (mg/l)	<0.01	<0.01	0.1
Lead (mg/l)	<0.01	<0.01	0.1
Arsenic (mg/l)	<0.01	<0.01	0.1
Copper (mg/l)	<0.05	<0.05	3
Zinc (mg/l)	0.12	0.06	5
Steel (soluble) (mg/l)	0.26	0.08	10
Manganese (mg/l)	0.42	0.13	10
Chrome (mg/l)	<0.05	<0.05	2
Flourine compounds (mg/l)	<1	<1.00	15

■Release and Transport of PRTR Chemicals (tons/year)

Chemical	Emissions volume			Transport volume	
	Atmosphere	Water	Soil	Sewer	Waste
Toluene	0.25	0	0	0	0.95

Dai Nippon Offset Co.,Ltd., Shiraoka Plant

Shiraoka, Minami Saitama-gun, Saitama Prefecture
Established: Arpil 1993
(publishing, commercial printing)

Environmental Manager Review

Dai Nippon Offset Co.,Ltd., Shiraoka Plant
Hiroyuki Umehara, President, Plant Manager

This site is situated in an industrial park in the town of Shiraoka in Saitama Prefecture. The plant handles the offset printing mainly of regular publications such as weekly and monthly magazines.

Regarding our environmental management, in our aim to become a plant with little environmental impact, from 1996 we began the promotion of our eco-plan activities and in 2000 established an environmental safety promotion office.

As an environmentally conscious plant, the point of our eco-plan activities is to promote compliance with laws and regulations to reduce industrial waste emissions and to thoroughly eliminate wasteful use of energy.

In fiscal 2000, concerning energy conservation, we achieved our target for a 5% annual reduction in industrial waste emissions, our targets for reducing both energy consumption and CO_2 emissions year-on-year, and easily cleared legal restrictions on air and water quality.

As one of our activities from here forward, we aim to create an environmentally conscious, recycling-oriented plant, and also aim to promote the 3Rs (reduce, reuse, recycle).

Offset printing
Printing on a paper cut to a specific size.

■Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
Dust (g/Nm^3)	Hot/cold water supply device No. 1	0.0027	0.1
	Hot/cold water supply device No. 2	0.005	0.1
	Incinerator	0.0114	0.25
NOx (ppm)	Hot/cold water supply device No. 1	104	150
	Hot/cold water supply device No. 2	40	150
	Incinerator	52	N/A
Hydrogen chloride (mg/Nm^3)	Incinerator	11	500
DXN (ng-TEQ/Nm^3)	Incinerator	21	80 (proposed)

■Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD (mg/l)	<2.0	<2.00	N/A
Suspended Matter (mg/l)	<2.0	<2.00	N/A
n-hexane Extract Mineral oil (mg/l)	1.1	<1.01	N/A

■Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation per Production (ton / ¥ million)	0.035	0.104
Final Waste Disposal Rate (%)	0.8	0.0

■Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Crude Oil Energy Consumption per Production (kilo liter / ¥100 million)	100.2	100.2
CO_2 Emissions per Production (Carbon tons / ¥100 million)	144.0	153.3

■Environmental Accounting Report (Unit: ¥1,000)

Environmental Conservation Costs		
Content	Capital investment	Expenditure
1) Prevention of Air Pollution		12,168
2) Prevention of Water Pollution		1,195
3) Noise Prevention		
4) Vibration Prevention		
5) Odor Prevention		
6) Prevention of Global Warming	1,260	1,232
7) Prevention of Ozone Layer Depletion		
8) Reduction, Recycling, Disposal of Waste		6,419
9) Environmental Management Activities		1,454
10) Tree Planting, Beautification, Cleaning		264
11) Others		
Total: Environmental Conservation Costs	1,260	22,732
Economic Benefits related to Environmental Conservation Activities		
1) Proceeds from the sales of recyclable materials	7,684	

Environmental Manager Review

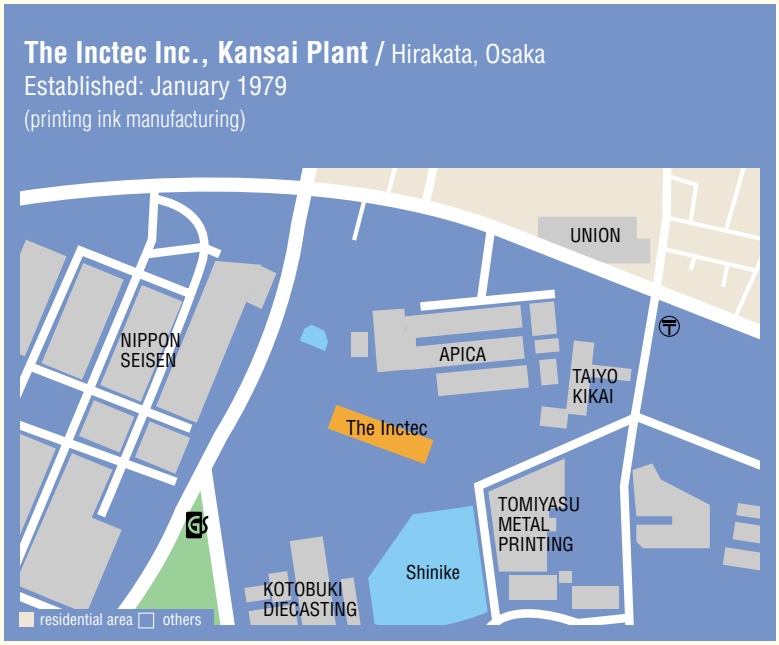
The Inctec Inc., Kansai Plant
Akio Matsuo, Plant Manager

As a member of the DNP Group, we participate in the eco-report system and work to reduce environmental impact related to printing ink production.

We are building a system in preparation for the introduction of the ISO14001.

In fiscal 2000, we promoted the recycling of used ink. We also made efforts to improve energy efficiency, including the installation of a steam absorption water cooling/heating device. However, owing to a decline in production values and the introduction of facilities to ensure quality, we were not able to achieve targets in this area. However, we did achieve our targets for the final waste disposal rate. In the area of environmental conservation, we reaffirmed our compliance with environmental laws and regulations and set voluntary standards for maintaining air and water quality, and reducing noise and vibration.

In fiscal 2001, we established new targets and are working toward realizing them.



■Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation per Production (ton / ¥ million)	0.107	0.101
Final Waste Disposal Rate (%)	4.2	5.6

■Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Crude Oil Energy Consumption per Production (kilo liter / ¥100 million)	22.8	20.2
CO_2 Emissions per Production (Carbon tons / ¥100 million)	32.9	29.7

■Environmental Accounting Report (Unit: ¥1,000)

Environmental Conservation Costs		
Content	Capital investment	Expenditure
1) Prevention of Air Pollution		647
2) Prevention of Water Pollution	6,000	3,684
3) Noise Prevention		
4) Vibration Prevention		
5) Odor Prevention		235
6) Prevention of Global Warming		
7) Prevention of Ozone Layer Depletion	14,150	1,943
8) Reduction, Recycling, Disposal of Waste	8,200	25,705
9) Environmental Management Activities		992
10) Tree Planting, Beautification, Cleaning		500
11) Others		
Total: Environmental Conservation Costs	28,350	33,706
Economic Benefits related to Environmental Conservation Activities		
1) Proceeds from the sales of recyclable materials	0	

■Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SO_X (Nm^3/h)	Boiler # 1	<0.004	0.28
	Boiler # 2	<0.013	0.31
	Boiler # 3	<0.004	N/A
Dust (g/Nm^3)	Boiler # 1	0.016	0.20
	Boiler # 2	0.0053	0.05
	Boiler # 3	0.0030	N/A
NO_X (ppm)	Boiler # 1	159	180
	Boiler # 2	37	150
	Boiler # 3	42	N/A

■Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD (mg/l)	5.5	5.1	25
COD (mg/l)	12.0	9.8	25
Suspended Matter (mg/l)	21.5	16.6	65
n-hexane Extract Mineral oil (mg/l)	0.8	0.7	4
Nitrogen (mg/l)	29.2	16.6	120
Phophorus (mg/l)	2.91	1.92	16
Phenols (mg/l)	<0.025	<0.025	1
Copper (mg/l)	<0.1	<0.1	3
Zinc (mg/l)	0.52	0.31	5
Steel (soluble) (mg/l)	0.2	0.2	10
Manganese (mg/l)	<0.1	<0.1	10
Chrome (mg/l)	<0.04	<0.04	2
Flourine compounds (mg/l)	2.7	1.68	15

■Release and Transport of PRTR Chemicals (tons/year)

Chemical	Emissions volume			Transport volume	
	Atmosphere	Water	Soil	Sewer	Waste
Ethylbenzene	0.44	0	0	0	0.75
Ethylene glycol Monoethyl ether	0.04	0	0	0	0.12
Ethylene glycol Monomethyl ether	0.57	0	0	0	1.70
Xylene	0.50	0	0	0	0.84
Toluene	4.39	0	0	0	1.15
2- Ethylhexyl	0.02	0	0	0	0.36

Dai Nippon Printing Technopack Kansai Co., Ltd., Tanabe Plant

Kyotanabe, Kyoto
Established: September 1995
(packaging)

Environmental Manager Review

Dai Nippon Printing Technopack Kansai Co., Ltd., Tanabe Plant
Yoshihisa Tanimoto, Plant Manager

This site is a part of the paper packaging division. In 1995, the first plant building was built. Then another building was constructed in 1999. The plant mainly handles the manufacture of liquid paper packaging and ordinary paper packaging. The plant is located in an area especially designated for industries. However, the surrounding area is all countryside. The plant is blessed with a great environment.

At the time the plant was built, knowhow amassed at the Kyoto Plant was used for planning the installation of an incinerator that used waste heat, and printing flue gas deodorizing equipment; unit management and operation of air ventilation systems in keeping with their environmental impact, and the use of inverters in pumps.

In fiscal 2000, the staff and manufacturing division came together to implement and accomplish environmental activities such as waste reduction, energy conservation, and making gravure printing water-soluble and non-toluene in accordance with PRTR.

In fiscal 2001, we aim to analyze loss to see how we can curtail waste, eliminate habits used up until now, employ product designs that minimize loss at the design stage, boost the yield rate during manufacturing, promote the reduction of auxiliary facilities, use selective survey methods and review the packaging methods of product being transported during processing. We also plan to achieve great progress not only in reducing waste but also in using raw materials.

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SOx (Nm^3/h)	Incinerator	0.17	1.71
Dust (g/Nm^3)	Incinerator	0.0096	0.25
NO_x (ppm)	Incinerator	92	250
DXN (ng-TEQ/m^3N)	Incinerator	0.00062	80

■Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD (mg/l)	39	26.3	600
Suspended Matter (mg/l)	69	42.6	600
n-hexane Extract Mineral oil (mg/l)	<1.0	<1.0	5

■Release and Transport of PRTR Chemicals (tons/year)

Chemical	Emissions volume			Transport volume	
	Atmosphere	Water	Soil	Sewer	Waste
Toluene	0.22	0	0	0	46.7

■Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation per Production (ton / ¥ million)	0.608	0.490
Final Waste Disposal Rate (%)	10.1	0.0

■Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Crude Oil Energy Consumption per Production (kilo liter / ¥100 million)	128.9	111.2
CO_2 Emissions per Production (Carbon tons / ¥100 million)	182.5	163.6

■Environmental Accounting Report (Unit: ¥1,000)

Environmental Conservation Costs		
Content	Capital investment	Expenditure
1) Prevention of Air Pollution	19,800	12,707
2) Prevention of Water Pollution	398	92
3) Noise Prevention		2,313
4) Vibration Prevention		
5) Odor Prevention		
6) Prevention of Global Warming	1,653	1,368
7) Prevention of Ozone Layer Depletion		
8) Reduction, Recycling, Disposal of Waste	44,306	119,930
9) Environmental Management Activities		1,530
10) Tree Planting, Beautification, Cleaning		826
11) Others		570
Total: Environmental Conservation Costs	66,157	139,336
Economic Benefits related to Environmental Conservation Activities		
1) Use of waste heat derived from waste incinerator	215,172	
2) Proceeds from the sales of recyclable materials	4,128	
Total: Economic Benefit	219,300	

Environmental Manager Review

Dai Nippon Printing Kenzai Co., Ltd.,
Okayama Plant
Toshikazu Yokota, Managing Director, Plant Manager

This site is located in the Mitsu Industrial Park in the central part of Okayama Prefecture. The plant deals mainly in the manufacture of decorative paneling for housing. In 1993, the plant became involved in eco-plan promotion activities. The plant promoted the reduction of environmental impact centered around 4 working groups covering the reduction of industrial waste, energy conservation, PRTR and improvement of the product environment. In July 2000, the plant acquired ISO14001 certification.

In fiscal 2000, the working group on the reduction of industrial waste created valuables from used plastics and began the recycling of pallets. In addition, the plant was able to reduce the amount of industrial waste generated by improving manufacturing processes and reducing emissions by 31% from the previous year thanks to better productivity.

The energy conservation working group created electronic maps to get an actual look at energy usage by facility or area. In fiscal 2000, the plant took up energy conservation proposals from employees and established a energy conversation patrol using members in the working committee. Furthermore, we nurtured themes based on the energy conservation screening performed by the Energy Conservation Center, Japan, to reduce wasteful loss. As a result, we reduced fuel consumption (converted to crude oil) by 13% and also improved productivity.

The PRTR working group worked to make organic solvents included no-toluene ink. In addition, to the disposal of the low density organic solvent emitted into the air from the organic solvent plant, the solvent is condensed and burned. Steam is recycled from the heat emitted by the burning by using a thermal recycling system. Plans are to start up the system in fiscal 2001 and to reduce waste by nearly 85%.

The working committee for the improvement of product environment is continuing to assess the reduction of environmental impact at the time a new product is designed.

In fiscal 2001, our target is not only to reduce values but also to aim for continual improvement. We plan to do this by working to reduce industrial waste emissions and energy consumption and also by curtailing the absolute volume of emissions.

Decorative Interiors Operations, Okayama Plant

Otsu, Otsu-gun, Okayama Prefecture
Established March 1993
(decorative paneling for housing)

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
Dust (g/Nm^3)	Heating boiler No. 1	<0.005	0.10
	Heating boiler No. 2	<0.005	0.10
NOx (ppm)	Heating boiler No. 1	40	150
	Heating boiler No. 2	37	150

■Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD (mg/l)	3.5	2.6	10
COD (manganese) (mg/l)	9.8	6.3	20
n-hexane Extract (mg/l)	<1.0	<1.0	3
Suspended Matter (mg/l)	4.5	3.2	50
Nitrogen (mg/l)	4.0	3.1	120
Organic phophorus compounds (mg/l)	4.0	3.1	16
Copper (mg/l)	0.06	0.04	0.5
All chrome (mg/l)	<0.1	<0.1	0.5

■Release and Transport of PRTR Chemicals (tons/year)

Chemical	Emissions volume			Transport volume	
	Atmosphere	Water	Soil	Sewer	Waste
Toluene	149.6	0	0	0	0
Ethylene glycol Monomethyl ether	41.0	0	0	0	0
Xylene	12.3	0	0	0	0
Ethylene glycol Monoethyl ether	3.1	0	0	0	0

■Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation per Production (ton / ¥ million)	0.404	0.43
Final Waste Disposal Rate (%)	42.0	39

■Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Crude Oil Energy Consumption per Production (kilo liter / ¥100 million)	117.9	147.4
CO_2 Emissions per Production (Carbon tons / ¥100 million)	209.6	276.1

■Environmental Accounting Report (Unit: ¥1,000)

Environmental Conservation Costs		
Content	Capital investment	Expenditure
1) Prevention of Air Pollution		18,581
2) Prevention of Water Pollution		11,169
3) Noise Prevention		2,662
4) Vibration Prevention		840
5) Odor Prevention		10,916
6) Prevention of Global Warming		18,294
7) Prevention of Ozone Layer Depletion		1,678
8) Reduction, Recycling, Disposal of Waste	54,000	78,286
9) Environmental Management Activities		4,325
10) Tree Planting, Beautification, Cleaning		2,304
11) Others		
Total: Environmental Conservation Costs	54,000	149,056
Economic Benefits related to Environmental Conservation Activities		
1) Proceeds from the sales of recyclable materials	1,229	

Environmental Communication Support Services

Since 1999, the DNP Group annually publishes its Environmental Annual Report as a method to communicate its environmental conservation activities to external stakeholders.

We continue to make improvements to enable a more detailed and simple way of communicating our corporate stance of contributing to the creation of a sustainable and recycling-oriented society.

Furthermore, we have made a business out of helping to develop environmental communication tools, mainly environmental reports. From 1999 we have amassed experience in the area of creating environmental tools for our customers.

We are developing a system to deal with the growing sophistication of information disclosure and we aim to become the leading company in this field.

Transmitting information to the Public

The 2000 Environmental Report has the following characteristics.

1. An organizational chart that clarifies the range of disclosure.
2. The use of environmental accounting as a management tool.
3. Detailed introduction of environmentally conscious products.
4. Introduction of environmental managers from each site.
5. To ensure our objectivity, we obtain an independent review report.

Environmental Communication Support Services

Working to create a more sophisticated environmental report

Environmental reports are making rapid progress. Currently, we are in a transitional period, and there is no predetermined format for environmental reports. Since the Ministry of the Environment provides guidelines, many companies use these guidelines to create their reports. However, while this may make it easier to make comparisons, the conformity to these guidelines may make it difficult to communicate corporate characteristics to readers. The balance between the level of information coverage and the communication of corporate characteristics is important.

We at the DNP Group believe these issues can be resolved by using our ability to arrange and present data with the reader in mind, a skill nurtured through our long experience in the printing industry.

Importance of disclosure over the Web

In 2000, the number of companies concerned about their homepages increased. We utilize our knowhow gained from operating Media Galaxy and are continually aware of proposals for the multiple-use of printed data.

DNP continues to hold environmental seminars

From 2000, we began holding seminars to teach corporate managers in charge of the environmental reports of their respective companies how to create environmental reports.

Media Galaxy
Since 1995 DNP has been operating Media Galaxy, a comprehensive business service handled over the Internet. Media Galaxy offers comprehensive services including consulting for the creation of Web pages, planning and production of contents, server hosting and site management. Currently over 400 companies benefit from Media Galaxy's services.

Ties with the local community

The DNP Group has production sites nationwide. As a member of the community, we endeavor to maintain open lines of communication with the local community. We conduct clean up activities in the areas surrounding our business sites and have plant observation trips. We participate in and offer our cooperation through annual events, such as the summer festival and fireworks displays. We also partake in and support the operation of various sporting events. Furthermore, we help sponsor local town events, join in joint charities, and get involved in blood donations. These efforts help us to deepen our ties with the local community. We also strive to increase the safety of local communities by taking part in disaster prevention training and guidance at crosswalks.

Unfortunately, at times, we receive complaints about noise and foul odors from the surrounding area. We do our best to methodically determine the cause of the problem and not only work to resolve the crisis but also to ensure that it does not happen again.

Kuki Plant: Young drivers volunteer as a clean-up crew

Sayama Plant: Clean-up campaign at the Iruma River

Kami-Fukuoka Plant: Clean-up campaign

< Major Volunteer Environmental Activities >

- **Warabi Plant:** Clean Day Activities (every third Friday of the month)
- **Tohoku Dai Nippon Printing:** Clean up of walkways around the vicinity of the plant (weekly)
- **Shikoku Dai Nippon Printing:** Clean up of the surrounding area (twice a month)
- **Fukuoka Plant:** Sidewalk Cleanup in the Neighborhood (Year round)
- **Commercial printing Operations, Akabane Plant:** Clean up of public roadways (May 1, 2000)
- **Kami-Fukuoka Plant:** Clean up campaign for the area surrounding the plant to the nearest train station (Kami Fukuoka)(May 1, 2000)
- **Kuki Plant:** Volunteer Cleaning Activities by the Young Drivers'Club (May 7, 2000)
- **Tsuruse Plant:** Participation in the 2000 Zero Waste Movement (May 25, 2000)
- **Sayama Plant:** Participation in the clean up of the Iruma River (June 10, 2000)
- **The Inctec Tokyo Plant:** Clean up of the west side of the plant (June 16, 2000)
- **Hokkaido Dai Nippon Printing:** Clean up of walkways surrounding the plant (November 2000)

< Activities Promoting Communication with the Local Community >

- **Kyoto Plant:** Explanation of construction on the plant premises to towns in the surrounding area (irregularly)
- **Plants in the Akabane district:** Guidance at crosswalks during traffic safety week (Spring and Fall of 2000)
- **Dai Nippon Cup Sayama Plant:** Provides paper cups to the Fureai Hiroba sponsored by the Sayama Social Welfare Committee (April 2000)
- **The Inctec Tokyo Plant:** Plant observation tours for third grade elementary school students (June 21, 2000)
- **Chikugo Plant:** A supporter of the fireworks display sponsored by the tourism bureau of the city of Chikugo (August 1, 2000)
- **Okayama Plant:** Plant observation trips for foreign university students and those families hosting overseas students(August 2, 2000)
- **Ichigaya Plant:** Contribute notepads and other items to the summer exercise event (August 2000)
- **Utsunomiya Plant:** A supporter in the Nishikata-cho Kappa Festival (August 4, 2000)
- **Chikugo Plant:** A supporter the Mita school district's Obon dance festival (August 5, 2000)
- **Warabi Plant:** Donate notepads and other items to the summer festival held by three townships (August 6, 2000)
- **Otone Plant:** Participate in the Otone fireworks display (August 12, 2000)
- **Hokkaido Dai Nippon Printing:** Clean up walkways around the plant area (November 2000)
- **Okayama Plant:** Mitsu-cho Summer Festival (November 18, 2000)
- **Dai Nippon Hoso:** Provide an experience of vocational training for second year junior high school students (February 20, 2001)

Overseas activities

Reforestation Project in Vietnam

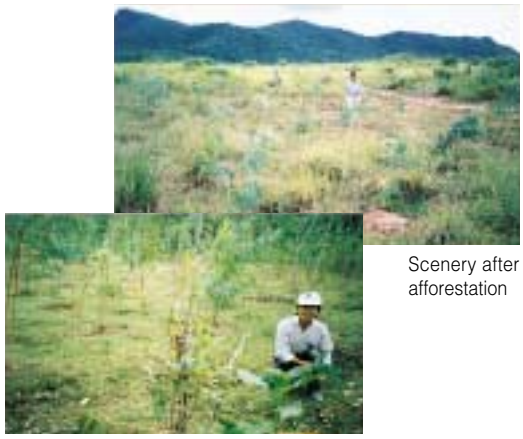
In 1995, the DNP Group established a joint venture in Binhdinh Province in Vietnam with New Oji Paper Co., Ltd., (presently Oji Paper Co., Ltd.) and Nissho Iwai Corp. for reforestation projects. Owing to war, fires left the hilly areas barren. Over the past seven years, an annual 1,500ha was planted with acacia and eucalyptus trees. Afforestation plans call for the planting of a total 10,500ha.

Printing companies are a major consumer of paper products. In addition to our efforts in the effective use and recycling of paper resources, we wish to contribute to global environmental protection efforts through reforestation programs.

Oji Paper Co., Ltd. is implementing afforestation plans in seven other areas as well, including locations in Australia and New Zealand. The company has begun sales of paper manufactured purely from the chips from the trees planted in these areas. Chips from the first 1,500ha planted in Binhdinh will be used to manufacture paper from 2002. New saplings will be planted after the trees are cut. Along with the continuation of this long-term afforestation project, the company plans to produce 70,000 boned dry tons in chips per annum.

Boned Dry Ton
Weight of completely dried wood.

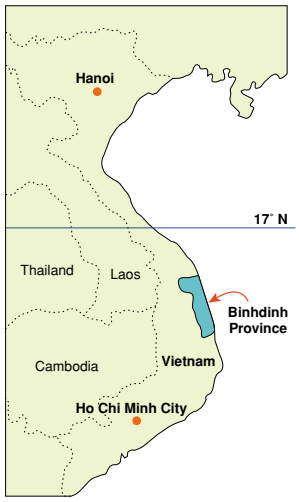
The repetitive recycling of used paper results in the deterioration of pulp fibers. Because of this, there is a limit to the number times used paper can be recycled before new pulp becomes necessary. After the trees are cut, the area is immediately reforested. As a result, this creates a pulp source that does not trigger the destruction of natural forests or global warming. Reflecting this, DNP Group plans its full-scale cooperation in this program.



Scenery after afforestation

2000

2001



Working toward acquisition of ISO14001 certification

Tien Wah Press, located at 4 Pandan Crescent, SINGAPORE 128475, mainly involved in the printing of books in Singapore, has begun activities to acquire ISO14001 certification. The company aims for the simultaneous acquisition of the OHSAS18001 labor and safety certificate. The company hopes to obtain the certificate in January 2002.

Environmental Conservation Awards

The following are awards the DNP Group has received over the years for its environmental conservation efforts.

1987 April The Kyoto Plant receives the Agency of Natural Resources and Energy Director General's Award for Factories Excellent in Energy Management

1988 March Dryer for gravure printing developed by the Manufacturing Technology Integration Laboratory is selected as Excellent Energy-Saving Equipment and commended by the Japan Machinery Federation

1991 January The Ichigaya Plant's roof garden wins the Sky Front Forum Group Commended Award as a case study in factory horticulture

1993 March Developed an environmentally friendly medical waste product processing unit, HAZ-PAC, which wins the JPC Award from the Minister of International Trade & Industry

1993 July The Ichigaya Publication Printing Operations' Kuki Plant and Dai Nippon Printing Kuki Micro Co., Ltd., conduct volunteer clean-up operations and receive a letter of thanks from the Kuki City mayor for "cooperation in cleaning up the surroundings of industrial complexes"

1994 July Dai Nippon Printing in Ichigaya and affiliate Dai Pack Co., Ltd. (presently DNP Logistics Co., Ltd.) , receive the Award of Excellence for their Approach to Municipal Waste (Office Building Section) from the Tokyo Metropolitan Government

1995 April DNP wins the Minister of International Trade and Industry Award, part of the Fourth Global Environment Awards, which commends companies and organizations contributing to global environmental protection

The Award was established by the Nippon Kogyo Shimbun and the Fuji Sankei Group, with the cooperation of such entities as WWF JAPAN, MITI, the Environment Agency, and the Federation of Economic Associations (Keidanren)

1996 February The Ichigaya Publication Printing Operations receive recognition from Shinjuku Ward (Tokyo) as Business Operators with an Excellent Record in Recycling

1999 June The Ichigaya Plant's roof garden wins the Tokyo Metropolitan Government's Chief of Environmental Conservation Bureau Award for its contribution to promoting tree-planting

1999 October The Business Form Operations' Warabi Plant commended for being "a group with waste reduction and environmental beautification" at the Eighth National Competition for Waste Reduction.

2001 February The C&I headquarters building and Wakaba dormitories was awarded for distinguished services in 2000 by the Shinjuku Ward for the assessment of its waste reduction and recycling activities (sponsored by the Shinjuku Ward office's Office for Resources and Sanitation).

2000 awards ceremony for distinguished service in the area of waste reduction and recycling activities

Award from the Shinjuku Ward

Boxes for the separation and collection of used paper

Environmental Accounting

Environmental accounting allows the highly effective promotion of environmental activities.

Purposes

1. Environmental accounting as an environmental management tool
   (1) The summary and classification of the costs of environmental conservation activities and their outcome are used as data for evaluating and reviewing the effectiveness of environmental conservation activities.
   (2) Environmental accounting data is used to determine the cost of individual environmental facilities, the Group's overall budget for environmental conservation, and the amount of investment in environmental activities.
   (3) Environmental accounting is used to evaluate the outcome and achievement level for the year to ensure continuous improvement in our environmental performance.
2. Environmental accounting as a communications tool with society
   (1) Environmental accounting is used to make the DNP Group's environmental conservation efforts and their outcome available to the public.
   (2) The opinions and reactions to environmental accounting from shareholders, clients, and local communities are used as feedback to modify our approach to environmental conservation.

Environmental Conservation Cost Framework

(1) Costs for onsite business operations include the following:
   1) Depreciation of environmental facilities
   2) Cost of repairs to environmental facilities
   3) Contract fees for running environmental facilities
   4) Labor costs for running environmental facilities
   5) Contract fees for waste treatment (recycling)

(2) The recycling fee for sales products shown under "Cost incurred by upstream and downstream business operations" is the contract fee paid to the Japan Container and Package Recycling Association.

(3) Research and development costs comprise the total costs for materials and labor used for the development of ecologically-friendly materials, products and manufacturing facilities at Dai Nippon Printing research institutes.

* Depreciation costs are standardized in accordance with the Corporation Tax Law.

* In the calculation of labor costs, the actual labor cost is used for a full-time researcher and one fifth or tenth of the average salary, depending on the assignments, is used for a researcher who holds another post.

Environmental Accounting

(1) To measure the outcome of environmental conservation activities, the conversion rate to crude for electricity is 1,000kW to 0.265kl. Conversion rates for other fuels are in accordance with conversion rates stipulated in Appendix 1 in Article 3 of the Enforcement Regulations under the Energy Conservation Law. Conversions for CO_2 are based on the calculations set forth in the September 2000 results from studies on greenhouse gas calculations produced by the study group for calculating greenhouse gas emissions volume.

(2) "Sales of environmentally conscious products" refer to the total sales of those products developed by Dai Nippon Printing based on concepts such as: 1) a reduction in environmental pollutants, 2) energy and resource conservation, 3) renewable resources, 4) longer product life, 5) reusability, 6) recyclability, 7) usability as recycled material, and 8) easy of waste treatment. (In the comparison data, the sales amount given for the current fiscal year is also for Dai Nippon Printing.)

(3) The amount of economic benefits of co-generation (simultaneous supply of heat and electricity) are calculated by subtracting depreciation and running costs from the market value of generated electricity and steam.

(4) The economic benefits of the heat recovery incinerator is calculated by subtracting depreciation, running costs and waste ash disposal costs from the sum of the market value of generated steam and the market price of having the waste treated by an outside waste treatment company.

(5) Hypothetical assumptions are not made in the calculation of economic benefits.

Data Collection Progress in Fiscal 2000

- Period: From April 1, 2000 to March 31, 2001
- Subject: 53 domestic business sites in the printing industry, including affiliated companies
- Unit of Data Collection: per business site
- Official format: The Environment Agency's Guidelines for Fiscal 2000

Incinerator
A furnace for burning waste.

Conclusion

(1) Investment for environmental facilities was over JPY2.0 billion, the same as in the previous year.
   • Refurbishment of incinerators, expansion of solvent recycling facilities, refurbishment of waste water disposal facilities

(2) Environmental conservation costs increased 7.9%, to around JPY11.7 billion
   • The reason for the increased cost burden is mainly due to repairs of facilities related to the atmosphere, water quality and noise, the expansion of green purchasing, the full implementation of the Container and Package Recycling Law, and higher personnel costs for the fortification of the environmental management system.

(3) Favorable expansion of environmental conservation activities
   • Sales of environmentally conscious products doubled over the previous fiscal year to around JPY63.0 billion.
   • The economic benefit was approximately JPY2.0 billion, nearly twice that of a year earlier.
   • CO_2 emissions remained unchanged from a year earlier. The final waste processing plant utilization rate was 5.1%, an approximate 28% improvement year-on-year.

Environmental Accounting Report

(1) Onsite Business Operations

(Unit: ¥million)

Content	Environmental Conservation Costs			Environmental Conservation Capital Investment		
	Fiscal 1999	Fiscal 2000	increasing and decreasing	Fiscal 1999	Fiscal 2000	increasing and decreasing
1) Preventing Pollution						
a. Prevention of Air Pollution	907.1	1,069.6	162.5	209.0	41.9	–167.1
b. Prevention of Water Pollution	871.2	1,047.6	176.4	186.8	220.8	34.0
c. Noise Prevention	46.7	215.9	169.3	78.4	21.6	–56.8
d. Vibration Prevention	3.9	18.5	14.6	0	0.3	0.3
e. Odor Prevention	466.3	324.3	–142.0	116.7	362.7	246.0
f. Others	48.1	21.3	–26.8	41.2	3.2	–38.0
2) Preserving the Global Environment						
a. Prevention of Global Warming	921.1	891.6	–29.5	810.1	881.8	71.7
b. Prevention of Ozone Layer Depletion	290.5	363.7	73.2	570.9	344.5	–226.4
3) Resources Recycling						
a. Reduction and Recycling of Waste	843.8	749.7	–94.1	40.4	129.0	88.7
b. Treatment and Disposal of Industrial Waste	3,250.5	3,043.1	–207.4	0	0	0
c. Treatment and Disposal of Municipal Waste	2.6	7.7	5.1	0	0	0
Total: Onsite Business Operations	7,651.7	7,752.9	101.2	2,053.3	2,005.9	–47.5
				Total investment 2,053.3	2,005.9	–47.5

Content	Environmental Conservation Costs		
	Fiscal 1999	Fiscal 2000	increasing and decreasing
(2) Upstream and Downstream Business Operations			
1) Green Purchases	0.4	203.3	202.9
2) Recycling of Sales Products	5.3	63.8	58.5
Total: Upstream and Downstream Business Operations	5.7	267.1	261.4
(3) Management Activities			
1) Environmental Education	2.4	1.6	–0.8
2) Environmental Impact Assessment	62.6	75.6	12.9
3) Establishing and Operating EMS	17.1	13.8	–3.3
4) Labor Costs for Environmental Management	649.2	1,055.8	406.6
Total: Management Activities	731.4	1,146.8	415.4
(4) Research and Development			
	2,447.0	2,501.1	54.1
(5) Cost of Activities in the Community			
1) Tree Planting, Beautification, Reforestation	47.6	59.9	12.3
2) Support for Environmental Groups	5.5	4.3	–1.2
3) PR on the Environment, others	6.9	29.1	22.3
Total: Activities in the Community	60.0	93.4	33.3
(6) Environmental Damage			
1) Penalties, Fines, Repair costs	0	0	0
Total	10,895.9	11,761.3	865.4

Environmental Ratio (Ratio of the environmental portion to the total)

Items	Fiscal 2000 results	Environment-related portion of fiscal 2000 results	Environmental Ratio	Environmental ratio for fiscal 1999
Capital investment	90,500.0	2,054.2	2.27%	2.04%
Research and development expenditure	22,257.0	2,501.1	11.24%	11.64%
Sales amount	1,086,681.0	63,032.2	5.80%	2.88%

Sales of Environmentally Conscious Products

Division	Fiscal 1999(1)	Fiscal 2000(2)	(2)/(1)
Information and Media Supplies	2,971.6	5,578.9	1.88
Lifestyle Products	26,966.7	42,289.2	1.57
Electronic components	—	4,311.8	—
Others	—	10,852.3	—
Total	29,938.3	63,032.3	2.11

Economic Benefit related to Environmental Conservation Activities

Division	Fiscal 1999(1)	Fiscal 2000(2)	(2)/(1)
Energy cost savings from co-generation	132.1	368.2	2.79
Savings from the use of incinerator waste heat	127.0	558.5	4.40
Proceeds from the sales of recyclable materials	748.4	1,140.0	1.52
Total	1,007.5	2,066.7	2.05

Benefit from Environmental Conservation Activities

Division	Fiscal 1999(1)	Fiscal 2000(2)	(2)/(1)
Added value related to volume of energy consumption	4.88 (TJ/¥100 million)	4.93 (TJ/¥100 million)	1.01
Added value related to volume of CO_2 emissions	177 (t/¥100 million)	177 (t/¥100 million)	1.00
Added value related to volume of waste emissions	0.343 (t/¥million)	0.322 (t/¥million)	0.939
Final waste disposal rate (Landfill area/total emissions)	7.2%	5.1%	0.718

Environmental Targets in Fiscal 2001

The DNP Group established its "Environmental Targets" in order to minimize the environmental impact of its business operations, based on its belief that the market in the 21st Century will only lend its support to companies that make efforts to establish and maintain an environmentally conscientious society. From this point on, we aim to enhance our reputation as a company that effectively carries out environmentally sound business practices by releasing to the public the results of our efforts in our environmental reports and through our home page.

The DNP Group's Environmental Targets

Development and Sales of Environmentally Conscious Products

- Increase sales of environmentally conscious products by 10% on an annual basis.

PRTR

- By fiscal 2005, reduce the discharge and transport volume of chemical substances specified as class-1 under the PRTR Law by 50%, as compared with figures for fiscal 2000.

Prevention of Global Warming

- Establish internal standards for the prevention of global warming which are stricter than standards regulated under the Energy Conservation Law.
- Aim to achieve the following targets by fiscal 2010.
  - Maintain total energy consumption at fiscal 2000 levels.
  - Maintain greenhouse gas emissions at fiscal 2000 levels.
  - Reduce energy consumption (consumption of energy converted from crude oil divided by production value) by 15% compared to fiscal 1990 levels.

Reduction of Industrial Waste

Aim to achieve the following targets by fiscal 2005.

- Reduce the ratio industrial waste generated (volume of industrial waste divided by production value) by 20% compared to fiscal 2000 levels.
- Reduce total waste generated by 10% compared to fiscal 2000 levels.
- Achievement of zero emissions at 20 sites.
- Aim for a 20% reduction rate (total waste generated divided by total materials used) compared to fiscal 2000 levels.
- Boost the rate of recycling (amount of materials recycled divided by total waste generated) by 20% compared to fiscal 2000 levels.

Environmental Conservation

Aim to achieve the following targets by fiscal 2005.

- Maintain maximum density of gases listed in regulations on emissions into the atmosphere under 70% of regulatory standards.
- Maintain maximum density of items listed in regulations on wastewater under 70% of regulatory standards.
- Maintain the maximum odor levels at site boundaries under 70% of regulatory standards.
- Maintain the maximum noise and vibration levels at site boundaries under 95% of regulatory standards.

Office Environmental Conservation Targets

- Ratio of used paper separated and recycled should exceed 65% that of municipal waste.

Green Purchasing

- In comparison to the total amount of raw materials purchased, increase the amount of goods purchased under the purchasing headquarters' green purchasing standards by 2.5% year-on-year.
- Compared with the total amount of general supplies (including office supplies and fixtures), increase the number of products bearing environmental labeling, such as the Eco-Mark, etc., by 3.0% year-on-year.

Environmental Management System

- Expand the number of ISO14001 certified sites to 15 by 2001 and to 30 by 2005.
- Implement eco-audits at all sites.

Environmental labeling
The use of written, symbol, pictorial or graphical information to inform consumers of the environmental impacts related to a certain product or service. A typical form of environmental labeling is the Eco-Mark.

Created December 18, 1992
12th revision March 21, 2001

Independent Review Report

Opinion of Auditing Firm

In order to ensure the reliability of this report, we had our DNP Group Environmental Annual Report 2001 ("the Report") examined by a third party, the auditing firm Shin Nihon & Co. The conclusion of this review is as indicated in the following copy of "Independent Review Report on DNP Group Environmental Annual Report 2001."

The review was performed from July through August by Shin Nihon & Co. specialists, consisting of certified public accountants, environmental examiners and certified environmental measurers. The consistency of the descriptive information in the Report was reviewed with the respective supporting documents such as draft proposals and various meeting minutes. In order to verify our numerical information, we provided information on the methods to collect and calculate the data such as the "Eco-Report System" and answered various questions posed by the auditing firm. In addition, in order to verify the operations of the "Eco-Report System", the auditing firm performed on-site inspections of the six plants mentioned in "Environmental Conservation by Plant," interviewed the responsible individuals, and obtained our invoices and measurement certificates on a sample basis.

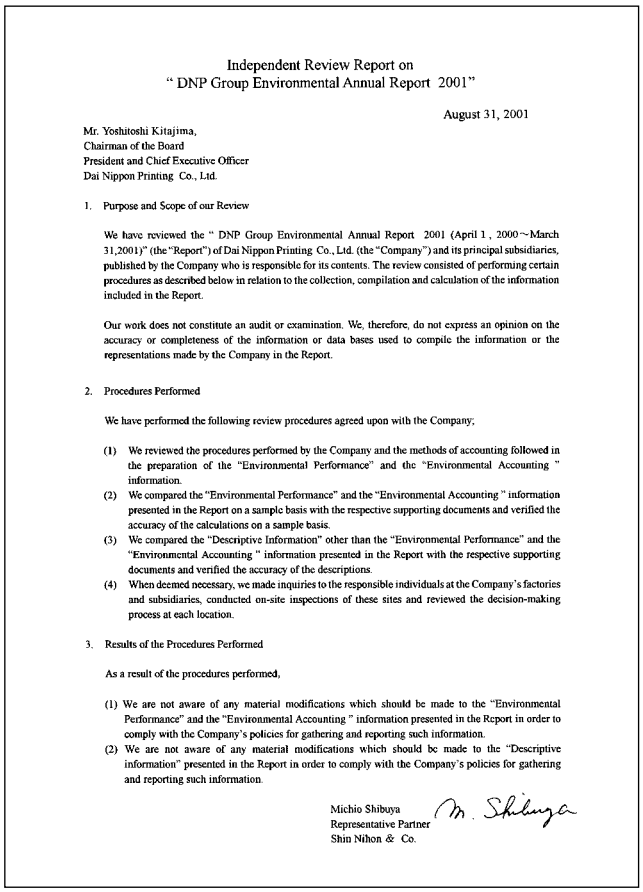
The conclusion of the Shin Nihon & Co. review is indicated below. Based on their remarks, we intend to improve the "Eco-Report System" and show positive results in our environmental report for the next year.

Reviewing committee

Opinion of Auditing Firm.

Characteristics of Environmental Management:

The DNP Group operates its own environmental management system, the "Eco-Report System", which monitors the Group's progress towards the environmental targets. Under the system, all data concerning environmental achievements are recorded in accordance with the PDCA cycle and disclosed within the company. Each division of the Group sets its own environmental policy and targets in considering with the situation of the division. As a whole, the group tackles the full range of environmental issues at individual sites. As the "Eco-Report System" also incorporates environmental accounting system with environmental management system, it is suitable for controlling the company's environmental activities under circumstance of environmetal cost and the effects.



Independent Review Report on
" DNP Group Environmental Annual Report 2001"

August 31, 2001

Mr. Yoshitoshi Kitajima,
Chairman of the Board
President and Chief Executive Officer
Dai Nippon Printing Co., Ltd.

1. Purpose and Scope of our Review

We have reviewed the " DNP Group Environmental Annual Report 2001 (April 1 , 2000～March 31,2001)" (the "Report") of Dai Nippon Printing Co., Ltd. (the "Company") and its principal subsidiaries, published by the Company who is responsible for its contents. The review consisted of performing certain procedures as described below in relation to the collection, compilation and calculation of the information included in the Report.

Our work does not constitute an audit or examination. We, therefore, do not express an opinion on the accuracy or completeness of the information or data bases used to compile the information or the representations made by the Company in the Report.

2. Procedures Performed

We have performed the following review procedures agreed upon with the Company;

(1) We reviewed the procedures performed by the Company and the methods of accounting followed in the preparation of the "Environmental Performance" and the "Environmental Accounting " information.
(2) We compared the "Environmental Performance" and the "Environmental Accounting " information presented in the Report on a sample basis with the respective supporting documents and verified the accuracy of the calculations on a sample basis.
(3) We compared the "Descriptive Information" other than the "Environmental Performance" and the "Environmental Accounting " information presented in the Report with the respective supporting documents and verified the accuracy of the descriptions.
(4) When deemed necessary, we made inquiries to the responsible individuals at the Company's factories and subsidiaries, conducted on-site inspections of these sites and reviewed the decision-making process at each location.

3. Results of the Procedures Performed

As a result of the procedures performed,

(1) We are not aware of any material modifications which should be made to the "Environmental Performance" and the "Environmental Accounting " information presented in the Report in order to comply with the Company's policies for gathering and reporting such information.
(2) We are not aware of any material modifications which should be made to the "Descriptive information" presented in the Report in order to comply with the Company's policies for gathering and reporting such information.

Michio Shibuya
Representative Partner
Shin Nihon & Co.

Independent Review Report

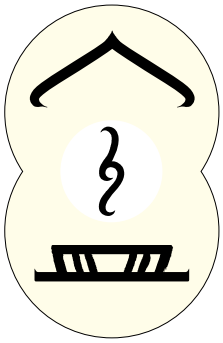
Improvement since the previous Review

In our last review, we pointed out a number of matters that required attention. In accordance with our recommendations, the DNP Group revised its standards and operations. Major improvement are as follows;

1. The methods of collecting and reporting data were educated at each site. As a result the Group improved the accuracy of its figures for environmental accounting and environmetal performance.
2. Improvement was seen in the method of interpretation of certain costs in environmental accounting as a result of the Group's instruction to enter the actual cost amount.

Recommendation

1. We recommend that the Group establish an internal verification system in order to help detect and prevent mistakes as the reliability of the Report depends on the degree of reliability of the environmental reports of individual sites.
2. To ensure the accuracy of environmetal accounting, it is important to take procedures according to the internal standards when inputting data. Therefore, we recommend that the Group adopt user friendly format for inputting data for each site manager. In addition, we recommend that the accounting of numerical data be computerized in order to minimize the possibility of manual error when counting numerical data.
3. If the effects of environmental conservation are evaluated in terms of unit requirements only, the results of environmental activities may not be clearly reflected in the actual numerical amounts. It is desirable that the method of indicating effects and the type of indicators used be improved by the beginning of the next business year.



The above character symbolizes the support of communication.

This character stands as an emblem of support for printing and communication. For the cover of this environmental report, we chose to use a TOMPA character. Many of the characters used in the TOMPA alphabet express some facet of nature. We plan to introduce many words from the TOMPA alphabet related to the environment.

TOMPA characters

TOMPA hieroglyphic characters are used by the Naxi, a minority race living in the Lijiang region of Yunnan Province, in the People's Republic of China (PRC). The letters are still used on a daily basis, indicating that the language is alive and well.

Joseph Rock, a member of the National Geographic Society dispatched to the PRC in the 1920's, was the first to focus upon, research and introduce the TOMPA characters to the world. This also inspired creative art director Katsumi Asaba to expand his research of Asian characters to the TOMPA written language. In Japan, linguistics professor Tatsuo Nishida is known for his academic research in the field.

The TOMPA characters were used by shaman when performing sacred rights while chanting religious scriptures. The old town of Lijiang is listed on UNESCO's World Heritage list.

TOMPA Character Design: Katsumi Asaba

The TOMPA character of the cover represents heaven and earth. The top of the character which resembles a parentheses mark symbolizes heaven, while the "soup bowl" in the lower portion of the character signifies earth. By adding a mark meaning "heaven and earth calling out to one another," the character comes to mean "the resonance of sky and earth." The character represents something of great scale and is a fun way of communication.

Dai Nippon Printing Co., Ltd.

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Reader Survey

We would like readers of this report to complete the following survey so that we may incorporate your opinions in our next DNP Group Environmental Annual Report. This year's survey uses a graded-score answering format. We hope to use your evaluations as a reference for further improvement of our next report.

Please circle the scoring that most closely resembles your opinion:

(5) ... Excellent
(4) ... Good
(3) ... Fair
(2) ... Poor
(1) ... Extremely Poor

◆ Content of report (Coverage, depth thereof, etc.)

(5) (4) (3) (2) (1) (Problem points:)

◆ Layout, Style (Design, font size, layout, etc.)

(5) (4) (3) (2) (1) (Problem points)

◆ Clearness of Writing (expressions, choice of vocabulary, etc.)

(5) (4) (3) (2) (1) (Problem points)

◆ Cover Design (Design theme, balance etc.)

(5) (4) (3) (2) (1) (Problem points)

◆ Please circle the section(s) that interested you most

- Message from the President
- DNP Corporate Overview
- DNP Organizational Chart
- Message from the Managing Director in Charge of the Environment
- New Topics in Fiscal 2000
- The DNP Group's Basic Environmental Philosophy
- The DNP Group's Environmental Policies and Environmental Targets
- Material Flow Charts for the DNP Group's Main Businesses (By Division)
- DNP's Unique Environmental Management System "Eco-Report System"
- Development and Sales of Environmentally Conscious Products
- Environmental Conservation Activities
- Review of Environmental Conservation Activities by Business Site
- Environmental Communication Support Services
- Environmental Accounting
- Environmental Targets in Fiscal 2001
- Independent Review

Please add any comments you may have about this report:

We would like to ask you to supply the following details about yourself.

Sex: Male / Female Age: Address:

Job Title/Employer: