DNP

Sustainable Progress

—Respect for the environment

2000

DNP Group Environmental Annual Report

April 1999—March 2000

Dai Nippon Printing Co., Ltd.

Basic Policy of This Report

Editorial Policy

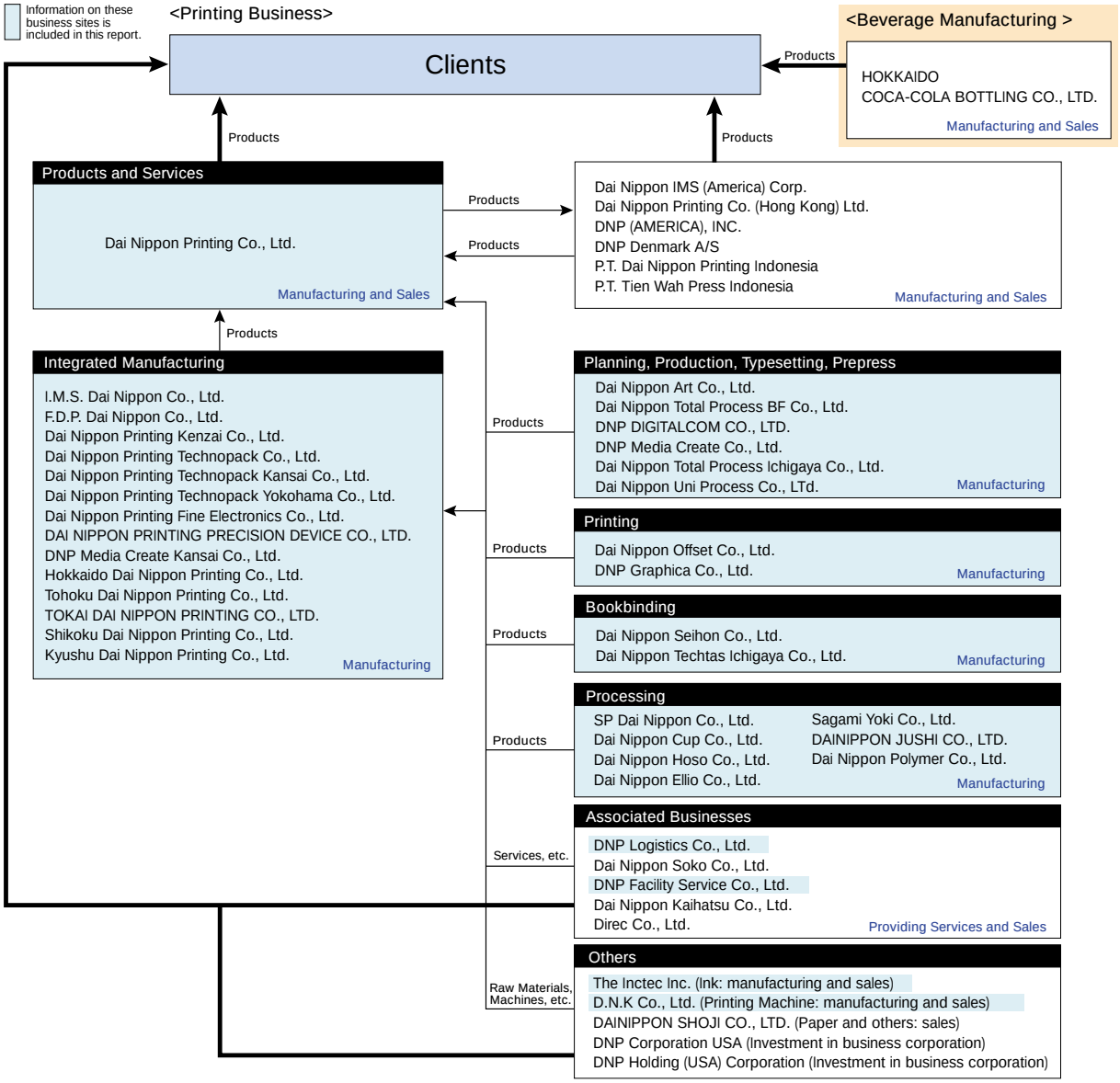
Giving priority to a comprehensive release of information, we included the following items in this report:

- Environmental accounting based on the Environment Agency's "Guideline for Introducing an Environmental Accounting System (2000 Version)."
- Data from individual business sites
- Comments of the person who is in charge at each business site
- Verification by a third party

Subject

Outcome of activities resulting from the "Eco-Report System" (from April 1999 to March 2000 from 43 plants and places of business that participate in DNP's unique environmental management system)

Organization chart



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Corporate Overview

(As of March 31, 2000)

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

Main Businesses:

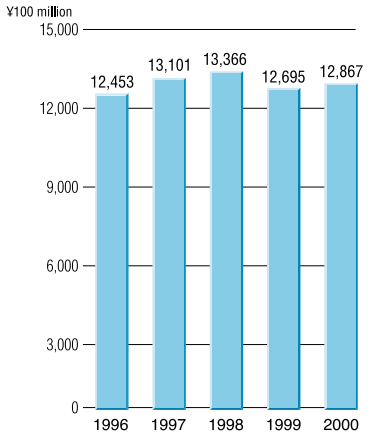
- Information Media:
  Books; dictionaries; commemorative books; magazines; PR brochures; electronic publications; product catalogs; advertising leaflets; pamphlets; calendars; posters; bonds; stock certificates; bank books; credit, banking and prepaid cards; business forms; multimedia software; satellite 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.

Employees:
11,165 (DNP)
33,698 (Including DNP Consolidated Group Affiliates in the printing business)

Business Sites:
Branches in Japan: 56
Overseas offices and affiliates: 14

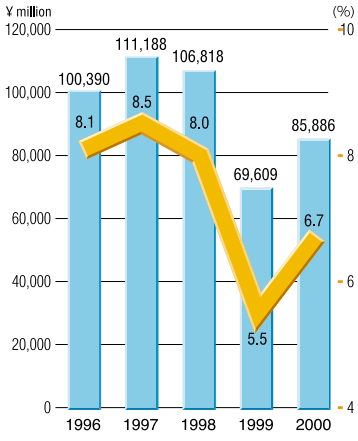
Main production plants (including affiliates):
Japan: 33
Overseas: 7

Research Institutes:
Japan: 9



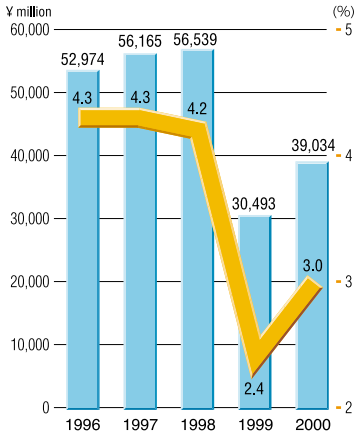
Net Sales

(DNP Group consolidated accounts)



Operating Income /Operating Income Ratio

(DNP Group comsolidated accounts)



Net Income/Profit ratio for the current term

(DNP Group comsolidated accounts)

Respect for the Environment

Today we all face the most serious of issues: how to preserve the natural environment. Depletion of the ozone layer and global warming are destroying the earth's ecosystem, and the circulatory system has been distorted on a global scale. Now at the dawn of the 21st Century, it is imperative that we take aggressive action on environmental issues to protect our prosperity and to safeguard the future of the human race.

In 1972, the DNP Group became the first in the industry to set up an Environment Department, and this enabled us to start environmental initiatives at an early stage. In 1992, the entire DNP Group embraced environmental protection activities, with the declared goal of striving to protect the global environment and use resources effectively which forms part of its Corporate Pledge. The Group's unique environmental management system, the "Eco-Report System" was started in 1993. This system helps us in implementing continuous improvements for all of our environmental protection activities, including reducing the volume of industrial waste, energy conservation, and the assessment and reduction in the use of harmful chemicals.

Following that, in March 2000, a DNP Environmental Committee was set up with the director of each business division appointed to be the person in charge of environmental protection. This change gave more power to our planning and development system for environmentally-friendly products and to improving the environmental performance of our manufacturing divisions. Now we are set to implement business practices that are both ecologically and financially sound. The number of factories involved in the environmental management system increased from 43 to 53 now covering almost all domestic manufacturers in the Group, including affiliated companies.

The DNP Group's environmental protection activities are based on a variety of approaches. These include recycling, which is essential to achieving a society based on a recirculation of resources, striving to achieve zero emissions, developing ecologically-sound products, and participating in reforestation programs. We will continue our effort to keep DNP one step ahead on environmental issues. We believe that is our task as a leader in the printing industry.

This issue of the Environmental Annual Report shows the DNP Group's activities for environmental preservation and their results in fiscal 1999. We welcome your frank comments on any item in this report.

Yoshitoshi Kitajima
Chairman of the Board
President and Chief Executive Officer

Taking Responsibility as Corporate Citizens

In the 1970s Japanese corporations started playing their part in environmental conservation by responding to legal regulations. This attitude changed into a more voluntary approach in the 1990s, and environmental preservation is likely to become a fundamental issue in their business operations in the 21st Century.

We believe that environmental preservation activities should pay off in increased product values and reduced production costs. It also helps corporations avoid environmental risks.

The DNP Group aims at business operations that will bring maximum product value and minimum impact on the natural environment.

The first purpose of environmental preservation activities is, of course, to reduce the impact our products and production processes have on the environment. At the same time, however, such activities can increase the competitiveness of products in the market, and activities to conserve energy and resources will bring reductions in operation costs. Improvements in environmental performance will raise the standing of the DNP Group in society. In this way, we can maintain a business that is both ecologically and financially sound.

In striving to realize environmentally sound business operations, a solid promotional structure and management system are crucial for the corporation. This is why we strengthened our promotional structure dramatically in March 2000, adding the domestic manufacturing divisions, including affiliated companies to the structure. Management has been following DNP's unique Eco-Reporting System since 1993, and has been seeking ISO14001 accreditation for all business sites. In April 1999, we started an environmental accounting system that meets the guidelines issued by the Environment Agency. These efforts ensure that our programs to protect the environment are effective, and that we will ultimately achieve the DNP Group's Environmental Protection Targets. The DNP Group remains united in promoting and improving our activities in environmental preservation.

We hope that this report will give you, the reader, a better understanding of DNP's efforts in environmental preservation. Please fill out the survey form on the last page with your suggestions and opinions.

Mitsusuke Satoh
Chairman, Environmental Committee
Managing Director

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 protection activities, declaring its intention to strive to protect the global environment and use resources effectively, and making it part of the Corporate Pledge.

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 and R&D divisions in addition to the manufacturing divisions.

The DNP Group's Environmental Declaration

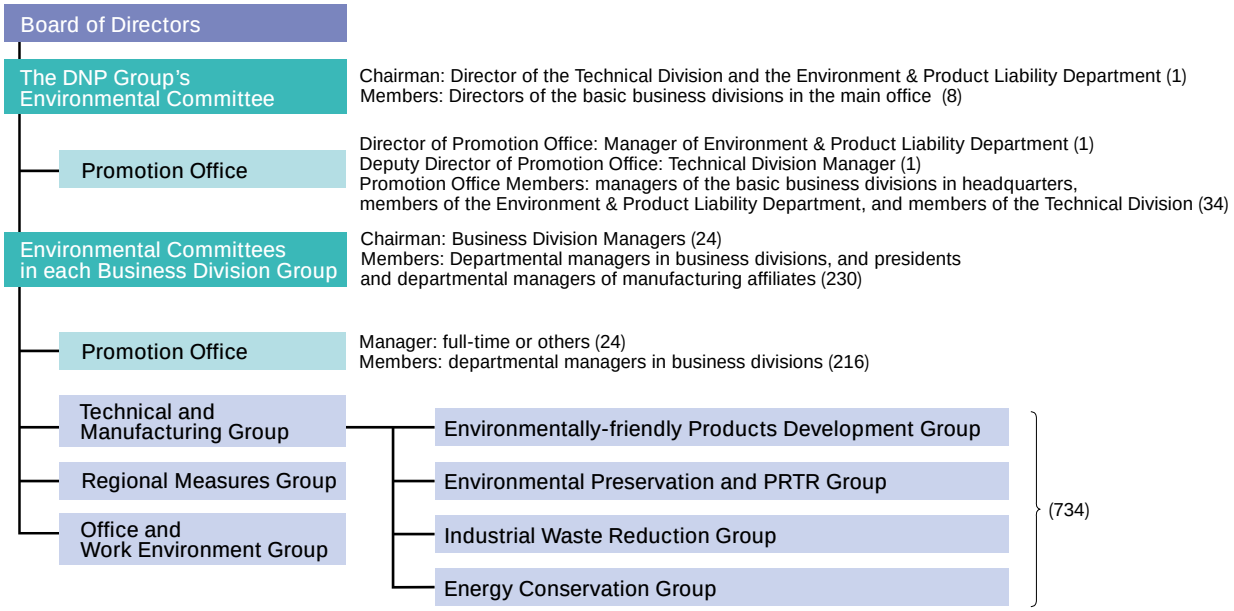
"We will make every effort to protect the prosperity and future of the human race by protecting the environment and using resources effectively."

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 Corporate Pledge)

DNP Group's Environmental Management Structure

(As of End of March 2000)



* Numbers in parenthesis are total numbers including part-time members.

The DNP Group's Environmental Policies

The DNP Group is determined to face the serious issue of how to preserve the global environment. Our 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 goals, 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 every effort 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 saving energy, saving resources and reducing the use of harmful chemicals.
4. When purchasing raw materials, stationary, and equipment, we choose items that are ecologically-friendly and easy to recycle.
5. In manufacturing a product, we aim for autonomous, environmentally-friendly plants. In addition to complying with environmental laws and regulations, 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 goals 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 the waste as much as possible.

The DNP Group's Environmental Goals

Development and Sales of Environmentally-friendly Products	• Increase the number of environmentally-friendly products and their sales to our customers by 10 % over the last fiscal year.
Reduction of Industrial Waste	• Reduce the proportion of industrial waste generation rate (volume of industrial waste divided by production value) 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 processing plant utilization rate (final waste processing plant utilization volume divided by total waste output) of 5% by fiscal 2001. • Establish internal industrial waste standards*1) that are more stringent than mandatory standards, and establish appropriate processing and self-management practices.
Energy Saving	• Reduce energy consumption (consumption of energy converted from crude oil divided by production value) by 15% and CO_2 emissions (CO_2 converted from carbon divided by production value) by 20% of 1990 levels by fiscal 2010. • Establish internal standards*2) 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.
Environmental Protection	• Establish internal standard*3) for each site that are more stringent than legal standards and achieve a reduction in environmental impact.
PRTR	• Identify those chemicals that are specified as class-1 chemicals in PRTR and reduce the discharge and transport volumes of those chemicals by 50% of 1998 levels by fiscal 2001.
Office EnvironmentalProtection 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.
Green Purchase	• Establish a database of harmful chemicals used in materials by fiscal 2001. • Promote the use of environmentally-friendly office equipment and stationery.
Environmental Management System	• Obtain ISO14001 certification at 15 business sites by fiscal 2001. • Carry out an Eco-Audit at all sites.

*1): See page10 *2): See page 12 *3): See page 14

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

“Eco-Report System”
—DNP’s Unique Environmental Management System

● Eco-Report System

The Eco-Report System is a practical environmental management system unique to the DNP Group. The system was developed to achieve the DNP Group’s environmental goals based on the Environmental Declaration incorporated in the Group’s Code of Conduct.

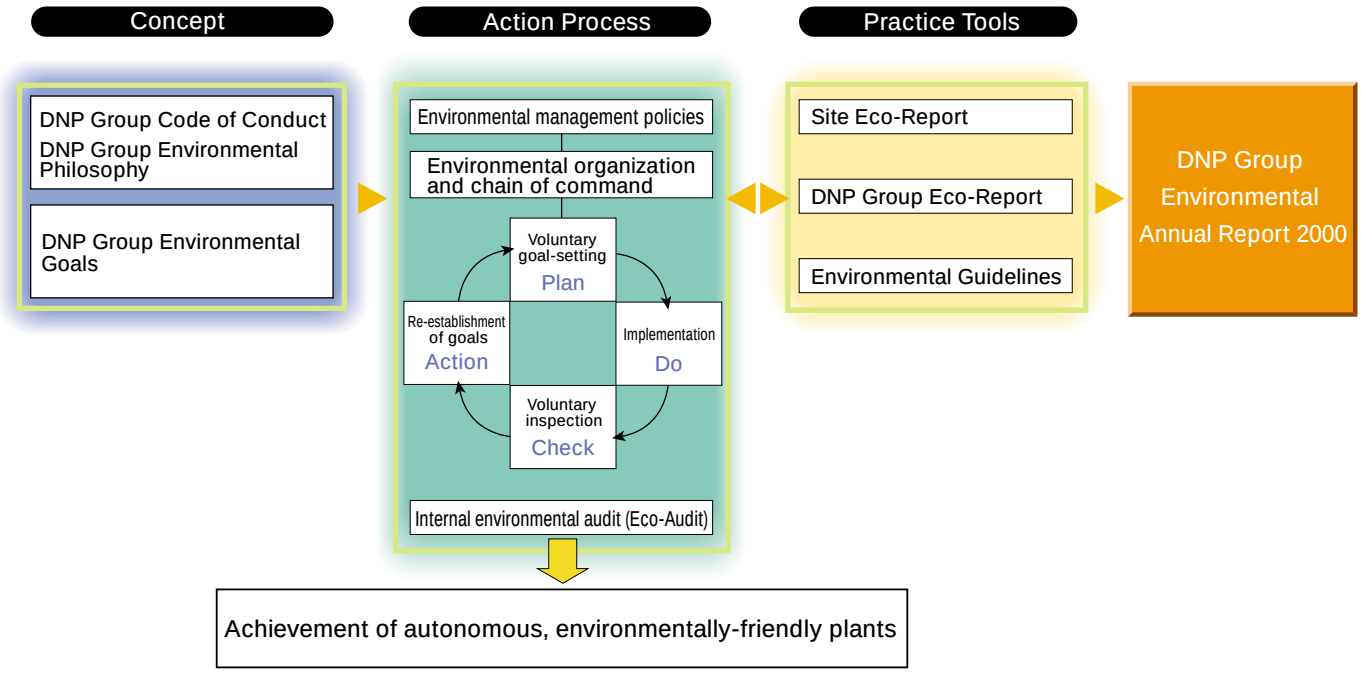
Each business site carries out PDCA (Plan-Do-Check-Action) practices twice yearly, using three practice tools (“Site Eco-Reports,” “The DNP Group Eco-Report,” and “Environmental Guidelines”), to promote environmental preservation activities with the aim of achieving autonomous, environmentally-friendly plants.

● Autonomous, Environmentally-Friendly Plants

Autonomous, environmentally-friendly plants are defined as “sites that are responsible for their own independent management and control and are able to sustain environmentally-friendly practices into the future.”

The DNP Group is pursuing ISO 14001 certification, and is working to improve its Eco-Report System and building a well-managed ISO-compliant framework.

The Eco-Report System



● Effective Use of the Practice Tools

1 Site Eco-Report

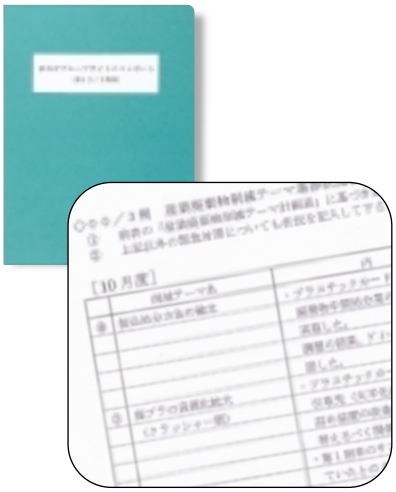
Every April and October, each DNP business site must submit a “Site Eco-Report,” which serves as a registry of Eco-Plan Activities.

2 DNP Group Eco-Report

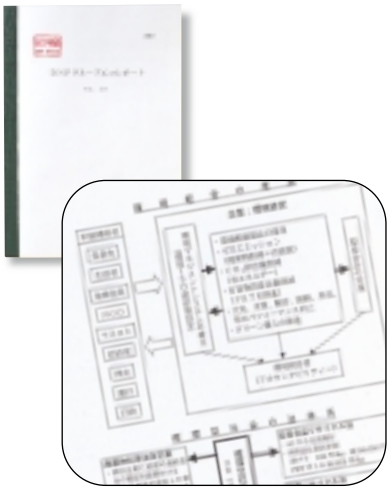
Based on the environmental movements in the printing industry, the DNP Group’s environmental activities for six months, and “Site Eco-Reports,” the Promotion Office of the DNP Group Environmental Committee (Environment & Product Liability Department) publishes a summary of all the environmental activities of the entire DNP Group twice a year (April and October). This is the equivalent of the DNP Group’s “environmental white paper.”

3 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



DNP Group Eco-Report

Environmental Guidelines

The number of business sites in the DNP Group that use the Eco-Report System increased from 43 to 53 in fiscal 2000 as a result of establishing the Environmental Committee.

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 preservation activities and their outcome are used as data for evaluating and reviewing the effectiveness of environmental preservation activities.
(2) Environmental accounting data is used to determine the cost of individual environmental preservation facilities, the Group's overall budget for environmental preservation, and the amount of investment in environmentally-related 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 as a whole

(1) Environmental accounting is used to make the DNP Group's environmental preservation 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 preservation.

Environmental Preservation Cost Framework

1. Costs for onsite business operations include the following:
   (1) Depreciation of environmental preservation facilities
   (2) Leasing costs for environmental preservation facilities
   (3) Cost of repairs to environmental preservation facilities
   (4) Contract fees for running environmental preservation facilities
   (5) Labor costs for running environmental preservation facilities
   (6) Contract fee 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 quarter of the average salary is used for a researcher who holds another post.

Notes on the Outcome

1. To measure the environmental preservation effect, 0.243 kiloliter per 1,000 kilowatt is used as the coefficient for conversion from electricity to crude oil. For other fuels, the coefficient values used are based on Article 3, Appendix 1 of the Enforcement Regulation for the Law concerning the Rational Use of Energy. The coefficient for CO_2 emissions is based on Figure 1 in the Environment Agency Environmental Activity Assessment Program.
2. "Sales of environmentally-friendly products" refer to the sales amount 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 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 waste-heat-generating 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.

Progress in the Introduction of Environmental Accounting

1. In 1993, data collection started for the following four items.
   • Investment in environmental facilities (location, scope and value of the facilities).
   • The volume and monetary value of the energy consumed by each business site.
   • The amount of waste generated and the cost of treatment at each business site.
   • The volume of sales of recyclable materials.

2. In April 1993, the following activity was added.
   • Data collection that complies with the Environment Agency's guidelines started.

Data Collection Progress in Fiscal 1999

• Period: From April 1, 1999 to March 31, 2000
• Subject: 43 domestic business sites in the printing industry, including affiliated companies (53 business sites in fiscal 2000)
• Unit of Data Collection: per business site
• Report to Head Office:
  1) Monthly: Amount of waste generation and treatment, amount of recycling, amount of energy consumption and amount of CO_2 emissions.
  2) Every 6 months for other data
• Official format: The Environment Agency's Guidelines for Fiscal 2000

● Environmental Accounting Report:

Environmental Preservation Costs

Type of Cost	Investment (thousands of yen)	Expenditure (Thousands of yen)
1. Cost for Onsite Business Operations		
1) Cost of Preventing Pollution		
a. Prevention of Air Pollution	208,992	907,093
b. Prevention of Water Pollution	186,801	871,150
c. Noise Prevention	78,350	46,677
d. Vibration Prevention	0	3,878
e. Odor Prevention	116,711	466,297
f. Others	41,150	48,112
2) Cost of Preserving the Global Environment		
a. Prevention of Global Warming	810,099	921,131
b. Prevention of Ozone Layer Depletion	570,866	290,523
c. Others	0	0
3) Resources Recycling Costs		
a. Reduction and Recycling of Waste	40,379	843,810
b. Treatment and Disposal of Industrial Waste	0	3,250,487
c. Treatment and Disposal of General Waste	0	2,573
d. Others	0	0
Total: Cost of Onsite Business Operations	2,053,348	7,651,731
2. Cost Incurred by Upstream and Downstream Business Operations		
1) Green Purchases	—	400
2) Recycling of Sales Products	—	5,313
3) Others	—	0
Total: Upstream and Downstream Business Operations	—	5,713
3. Cost of Management Activities		
1) Environmental Education	—	2,430
2) Environmental Impact Assessment	—	62,635
3) Establishing and Operating EMS	—	17,134
4) Labor Costs for Environmental Management	—	649,181
Total: Management Activities	—	731,380
4. Cost of Research and Development	—	2,447,004
5. Cost of Activities in the Community		
1) Tree Planting, Beautification, Reforestation	—	47,635
2) Support for Environmental Groups	—	5,522
3) PR on the Environment, others	—	6,887
Total: Activities in the Community	—	60,044
6. Cost of Environmental Damage	—	0
Total	2,053,348	10,895,872

Environmental Preservation Outcome

Type of Outcome	Environmental Impact Index	Index for Comparison
Energy Conservation		
Energy Consumption (Crude oil conversion consumption /Production)	98.96kℓ /¥100 million	92.98kℓ /¥100 million (Fiscal 98)
Prevention of Global Warming		
CO_2 emissions (Carbon conversion CO_2 emission / Production)	45.91tC /¥100 million	43.53tC /¥100 million (Fiscal 98)
Resource Conservation		
Waste Generation (Waste generation / Production)	0.326t /¥ million	0.348t/ /¥100 million (Fiscal 98)
Zero Emissions		
Final Waste Processing Plant Utilization Rate (Final waste processing plant utilization quantity / Total waste output)	7.1%	8.2% (Fiscal 98)

Benefits Derived from the Development of Environmentally-Friendly Products

Outcome	Division	Amount (¥1,000)
Sales of Environmentally-Friendly Products	1. Information and Media Supplies Division	2,971,640
	2. Lifestyle Products Division	26,966,700
Total		29,938,340

Economic Benefits related to Environmental Preservation Activities

Outcome	Amount (¥1,000)
1. Savings on energy costs by co-generation	132,098
2. Savings realized by the use of waste heat generated by incinerators, and savings on industrial waste disposal	126,996
3. Proceeds from the sales of recyclable materials	748,398
Total	1,007,492

● Environmental Ratio

(Ratio of the environmental-related portion to the total)

Items	Amount (¥1,000)	Environmental Ratio (%)
Total capital investment for the current fiscal year	100,900,000	2.0
Total research and development expenditure for the current fiscal year	21,017,000	11.6
Total sales amount for the current fiscal year	1,038,329,000	2.9

Reducing Industrial Waste

Large incinerator (to reduce the weight of waste material) at the Warabi Plant

Interim Processing (to convert waste into solid fuel: RDF)

Targets for Reducing Industrial Waste

- Reduce the quantity of industrial waste generation rate (the rate of generation industrial waste for total production value) 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 disposal site utilization rate (final waste processing plant utilization quantity 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.

Achieving Zero Emissions

In view of the growing constraints on industrial waste processing capacity, the DNP Group is working to reduce industrial waste and achieve zero utilization of final disposal sites, with the ultimate goal of realizing the “zero emissions” ideal. Our activities focuses on four areas:

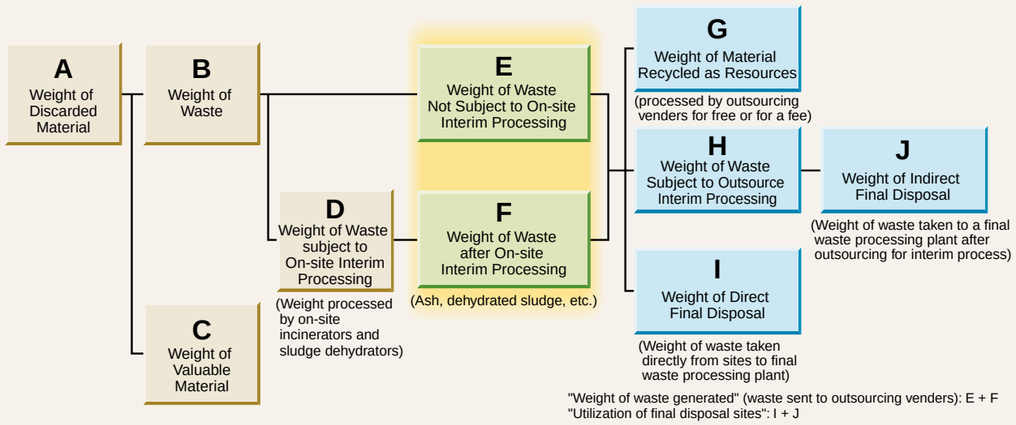
1. Targeting waste sources(improving production systems to minimize the generation of waste)
2. Separating waste products for collection and recycling (reinforce recycling, including converting into products with commodity value).
3. Reduction of the weight and volume of waste at sites.
4. Strengthening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

DNP Group reduces the weight and volume of generated waste at the sites by incineration and the dehydration of sludge. The heat from incinerators is converted into steam for maximum energy use. We have discontinued the use of small incinerators (incineration capacity of 50kg/hour or lower) in order to prevent dioxin emissions. We also measure the dioxin levels emitted from our medium-sized and large incinerators as often as required by law. Our internal standard for dioxin emission levels is set equal to the legal standard(effective fiscal 2002), and the results of the measurements indicate that our level meets the standard.

DNP Group takes the initiative in waste reduction by implementing these activities before they become mandatory. We also set up more stringent standards than those required by law, and conduct our own surveys ourselves of the final disposal sites.

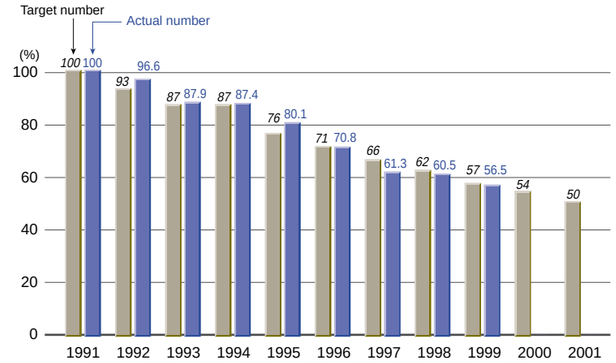
Our Definition of Zero Emissions

The substances generated by our manufacturing operations (except for sales products) are treated as shown in the chart below. Achieving “Zero Emissions” means that the total of the weight taken directly from sites for final disposal (I) and the weight of waste sent indirectly by outsourcing vendors after interim processing for final disposal (J) is zero.



Trends in Industrial Waste Generation

(Annual change in industrial waste generation; fiscal 1991 = 100)



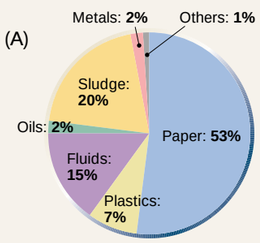
The weight of waste generated in fiscal 1999 was 138,900t. This is 15,100t lower than in fiscal 1998.

Current Final Waste Processing Plant Utilization Rates

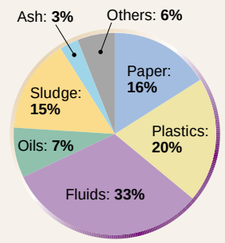
Our final waste processing plant utilization rate for fiscal 1999 was 7.1%. This means we achieved the target number (set in fiscal 1997) earlier than we had planned. Now we aim to achieve 5% by fiscal 2001, and to achieve zero emissions at 10 business sites. We are expecting to reach zero emissions at five sites within the current fiscal year.

The Current Status of Waste

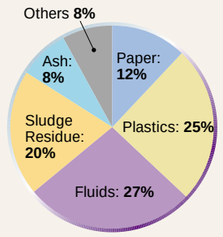
Breakdown of Discarded Material (A)



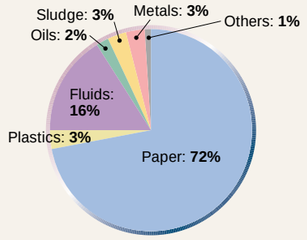
Breakdown of Generated Waste (E+F)



Breakdown of Final Disposal (I +J)



Breakdown of Recycled Materials (C+G)



Reducing Energy Consumption

● Energy-Saving Targets

- Reduce energy consumption rate (the rate of energy consumption (in liters of crude oil) divided by production value) by 15%, and CO_2 emissions (CO_2 converted from carbon divided by production value) by 20% over fiscal 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.

1. Promoting Energy Conservation

The DNP Group is taking a variety of approaches with the aim of achieving the targets by fiscal 2010. Examples of our approaches include: promoting energy-saving facilities, efficient energy use in production cycles, improving production cycles for more efficient energy use, and other rationalizations of energy use.

◆ Three Steps in Promoting Energy Conservation

We are taking the following three steps to realize continuous energy conservation in all our production cycles.

We have published an energy management manual based on “Evaluation Criteria” in the Law Concerning the Rational Use of Energy as an internal standard.

First Step: Careful Use of Energy

Eradication of energy waste and loss by routine maintenance and inspection.

1. Repair all damage and leaks (Air leaks in pipes, etc.).
2. Turn off idling engines (Idling when not producing).
3. Adjust oxygen levels in boilers and other combustion devices.
4. Adjust temperatures in heating / cooling facilities for production processes.

Second Step: Effective Use of Energy

Eradicate wasted and lost energy by installing additional facilities

1. Use wasted heat (from boilers, etc.).
2. Compulsory insulation (on the walls of drying kilns, etc.)
3. Prevent electricity losses (from transformers, etc.).
4. Prevent energy loss while converting electricity to power and heat (motors, drying kilns, etc.)

Third Step: Efficient Use of Energy

Improving efficiency in using energy in all production cycles and installing large equipment and facilities to conserve energy.

1. Shorten production process and introduce unified production.
2. Introduce cogeneration.
3. Introduce control inverters.
4. Introduce ice storage thermal energy facilities.

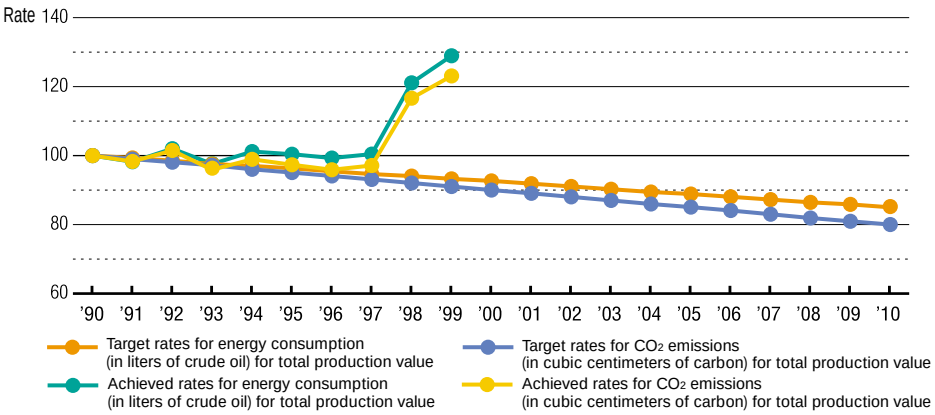
2. Achievements

The unfavorable economic situation, including the fall in product prices, has obstructed our efforts to lower the rates of energy consumption and CO_2 emissions for the total production value in fiscal 1999. In fact the rates increased by 7.8 points and 6.4 points respectively.

The types of energy sources we use have been gradually converted from heavy oil to natural gas to reduce SO_X and CO_2 gas emissions.

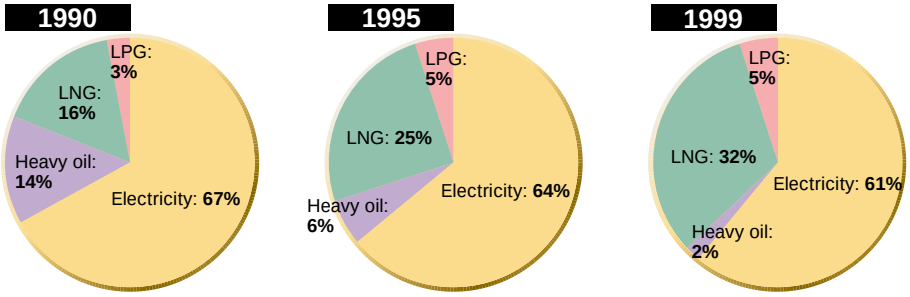
The proportion of heavy oil in the total energy consumption (in liters of crude oil) dropped to a low 2%.

● The rate of energy consumption (in liters of crude oil) for the total production value (in yen): achievements and targets
(fiscal 1991 = 100)



The energy consumption for fiscal 1999 was 416, 500 liters of crude oil, and CO_2 emissions were 193,200 cubic centimeters of carbon.

● Changes in the breakdown of energy consumption by type of fuel (converted to volume of crude oil).



Cogeneration System at the Tsuruse Plant

● Cogeneration System

We are promoting a cogeneration system to ensure the effective use of energy. The cogeneration system is introduced especially to plants where heat energy is needed in the process, such as for drying printed materials.

In 1999, we installed a 4,000kW cogeneration system, bringing the total number of running systems to six units(total power of 11, 320kW) in four plants.

DNP's Major Activities for Environmental Protection

● Targets for Environmental Protection

Each site must set up voluntary standards, taking the actual environmental impact into consideration. Such standards must be stricter than legally-binding standards.

● Target for PRTR

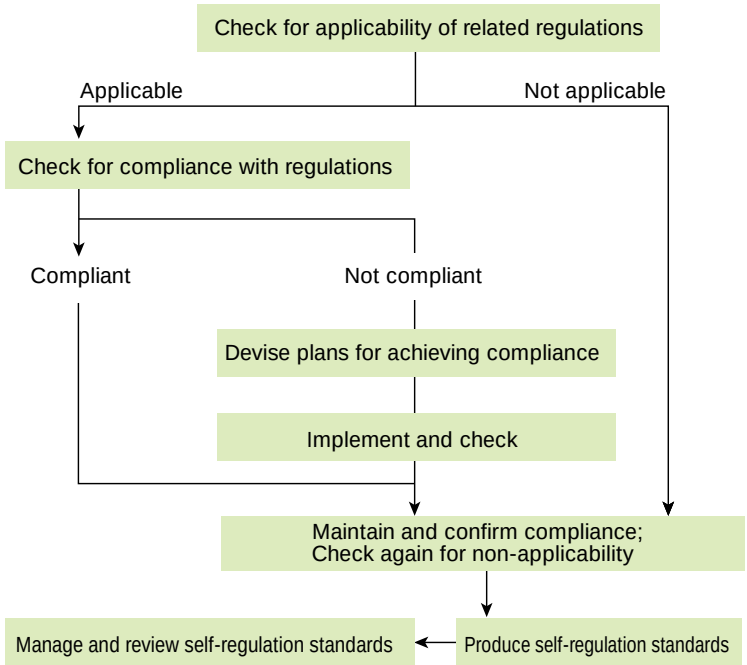
Identify the chemical substances that are specified as "Class 1 chemicals" in PRTR and reduce the amount of discharge and transport of those substances by 50% over fiscal 1998 levels by fiscal 2001.

● Environmental Preservation Activities

◆ Steps in Establishing Self-Regulation

The DNP Group goes further than complying with laws. Aiming to establish self-regulation that is more stringent than legally required, the Group is working to achieve targets in each of the typical types of pollution, such as air pollution, water pollution, noise, vibrations, and bad odors, by following the "Steps in Establishing Self-Regulation" shown in the diagram below.

We set up standards for smoke and water generation that are more stringent than the legal requirements, taking the rate of improvement of environmental impact at each site into consideration. We also set up standards for inspecting routine management practices at our facilities.



Chemical Tanks at the Mihara Plant

Emergency Equipment at the Mihara Plant

● Preventing Water Pollution

The Water Pollution Control Law regulates the quality of waste water generated by factories and business offices. While the DNP Group's water purification plant treats waste water to meet the legal standards, we are also equipped to reduce the environmental impact in case of emergencies with approaches that include installing drainage pipes above-ground, setting up containment banks around chemical tanks, and making available emergency equipment to minimize the impact of an accident.

Preventing Noise and Vibrations

The various types of machines and equipment used in production and shipping products can generate noise and vibrations. To minimize noise and vibrations, we choose low-noise equipment and install noise insulation at our plants. Equipment and machines are checked regularly to ensure that they are not generating excessive noise or vibrations.

Preventing Air Pollution

The Air Pollution Control Law regulates the level of gases such as NOx and SO_X emitted from combustion facilities during the production process. The DNP Group takes a variety of approaches to reduce the level of soot and smoke from these facilities, including adjusting the air level during combustion and other processes, converting from fuel gas to natural gas with lower sulfur levels, using low-NOx burners, and installing scrubbers on smokestacks.

Incinerator (catalysis combustion system) at the Ichigaya Plant

Preventing Foul Odors

The DNP Group treats foul-odor compounds with a catalyst combustion system and charcoal adsorbent system to prevent foul odors from being released into the air. In addition, we conduct regular checkups on odor and compound levels, control odor levels to our own standards which are more stringent than the legal requirement, and maintain the efficient functioning of deodorizing facilities.

Chemical collection system at the Tsuruse Plant

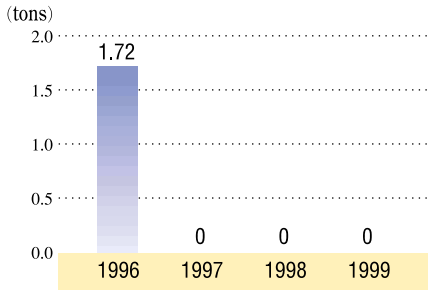
Our Approach to Toxic Chemical Substances

Our target for PRTR is to halve the volume of Class 1 substances (354 substances) either released into the air or transferred as waste over fiscal 1998 levels by 2001. The DNP Group has been working on reducing “Priority Substances” (22 substances that must be reduced under the Air Pollution Control Law).

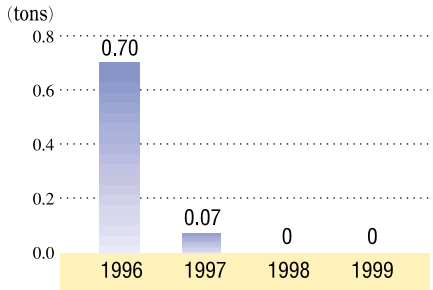
For example, up until fiscal 1996, trichloroethylene, tetrachloroethylene, and dichloromethane were used in our production processes. The reduction plan that went into effect in fiscal 1997 succeeded in eliminating the use of tetrachloroethylene by the end of 1997 and trichloroethylene by fiscal 1998. At the same time, we have been trying to reduce the emission of dichloromethane by installing a cooling condensation system that recycles the compound, and by switching from dichloromethane to other chemicals. As a result, emission levels in fiscal 1999 were reduced sufficiently to meet the target of a 30% reduction over 1996 levels set by the printing industry. Our continuing efforts are expected to bring another large reduction in dichloromethane emissions in fiscal 2000.

Cooling condensation system at the Ichigaya Plant

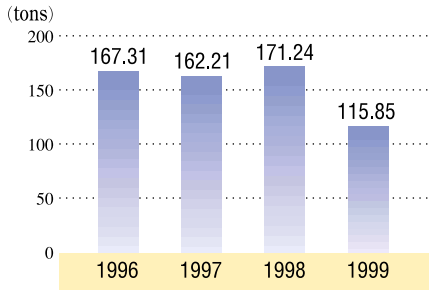
Trichloroethylene Emissions



Tetrachloroethylene Emissions



Dichloromethane Emissions



Environmental Protection in Offices

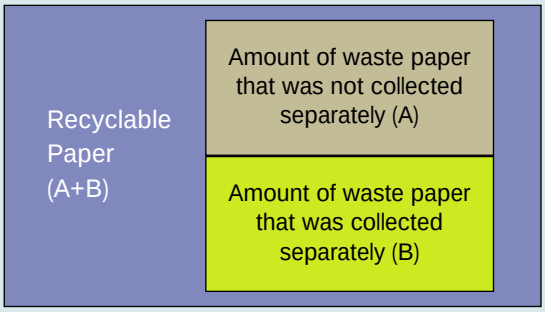
● Separate Collection and Recycling of Office Waste

Since fiscal 1993, the DNP Group has been working to raise the proportion of recycling by setting up target numbers for the separate collection of office waste.

● Target for office environmental protection

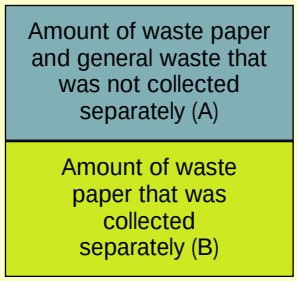
Maintain a waste paper separation and collection rate of 70% or higher for recyclable paper and 65% for municipal waste.

70% waste paper separation and the collection rate for recyclable paper means:



$$\frac{B}{(A+B)} \times 100 = 70\%$$

65% waste paper separation and the collection rate for municipal waste means:

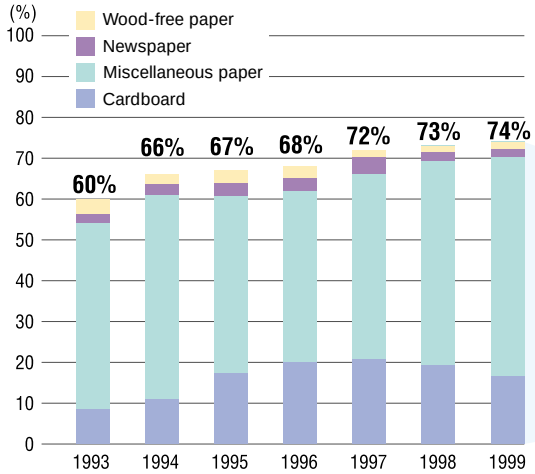


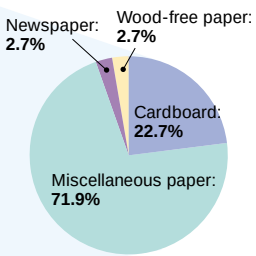
$$\frac{B}{(A+B)} \times 100 = 65\%$$

*1) Excluding cans, bottles, and kitchen waste

The waste paper separation and collection rates for municipal waste at five business sites in Tokyo up to fiscal 1999 are shown in the chart below. We have been maintaining the target numbers since fiscal 1994.

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





Breakdown of collected waste paper

Current status survey of office waste separation

Boxes for the separation and collection of used paper (Separation of wood-free paper, miscellaneous paper, and newspaper)

Green Purchasing

● Targets for Green Purchasing

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

● Current status of use of environmentally-friendly 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.

Up to now, we have switched to using office envelopes, notepaper, letter paper, and business cards made from recycled paper. Also about 85% of our copier and printer paper is now recycled.

We also have been switching our stationery to ecologically-friendly products, mainly based on the use of recycled material, ease of treatment as waste, and reusability (refillable bottles, etc.). While ordering office necessities through the Network, we will add the information on those products to our equipment database to facilitate green purchasing.

The DNP Group has also started to switch their office uniforms to a style that bears the "Eco Mark." Uniforms for male employees have already switched to Eco Mark products, and we have now started to change women's uniforms.

Uniforms with the Eco Mark

Eco Mark

● Database of Toxic Chemical Substances in Raw Materials

We are aiming to implement the PRTR Law in fiscal 2001, and we are building a database of the ratio of "Class 1 toxic chemical substances" in our raw materials.

Starting ISO14001

Obtaining ISO14001 Certification

As part of our effort to further improve our environmental management system, we are working to obtain ISO14001 certification at 15 sites by fiscal 2001.

Current Status of Environmental ISO Certification

In November 1997, the Information Media Supplies Operations' Okayama Plant became the first plant in the printing industry to gain ISO14001 certification. Our Mihara Plant in the Display Components Operations acquired ISO14001 certification in July 1998, followed by the DNP Facility Service Co., Ltd. in April 2000, and the Decorative Interiors Operations at the Okayama Plant in July 2000.

We will continue to increase the number of certified sites.

Certificate

Mihara Plant

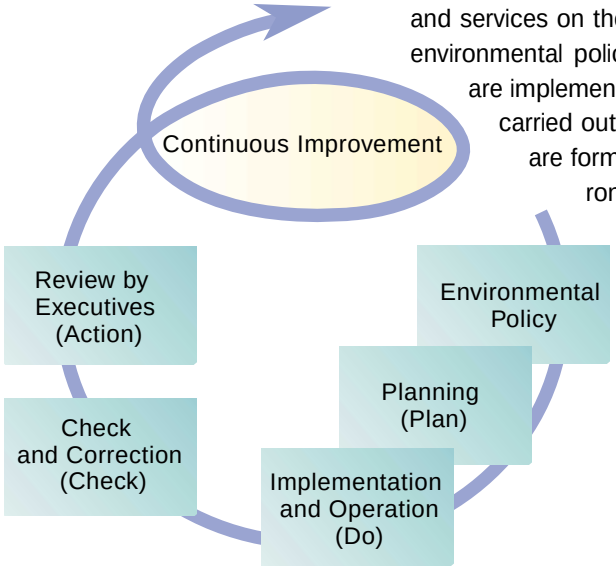
Certificate

Okayama Plant

EMS: Environmental Management System

The EMS system helps us to carry out continuous improvements to our environmental performance to reduce the impact of our business operations, products and services on the environment. More specifically, executive officers establish the environmental policy, a plan formulated to implement the policy (Plan), the plans are implemented (Do), voluntary inspection and correction of the operation are carried out (Check), the whole process is reviewed (Action), and new plans are formulated. This circular system (PDCA Cycle) helps us reduce environmental impact and prevent accidents.

EMS Model (PDCA Cycle)



The Current Status of Internal Audit

The internal audit system was started in fiscal 1993 in order to support our environmental protection activities.

The internal audit system consists of a “self-assessment” that every site conducts semiannually, covering some 350 items, and an Eco-Audit that head office conducts at each site.

Eco-Audits are performed at all the sites that participate in the Eco-Report System to confirm that business activities comply with environmental regulations and to assess the progress in the implementation of environmental management. The Eco-Audits started in fiscal 1996, and have been conducted annually at each site since fiscal 1999.

The DNP Group Eco-Audit Checklist has been prepared as an Eco-Audit tool. It is a useful list incorporating survey items, question items, checking methods, evaluation criteria, and evaluation results for each area of environmental legislation.

In fiscal 1999, Eco-Audits were carried out at 43 sites, involving 125 persons and taking 204 hours.

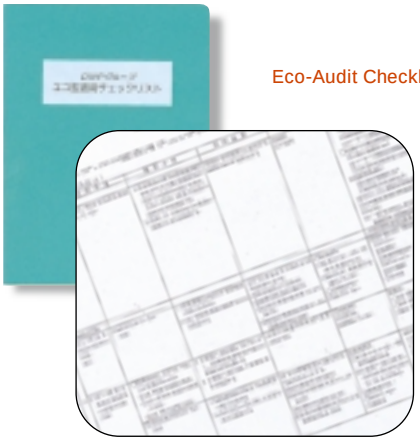
Starting in fiscal 2000, an audit to assess the performance in achieving environmental targets has been added to the Eco-Audit System.

Laws and Regulations subject to Eco-Audits

- Air Pollution Control Law
- Water Pollution Control Law
- Sewerage Law
- Noise Regulation Law
- Vibration Regulation Law
- Offensive Odor Control Law
- Waste Disposal and Public Cleaning Law
- Law Concerning the Rational Use of Energy
- Law Concerning Special Measures against Dioxins
- Law Concerning the Improvement of Pollution Prevention Systems in Specific Factories

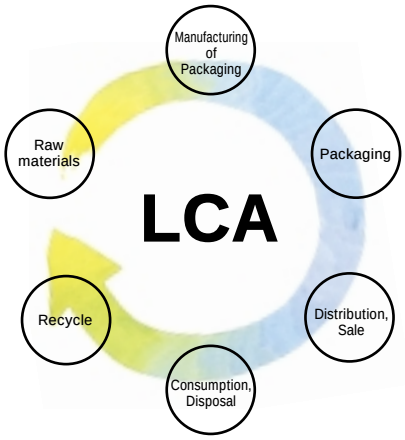
Eco-Audit (at site)

Eco-Audit (documents)



Eco-Audit Checklist

Development of Environmentally-friendly Products



The DNP Group produces a great variety of products: books, commercial printing materials, packaging, construction materials, credit and prepaid cards, certificates, electronic materials, and information media supplies among others. Our products can be found everywhere in people's lives.

Because of this, in addition to our efforts to reduce the impact of production processes on the environment, we attach great importance to developing and encouraging people to use environmentally-friendly products in all fields.

In November 1997, the DNP Group adopted Life Cycle Assessment (LCA) methods in packaging production. LCA covers the entire production process-manufacture of raw materials, production, distribution, consumption, recycling(disposal)-providing comprehensive quantitative evaluation of environmental impact by measuring such factors as energy consumption, CO_2 emissions and the discharge of toxic chemical substances. For our clients, we promote the use of recycled materials, energy and resource conservation, and measures to make recycling easier.

Lifestyle Products

Stand Pouch Refills

Stand pouch refills

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.

"Spouch®": Pouches with a Spout

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. The LCA value from the environmental aspects is high because they can be flattened for disposal and can be used for beverages that require retort sterilization.

"Spouch®"

Retort Pouches

Retort Pouches

When compared with metal cans, retort pouches are lighter in weight, and the volume can be reduced more easily after use. Our new materials and manufacturing processes make it possible to reduce the smell and taste of the packaging and increase the resistance to low temperatures and high impacts. Also, the newly-developed bisphenol A-free adhesive makes our retort pouches more hygienic.

IB Film

IB Films

We have developed a barrier film for packaging that is free from 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.

Plastic Tubes

Plastic Tubes

These plastic tubes for paste can be designed flexibly to suit the content. The cap part and the body shoulder of the seamless tubes are made as one unit, saving a great amount of resin in production. Also, they are very hygienic because there is no gap between the cap part and the body.

PET Bottles(Pre-formed above right)

Aseptic Bottling System Line

PET Bottles: In-line Shaping Sterilized Filling System

Our PET bottles are delivered to the beverage companies before being shaped into the final form; the shape is formed when they are filled in-line. This system allows us to reduce the weight of bottles and save greatly on transportation energy.


Stretch Labels


Water-based Gravure Ink


Barrier In-Mold Label Packaging


Bag in Box (left) ,
Bag in Carton (right)


Paper Trays


Microwavable Packaging


Heat-insulated Paper Cups


Beverage Cartons

Stretch Labels

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.

Water-based Gravure Ink

We use water-based ink without an oil-based solvent for gravure printing when manufacturing packaging.

Barrier In-Mold Label Packaging

Laminated plastic labels, which are high in barrier performance and easy to design, are attached to the plastic containers when they are produced. They can be retort-sterilized. Because they are lighter in weight than metal cans and glass bottles and can be stacked before filling, they conserve energy during transportation.

Bag in Box (BIB) / Bag in Carton (BIC)

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.

Paper Trays “P-DISH”

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 the volume after use and can be made from recycled paper. Some of our paper trays are microwavable.

Microwavable Packaging (Untouch-through C-Type)

This type of packaging made especially for microwave use, is highly convenient, safe and efficient to use. Consumers can place the whole package in the microwave, and it will automatically open at specified places, releasing the steam. They are shaped like a bag and collapse into a smaller volume after use.

Heat-insulated Paper Cups “HI-Cup”

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

Beverage Cartons

These cartons can be shaped to suit the content. They save greatly on energy consumption during transportation compared with glass bottles and can be recycled easily. Some of our beverage cartons have fold lines for easier folding to reduce the volume after use.

Pallets from Recycled Material

"Clellio"

"SUPEREAGOS"

Pallets made from Recycled Material

How to recycle the waste material from manufacturing housing panels has been a big concern. However, at DNP we have finally succeeded in using the waste to build transportation pallets for use in our plants.

Decorative Steel Sheet "Clellio"

"Clellio" is an environmentally-friendly decorative steel sheet made from polyester-based resin. It is best used for the walls of unit baths, where a rust-proof finish and highly decorative material is required.

Environmentally-friendly Decorative Paper "SUPEREAGOS"

"SUPEREAGOS" has a higher anti-wear performance and is more resistant to oil-based ink, dirt and water compared with conventional decorative paper. No solvent is used during the production process, and therefore it is easy to recycle.

Information Media

"S-Mail" from Recycled Paper

PET-G Cards

Peel-Off Delivery Tab

Tickets made from Environmentally-friendly Materials

Environmentally-friendly Calendars

"S-Mail" made from recycled paper

Our new line of "S-Mail,"the peel-off postcards for confidential information (bills, statement, etc.) includes products whose base is made from recycled paper. Both the 50%- and 100%- recycled paper products are certified with the Eco Mark.

Incineration-safe PET-G cards

Conventional plastic cards include chloroethylene 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 carbon dioxide 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.

Easy Peel-off Delivery Tabs

Our coating techniques have made a new type of delivery tab available; it can be easily peeled off from wrapping paper and cardboard boxes. This single-layer delivery tab system saves on paper material, and envelopes and boxes can be reused after a clean peel-off.

Tickets made from Environmentally-friendly Materials

These tickets are made from tree-free, kenaf paper and printed with soy ink. The tickets for Beautiful Fukushima Future Expo (Japan Expo in Fukushima 2001), which will be held in Fukushima Prefecture from July 2001, will be made from this material.

Environmentally-friendly Calendars

We are promoting these environmentally-friendly calendars made from recycled paper and printed with ink with lower environmental impact. They have no metal or plastic parts.

Environmental Communication Support Services

Recently more and more listed companies are publishing their own environmental reports. Since 1999 the DNP Group has tied up with the leading environmental investigation and audit companies, Environmental Control Center, Co., Ltd. and Ota Showa Environmental Quality Institute Co., Ltd., to promote their "Environmental Communication Support Services." Together, we have been supporting these companies in publishing environmental reports.

● Detailed Services

When working with our clients to develop their environmental reports, our degree of participation varies greatly. We may write the whole report from the raw data provided by the client, we may only check and proofread the data and transcripts prepared by the client to identify errors, ambiguous statements, and misleading expressions, or we simply may work on the design of the transcript. Whatever our involvement it is important to have the transcript checked by a third party from various points of view before publication to ensure an environmental report on a high level.

Also, we are fully prepared to deal with current topics, such as introducing environmental accounting, and evaluation of the report by a third party.

These comprehensive yet detailed services are characteristic of the DNP Group's Environmental Communication Support Services.

● Online Reports

Digital data prepared while publishing the report can be used again on the Internet.

The use of the Internet has increased, especially in 2000, and this trend seems certain to escalate. The knowledge and skills of Internet design that the DNP Group developed as part of its "Media Galaxy" help our clients design online environmental information that is easy to understand and visually appealing. Our know-how in editing work allows for flexible correspondence between Japanese and English pages.

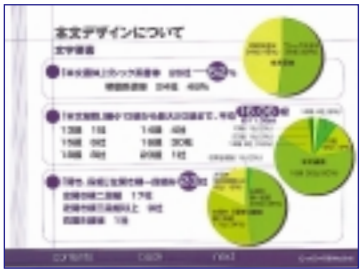
● Environmental Seminars

We offer workshops on producing environmental reports as a part of our Environmental Communication Support Services. The three modules in the workshop: "Business Operations in Harmony with the Environment," "Content" and "Design" provided practical information on how to publish an environmental report based on actual data and examples.

All of the three workshops we held in the past (once in Tokyo and twice in Osaka) were very well attended, showing that many corporations are highly interested in environmental communication.

The First Environmental Seminar

Environmental Seminar: Studying Other Companies' Environmental Reports



Data showing Analysis of Environmental Reports (used at the seminar)

Reviews by Environmental Managers

Morio Seki

Promotion Manager,
Ichigaya Publication Printing Operations Group, Environmental Committee

All the sites in the Ichigaya Group produce printed materials, including weekly and monthly magazines. We have been working for a long tine on recycling paper with our printed materials. Since the Eco-Plan was introduced in 1990, we have been able to show great results in reducing the amount of waste, particularly waste paper. Our energy conservation activities reached a new phase when the “co-generation” system was introduced. In fiscal 1999, we introduced new approaches to reducing industrial waste aiming at zero utilization of final waste processing plants. In the area of environmental preservation, we are working on the zero use of dichloromethane for cleaning. Our approaches, such as re-using the cleaning solution and changing the cleaning method, have reduced the amount of dichloromethane we use in the major production processes. In fiscal 2000, we will try to achieve zero emissions at all three sites, make progress on the installation of the co-generation system, and eliminate the use of dichloromethane by using the knowledge and skills we have accumulated.

Toshitake Eiraku

Promotion Manager,
Business Forms & Securities Printing Operations Group
Environmental Committee

The Business Forms Group produces plastic cards, business forms and different types of bills and bonds, which are indispensable in the era of information technology. We also support the whole information processing system.

When we started introducing the Eco-Plan activities in 1990, we focused on reducing the cost of waste disposal. Then when the plan started showing its success, we switched our focus to the total elimination of waste. The incinerator with a waste heat boiler that we installed at our Warabi Plant in 1995 is an especially environmentally-friendly incineration system using the latest technologies, and it contributes greatly to energy conservation. We achieved recognition for our waste reduction activities, which included active participation by all our employees, and in fiscal 1999 we were nominated as “the best company in the promotion of waste reduction and environmental beautification” in the Eighth National Competition for Waste Reduction.

Now our new goal is to achieve zero emissions at all the sites in the group by the end of fiscal 2001.

Takashi Tarutani

Promotion Manger,
Packaging Operations Group
Environmental Committee

The Packaging Group Environmental Committee works with the Integrated Packaging Development Center, because our environmental activities include product development.

One unique aspect of this group is that, because of the implementation of the Law for the Promotion of Sorted Collection and Recycling of Containers and Packaging, we include even the treatment of waste products by our clients as a factor in our product development, and thus we see the development of new products and new technologies focused on safety as a business chance based on the environmental approach. For example, water-based ink, IB film and products that are free from endocrine-disrupting chemicals can be counted as environmentally-friendly products.

In the soft packaging area, the new Izumisaki Plant has been added to our sites. They are currently aiming at finishing the assessment of their benchmark by the end of this fiscal year. It has been difficult to reduce the rates for total product value, because of the dramatic changes in production volumes and sales prices. But stable production of these products will make it possible to assess the effects quantitatively. For fiscal 2000, we are aiming at reducing industrial waste and energy consumption.

Hiroshi Kawaharada

Promotion Manger
Kyushu Operations Group, Environmental Committee

The Kyushu Group started environmental preservation activities following the DNP Group’s Eco-Plan promotion guidelines, which were issued in 1990. Our approaches, such as the installation of heat recycling incinerators and ice storage systems, have been bringing good results in reducing waste generation and energy costs, in environmental preservation, and in office environmental protection.

In fiscal 1999, to reduce the generation of industrial waste, we tackled reducing the final waste processing plants utilization rate by continuing our efforts to recycle collected ink and solvents, to reduce paper loss, and to reduce resin waste. In energy conservation, we worked on reducing heavy oil costs by the comprehensive use of energy control equipment and the more efficient operation of incinerators. In environmental protection, we measured the dioxin emission rates from our incinerators in accordance with the Law Concerning Special Measures against Dioxins. We confirmed that our emission rates meet the legal standards. Also, we are aiming at a reduction in those chemical substances that are regulated under the PRTR Law.

In fiscal 2000, we will try to achieve our target final waste processing plant utilization rate and PRTR targets. In addition we will be working on green purchase and the development of environmentally-friendly products.

We are planning to acquire ISO14001 certification by 2002 to improve our environmental management.

Noboru Yamakawa

Promotion Manger,
Information Media Supplies Operations Group, Environmental Committee

The Okayama Plant in the Information Media Supplies Group develops and manufactures dye-sublimation thermal transfer materials. We have been participating in the Eco-Report System since 1993, and in November 1997 we were the first in the printing industry to acquire ISO 14001 certification. The main targets of our environmental preservation activities are waste reduction, energy conservation and a reduction of VOC (volatile organic compounds) emissions into the air.

In fiscal 1999, we had productivity improvement as our common theme, and worked on reducing the rates for the total production value.

In waste reduction, we started recycling plastic waste for use as a raw materials and fuel for cement to encourage the efficient use of waste products. It successfully increased productivity, and the waste generation rate for the total product value decreased by 10% over the previous fiscal year. The utilization rate for the final waste processing plant also decreased by about 2 points, but as a whole, the figure of 40% is still higher than the DNP Group's average and remains to be tackled in the future.

In energy conservation, we carried out activities to reduce the waste and loss of energy aiming at effective facility operation and efficient control of the air conditioning system. These efforts brought a 14 % reduction in energy consumption over the previous fiscal year. We will be working to further reduce waste and energy losses and to promote the effective use of energy.

To reduce VOC emissions into the air, we tried to reduce the volatilization of VOC from printing inks before they are used for printing. Our efforts brought a 13% reduction in VOC emissions over the previous fiscal year. In the future, in addition to controlling the emissions at their source, we will be working on building a system that will treat emitted thin gases.

Toshihiko Kamoshita

Promotion Manager
Chubu Operations Group, Environmental Committee

The Chubu Group is proceeding with the Eco-Plan aimed at running printing plants that have low environmental impact with the ultimate goal of protecting the prosperity and future of the human race.

In our major approaches to reducing industrial waste in fiscal 1999, we reconfirmed the separate collection of waste and made efforts to reduce the waste at its source (including conserving resources). As a result, we achieved our target number for the year. In energy conservation for fiscal 1999, each section made efforts to improve the situation, including repairing power tools and utilities, but the energy consumption rate for the total production value increased by 0.6%.

For fiscal 2000, we are planning to further improve our activities aiming at resource conservation, energy conservation, zero emissions and ISO14001 certification by March 2001. In addition to compliance with environmental laws such as the PRTR Law, we will set up our own standards that are more stringent than the regulated standards in order to improve our performance.

Takeshi Takase

Promotion Manager,
Display Components Operations Group Environmental Committee

The Display Product Group's main products include shadowmasks, color filters for liquid crystal displays, projection screens, and other products for image devices. Our clients are electrical manufacturers. The Display Product Group's involvement in the environmental management system was rather early in the DNP Group; the Mihara Plant acquired ISO14001 certification in July 1998.

Because many of the sites use diverse chemical compounds and energy sources in the production processes of super precision electronic parts, our promotional targets in fiscal 1999 were not limited to compliance with environmental laws. We carried out activities that would reduce cost, such as the reduction and recycling of liquid waste and sludge that make up the majority of our industrial waste. We also implemented energy conservation measures with the co-generation system.

In fiscal 2000, we will prepare for the implementation of the PRTR Law. Under the appropriate environmental management, the whole group will be working with other countries as one global business operation.

Masaru Inoue

Promotion Manger
The Inctec Inc. Environmental Committee

The Inctec Inc. produces and sells various printing inks and coating materials for electronic and information recording materials. Our environmentally-friendly products include inks made from soybean oil for newsprint and offset and toluene-free and water-based gravure inks for soft packaging and building materials. Our inks can be used for a new purpose, such as printing with UV/EB hardening coating materials that prevent VOC (volatile organic compounds). In April 1998, we started our own "Responsible Care" voluntary program to concentrate on the environment, safety and health during all processes-from development to the disposal of chemical products.

In fiscal 1999, the Tokyo Plant achieved a 3.7 % reduction in the final waste processing plant utilization rate by recycling diatomaceous earth and waste paper. In energy conservation, while we carried out activities to eliminate energy losses and installed energy-saving equipment including air conditioning demand controllers. The energy consumption rate for the total production value increased by 1.8%. In environmental preservation, we removed incinerators to prevent dioxin emissions. To prepare for the implementation of the PRTR Law, we collected numerical data on applicable chemical compounds and began studying alternative compounds.

In fiscal 2000, we will be focusing on recycling waste materials, energy conservation and reducing chemical compounds listed under the PRTR Law.

Environmental Activities as Corporate Citizens

- Green Day Activities: Warabi Plant (Every Friday)
- Cooperation with PTA Recycling Activities: Kami-Fukuoka Plant (As required)
- Cleaning Activities in the Neighborhood: Fukuoka Plant (As required)
- Cleaning Activities in the Neighborhood: Chikugo Plant (April 7, 1999)
- Clean Campaign: Kami-Fukuoka Plant (May 1, 1999)
- Clean Campaign: Tanabe Plant, Kyoto (May 1, 1999)
- Road Cleanup by the Young Drivers' Club: Kuki Plant, (May 8, 1999)
- Fireworks and "Bon" dancing Festival: Otone Plant (July 31, 1999)
- Mitsu-cho Summer Festival: Okayama Plant (August 7, 1999)
- Co-sponsorship at "Bon" dancing: Chikugo Plant (August 13, 1999)
- Founding Emergency Shelter for Children: Nara Plant (October 1, 1999)
- Cleanup on Tenjingawa Street: Kyoto Plant (November 10, 1999)
- Cleanup: Ushiku Plant (November 27, 1999)
- Participation in Mitsu-cho Furusato Festival: Okayama Plant (November 28, 1999)
- Traffic Control at Main Intersections: DNP Logistics (December 4, 1999)
- No Idling Campaign: Yokohama Plant (January, 2000)

● Volunteer Activities as a "Corporate Citizen"

The DNP Group believes that a company is not separate from the regional community, but on an equal standing with local citizens, and concentrates on taking prompt responsive actions accordingly.

As a good corporate citizen, we are working to strengthen our links with local communities more than ever before. Initiatives include regularly welcoming elementary school factory tours, offering the use of factory facilities, such as sports grounds, conference rooms, and parking lots to the community, and cooperating in blood donation campaigns.

We are also involved in a wide range of volunteer activities. We participate in or cooperate with various local events run by neighborhood associations, notably cherry blossom festivals, summer festivals, fireworks displays, and bus tours, as well as offering donations and sponsorship. We also conduct volunteer activities geared to regional communities, such as the cleaning of local streets and participation in fire drills.

● They Grew This Much! <Reforestation Project in Vietnam>

In 1995, the DNP Group established a joint venture with New Oji Paper Co., Ltd., (presently Oji Paper Co., Ltd.) and Nissho Iwai Corp. for reforestation projects. The new company planned to plant acacia and eucalyptus trees in war-ravaged Binhdinh Province in Vietnam at the rate of 1,500 hectares per annum, bringing the total planted area to 10,500 hectares. In 2002, the trees from the first 1,500 hectares will be harvested and processed into chips on site. The reforestation will be continued by planting trees in the area after harvesting.

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.

Green trees are coming back to the war-ravaged hills.

Landscaping at the C&I Building

Disaster Prevention Center at the C&I Building

The C&I Building, Hub of Communication and Information

In 1988 the C&I Building in Ichigaya, Tokyo was built as a communication hub where we could create an Information Communication Industry-the DNP Group's goal for the 21st Century. The name implies interactive information exchange (Communication) and the aggressive release of information (Information).

When designing the building, we considered the environmental responsibilities that DNP has as a corporation, based on achieving harmony with the environment and our corporate image. We made particular efforts to design a building that fits in with the surrounding environment. As a result, we incorporated plenty of green areas on the roof, on the terraces, and around the buildings. In order to conserve energy and natural resources, rainwater is collected and reused, and sunlight-sensitive, automatic window shields and automatic light adjustment systems with movement sensors and the latest energy conservation systems are installed.

Support for and Donations to Environmental Protection Groups

(* Outline of each group and its activities)

Corporate donation to the Keidanren Nature Conservation Fund

¥1 million per annum since fiscal 1995

*Support for natural environmental preservation projects in developing countries. Education of future personnel in international environmental conservation.

Corporate member of WWF (World Wide Fund for Nature) Japan

Since fiscal 1995 (annual membership: ¥400,000)

*Headquarters are located in Switzerland. An environmental protection group, which has been working on conservation of the natural environment mainly in developing countries.

Donations to the Japan Industrial Waste Management Foundation

¥5 million donated in fiscal 1993 and again in fiscal 1995

*Funds are made available to waste management facilities for industrial waste management.

Corporate member of the Tree-Free Mark by Japan Ecology Foundation

Mark Member since 2000 (annual membership: ¥50,000)

* Contributes to preventing global warming through forest conservation by promoting the use of tree-free paper products.

History of Environmental Initiatives

1972 The Environment Department, established within Dai Nippon Printing headquarters, promotes anti-pollution measures and communication with local residents

1990 The Eco-Plan Promotion Office is set up within the Environment Department to initiate a new approach to global environmental problems

1992 The DNP Group Corporate Pledge and the DNP Group Employee Code are completed

1992 Eco-Plan Goals (a specific voluntary plan) finalized, based on the DNP Group Corporate Pledge's environmental declaration, spearheaded by four subcommittees

1993 Eco-Report System (DNP Group's environmental management system) launched

1994 The Environment Department is renamed the Environment & Product Liability Department, hiring more employees to strengthen its work on product liability and other environmental issues

1996 Eco-Audits (internal environmental audits by the Eco-Plan Promotion Office) begin as part of a program to upgrade the Eco-Report System

1997 The Information Media Supplies Operations' Okayama Plant becomes the first in the printing industry to receive ISO14001 certification

1998 The Mihara Plant of the Display Product Division obtained ISO14001 certification

March 2000 The Eco-Plan Promotion Office discontinued. The DNP Group Environmental Committee established to reinforce the promotional system

April 2000 DNP Facility Service Co., Ltd. becomes the first in the world to be certified as a comprehensive system with quality, environment, office safety and food safety

July 2000 Construction Materials Division's Okayama Plant acquires ISO14001certification

Cafeteria at the C&I Building, operated by DNP Facility Service Co., Ltd.

Certification for a Comprehensive System received by DNP Facility Service Co., Ltd.

Environmental Conservation Awards

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

March 1988 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

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

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

July 1993 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"

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

April 1995 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)

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

June 1999 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

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


Roof Garden, Ichigaya Plant


Recognition Ceremony for the Tokyo Metropolitan Government's Chief of Environmental Conservation Bureau Award (Ichigaya Plant)


Recognition Ceremony for the Group with Waste Reduction and Environmental Beautification (Warabi Plant)

Environmental Conservation Status for Each Factory

Ichigaya Plant (Books, Periodicals) / Shinjuku-ku, Tokyo

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SO_X (Nm^3/h)	First Boiler	<0.03	2.25
	Boiler at D Bldg.	<0.004	0.79
NO_X(ppm)	First Boiler	68.4	100
	Boiler at D Bldg.	29.9	60
Ash (g/Nm^3)	First Boiler	<0.004	0.05
	Boiler at D Bldg.	<0.005	0.05

■ Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD	144	31.8	300
Suspended Matter	73	22.6	300
n-hexane Extract	5.0	3.0	30

■ Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation Amount for Total Production Value (ton / ¥ million)	0.137	0.152
Final Waste Processing Plant Utilization Rate (%)	2.9	7.0

■ Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Energy Consumption as Crude Oil for Total Production Value (kilo liter / ¥100 million)	64.7	55.3
CO_2 Emission for Total Production Value (Carbon tons / ¥100 million)	29.3	25.0

Gotanda Plant (Books, Periodicals) / Shinagawa-ku, Tokyo

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SO_X (Nm^3/h)	Boiler	0.01	0.63
	Cold and Hot Water Generator	0.01	0.63
NO_X (ppm)	Boiler	69.0	150
	Cold and Hot Water Generator	53.7	150
Ash (g/Nm^3)	Boiler	0.002	0.10
	Cold and Hot Water Generator	0.006	0.10

■ Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD	67	14.6	300
Suspended Matter	210	66.6	300
n-hexane Extract	2.0	1.1	30

■ Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation Amount for Total Production Value (ton / ¥ million)	0.118	0.130
Final Waste Processing Plant Utilization Rate (%)	0.45	7.0

■ Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Energy Consumption as Crude Oil for Total Production Value (kilo liter / ¥100 million)	81.6	71.3
CO_2 Emission for Total Production Value (Carbon tons / ¥100 million)	36.3	32.0

Akabane Plant (Commercial Printing) / Kita-ku, Tokyo

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SO_X (Nm^3/h)	Co-Generation #1	0.01	0.47
	Co-Generation #2	0.01	0.45
NO_X (ppm)	Co-Generation #1	106	600
	Co-Generation #2	112	600
Ash (g/Nm^3)	Co-Generation #1	0.005	0.04
	Co-Generation #2	0.007	0.04

■ Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD	48.1	25.5	300
Suspended Matter	254.0	45.5	300

■ Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation Amount for Total Production Value (ton / ¥million)	0.121	0.084
Final Waste Processing Plant Utilization Rate (%)	0.50	0.60

■ Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Energy Consumption as Crude Oil for Total Production Value (kilo liter / ¥100 million)	157.0	127.7
CO_2 Emission for Total Production Value (Carbon tons / ¥100 million)	71.6	58.4

Kyoto Plant (Packaging) / Ukyo-ku, Kyoto

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SO_X (Nm^3/h)	First Gas Turbine	0.0121	0.46
	Second Gas Turbine	0.0275	0.96
	Incinerator	0.0938	2.26
NO_X (ppm)	First Gas Turbine	28	70
	Second Gas Turbine	28	70
	Incinerator	95	250
Ash (g/Nm^3)	First Gas Turbine	0.002	0.05
	Second Gas Turbine	0.002	0.05
	Incinerator	0.0557	0.5
DXN($ng\text{-}TEQ/m^3N$)	Incinerator	3.1	80

■ Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD	360	140	600
Suspended Matter	200	119	600
n-hexane Extract	25	8.9	30

■ Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation Amount for Total Production Value (ton / ¥ million)	0.668	0.746
Final Waste Processing Plant Utilization Rate (%)	12.2	9.2

■ Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Energy Consumption as Crude Oil for Total Production Value (kilo liter / ¥100 million)	146.5	141.6
CO_2 Emission for Total Production Value (Carbon tons / ¥100 million)	68.2	65.7

Yokohama Plant (Packaging) / Yokohama, Kanagawa

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SO_X (Nm^3/h)	Incinerator	0.19	0.72
DXN (ng-TEQ/m^3N)	Incinerator	0.016	80
NO_X (ppm)	SQ Boiler	31	150
	Incinerator	86.3	150
Ash (g/Nm^3)	SQ Boiler	0.005	0.05
	Incinerator	0.029	0.05

■ Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
BOD	446	179	600
Suspended Matter	91.7	56.0	300

■ Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation Amount for Total Production Value (ton / ¥million)	0.588	0.304
Final Waste Processing Plant Utilization Rate (%)	4.83	5.00

■ Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Energy Consumption as Crude Oil for Total Production Value (kilo liter / ¥100 million)	143.2	133.5
CO_2 Emission for Total Production Value (Carbon tons / ¥100 million)	63.3	58.8

Tsuruse Plant (Building Materials) / Miyoshi-machi, Iruma, Saitama

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SO_X (Nm^3/h)	Boiler #1	-	
	Boiler #2	-	
NO_X (ppm)	Boiler #1	55.8	150
	Boiler #2	55.1	150
Ash (g/Nm^3)	Boiler #1	0.003	0.10
	Boiler #2	0.007	0.10

■ Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
n-hexane Extract	Not detected	Not detected	5
Suspended Matter	40.0	17.7	600

■ Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation Amount for Total Production Value (ton / ¥ million)	0.489	0.378
Final Waste Processing Plant Utilization Rate (%)	45.7	37.1

■ Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Energy Consumption as Crude Oil for Total Production Value (kilo liter / ¥100 million)	150.6	134.3
CO_2 Emission for Total Production Value (Carbon tons / ¥100 million)	69.1	61.7

Mihara Plant (Electronics) / Mihara, Hiroshima

■ Atmosphere

Substance	Facility	Actual Value (Max)	Regulated Value
SO_X (Nm^3/h)	First Boiler	0.0042	3.327
	Second Boiler	0.0043	3.327
NO_X (ppm)	First Boiler	67	150
	Second Boiler	66	150
Ash (g/Nm^3)	First Boiler	0.0016	0.10
	Second Boiler	0.0015	0.10

■ Water Quality (mg/l)

Substance	Actual Value (Max)	Actual Value (Ave)	Regulated Value
COD	8.2	5.5	9.0
Suspended Matter	2.0	1.1	7.0
n-hexane Extract	2.0	0.6	8.0

■ Industrial Waste

Promotion Targets	Actual Value	Voluntary Target Value
Generation Amount for Total Production Value (ton / ¥million)	0.303	0.542
Final Waste Processing Plant Utilization Rate (%)	9.9	10.0

■ Energy Conservation

Promotion Targets	Actual Value	Voluntary Target Value
Energy Consumption as Crude Oil for Total Production Value (kilo liter / ¥100 million)	120.0	115.4
CO_2 Emission for Total Production Value (Carbon tons / ¥100 million)	55.9	60.5

The Japanese version of the DNP Group Annual Environmental Report was audited by a third party (Century Ota Showa & Co.). However, the English version of the report has not been audited by a third party, so we have left this page blank.

Q1. Please give us your impressions of this Report. (Circle one)

1. Very good 2. Good 3. Fair 4. Poor 5. Very Poor

Please explain the reason in detail:

Q2. Which items are notable or interesting? (Circle as many as apply)

1. Message 2. Environmental Management 3. Environmental Accounting
4. Our Approaches to Environmental Protection 5. Development of Environmentally-friendly Products
6. Environmental Communication Support Services 7. Reviews by Environmental Managers
8. Environmental Activities as Corporate Citizens 9. Chronological Table of Environmental Approaches
10. Environmental Conservation Awards 11. Environmental Data 12. Verification by a Third Party

Q3. Do you wish to know more about any of the items in the Report? Please choose the item(s) from the list in Q2, and explain in more detail.

1.

2. I am satisfied with the information provided in the Report.

Q4. Please comment on any issues that you feel should be added to or improved in the Report.

Q5. Please record any other remarks you have on this Report.

◆ Thank you for your cooperation. Your feedback will be reflected in the next issue.
We would like to ask you to supply the following details about yourself.

Name		Phone Number	
Address	〒		
Job Title / Employer		Position	

FAX: +81-3-5225-8489

To: Environment & Product Liability Department,
Dai Nippon Printing Co., Ltd.

Please fax us the completed form. Thank you for your cooperation.

Dai Nippon Printing Co., Ltd.

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