

DNP

**DNP Group Environmental Report
2018**



DNP Group Environmental Report 2018

Editorial Policy

- The DNP Group Environmental Report 2018 was created to announce all of the environmental activities of the DNP Group, and is based on the *Environmental Reporting Guidelines* (2012 Edition) issued by Japan's Ministry of the Environment.
- The *DNP Group Environmental Report 2018* is published in a page format designed to be easy to read on the Web.
- We have interspersed columns throughout, covering specific topics.
- The information in this report was subjected to a third-party-review conducted by Bureau Veritas Japan. A check mark indicates indices that have undergone third-party audits.

Period covered by this report

This report focuses on activities carried out in the period of April 1, 2017 to March 31, 2018. It may also include reporting on important items not occurring within this period. The report also covers activities carried out at some overseas business locations in the period of January 1, 2017 to December 31, 2017.

Scope of environmental data

Environmental accounting was applied to DNP and to all domestic companies in the Group that are subject to consolidated financial accounting. Twenty-two domestic manufacturing companies plus one distribution company (see pages 38–39), the non-manufacturing sites (three development centers, office buildings, sales offices, etc.) of all domestic Group companies and our overseas manufacturing companies (see page 40) were included in the scope.

Standards for Calculating Environmental Performance Indices

The standards used for calculating environmental performance indices are published separately on the Web.

<http://www.dnp.co.jp/eng/csr/report.html>

CONTENTS

2	Message from the Director in Charge of the Environment
3	Outline of the DNP Group
4	The DNP Group's Fields of Business
5	DNP Group Vision 2015
6	DNP Group Code of Conduct
7	DNP Group Environmental Policy
8	Environmental Management Structure
9	Environmental Management System
10	Eco-Audit Content and Flow
11	Eco-Audit Performance
12	Environmental Risk Management
13	Certification Acquisition Status
14	Environmental Education
15	The DNP Group's Business and Environmental Activities
16	Environmental Activity Targets and Results
17	Current Status of Environmental Impact
18	Environmental Impact and Environmental Efficiency
19	Efforts to Reduce GHG Emissions Across the Entire DNP Group Supply Chain
20	
	Domestic Efforts
36	
37	Result of Efforts
38	Domestic Manufacturing Sites with Required Business Performance Data Disclosure (1)
39	Domestic Manufacturing Sites with Required Business Performance Data Disclosure (2)
40	Overseas Manufacturing Sites with Required Business Performance Data Disclosure
41	Independent Review Report Comments by an Independent Institution

1 Achieving a Low-Carbon Society

- 20 GHG Emissions Reduction
- 21 Switching to Low CO₂-Emission Fuels
- 22 Anti-Global Warming Measures in Transport and at Our Offices

2 For Reduction of Environmental Pollutants

- 23 Reducing Air Pollutants
- 24 Reducing Water Pollutants
- 25 Chemical Substances Subject to the PRTR Law

3 Building a Recycling Society

- 26 Reducing Waste Products in Manufacturing Processes
- 27 Breakdown of Generated Waste Volume
- 28 Use of Recycled Resources
- 29 Environmentally Conscious Products and Services
- 30 Guidelines for Developing Environmentally Conscious Products and Services with Example Products
- 31 Environmental Label Certification

4 Realizing a Society in Symbiosis with Nature

- 32 Biodiversity Efforts

5 Environmental Accounting

- 34 Environmental Conservation Costs
- 35 Environmental Conservation Benefits (1)
- 36 Environmental Conservation Benefits (2) (3) and Economic Benefits of Environmental Conservation Activities

**Message from the Director
in Charge of the Environment**

Going Beyond Society's Expectations

Chairman of the CSR-Environment Committee
Managing Director

Satoru Inoue



The DNP Group is always looking to achieve coexistence with the environment in order to increase the sustainability of its business. Embracing “environmental conservation and the realization of a sustainable society” as one tenet under our DNP Group Code of Conduct, we ensure legal compliance first and foremost and are working to reduce environmental impact by carefully examining the effects of our business activities on the environment throughout our supply chain. In particular, we regard response to climate change as a pressing environmental issue. We have thus specified eight priority areas, such as reduction of greenhouse gas (GHG) emissions and reduction of water usage, and have been engaging in activities to achieve their respective targets.

In 2015, the UN General Assembly adopted the Sustainable Development Goals (SDGs), which call for companies' action to resolve environmental, economic, social and various other issues through their business activities. In the same year, DNP formulated the DNP Group Vision 2015 to combine our strengths in the fields of printing and information (“P&I”) and focus on four growth areas to expand our business. One of them is Environment and Energy, and in this particular field, we seek both our business growth and the resolution of social issues through products and services by reducing environmental

impact and taking action against climate change. For example, our multifunctional insulation box uses thin, lightweight vacuum insulation panels with excellent heat insulating performance. The box maintains refrigeration temperatures for a long time without using electricity and contributes to the reduction of CO₂ emissions during transportation and establishment of a cold chain.

Efforts in FY2017

In FY2017, we achieved all of the targets of the eight priority areas.

Among these themes, we virtually achieved our FY2030 target for reduction of GHG emissions in FY2017. To reinforce our reduction activities further, we have specified a new target that conforms to an international framework. The new target has been recognized by the international Science Based Targets (SBT) initiative as “science-based” in helping to achieve the goal of the Paris Agreement, which is to keep global warming below two degrees Celsius.

In addition, we have been undertaking an initiative for the conservation of biodiversity to create the Ichigaya Forest, a new form of “urban” forest, on the premises of our head office in Shinjuku-ku, Tokyo. The initiative has been certified as a “Biodiverse Business Site®” by the

Association for Business Innovation in Harmony with Nature and Community (ABINC), an organization evaluating companies' initiatives to create, manage and use greenery areas while giving due consideration to biodiversity.

Future Efforts

As the environment surrounding companies is undergoing a drastic change with various social issues becoming increasingly prevalent, DNP will strive to achieve further reductions in environmental impact through our business activities and throughout the entire supply chain. Simultaneously, we will combine DNP's P&I strengths and the strengths of our partners to create new value that will help provide solutions to various social issues. In addition to responding to climate change, we will make particular efforts towards the realization of a circular economy that maximizes the use of limited resources. While keeping an eye on the latest developments in other environmental issues, such as the issue of plastic waste giving rise to much public attention in recent years, we will promote development of products and services that will also contribute to the achievement of the SDGs.

DNP will continue to facilitate closer communication with stakeholders and seek to remain a company continuously earning a high level of trust from society.

Outline of the DNP Group

DNP Corporate Profile (as of March 31, 2018)

Company Name Dai Nippon Printing Co., Ltd.

Established October 1876

Head Office 1-1, Ichigaya Kagacho, 1-chome,
Shinjuku-ku, Tokyo, 162-8001,
Japan
Tel: +81-3-3266-2111
(main number)
URL <http://www.dnp.co.jp/>

Incorporated January 1894

Paid-in Capital ¥114.464 billion

Number of 10,775 (Non-consolidated)

Employees 38,627 (Consolidated)

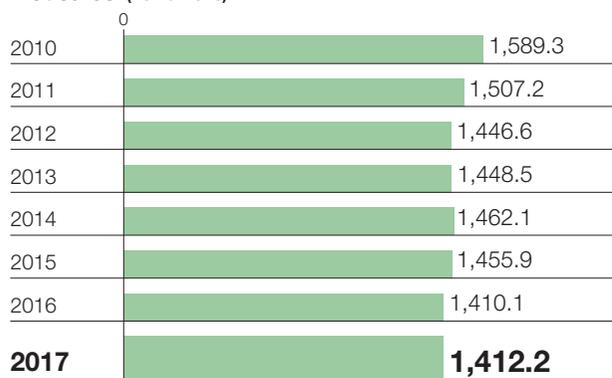
Sales Offices 38 locations in Japan
26 locations overseas (including local affiliates)

Main Plants 61 domestic plants
15 overseas plants (including local affiliates)

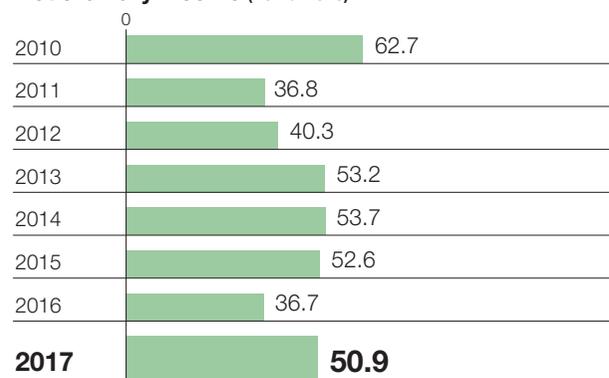
R&D Facilities 3 locations in Japan

FY2017 Financial Data (FY ended March 2018)

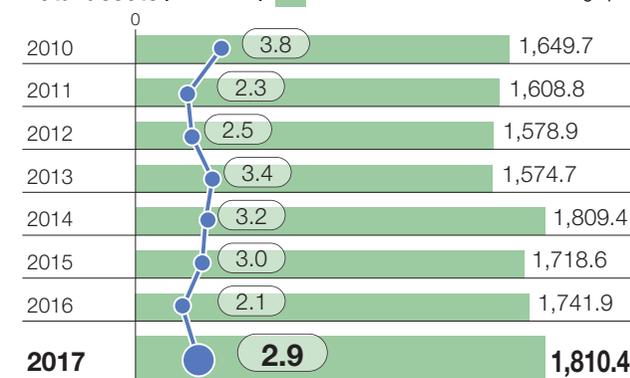
Net sales (Yen billions)



Net ordinary income (Yen billions)

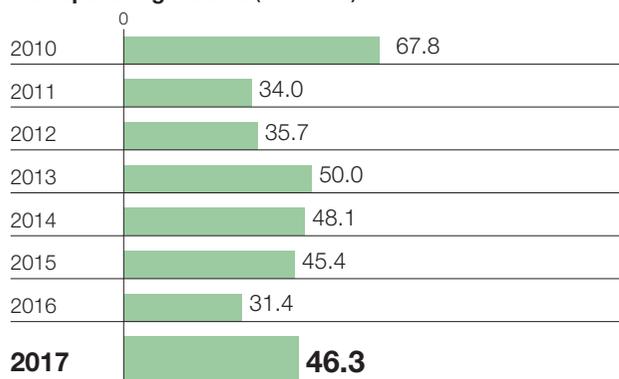


Total assets (Yen billions) / ROA (%)

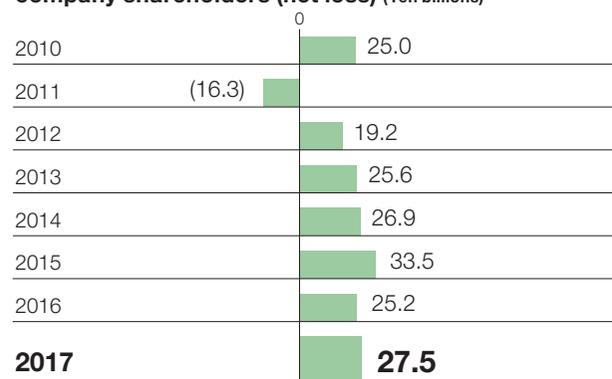


ROA (Return On Assets): Calculated using ordinary income.

Net operating income (Yen billions)



Net income attributable to parent company shareholders (net loss) (Yen billions)



Net assets (Yen billions) / ROE (%)



ROE (Return On Equity): Calculated using net income.

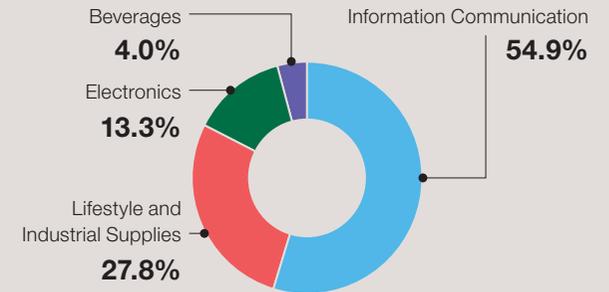
The DNP Group's Fields of Business

The business of the DNP Group is made up of our Printing Operations and Beverages Operations.

Printing: We are developing our printing business across a broad range of applications. These include the Information Communication segment, made up of operations such as publishing/commercial printing, smart cards, network businesses and imaging communication; the Lifestyle and Industrial Supplies segment, which includes packaging, housing interior/exterior materials and industrial supplies; and the Electronics segment, which includes display products, electronics devices and optical film.

Beverages: We produce and market carbonated beverages, coffee, tea and other beverage products, mainly through Hokkaido Coca-Cola Bottling.

Sales breakdown (FY ended March 2018)



Printing	Information Communication Books and magazines, commercial printing, smart cards, network businesses, imaging communication, etc.		1 Hybrid bookstore network "honto" 2 Smart cards and magnetic cards 3 Ki-Re-i ID photo kiosk
	Lifestyle and Industrial Supplies Packaging, housing interior/exterior materials, industrial supplies, etc.		4 Packaging 5 Automotive interior materials 6 Exterior materials for buildings
	Electronics Display components, electronic devices, optical films, etc.		7 Semiconductor photomask 8 Master template for nanoimprinting 9 Optical films used for displays
Beverages	Beverages		10 Soft drinks

DNP Group Vision 2015

The DNP Group Vision 2015 consists of our Corporate Philosophy, Business Vision and Guiding Principles and is an expression of our basic philosophy of co-existence and co-development with society and the environment.

Our Corporate Philosophy is the DNP Group's social mission and is an expression of the most important value held by all DNP employees. Our Business Vision and Guiding Principles provide direction for the business and employee conduct that will enable us to make our Corporate Philosophy a reality.

The DNP Group Code of Conduct establishes the behavioral standards for all activities undertaken in realizing our Corporate Philosophy. The Code is intended to ensure that all employees conduct themselves with integrity at all times.



Corporate Philosophy

The DNP Group connects individuals and society, and provides new value.

The DNP Group provides society with what individuals need, provides individuals with what society needs.

Business Vision

Use P&I Innovations to expand business, primarily around four growth areas.

P&I Innovations

“P&I Innovation” refers to the creation of new value—value that never existed before—by combining printing (P) and information (I) as DNP’s strengths along with diversified partners.

DNP’s Four Growth Areas

- Knowledge and Communication: Supporting people’s lifestyles and fostering culture within an advanced information society by conveying valuable information reliably, safely and in optimal formats.
- Food and Healthcare: Supporting safer and higher-quality living and lifelong health maintenance amid changing population dynamics, including the increasing aging of society.
- Lifestyle and Mobility: Aiming to achieve greater comfort in response to increasing desire for personal space as a result of consumers’ diversifying values.
- Environment and Energy: Aiming to make environmentally friendly society a reality in order to simultaneously achieve economic growth and environmental preservation.

DNP Group Guiding Principles

***Taiwa* (dialog) and Cooperation**

Each member of DNP becomes a professional in his or her field. Actively and repeatedly engaging in *Taiwa* and working together with people both inside and outside the company leads to the generation of original products and services that never existed in the past.

DNP Group Code of Conduct

The DNP Group has established the DNP Group Code of Conduct as the set of principles upon which our efforts toward realizing our Corporate Philosophy are based. The Code of Conduct is founded upon strong ethical principles in accordance with our own rules as well as the law of the land, and is built around themes we consider to be of mutual importance to both the DNP Group and society as a whole.

The conduct of business with integrity at all times in accordance with this Code of Conduct is the foundation of our corporate social responsibility (CSR) activities.

1. Contributing to the development of society	We shall contribute to the development of society by offering new values through our business.
2. Social contribution as a good corporate citizen	We, as good corporate citizens living in harmony with society, shall deepen our ties with society and make social contributions through our solutions to various social issues and through our cultural activities.
3. Compliance with the law and social ethics	We shall contribute to the sustainable development of free and orderly market competition while assuming a fair and honest attitude at all times, in compliance with the law and social ethics.
4. Respect for human dignity and diversity	The dignity of humanity is of supreme importance to us. We shall respect diversity in the culture, nationality, creed, race, ethnicity, language, religion, gender, age and ways of thinking of all persons, and conduct ourselves in a disciplined manner.
5. Environmental conservation and the realization of a sustainable society	We are contributing to building a sustainable society so as to pass on the rich blessings of the Earth to future generations.
6. Realization of a “universal society”	We shall work on the development and diffusion of easy-to-use functional products, services and systems so that everyone can live in safety and comfort, and thus contribute to the realization of a “universal society” in which all kinds of people can lead pleasant lives.
7. Ensuring the safety and quality of our products and services	We shall strive to win over the satisfaction and trust of consumers in general and of our corporate clients by ensuring the safety and quality of our products and services.
8. Ensuring information security	We shall strive to ensure thorough security measures to protect information assets entrusted to us by our clients as well as those retained by the DNP Group itself (industrial secrets, personal information, intellectual property, etc.).
9. Proper disclosure of information	We shall take the initiative to disclose information in a timely and appropriate manner so as to have our own business and activities properly understood by our various stakeholders with the goal of maintaining a high degree of transparency.
10. Realization of a safe and vibrant workplace	We shall exert ourselves for the maintenance and improvement of the safe and hygienic conditions of our workplace and shall always endeavor to seek ways to implement new improvements. At the same time, we shall respect working styles suited to the diversity of our employees and make efforts to create a safe, healthy and vibrant working environment.

DNP Group Environmental Policy

We follow the DNP Group Code of Conduct, which guides us toward environmental conservation and the realization of a sustainable society. The DNP Group Environmental Policy links this code to specific activities. We take the environment into consideration in all of our business activities and focus on those that not only reduce environmental impact, but also preserve the global environment.

The DNP Group seeks to minimize the impact our businesses have on the environment and supports biodiversity, first by complying with environmental laws and regulations and also by recognizing the relationship that each of our business activities has with the environment. In this way we hope to create a sustainable society in a world with limited resources.

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. We shall also make aggressive efforts to use renewable energy.
3. When carrying out research, development, design, manufacture and sales of a new product, we consider the impact of the product on the environment throughout its lifecycle, including materials procurement, production, distribution, use and disposal, especially in terms of 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.

CSR-Environment Committee (March 21, 2000, revised March 16, 2010)

The DNP Group is a signatory of the United Nations Global Compact and a “promotion partner” of the Nippon Keidanren’s 2009 Declaration on Biodiversity.

Environmental Management Structure

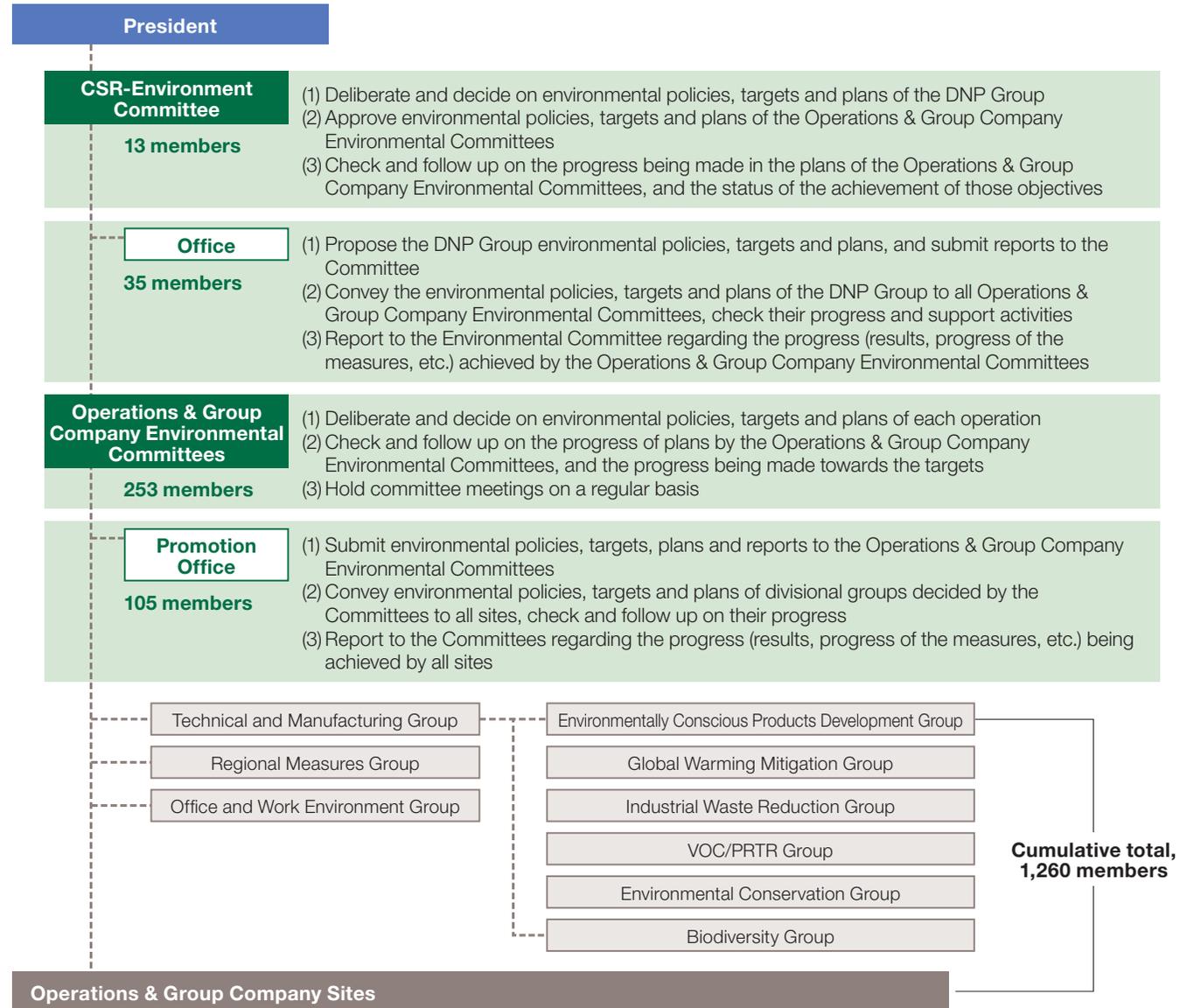
The DNP Group has established the CSR-Environment Committee to coordinate Group-wide environmental activities and the Operations & Group Company Environmental Committees as a body to promote activities within each business segment. Each committee has its own office or promotion office.

• CSR-Environment Committee

This is made up of the directors of the basic organizations at company headquarters, who are responsible for the environment. The Committee deliberates and makes decisions concerning the environmental policies, objectives and plans of the entire Group, and monitors the progress of the plans and the status of the achievement of those objectives.

• Operations & Group Company Environmental Committees

We carry out such activities based on decisions made by the CSR-Environment Committee and the characteristics of different business areas, including activities at our locations outside of Japan.



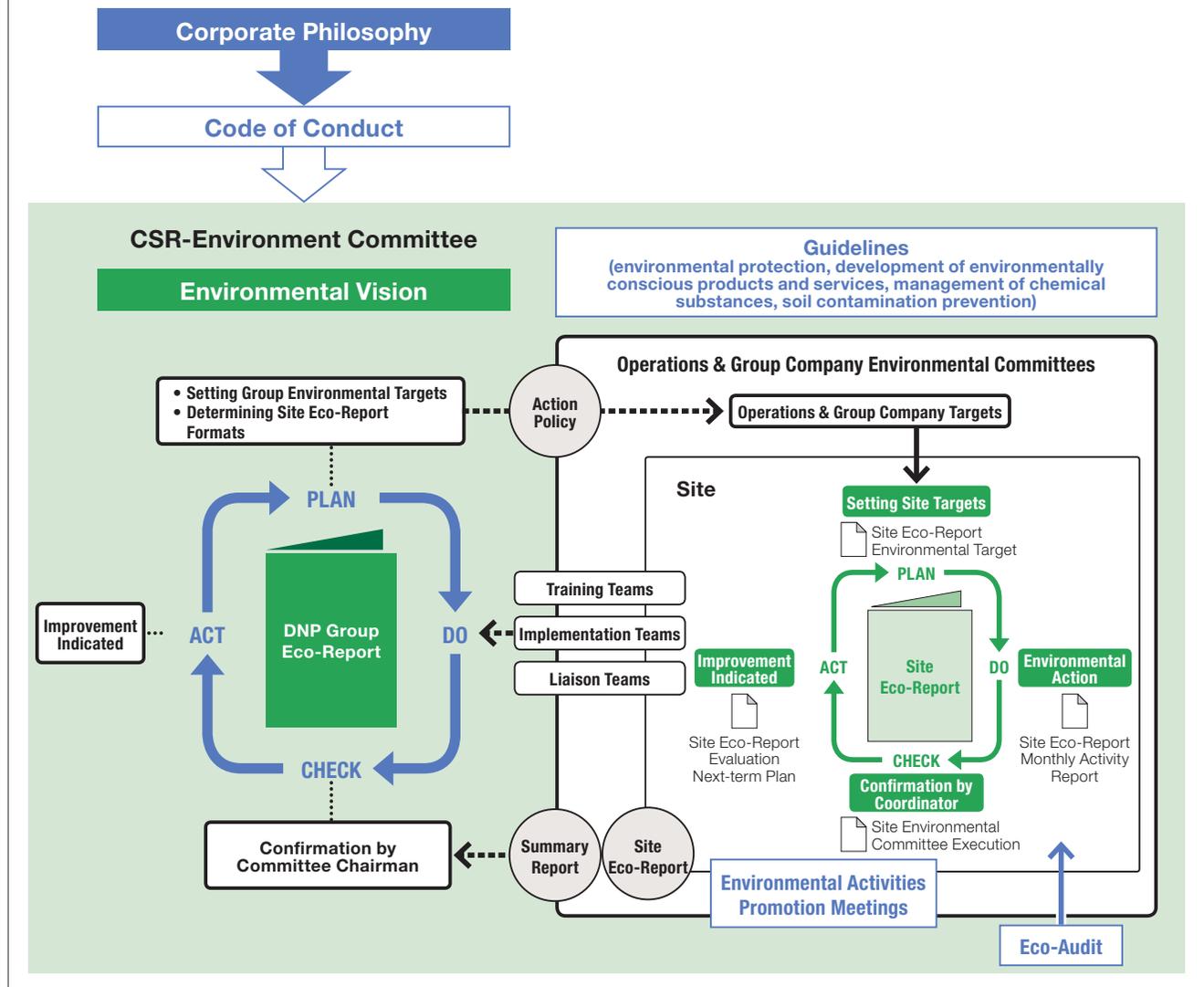
Environmental Management System

The DNP Group created its own environmental management system (EMS) in 1993, prior to the publication of ISO 14001. Our EMS uses the twin tools of Eco-Reports and Site Eco-Reports set up by the CSR-Environment Committee Office as a framework. We also execute the “Plan-Do-Check-Act” cycle every six months.

The Eco-Reports cover trends in environmental issues and changes in applicable laws, our courses of action and how well the DNP Group overall has achieved its targets. The Eco-Reports are distributed to the Operations & Group Company Environmental Committees and to every business site. The Site Eco-Reports document each site’s targets, plans and status of activities. The Operations & Group Company Environmental Committees use the Site Eco-Reports to gain an understanding of the situation at each site and submit a summary report to the CSR-Environment Committee.

The CSR-Environment Committee and the Operations & Group Company Environmental Committees carry out continuous improvement activities through training teams, implementation teams, liaison teams, etc. Progress is checked through periodic environmental activities promotion meetings.

Outline of the DNP Group Environmental Management System



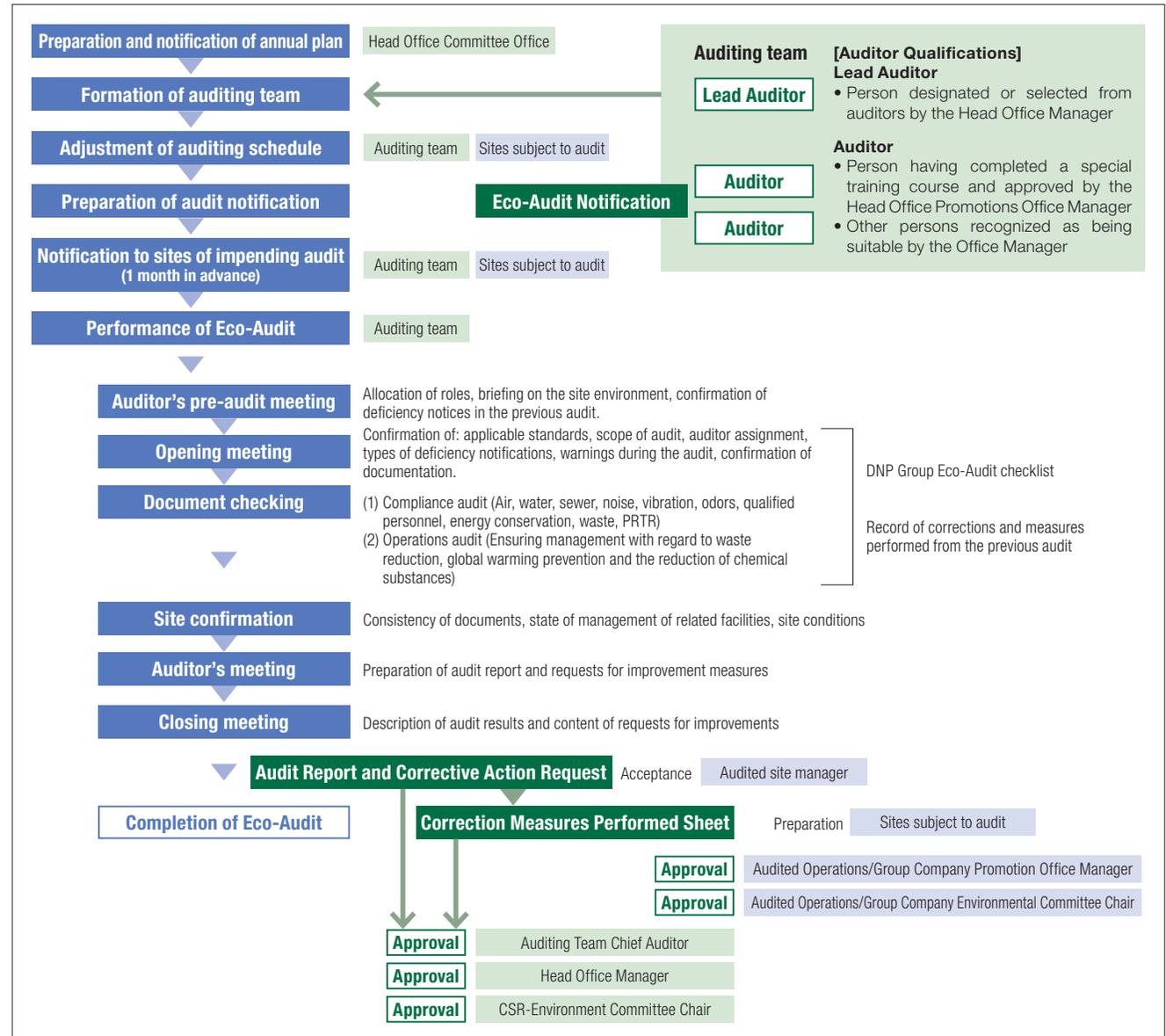
Eco-Audit Content and Flow

We began implementing “Eco-Audits” in 1996, so as to make our Environmental Management System (EMS) more effective.

Eco-Audits have the following features.

- (1) Because auditors are DNP employees from sites not being audited, they have specialized knowledge about the products and processes and are able to maintain an independent perspective, which produces meaningful, objective results from the audit.
- (2) In the Eco-Audit we place importance on on-site confirmation of actual items. In addition, we point out factors for which danger is projected and request preventive action when needed.
- (3) In addition to confirmation of compliance, we confirm the status of continuous improvements and corrections being made towards the achievement of the environmental targets. When necessary, we require audited sites to review plans.

Under this system, when an audit reveals that corrective measures are needed at a site, a “Corrective Action Request” is issued in writing and such actions as necessary are managed by the CSR-Environment Committee.



Eco-Audit Performance

Number of sites audited	67 sites
Number of attendees at sites	499 persons
Cumulative auditor numbers	120 persons
Cumulative auditing hours	337 hours

• Notification Level and Improvements Required

Improvement required	➔	Submission of a written description of correction measures performed or improvement plans
Improvement consideration & examination	➔	Submission as necessary of a written description of results of consideration/examination or improvement plans

Indications of “improvement required” included items such as insufficient reporting by qualified personnel and at specific sites and other legal violations, but we confirmed that the necessary improvement measures were being taken in each case.

The areas indicated as requiring improvement are analyzed and follow-up Eco-Audits will be carried out in FY2018.

Eco-Audit Content

Compliance Audit

(1) Document Audit

- Site location
- Type and number of legally designated facilities
- Types of waste
- Energy consumption
- Exhaust and wastewater channels
- Changes in facilities, production processes since the last audit
- Applicable laws and their range
- State of improvement of notifications of deficiencies in previous audit
- State of submission of and changes to legal notifications and reports
- Frequency of measurement, validity and traceability of measured data
- Changes in management personnel due to internal transfers

(2) On-Site Inspections

- Site location and relationship with surrounding sites
- Conformity to statutory facility document audit (type, number, scale, etc.)
- State of management of individual facilities and equipment, existence of abnormalities
- Emergency containment in case of abnormality or emergency
- Site picture taking
- Appropriateness of actual work performed

Operations Audit

PLAN

Validity of policy, targets and action plans

- Consistency with DNP Group policies and targets
- Consistency with action plans and targets
- Implementation system and schedule
- Awareness level of employees

DO

Confirm status of plan implementation and target achievement

- Progress status of plan
- Achievement of targets

CHECK

Status of progress management of plan

- Holding of environment-related meetings
- Content of environment-related meetings

ACT

Status of reviews by term

- Review of previous term results and reflection in plan

Environmental Risk Management

The DNP Group publishes regular Eco-Reports, which cover trends in environmental regulations, and also conducts Eco-Audits to ensure full compliance with all laws and regulations. Our compliance efforts also include the establishment of and strict adherence to our own voluntary standards (air, water, noise, vibration, odor) and voluntary guidelines (chemical substance management, soil contamination measures), which exceed what is legally required.

The DNP Group handles many chemicals in its production processes. We have drawn up a Chemical Substance Management Guide for chemical substance handling, and have set up levees and emergency shutoff systems to prevent liquids from overflowing and installed two-tier holding tanks for the prevention of accidents at plants handling chemicals. We also stock up on materials that can be used during emergencies and hold emergency response drills to ensure the proper response in the event of an occurrence.

• Soil and Groundwater Contamination

The DNP Group conducts soil inspections based upon our voluntary management guidelines. When soil contamination is discovered, we file a report with the office of the governor or mayor in charge of that prefecture or city, and upon receiving instructions from the local authorities, we implement appropriate measures for removing the contamination.

In addition to continuing the purification of pump water at one site in FY2017, we also inspected tanks, waste storage sites and areas for storing equipment that handles waste PCBs to prevent soil contamination.

• PCB Storage

PCBs are currently in storage at 17 sites, with 217 condensers and 19 transformers for a total of 236 units. The PCBs are contained in electrical equipment formerly used in substation facilities at our plants. Fluorescent

lighting ballasts and other equipment containing PCBs have also been placed in storage. Storage consists of special containers in designated storage rooms at each site, managed under the strictest conditions in accordance with applicable regulations to ensure there is no leakage or loss. The PCBs in storage will gradually be disposed of as required by law according to the disposal plans for each region.

• Management of Chemical Substances in Products and Raw Materials

Companies like DNP are being called on to properly ascertain and control the chemical substances contained in raw materials and products in use throughout the supply chain.

DNP has put into operation a management system in accordance with standards issued by JIS and the [JAMP Guidelines for the Management of Chemical Substances in Products](#).

🔍 JAMP (Joint Article Management Promotion-consortium)

This organization promotes cross-industry action aimed at creating and spreading the use of a framework for properly managing information on chemicals contained in products and for easily disclosing and transmitting that information through supply chains.

• Status of Legal Compliance

While we make all efforts to comply with environmental laws and regulations, over the past three years we have experienced four incidents in which air or water quality standards were exceeded and in each case improvement reports were submitted to the government. There are no ongoing legal disputes involving environmental issues. We have unfortunately had some complaints from areas neighboring our plants concerning noise and odors. Whenever we receive such complaints, we respond promptly by launching a thorough investigation into the cause of the problem and by working to make improvements and prevent recurrence.

Occurrences (causes, improvements and recurrence prevention measures)

July 24, 2015
Tanabe Plant, DNP Technopack
Governmental measurement of concentration of volatile organic compounds (VOCs) in exhaust air → Values for VOC concentration exceeded the legal limit, so an improvement report was submitted.

The cause of the problem was found in the equipment that recovers and treats VOCs in exhaust gas. The adsorption ability of the activated carbon that adsorbs the VOCs had deteriorated. To prevent a recurrence, we are changing the operational conditions of the activated carbon regeneration equipment to improve the adsorption ability of the activated carbon, and are periodically monitoring its adsorption ability. After implementation of these steps, we were able to confirm that VOC concentration levels were within standard limits.

November 12, 2015
Chikugo Plant, DNP Technopack
Governmental water analysis → pH measurement values exceeded regulatory standards for draining systems, so an improvement report was submitted.

The cause of excessive pH levels was the failure of the wastewater neutralizing apparatus on the waste heat boiler. To prevent a recurrence, we repaired the controller and alarm device and will conduct periodic inspections. After implementation, we were able to confirm through water quality tests that the values met regulatory standards.

December 22, 2016
Tanabe Plant, DNP Technopack
Governmental water analysis → n-hexane extracted substance content (animal and plant oils and fats) exceeded regulatory standards for draining systems, so an improvement report was submitted.

The likely cause was the discharge of oil content not captured by kitchen grease traps. To prevent a recurrence we reexamined our cleaning procedures. After implementation, we were able to confirm through water quality tests that the values met regulatory standards.

March 5, 2018
Tsuruse Plant, Publication Printing Operations
Official survey of VOC concentrations in exhaust air → VOC concentrations exceeded regulatory standards, and we submitted an improvement report.

It was caused by a decline in the VOC absorption ability of activated carbon used in the VOC recovery and treatment equipment. To prevent a recurrence, we improved VOC removal efficiency by increasing the amount of VOCs absorbed by activated carbon used in the solvent recovery equipment, and are now periodically monitoring the absorption capability of the activated carbon. We have confirmed that VOC concentration levels remain below regulatory standards in the subsequent surveys.

Certification Acquisition Status

The DNP Group has established an independent environmental management system and is pursuing the acquisition of ISO 14001 certification at specific sites, depending on the type of work performed at those sites. (DNP organization names are as of June 30, 2018)

ISO 14001 Certification

Site	Date Registered*1	Registration Organization
Okayama Plant, Imaging Communications Operations	Nov. 1997	JIA-QA
Mihara East Plant, Fine Optronics Operations	Jul. 1998	DNV
Okayama Plant, Living Space Operations	Jul. 2000	JIA-QA
D.T. Fine Electronics*2	Mar. 1997	JACO
Sayama Plant No. 1, DNP Technopack	Dec. 2001	SGS
Tokyo Plant, DNP Fine Chemicals	Jan. 2002	JCQA
Ushiku Plant, DNP Data Techno	Mar. 2002	JIA-QA
Tokai Plant, DNP Technopack	Mar. 2002	SGS
Chikugo Plant, DNP Technopack	Jun. 2002	SGS
Sayama Plant, Imaging Communications Operations	Oct. 2002	JIA-QA
Tokyo Plant, Living Space Operations	Jan. 2004	JIA-QA
Kamifukuoka Plant, Fine Optronics Operations	Mar. 2004	AJA
Itabashi Area, Sales Division 1, DNP Logistics	Oct. 2004	AJA
Tokyo Plant, DNP Ellio	Jan. 2005	LRQA
Osaka Plant, DNP Ellio	Jan. 2005	LRQA
Warabi Plant, DNP Data Techno	Mar. 2005	JIA-QA
Nara Plant, DNP Data Techno	Jun. 2005	JIA-QA
Tien Wah Press (Johor Bahru)	Nov. 2005	TÜV
Kashiwa Plant (incl. Utsunomiya Site), DNP Technopack	Mar. 2006	JACO
Neyagawa Plant (incl. Tanabe Site), DNP Technopack	Mar. 2006	JACO
DNP Photomask Europe S.p.A.	Apr. 2006	CISQ

Site	Date Registered*1	Registration Organization
DNP Fine Chemicals Utsunomiya	Mar. 1997	JCQA
Akabane Area, DNP Logistics	Dec. 2006	AJA
Izumizaki Plant, DNP Technopack	Aug. 2008	SGS
Kasaoka Plant, DNP Fine Chemicals	Jan. 2009	JCQA
DNP Imagingcomm Europe B.V.	Mar. 2009	LRQA
Mihara West Plant, Fine Optronics Operations	May 2009	DNV
Okayama Plant, Fine Optronics Operations	May 2009	DNV
PT DNP Indonesia (Pulogadung/Karawang)	Aug. 2009	AJA
Hokkaido Coca-Cola Bottling	Feb. 2010	JACO
DNP Imagingcomm America Corporation	Jun. 2013	NSF ISR
Kyoto Plant, DNP Data Techno	Dec. 2013	JIA-QA
Hagiwara Plant, DNP Tamura Plastic	Aug. 2000	JAER
Iwata Plant, DNP Tamura Plastic	Aug. 2000	JAER

Eco Action 21 Certification

Site	Date Registered*1	Registration Organization
Tokyo Head Office, DNP Trading	Jan. 2006	IGES

Green Key Certification

Site	Date Registered*1	Registration Organization
Hakone Training Center 2	May 2010	FEE

Registration Organization

JIA-QA

Japan Gas Appliances Inspection Association, QA Center

DNV

Det Norske Veritas AS (Norway)

JACO

Japan Audit and Certification Organization for Environment and Quality

JCQA

Japan Chemical Quality Assurance Ltd.

TÜV

TÜV SÜD Asia Pasific TÜV SÜD Group

AJA

Anglo Japanese American Registrars Ltd.

LRQA

Lloyd's Register Quality Assurance Ltd.

CISQ

Federazione Certificazione Italiana dei Sistemi Qualità Aziendali (Italy)

SGS

SGS Japan

IGES

The Institute for Global Environmental Strategies

FEE

Foundation for Environmental Education

NSF-ISR

NSF International Strategic Registrations

JAER

Japan Automobile Research Institute

*1 Indicates the first registration date.

*2 Kawasaki Plant and Kitakami Plant of D.T. Fine Electronics are registered as a part of Toshiba Electronic Devices & Storage Corporation.

Environmental Education

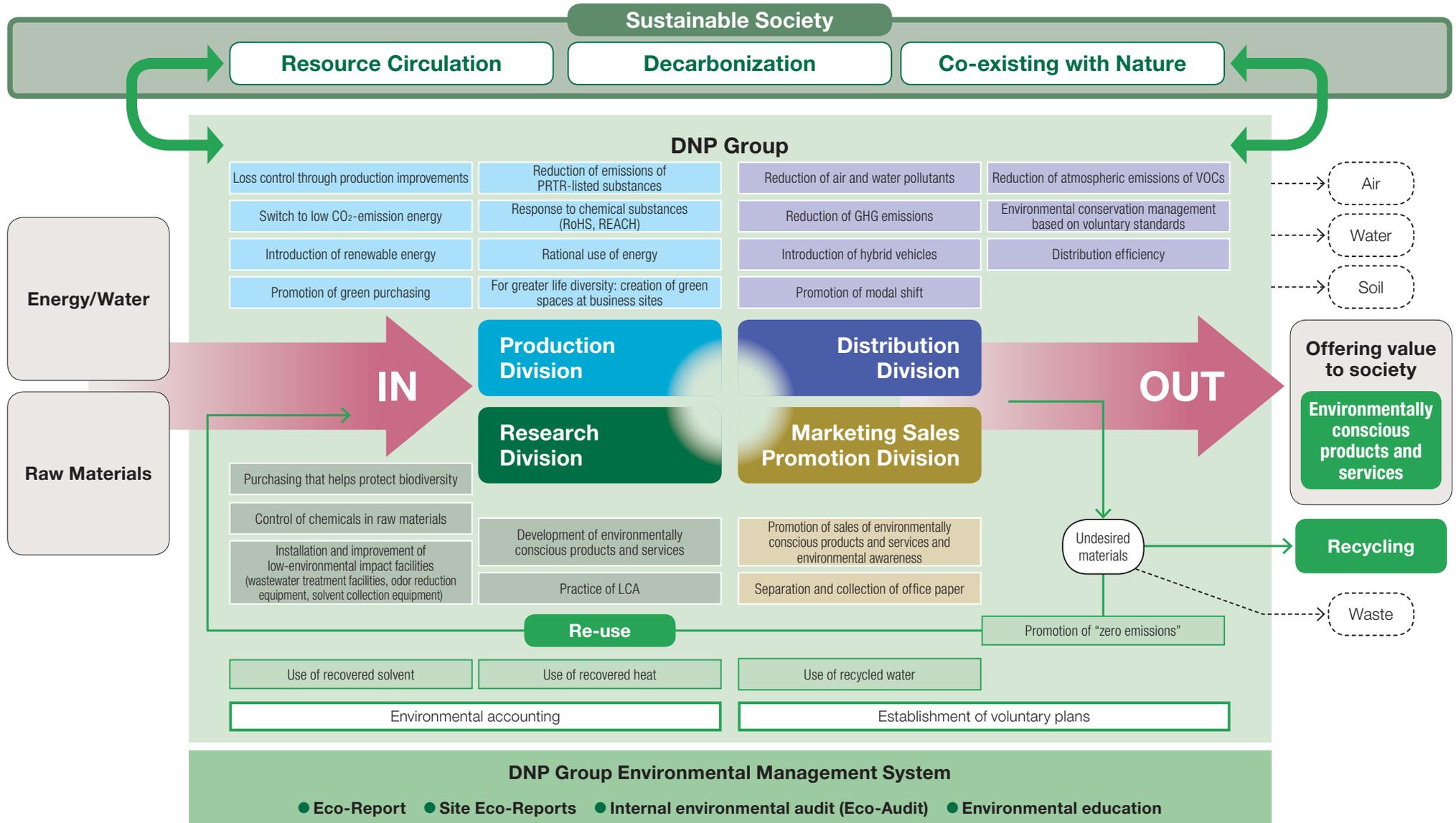
The DNP Group conducts environmental education programs according to level, working group and function concerning the DNP Group's environmental conservation efforts, environmental knowledge, environmental laws and domestic and overseas trends concerning environmental issues. Our goal is for employees to gain the knowledge and management know-how necessary to improving employee environmental conservation consciousness and achieving our environmental goals. A correspondence course is held twice a year for everyone in the DNP Group on ISO 14001, lifecycle assessment (LCA) and other topics.

• Awards System Instituted

In FY2012 we introduced an internal awards system. The awards are presented once a year and are reserved for plants that have made a special contribution through their environmental activities. Such contributions include notable improvements in environmental performance, biodiversity protection activities and renewable energy utilization. Winners are selected not only for specific accomplishments, but also in light of their results in internal environmental audits by meeting voluntary standards for environmental conservation (additional to legal requirements for air and water quality).

Type of Training	Course Name/Description	First Held	Eligibility		Time of Year
Education for New Recruits	Environmental Activity Overall (required) Basic environmental knowledge and conservation efforts of the DNP Group	1994	All new recruits	Total Attendance 8,374 persons	When joining the company
Technical Seminar	Environment/Chemicals (optional) Environmental Laws and Regulations	1999	Technicians	Total Attendance 1,351 persons	Once yearly
Network Learning	Biodiversity	2010	All employees of the DNP Group		At irregular Intervals
Eco-Report Training	Environmental Issues of the Group (required) Domestic and international trends in environmental issues, revisions in environmental laws, degree of achievement of environmental targets, new targets, issues concerning specific sites	1993	Environmental Committee Promotion Office members and site members		Twice yearly on issue of Eco-Report

The DNP Group's Business and Environmental Activities



Environmental Activity Targets and Results

Evaluation criteria ◎ Target exceeded by a wide margin ○ Target achieved or making steady progress toward target △ Making active efforts but target not achieved × Efforts insufficient

Topic	Reference page	Targets through FY2020	FY2017 results		Evaluation
Reduction of GHG emissions	P 20 - 21	To reduce GHG emissions by 10% from the FY2005 levels and 20% by FY2030 (Includes overseas locations)	Emissions in FY2005: 1.110 million tons Emissions in FY2017: 0.892 million tons <input checked="" type="checkbox"/>	19.6% decrease from that in FY2005	◎
Reduction of environmental impact incurred during transport	P 22	To reduce per-unit fuel use for transport by 1% per annum and 10% compared to FY2010	Per unit in FY2010: 16.1 kl/billion yen Per unit in FY2017: 14.7 kl/billion yen <input checked="" type="checkbox"/>	8.7% decrease from that in FY2010	○
Reduction of VOC emissions	P 23	To reduce emissions of VOCs (except for methane) by 35% compared to FY2010	Emissions in FY2010: 6,729 tons Emissions in FY2017: 4,831 tons <input checked="" type="checkbox"/>	28.2% decrease from that in FY2010	○
		Overseas, based on local laws and regulations, we plan to reduce atmospheric emissions of VOCs to the greatest extent possible through the introduction of technologies and other measures	Continue operation of VOC recovery equipment at DNP Indonesia's Karawang Plant		○
Reduction of industrial waste	P 26 - 27	To reduce per-unit waste emissions (waste emissions/production) by 20% compared to FY2010. (Includes overseas locations)	Per unit in FY2010: 42.4 tons/billion yen Per unit in FY2017: 34.3 tons/billion yen <input checked="" type="checkbox"/>	19% decrease from that in FY2010	○
		To maintain zero emissions for the entire DNP Group	Landfill waste rate in FY2015: 0.06% Landfill waste rate in FY2017: 0.04% <input checked="" type="checkbox"/>	Maintained zero emissions	◎
Reduction of water usage	P 28	To reduce per-unit water use by 25% compared to FY2010 (Includes overseas locations)	Per unit in FY2010: 10.8 m ³ /million yen Per unit in FY2017: 7.1 m ³ /million yen <input checked="" type="checkbox"/>	34% decrease from that in FY2010	◎
Development and sales of environmentally conscious products and services	P 29 - 30	Development and sales of environmentally conscious products and services to totaling 600 billion yen	Sales of 570.8 billion yen in FY2015 Sales of 599.3 billion yen in FY2017 <input checked="" type="checkbox"/>	5.0% increase from that in FY2015	○
Environmental conservation	P 12	To keep the maximum concentration of air emissions subject to emissions regulations at 70% of the required standard or less	96% achievement rate of targets for FY2017 (voluntary target)		○
		To keep the maximum concentration of water emissions subject to wastewater regulations at 70% of the required standard or less	99% achievement rate of targets for FY2017 (voluntary target)		○
		To keep the maximum concentration of odors at our site perimeters at 70% of the required standard or less	100% achievement rate of targets for FY2017 (voluntary target)		○
		To keep the maximum level of noise at our site perimeters at 70% of the required standard or less	98% achievement rate of targets for FY2017 (voluntary target)		○
		To keep the maximum level of vibration at our site perimeters at 70% of the required standard or less	100% achievement rate of targets for FY2017 (voluntary target)		○
Office environment	P 28	To increase the rate of the fractional recovery of waste paper to 70% of that for general waste	80.9% recovery of waste paper in FY2017		◎

GHG Emissions Reduction Target of the DNP Group Recognized by the Science Based Targets (SBT) Initiative

DNP recognizes that responding to climate change is the most pressing environmental and social issue. As we virtually achieved our FY2030 GHG emissions reduction target in FY2017, we defined another target that conforms to an international framework. In July 2017, our new FY2030 target was recognized by the international Science Based Targets (SBT) initiative as "science-based" in helping to achieve the goal of the Paris Agreement, which is to keep global warming below two degrees Celsius. DNP will continue to augment its GHG emissions reduction activities by saving energy and introducing energy-saving facilities.

FY2030 GHG emissions reduction target of the DNP Group: Reduce GHG emissions by 25% from the FY2015 level

With regard to our Scope 3 emissions, we will work to reduce our total GHG emissions throughout our supply chain by encouraging our key suppliers to receive the SBT initiative's approval by 2025.



DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Current Status of Environmental Impact

Main raw materials (Unit: 1,000 tons)

	2016	☑ 2017	
Paper	1,565.5	1,468.6	(6.2% decrease)
Film	151.8	158.1	(4.2% increase)
Plastic	110.1	119.4	(8.4% increase)
Metal	45.2	50.5	(11.7% increase)
Ink	102.5	107.5	(4.9% increase)
Others	92.3	94.7	(2.6% increase)

Main secondary materials (Unit: 1,000 tons)★

	2016	☑ 2017	
Solvent	28.3	28.9	(2.1% increase)
Acid and alkaline	8.1	9.4	(16.0% increase)

Utilities

	2016	☑ 2017	
Electricity (million kWh)	1,463.4	1,386.0	(5.3% decrease)
City gas (million Nm ³)	69.6	72.3	(3.9% increase)
LNG (million kg)	20.4	20.6	(1.0% increase)
LPG (million kg)	8.3	7.9	(4.8% decrease)
Fuel oil (kl)	500	500	(-)
Steam (TJ)	300	100	(66.7% decrease)
Kerosene (kl)	1,200	1,300	(8.3% increase)
Water (million m ³)	11.6	10.1	(12.9% decrease)

Product Manufacturing Process

Information Communication

Books and magazines, commercial printing, business forms, etc.

Lifestyle and Industrial Supplies

Packaging, decorative materials, industrial supplies, etc.

Electronics

Displays, electronic devices, etc.

Other

Ink, beverages, etc.

Current Status of Recycling in the DNP Group★

	2016	2017
Recycled solvent (1,000 tons)	6.9	6.6
Usage ratio *1	1.2	1.2
Recycled acid and alkaline (1,000 tons)	6.0	7.4
Usage ratio	1.7	1.8
Recycled water (million m ³)	366.27	303.29
Usage ratio	34.3	32.7
Vapor generated from waste heat recovery (tons)	171,000	165,000

*1 **Usage Ratio:** This is a calculation of (input+recovery and recycling)/input. It does not include vapor or solvent in ink.

*2 **GHG:** Greenhouse Gases
Emissions from the use of electricity were recalculated to include past years using the FEPC's FY2005 coefficient.

*3 Water discharge channels to which the Water Pollution Control Act applies

★ Scope limited to within Japan only

Emissions into the air

	2016	☑ 2017	
GHG*2 emissions (1,000 tons-CO ₂)	929	892	(4.0% decrease)
NOx emissions (tons)★	600	565	(5.9% decrease)
SOx emissions (tons)★	6.4	5.4	(15.6% decrease)
Atmospheric emissions of VOCs (tons)	13,633	15,422	(13.1% increase)

Emissions into bodies of water

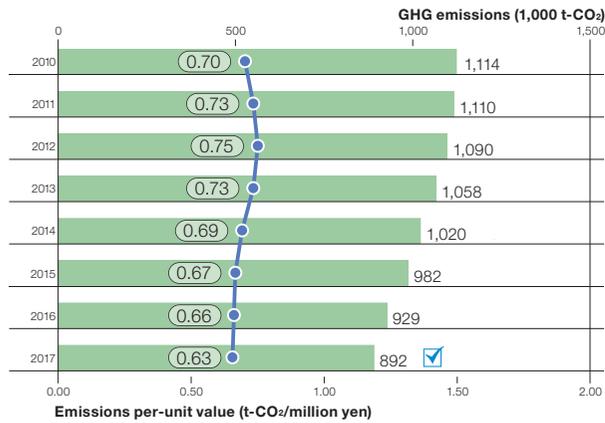
	2016	☑ 2017	
Water discharged (million m ³)	9.0	8.0	(11.0% decrease)
COD emissions (tons)★	33.7	28.0	(17.0% decrease)
Nitrogen emissions (tons)★	6.3	5.7	(9.5% decrease)
Phosphoric emissions (tons)★	0.4	0.3	(25.0% decrease)

Undesired materials generated (Unit: 1,000 tons)

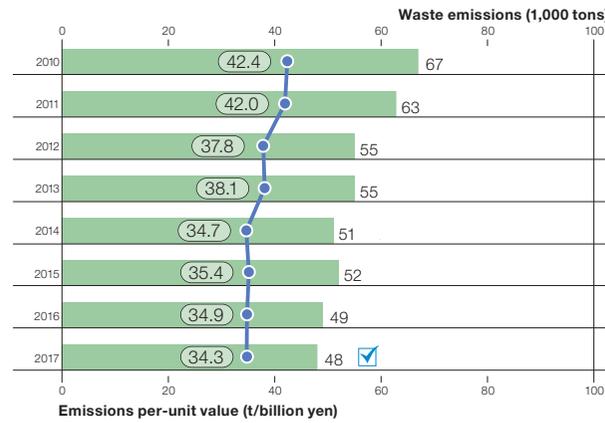
	2016	☑ 2017	
Total amount of undesired materials	322	309	(4.0% decrease)
Waste emissions	49.2	48.4	(1.6% decrease)
Landfill waste amount	4.7	3.8	(19.1% decrease)

Environmental Impact and Environmental Efficiency

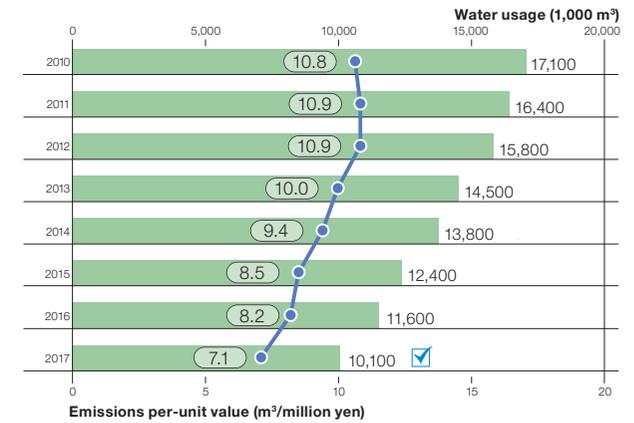
DNP Group's GHG emissions (including overseas operations)



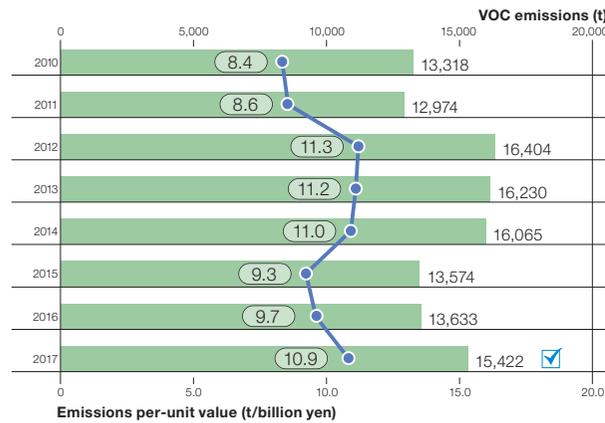
DNP Group's waste emissions (including overseas operations)



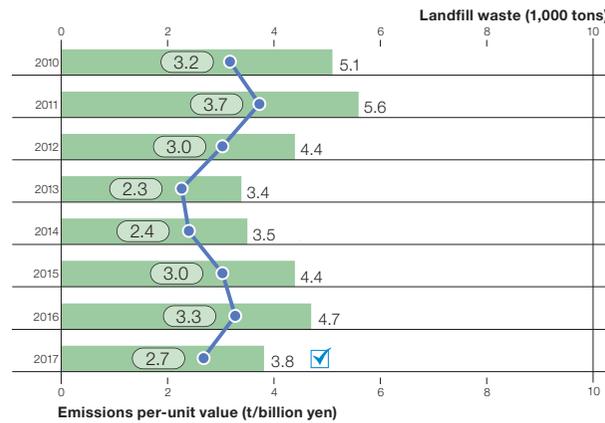
DNP Group's water usage (including overseas operations)



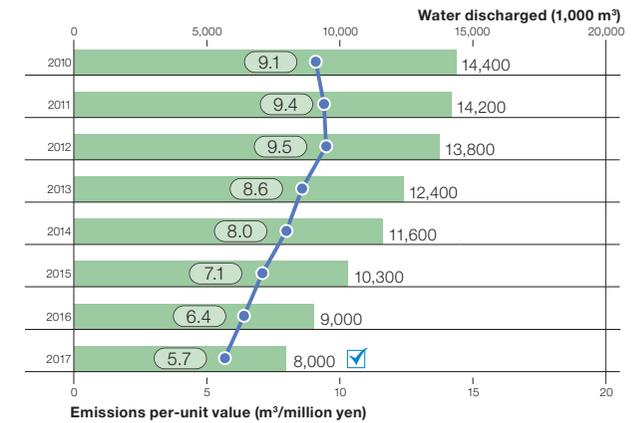
DNP Group's VOC emissions (including overseas operations)



DNP Group's landfill waste (including overseas operations)



DNP Group's water discharged (including overseas operations)



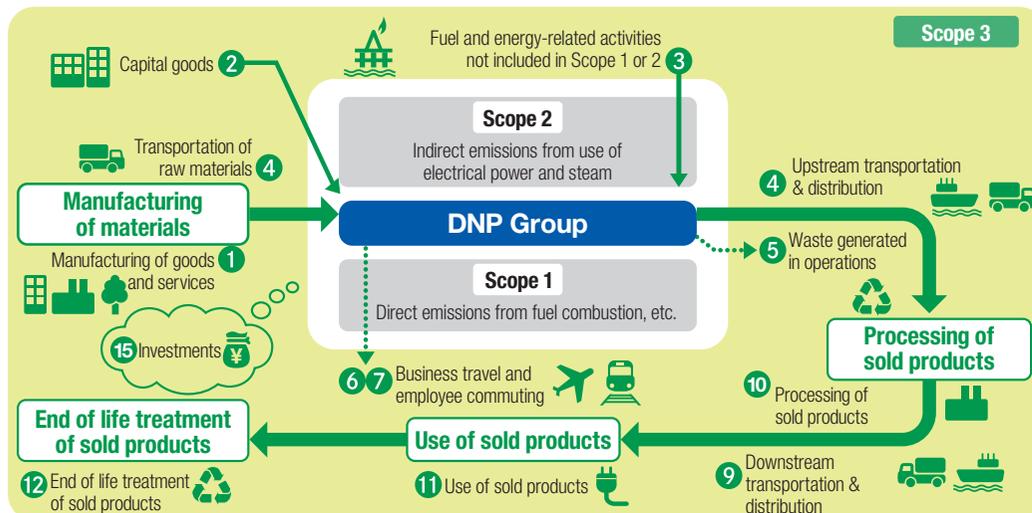
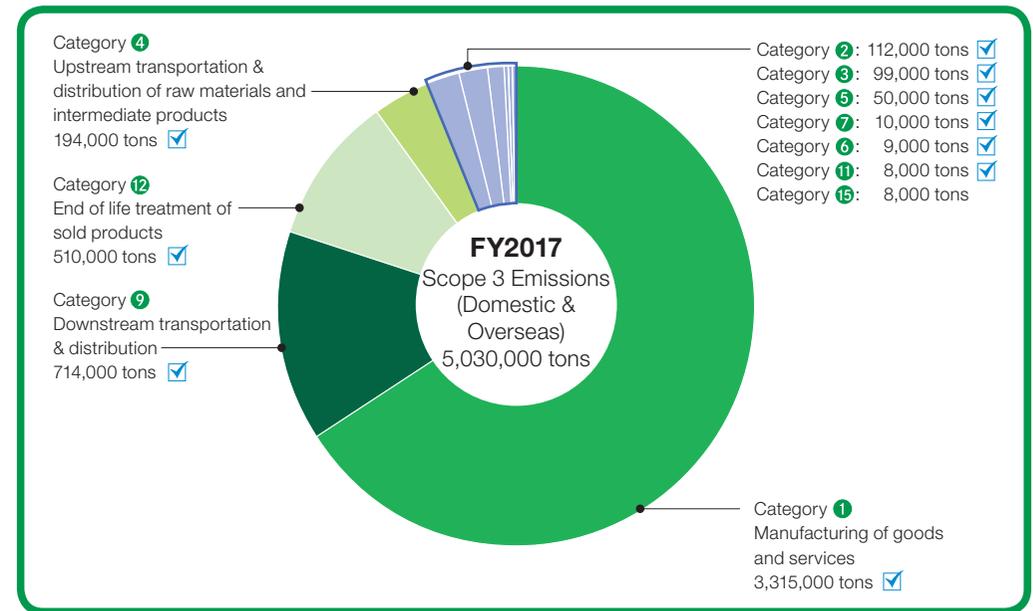
Efforts to Reduce GHG Emissions Across the Entire DNP Group Supply Chain

Greenhouse gas (GHG) emissions are one cause of global warming. The DNP Group is taking active steps to reduce GHG emissions on a global scale.

In developing environmentally conscious products, we consider it vital to reduce GHG emissions in the overall lifecycle of a product. We therefore calculate GHG emissions across our entire supply chain including main overseas sites (Scope 3), not only at the stage of manufacturing but also including indirect emissions.

The Scope 3 emissions for FY2017 stood at 5.03 million t-CO₂ and break down as follows: “Manufacturing of goods and services” (Category 1) at 66%, which accounted for the largest portion; “Downstream transportation & distribution (finished products)” (Category 9) at 14%; “End of life treatment of sold products” (Category 12) at 10%; “Upstream transportation & distribution of raw materials and intermediate products” (Category 4*1) at 4%. These four categories together accounted for 94% of the total.

We will continue to promote the reduction of emissions across our entire supply chain in the future based on these results.



Calculation Method

The Ministry of Economy, Trade and Industry (METI) and the Ministry of the Environment (MOE) formulated and released the “General Guidelines on Supply Chain GHG Emission Accounting, Ver 2.2”^{*2} the standards of which our calculations are based upon. (Of the 15 Scope 3 categories, Categories 8, 10, 13 and 14 were not applicable.)

^{*1} Scope 1 emissions attributable to transportation and distribution carried out by group companies were included under Category 4.

^{*2} Main DNP business sites in Japan were set as the scope of calculations (excluding Hokkaido Coca-Cola Products and the Bookstore Group among others), in addition to key overseas sites (PT DNP Indonesia, DNP Imagingcomm America Corporation, DNP Imagingcomm Asia Sdn. Bhd. and Tien Wah Press (Pte.) Ltd.).

In addition, the unit values database used for our calculations can be viewed on the MOE’s Green Value Chain Platform.

(http://www.env.go.jp/earth/ondanka/supply_chain/gvc/business/estimate.html) (in Japanese)

1 Achieving a Low-Carbon Society

GHG Emissions Reduction

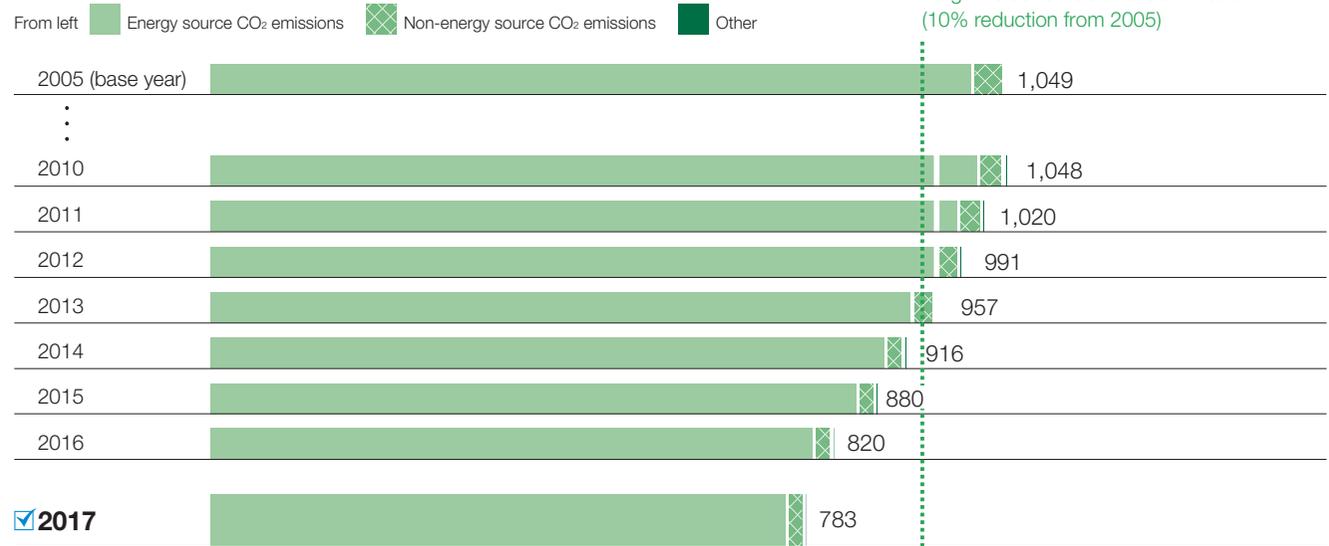
Important steps that the DNP Group has taken leading to a low-carbon society include reducing the consumption of forms of energy that generate CO₂ (energy conservation), switching to low CO₂-emission fuels and introducing renewable energy sources.

• Reducing Consumption of CO₂-Generating Energy

The DNP Group's overall GHG emissions in FY2017 totaled 783,000 tons. This breaks down as follows: energy source CO₂ emissions, 762,000 tons; non-energy source CO₂ emissions, 20,700 tons; methane converted to CO₂ emissions equivalent, 35 tons; and N₂O emissions, 444 tons. There were no emissions of hydrofluorocarbons (HFCs), 33 tons of perfluorocarbons (PFCs) and 1 ton of sulfur hexafluoride (SF₆) and 25 tons of nitrogen trifluoride (NF₃).

In FY2017, our main efforts to reduce CO₂ emissions included conserving energy used for air conditioning and power, improving production line operations, efficient heating units, etc. Energy conservation subcommittees adapted to the characteristics of each business area were also formed. In FY2018, we will continue our aggressive efforts to limit GHG emissions by continuing with the switch to low CO₂-emission fuels, introducing energy-saving equipment such as inverters, efficient air conditioners and heating units, and improving production efficiency.

Unit GHG emissions (Unit: 1,000 tons-CO₂)



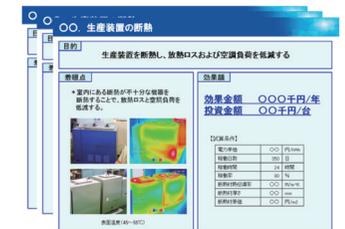
GHG emissions volume The calculation of GHG emissions at domestic production sites due to electricity use, fuel use/combustion, burning of waste and atmospheric emissions of HFCs/PFCs/SF₆/NF₃ is performed according to type of energy. For city gas, the computation is performed according to the quantity of heat in Appendix 4, "List of City Gas Suppliers and Supplied Quantity of Heat" (revised April 15, 2013) of the Requirements for Filling Out Periodic Reports Based on Articles 15 and 19-2 of the Act on the Rational Use of Energy. For other types of energy, the calculation is performed using the calorific value and emission factors contained in the revised Act on Promotion Global Warming Countermeasures (an enforcement ordinance published March 31, 2010 by the Ministry of the Environment and Ministry of Economy, Trade and Industry). Additionally, for electricity emission factors, the FEPC's 2005 point-of-use CO₂ emissions unit value of 0.423 (kg-CO₂/kWh) was used uniformly. Also, the Guideline for Greenhouse Gas Emissions Calculation for Businesses (Draft Ver.1.6) (July 28, 2005, partially revised; Ministry of the Environment) is used for recalculating the base year GHG emissions due to the change in our aggregate accounting range resulting from M&As. The 2005 (base year) figure in the graph above is the sum of FY2005 domestic production site emissions and FY2009 non-production site emissions. Furthermore, Scope 1 emissions attributable to transportation and distribution carried out by group companies are not included.

Energy Conservation Subcommittee Activities

To promote energy conservation throughout DNP, we carry out subcommittee activities with a focus on implementing energy-saving measures in our plants. In the Information Communication segment, we changed the methods to control air conditioner fans and cold water pumps (switching from valves to inverters for flow adjustment) and reduced the amount of power necessary to drive these fans and pumps. In the Lifestyle and Industrial Supplies segment, we started operating the deodorizing equipment used for combustion treatment of drying exhaust gas from gravure printing machines in a coordinated manner with production equipment and successfully reduced the power required to drive exhaust fans, and consequently, fuel usage. In the Electronics segment, we also cut our fuel usage by optimizing the exhaust gas treatment conditions of deodorizing equipment. To achieve further energy savings, we have started verifying energy conservation measures that use Internet of Things (IoT) technology. We also created an Energy Saving Casebook, a collection of energy-saving measures, and distributed it to all plants for sharing relevant information. Additionally, during the printing training held at the Tsukuba Printing Operations Training Center for personnel of manufacturing and back-office departments, we provided a lecture on how to conduct air leakage diagnosis as an effort to support energy-saving activities undertaken by our plants.



Lecture on energy savings during the training on printing



Energy Saving Casebook

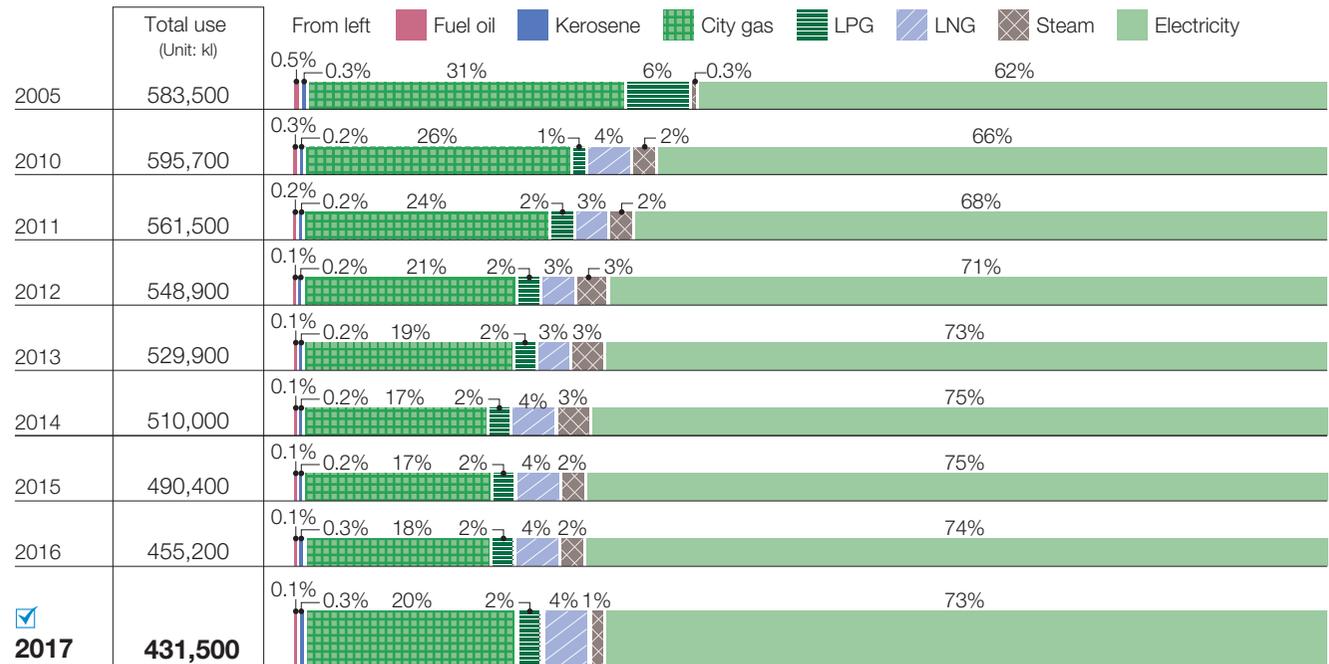
• Shift to Energy with Lower CO₂ Emissions

The DNP Group is making progress in the switch to low CO₂-emission fuels to reduce GHG emissions.

We have been making the switch from diesel, kerosene and similar high CO₂-emission petroleum fuels into low CO₂-emission city gas, LPG (liquefied petroleum gas) and LNG (liquefied natural gas) since before 1990, and plan to continue to do so.

We are also moving ahead with renewable energy. DNP High-performance Materials' Izumizaki Plant installed a solar power generation system in 2009, while in FY2011 DNP Ichigaya Kagacho No. 2 Building and Tanabe Plant, DNP Technopack each installed solar systems with respective capacities of about 30 kW. Furthermore a 10 kW solar system has been installed at the DNP Ichigayatamachi Building, and in FY2015, systems were installed at the DNP Ichigaya Kagacho Building (36 kW), DNP Ichigayatakashomachi Building (24 kW) and Sayama Plant (6 kW). We also currently purchase 1.75 million kWh of Renewable Energy Certificates annually to cover part of the power consumption used by manufacturing processes within the Group (for printing, bookbinding and processing) and other facilities.

Fuel composition



Note: Gasoline and diesel fuel for automobile use are also used (less than 0.2%) in addition to these fuels above.

• Initiative at the DNP Living Space Operations (Tokyo and Okayama)

Renewed Chillers and Other Equipment by Using Government Subsidy Program (Tokyo and Okayama Plants, DNP Living Space Operations)

Masato Yoshikawa (left)

Tokyo Equipment Group, No. 2 Engineering Department, Manufacturing Division, Living Space Operations

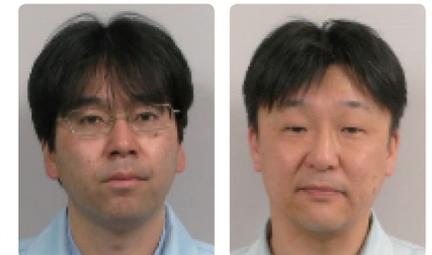
Seitaro Nakao (right)

Okayama Equipment Group, Group, No. 2 Engineering Department, Manufacturing Division, Living Space Operations

The Tokyo and Okayama Plants of the DNP Living Space Operations engage in production of components and materials used in people's living spaces, including wall and floor coverings. The

Plant	Equipment renewed
Tokyo	Air conditioner: 24
	Chiller : 1
	Mercury light replaced with LED lighting: 107
Okayama	Air conditioner: 6
	Chiller: 6
	Centrifugal chiller: 1

two plants cooperated to reduce energy and replaced their chillers and heat source equipment by using ASSET (Advanced technologies promotion Subsidy Scheme with Emission reduction Targets), a subsidy program of the Ministry of the Environment designed to aid introduction of advanced equipment that can reduce CO₂ emissions. At both plants, chillers that consume a large amount of energy as well as air conditioners and lighting fixtures were replaced with the latest, energy-efficient models. As a result, the Tokyo Plant and Okayama Plant successfully reduced their annual electricity consumptions by 400 MWh and 70 MWh, respectively. The Okayama Plant also cut its annual fuel (LPG) consumption by 110 tons. We will continue to promote our plan to replace facilities, mainly aging ones, with the latest models.



1 Achieving a Low-Carbon Society

Anti-Global Warming Measures in Transport and at Our Offices

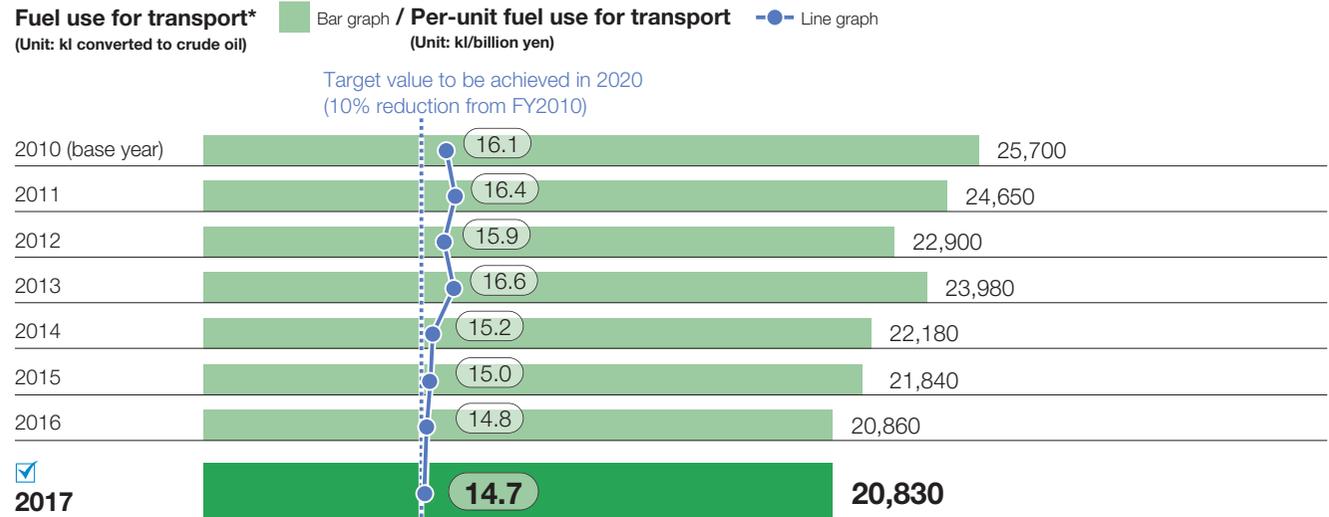
• Efforts in Transport

In FY2017, the Group's overall transport volume (at domestic manufacturing sites) was 338 million ton-kilometers. A total of 20,830 kiloliters of energy (converted to crude oil) was used in shipping, producing 51,700 tons of CO₂ emissions. Additionally, emissions attributable to transportation and distribution carried out by Group companies (Scope 1) came to 2,500 tons. The per-unit fuel use for transport (amount of fuel used/sales) was 14.7 kl/billion yen, a decrease of 8.7% from FY2010.

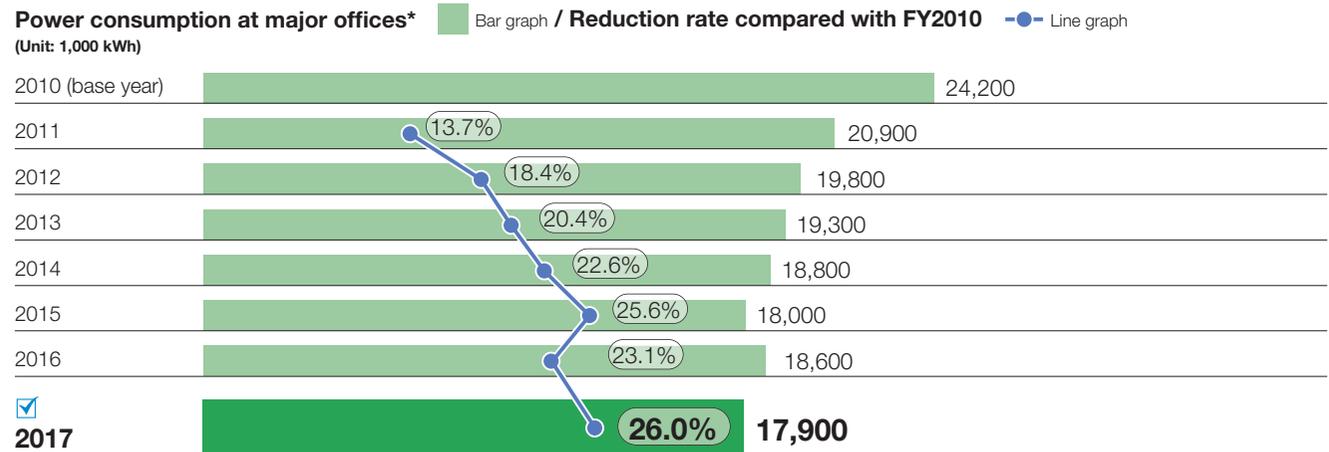
We will continue to implement distribution-related environmental impact reduction measures such as the optimization of vehicle distribution and transport routes, improved efficiency through the installation of digital tachometers, an idling-stop campaign, a modal shift to rail transport and the introduction of hybrid vehicles.

• Global Warming Measures for Offices

The DNP Group has been engaged in efforts to reduce CO₂ emissions for offices since FY2005. In FY2011, we established a target of a 20% reduction in power consumed at our offices throughout Japan compared with FY2010. Specific actions that we are implementing, beyond regular energy-saving measures, include completely revising the number of lighting fixtures and level of illumination needed, extending the "cool biz" dress code period, reviewing how air conditioning is run and expanding the use of LED lighting.



*Amount used for domestic cargo transport



*38 major offices in Japan under continuous operation during the period FY2010–FY2017

2

For Reduction of Environmental Pollutants

Reducing Air Pollutants

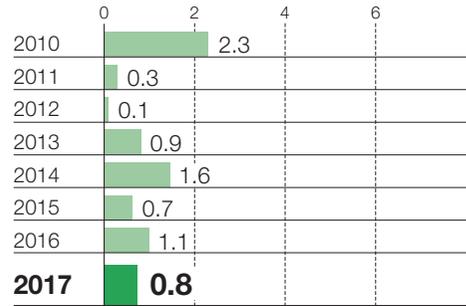
The Air Pollution Control Act regulates substances such as toxic air pollutants and ozone depleting substances, including sulfur oxides (SOx) and nitrogen oxides (NOx), as well as volatile organic compounds (VOCs). These substances have an impact on health and the global environment, causing problems such as photochemical smog and ozone layer depletion. We at the DNP Group are working hard to monitor and reduce emissions of such substances.

• Reducing VOC Emissions

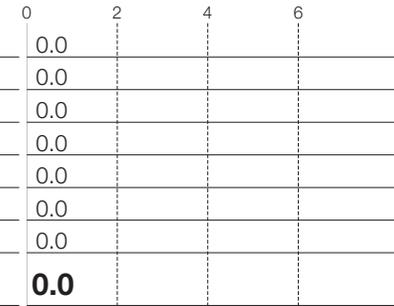
Inks, solvents, adhesives and cleaning solutions used in the printing process contain toluene and other VOCs. The DNP Group's anti-VOC measures not only seek to regulate concentrations as required under the Air Pollution Control Act, but also to reduce emissions overall. We have been switching to substitute products with a lower environmental impact and installing equipment for VOC treatment and collection. In FY2017, these efforts have resulted in a 28.2% reduction in VOC emissions to 4,831 tons compared with FY2010 (base year).

Air pollutant emissions

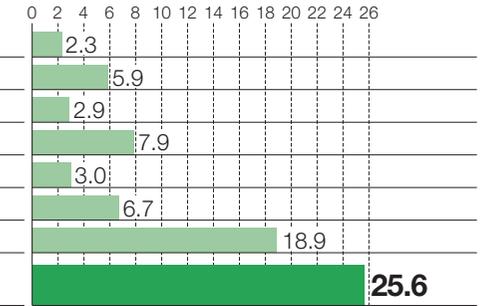
Dichloromethane (Unit: tons)



Chlorofluorocarbons (Unit: tons)



Dioxins and dioxin-like compounds (Unit: mg-TEQ)



Although dichloromethane was mainly used for washing in the printing process, we have pursued a switchover to substitutes. At present a certain amount is used as a solvent. Our atmospheric emissions have fallen from 53 tons in FY2001 to 0.8 tons in FY2017. The emission data in FY2013 and 2014 were corrected on October 25, 2018 due to an error of calculation.

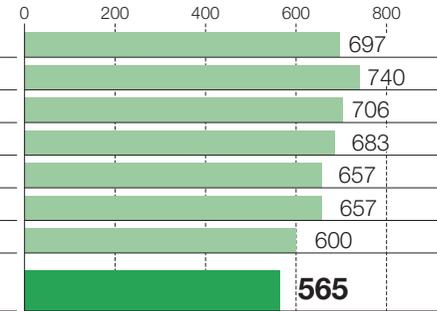
The ozone-depleting chemical HCFC-141b (1,1-dichloro-1-fluoroethane) is used as a cleaner, but our switch to substitutes in FY2010 caused emissions to drop to zero.

We totally eliminated small furnaces, for which burning control is difficult, and currently have five large-scale furnaces in operation, which are compliant with 2002 regulations. Atmospheric emissions in FY2017 amounted to 25.6 mg-TEQ.

SOx (Unit: tons)



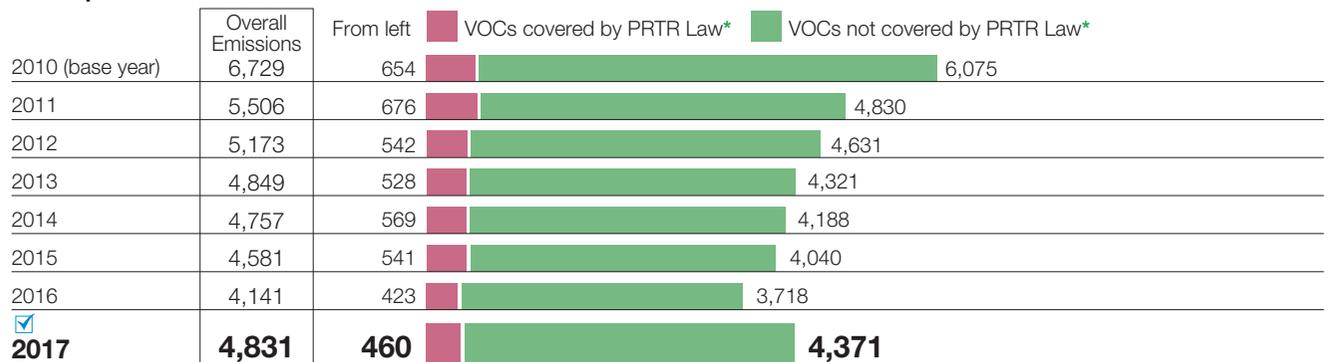
NOx (Unit: tons)



Sulfur oxide is emitted through burning high-sulfur fuel oil and kerosene.

Nitrogen oxide is emitted when fuel is burned in production processes or when electric power is consumed.

Atmospheric emissions of VOCs (Unit: tons)



*PRTR Law: Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

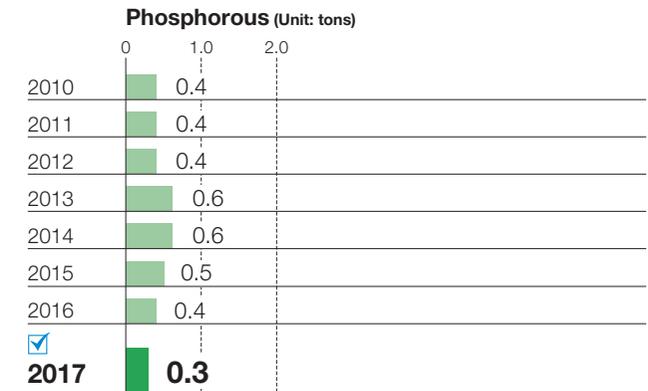
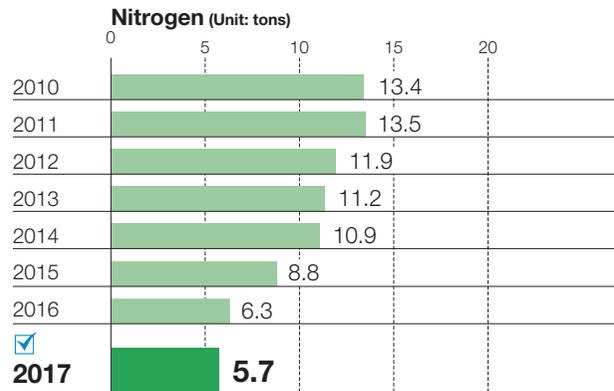
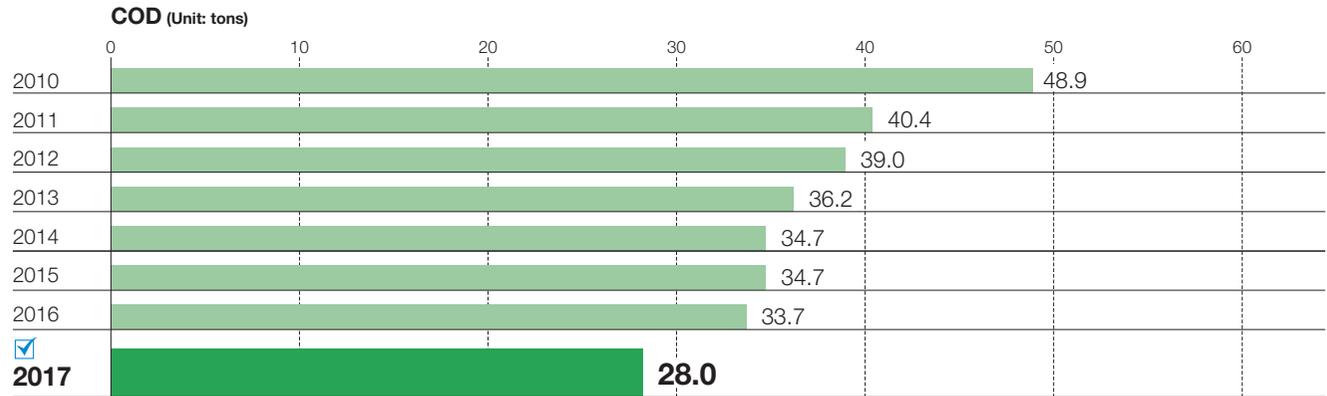
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For Reduction of Environmental Pollutants

Reducing Water Pollutants

We detoxify and reduce the pollution load of the wastewater from our industrial processes and dining halls by using purification tanks and wastewater treatment equipment. We continued to conduct measures in FY2017, such as changing out the filtration membranes and absorbent materials in wastewater processing equipment, improving wastewater treatment in our kitchens, and reducing chemical oxygen demand (COD), nitrogen and phosphorous emissions.

Water pollutant emissions



2

For Reduction of Environmental Pollutants

Chemical Substances Subject to the PRTR Law

(Unit: kg, Dioxin and dioxin-like compounds only: mg-TEQ)

Annual amounts of chemical substances handled at each plant above the defined reporting levels set by the PRTR Law are tallied here (amounts listed to 2 significant figures, or to the nearest 0.1 for figures under 1).

Substance	Handled	Consumed	Removed/ consumed	Recycled	To atmo- sphere	Public waterways	Soil	Sewer	Waste
2-Hydroxyethyl acrylate	3,200	—	2,100	650	440	—	—	—	—
Acetonitrile	4,100	—	240	—	40	—	—	—	3,800
2-aminoethanol	27,000	—	—	—	—	—	—	16,000	11,000
Antimony and its compounds	1,300	1,000	—	270	—	—	—	—	—
Indium and its compounds	5,800	1,300	—	4,400	—	—	—	—	130
Ethylbenzene	200,000	—	130,000	60,000	2,300	—	—	—	2,600
Ethylenediamine	1,200	590	—	—	—	—	—	—	590
Ferric chloride	3,000,000	620,000	620,000	1,600,000	—	—	—	—	180,000
Epsilon-caprolactam	5,700	3,200	1,600	—	92	—	—	—	780
Xylene	190,000	—	120,000	44,000	1,900	—	—	—	22,000
Chromium and chromium (III) compounds	32,000	9,900	26	9,900	—	—	—	4.5	12,000
Hexavalent chromium compounds	13,000	6,300	6,500	—	—	—	—	0.1	260
Inorganic cyanide compounds (except complex salts and cyanate)	3,300	—	400	—	460	—	—	—	2,400
Dichloromethane	2,500	—	—	—	830	—	—	—	1,700
N,N-dimethylformamide	82,000	—	5,300	17,000	410	—	—	—	59,000
Bromine	3,100	3,100	0.9	—	8.6	—	—	—	—
Dioxins and dioxin-like compounds	—	—	—	—	26	—	—	—	160
Water soluble copper salts (except complex salts)	240,000	48,000	18,000	170,000	—	—	—	1.1	750
Sodium dodecyl sulfate	1,100	1,000	—	—	—	—	—	—	58
Triethylamine	3,200	—	1.7	390	14	—	—	—	2,800
1,2,4-trimethylbenzene	30,000	—	17,000	13,000	310	—	—	—	—
1,3,5-trimethylbenzene	7,800	—	5,300	2,300	91	—	—	—	160
Toluene	10,000,000	1,900,000	6,100,000	1,100,000	450,000	—	—	—	680,000
Naphthalene	17,000	—	16,000	1,600	89	—	—	—	73
Hexamethylene diacrylate	2,600	2,000	—	520	—	—	—	—	—
Nickel	38,000	25,000	2,200	11,000	—	—	—	—	—
Nickel compounds	13,000	810	—	2,200	—	—	—	—	9,700
Hydrazine	1,200	1,100	—	15	—	—	—	—	44
Bis (2-ethylhexyl) phthalate	1,200	1,000	—	—	—	—	—	—	170
N-hexane	6,600	—	390	—	66	—	—	—	6,100
1,2,4-benzenetricarboxylic acid 1,2-anhydride	1,900	1,700	—	—	—	—	—	—	290
Benzophenone	1,600	1,600	—	—	—	—	—	—	—
Boron compound	1,200	—	—	140	—	—	—	—	1,100
Poly (oxyethylene) alkyl ether*	1,300	1,200	—	—	—	—	—	—	11
Formaldehyde	1,300	—	—	—	1,300	—	—	—	—
Manganese and its compounds	3,500	930	—	590	—	—	—	51	2,000
Methacrylic acid	20,000	20,000	—	—	—	—	—	—	—
n-Butyl methacrylate	4,400	4,400	—	—	—	—	—	—	—
Methyl methacrylate	35,000	35,000	—	—	—	—	—	—	—
Methylenebis (4,1-phenylene) diisocyanate	2,000	2,000	—	—	—	—	—	—	—
<input checked="" type="checkbox"/> PRTR-listed substances	14,000,000	2,700,000	7,000,000	3,000,000	460,000	—	—	16,000	1,000,000

*Limited to alkyls of carbon 12 through 15 or their compounds

3 Building a Recycling Society

Reducing Waste Products in Manufacturing Processes

To help build recycling into society we are engaged in efforts to improve resource productivity and increase the recycling of undesired materials. These efforts are premised on the waste-free use of raw materials that go into manufacturing processes. Undesired materials are recycled as much as possible to utilize limited resources efficiently.

We use waste per unit of production (waste emissions (E+F [next page])/production volume) as a productivity indicator. In FY2017 waste per unit of production was 30.7 t/billion yen (domestic waste emissions/production), which is an improvement over 40.8 t/billion yen in FY2010. This reduction was achieved in part thanks to activities which set out to create a resilient production system in terms of quality, cost, delivery and other factors. It was also the result of a reduction in waste volume through the extraction of valuable materials such as waste plastic and waste oil.

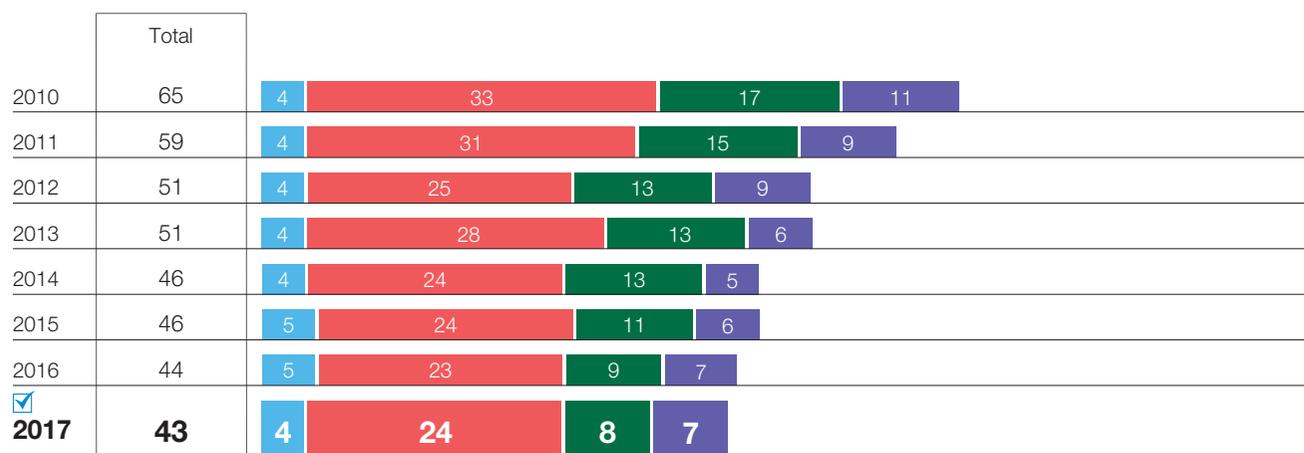
We use “zero emissions” as the indicator for the promotion of recycling undesired materials. Zero emissions represents an effort to reduce the landfill waste amount (J+K [next page])/undesired materials production volume A [next page] to 0.5% or less; the rate for the Group overall in FY2017 was 0.04%, maintaining zero emissions. One of our domestic manufacturing sites did not achieve zero emissions.

From left ■ Information Communication ■ Lifestyle and Industrial Supplies ■ Electronics ■ Other

Undesired material generation (Unit: 1,000 tons)



Waste emissions (Unit: 1,000 tons)



3 Building a Recycling Society

Breakdown of Generated Waste Volume

Mihara East Plant DNP Fine Optronics

Tetsuo Nishida
Okayama General Affairs Section, General Affairs
Department

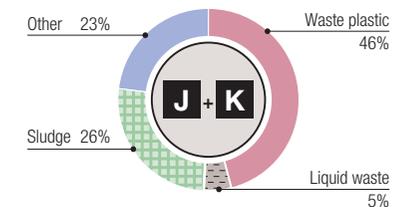
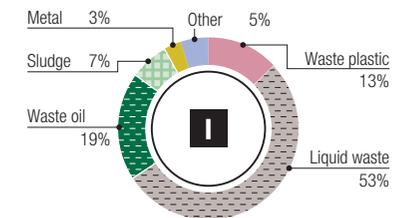
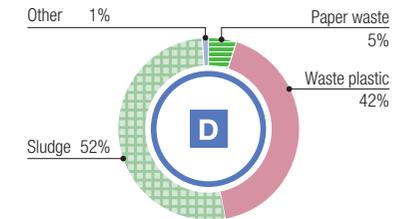
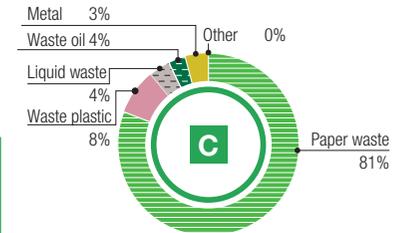
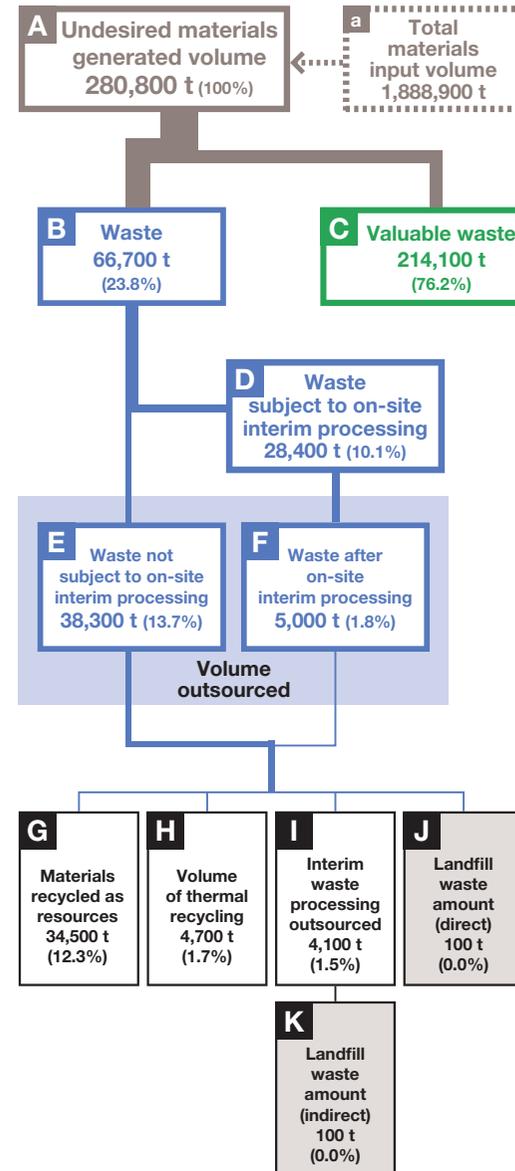
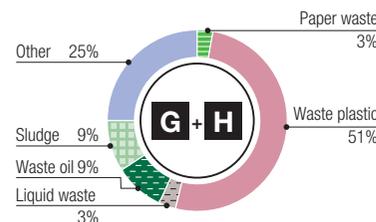
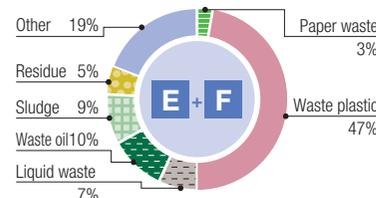
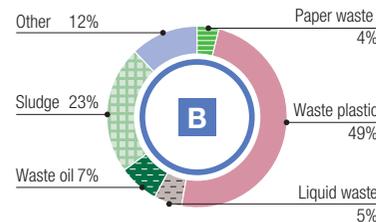
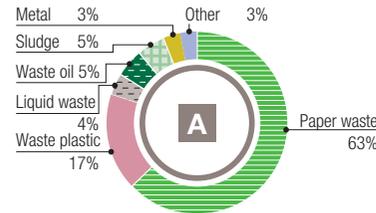


The Mihara East Plant manufactures various products, including metal masks used for making OLED displays, color filters used in liquid crystal displays, large-size photomasks and louvers for automobiles. Many of these products are manufactured by creating a photosensitive layer on a substrate and by applying lithographic exposure and washing. Liquid waste from the process accounts for about 40% of the plant's total waste.

In FY2017, we conducted activities with a focus on reducing this liquid waste. For some color filter products, wastewater generated in their washing process had exceeded the treatment capability of our wastewater treatment facilities and had been disposed of as waste. To make it possible to treat the wastewater in these facilities, engineering, manufacturing and facility management departments worked as a team and repeatedly examined and tested manufacturing conditions and wastewater treatment methods. As a result, our facilities can now treat the wastewater to a level suitable for release into rivers.

In FY2017, this initiative resulted in a wastewater reduction of some 990 tons as well as a 44% reduction in per-unit waste emissions from the FY2015 level and made a significant contribution toward the achievement of our FY2020 target.

We will continue to implement effective measures through collaboration among departments and carry out similar reduction activities.



3 Building a Recycling Society

Use of Recycled Resources

• Office Paper Recycling

The business of the DNP Group is closely connected to paper, and we have been separating and collecting paper at our offices for some time. In FY2017, waste paper was collected at 55 of 168 eligible offices, primarily large-scale offices, for a recycling rate of 80.9%, exceeding our target of 70%.

• Reducing Volume of Water Used

The DNP Group strives to reduce its water consumption by conserving water, reducing the amount of water supplied to utility systems and increasing the use of recycled water. In the Electronics and Other segments that require a large amount of water, we are making particular efforts to reduce consumption, such as optimizing the amount of water used in manufacturing processes, refining each process, installing water meters to eliminate loss as well as increasing the recovery and reuse of water. In FY2017, the amount of water used in Japan was 9.6 million m³, a reduction of 1.4 million m³ from the previous fiscal year.

• Use of Recycled Water

We are working hard to conserve water resources by promoting a closed-loop system in which water is recycled and reused instead of released. In this way we have been able to cut down on the high volume of water required for cleaning our products, air conditioning, and heating and cooling production machinery. We used 303.3 million m³ of recycled water in FY2017, about 32.7 times the amount of pipe water we used.

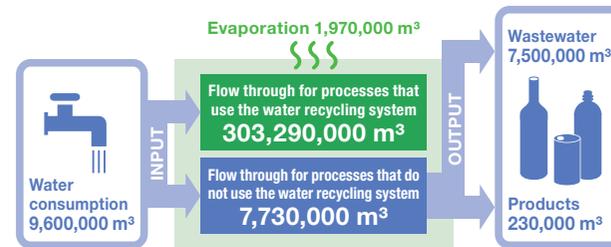
We are also making effective use of rainwater in our office buildings and other sites. In FY2017 we used 18,500 m³ of rainwater for toilet flushing and the watering of grounds.



Waste paper collection:

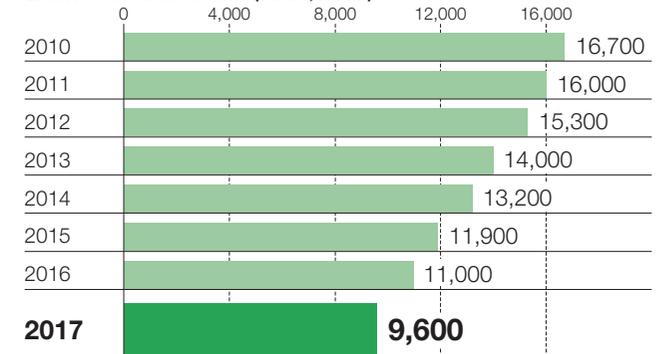
Waste paper collection / (waste paper collection + general waste amount (excluding cans, bottles and garbage)) × 100

Water Input-Output

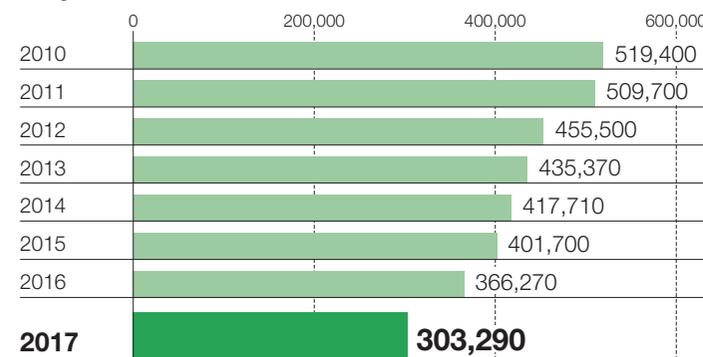


Note: Hokkaido Coca-Cola Bottling and DNP Fine Chemicals use water in products.

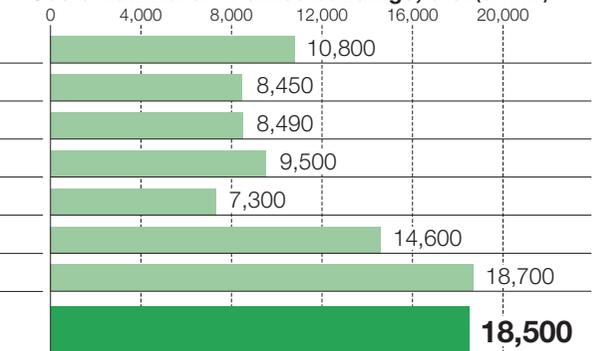
Domestic water use (Unit: 1,000 m³)



Recycled water use (Unit: 1,000 m³)



Use of rainwater in office buildings, etc. (Unit: m³)



Recycled water: Total volume of water that flows through the heat exchange or cleaning equipment in our closed-cycle system in one year

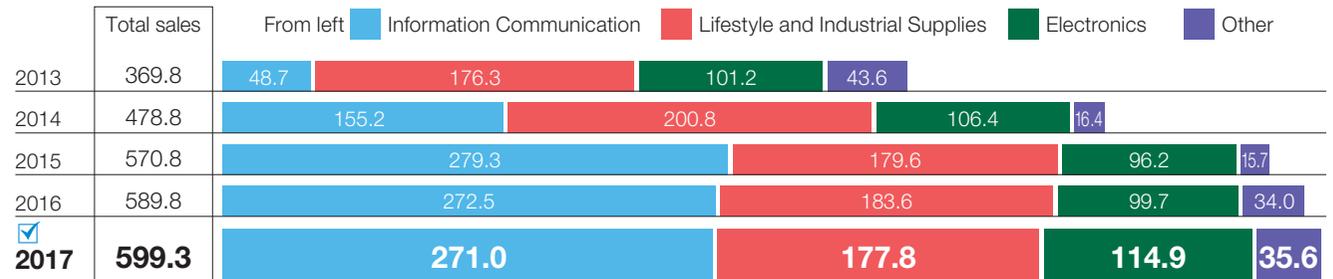
Development and Sales of Environmentally Conscious Products and Services

At DNP, we have created the Environmentally Conscious Products and Services Development Guidelines in order to create environmentally conscious products and services from the design stage, so as to reduce the environmental impact of our products and services throughout their lifecycle. To accelerate such development efforts, we have introduced an internal certification system to rate products and services using points and certify “Super Eco-Products” and “Eco-Products” based on the points earned.

Sales of environmentally conscious products and services amounted to ¥599.3 billion in FY2017 and reached the specified target. Moreover, 38 products have so far been certified as Super Eco-Products as of March 2018.

DNP intends to continue developing more of such environmentally conscious products and services.

Sales of environmentally conscious products and services (Unit: billion yen)



Example Eco-Product: Multifunctional Insulation Box

A supply chain handling products that require temperature control, such as fresh foods and electronic products, has been facing the challenge of reducing transportation time and securing electricity for refrigeration in order to maintain product quality.

DNP’s multifunctional insulation box uses vacuum insulation panels*, an insulation material sealed with a film having high barrier features, and offers excellent insulation performance and cargo loading efficiency.

Through the use of the vacuum insulation panels that employ specialized technology, the box maintains superior insulation and airtight features without the need for electricity, and as a result, is designed to be suitable for a variety of transporting uses. Also, as a thermometer to measure the internal temperature is included as a standard fitting, it is also possible to perform temperature management, making the box particularly suitable for temperature controlled transportation.

As an example, the box allows a non-refrigerated, standard truck without power-supply equipment to carry cargo requiring refrigeration. In addition to

transportation within Japan, the box will play a significant role in exporting fresh foods to countries in Southeast Asia, where refrigerated transportation had been challenging.

The excellent insulation feature of the box also allows mixed loading of refrigerated and non-refrigerated goods, thereby increasing the transportation efficiency. Its use has been expanding, and it is also used as a temporary refrigerator when storing goods in warehouses.



Multifunctional insulation box

*Panels created by covering and vacuum-sealing an insulation material, such as glass wool and urethane, with a film that has superior barrier features. Compared to currently available insulation materials, it offers the equivalent insulation property with just 5% of the thickness.

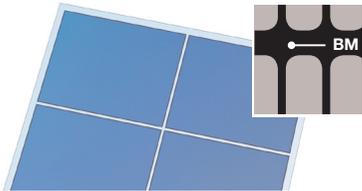
3 Building a Recycling Society

Guidelines for Developing Environmentally Conscious Products and Services with Example Products

1 Reduction of environmental pollutants

Elimination of ozone layer-damaging substances, heavy metals and volatile organic compounds, and prevention of release into the environment of nitrous oxides and other substances.

Example product • **BM Color Filters**



These are color filters using a black matrix (BM) made of resin instead of metal. Development of this product has resulted in reduced environmental impact and cost.

2 Resource and energy conservation, reduction of GHG emissions

Reduce the use of metals and fossil fuels. Promote energy-conserving products and systems.

Example product • **Refill Pouch with Spout**



Our Elbow Pouch is a refill-use pouch with improved opening and pouring features. It is useful in saving bottle resources, and post-refilling volume is reduced.

3 Sustainable use of resources

Utilize natural resources in a sustainable way.

Example product
• **Biomass Plastic Packaging Material**



These film products are made partially from plant-based materials. Their production and use will help reduce emissions of CO₂, a GHG, and the use of petroleum, a depleting natural resource.

4 Long-term usability

Consider the ease of repair and parts replacement, length of maintenance and repair service, and the expandability of functions.

Example product • **Decorative Sheetting**



Safmalle is our line of olefin-based decorative sheets for construction or decorative use, which meet the need for healthy, hygienic and safe living space creation.

5 Reusability

In the case of sites and parts, considerations regarding disassembly, cleaning, and refilling; establishment of a collection and reuse system that is easy for the purchaser to use.

Example product • **Peel-off Shipping Labels**



These are shipping labels that are easily peeled off of packing paper or cardboard. The labels are one-ply, saving paper, and they make the recycling of cardboard and other packaging easy because they peel off cleanly.

6 Recyclability

Are the materials used in the product easy to recycle? Does the design allow for easy breakdown, disassembly and separation of materials? Is there a collection and recycling system that is easy for the purchaser to use?

Example product
• **Environmentally Conscious Calendars**



These calendars are made with recycled paper and low environmental impact ink. No metal or plastic need be removed post-use because neither is used in their production.

7 Use of recycled materials, etc.

Use as many collected and recycled materials and parts as possible.

Example product
• **Paper Carton Using Recycled Paper**



These are printed materials that use composites of used paper, such as used magazines and newspapers. Not only do they require fewer paper resources, but the use of low environmental impact soy ink and non-VOC ink is increasing.

8 Ease of treatment and disposal

Attempt to place as little burden as possible on incinerator facilities and landfill sites.

Example product
• **DNP Transparent Vapor Deposition Film (IB-Film)**



This is a packaging-use clear cling film which cuts dioxin use because it is non-PVC. It is widely used in the packaging of food and daily items requiring a barrier.

9 Making environmental burden visible and taking into consideration biodiversity

Making visible any burden that should be reduced, and aiming to protect biodiversity

Example product
• **Ultra Lightweight Injection-Molded Cup**



The lightest injection-molded cup in the industry. The Carbon Footprint (CFP) Mark was acquired for the cup as an intermediate product. The lightened weight directly conveys the reduced use of resin.

10 Supporting and promoting environmental education and awareness

Helping to create a sustainable society.

Example product
• **Energy-Saving Apps and Other Services**



This smartphone app helps you to check the use of electricity in your home to raise awareness of saving electricity.

We have earned environmental labeling certifications such as CoC (Chain of Custody) certification and the Japan Environment Association's Eco Mark. We are working to expand the sale of products with this labeling, so that their packaging and advertising can serve as a means to educate consumers properly about the environmental aspects of our goods and services.

• Main Certification Acquisition Results

Eco Mark (Type 1 Environmental Label)	
This environmental label is attached to products recognized as having low environmental impact throughout their lifecycle, from production through disposal, and as being useful to environmental conservation.	Acquired for DNP's biomass plastic packaging material, Biomatech®, a blend with plant-based materials
CoC Certification	
CoC (Chain of Custody) This is a certificate of control throughout each stage of processing and distribution, by which wood products and materials (including paper products) taken from FSC-certified forests contain a fixed percentage or greater of certified material, and have no wood products or materials derived from illegally harvested sources mixed in.	Acquired by a total of 12 business units

🔍 Environmental Labeling

Environmental Labeling: This is broadly divided into three types: Type 1, such as the Eco Mark (third party certification); Type 2, in which a company itself makes the declaration (self-declaration); and Type 3, in which environmental information is provided on the label, such as the EcoLeaf (environmental information labeling), with each having specifications under ISO or JIS. Reference information: "Environmental Labeling Database" of the Central Environment Council of the Ministry of the Environment

CoC Certification

Certification Type	Acquired by*1	Acquisition Date*2	Registration Organization
FSC-CoC	DNP Trading	Dec. 03	SGS
	Packaging Operations	Dec. 05	SGS
	Publication Printing Operations	Mar. 06	SGS
	DNP Multi Print	Apr. 07	SGS
	Tien Wah Press (Pte.) Ltd.	May 08	DNV
	Information Innovations Operations	Aug. 08	SGS
	Living Space Operations	Aug. 09	SGS
	DNP Shikoku	Dec. 11	SGS
	DNP SP Tech	May 14	JIA
PEFC-CoC	Packaging Operations	Jan. 04	JIA
	DNP Trading	Jan. 08	SGS
	Publication Printing Operations	Mar. 11	SGS
	Living Space Operations	Nov. 11	SGS

FSC
Forest Stewardship Council

PEFC
Programme for the Endorsement of Forest Certification Schemes

SGS
SGS Japan

DNV
Det Norske Veritas (Norway)

JIA
Japan Gas Appliances Association

*1 Organizations and the names used for them as of June 30, 2018

*2 Date of initial registration. However, this is the date that Information Innovations Operations (August 2003) switched to multisite certification.

At DNP we understand that we gain many benefits from ecosystems that are supported by abundant biodiversity, and we believe that working to coexist harmoniously and protect the environment is essential for the Company to maintain sustainable growth. Based on this way of thinking, we work to protect biodiversity through our business activities.

In every process, including product development, material procurement, manufacturing, sales, transport, product use and disposal of waste, we have examined the relationship with biodiversity. We established two key themes, both of which affect our reliance on ecosystem services and seriously impact biodiversity—the improvement of material procurement practices and the creation of green spaces at our business sites.

Raw Material Procurement

• Guidelines for Procurement of Paper for Printing and Converting

Paper is a principal raw material essential to the ongoing continuation of DNP's business operations. We are committed to the conservation of forest resources and effective use of raw materials. To this end, we actively use of products made using timber from thinned trees and FSC-certified paper. We are aiming for 100% conformity to our Guidelines for Procurement of Paper for Printing and Converting for all raw material paper products. We are also strengthening our communication with paper manufacturers, sales companies and other suppliers in an effort to assure traceability.

DNP's Ichigaya Forest Certified as "Biodiverse Business Site®"

Our Ichigaya Forest, an initiative to create a new form of "urban" forest on the premises of our head office in Shinjuku-ku, Tokyo, has been certified as a "Biodiverse Business Site®" by the Association for Business Innovation in Harmony with Nature and Community (ABINC), an organization evaluating companies' initiatives to create, manage and use greenery areas while giving due consideration to biodiversity.

The Ichigaya Forest initiative had been conducted as part of our district redevelopment project that included plant reconstruction in the area. We placed most of the plant's facilities underground and created a natural forest to provide a vast green space on the ground above these facilities. Our Ichigaya Forest, which was completed in December 2015, has been certified as a "Biodiverse Business Site®." The certification highly recognized the initiative's distinctive features listed below.

1. Offers the largest green space in the Tokyo metropolitan area, consisting of trees procured from within the Kanto region

About one-third (6,000 m²) of the site's total area (approximately 17,000 m²) is a biodiverse green space. Getting inspirations from now mostly lost wooded areas in Musashino (an old designation of a part of Kanto), we created a natural and highly diverse forest mainly consisting of deciduous broadleaf trees, mixed with evergreen trees. These trees and other plants in the forest are local to the Kanto region.

2. Forest maintenance linked to meticulous observations made by employees

While we ask experts to conduct animal and plant surveys, employees continuously record their daily observations. We link these observation records with our maintenance activities, using them to carry out maintenance at the optimized and efficient timing and identify issues quickly.



Q About the "Biodiverse Business Site®" certification (ABINC certification)

It is a certification system run by the ABINC, which performs third-party evaluation and certifies companies' initiatives to create, manage and use biodiverse greenery areas. As certification standards, the system uses the Biodiverse Business Site® Promotion Guidelines and Report Cards on Land Usage® created by the Japan Business Initiative for Biodiversity (JBIB).



Creation of Green Spaces at Business Sites

- **Creating Green Spaces to Broaden the Diversity of Life in the Local Area**

The land use and site management of plants and offices affect a region's ecosystem, but they can also contribute to improving the quality and sustainable use of ecosystem services.

The DNP Group creates green spaces at business sites for the benefit of wildlife in the local area. Plant and wildlife surveys will also be conducted at business sites to improve their green spaces, to select suitable plants and trees and to update maintenance practices. These surveys will be used in creating green spaces that promote biodiversity at our business sites.

Action Taken at Each Business Site

Nagoya Area
Attract the Chinese Windmill (*Byasa alcinous*)

Aim: a green space with butterflies flying all around



Okayama Plant
Creation of a Japanese blood grass (*Imperata cylindrica*) grassland

Aim: a green space with lots of wildlife by creating a needed grassland in the area



Kyoto Plant, DNP Technopack
Company council for beautifying Omuro and the Tenjin River

Mihara Plant, DNP Fine Optronics
Protection of the natural habitat of the Ehime ayame (*Iris rossii Baker*)

Kuroasaki Plant, DNP Fine Optronics
Tobata Plant, DNP High-performance Materials
Kitakyushu municipal tree-planting project

Kuroasaki Plant, DNP Fine Optronics
Tobata Plant, DNP High-performance Materials
Attract the Indian fritillary (*Argynnis hyperbius*)

Aim: a green space with lots of wildlife by introducing the *Viola betonicifolia var. albescens* to attract the Indian fritillary butterfly



Yokohama Plant, DNP Technopack
Ex-situ conservation of the hamakanzo (*Hemerocallis fulva var. littorea*)

Aim: to protect and cultivate the hamakanzo daylily (a flower subject to being picked) on site and replant it in its original habitat



Sapporo Plant, DNP Technopack
AMA supporters club

Hokkaido Coca-Cola Bottling
Forest-building at Mt. Shirahata

Tree planting and nature walks at Mt. Shirahata, the source of water used in our products



Kitakami Plant, DT Fine Electronics
Protection of rare species on the property

DNP Tohoku
Million-tree project in Miyagi Prefecture

Izumizaki Plant, DNP Technopack
Creation of a map of wildlife on the property

Kamifukuoka Plant, DNP Fine Optronics
Protection of rare species on the property

DNP Fine Chemicals Utsunomiya
Elimination of the non-native black locust (*Robinia pseudoacacia*)

Technology Development Center Ushiku Plant, DNP Data Techno
Asaza Project—restoration of the Lake Kasumigaura catchment basin

Technology Development Center
Protection of pine saplings growing naturally on the premises

Research & Development Center
Protection and cultivation of a rare species of fir tree

Kashiwa Plant, DNP Technopack
Afforestation with rare Japanese beech (*Fagus crenata*) trees and the Freyer's purple emperor (*Apatura metis*) butterfly

Ichigaya Forest in Ichigaya, Tokyo

Continue planning the Ichigaya Forest in this part of Tokyo where we are located
Aim: a rich landscape to feel nature and the four seasons



Kawasaki Plant, DT Fine Electronics
Raising of Tama River wildlife
Sagami Yoki
Protection and cultivation of the medaka Japanese rice fish (*Oryzias latipes*) in the Sakawa River system

Promoting the Creation of an Ecological Network Connecting the Kuroasaki Plant of DNP Fine Optronics and the Tobata Plant of DNP High-performance Materials

At the Kuroasaki Plant of DNP Fine Optronics (Kitakyushu), we are creating an ecological network of butterflies by planting a host plant of a butterfly in its green space.

In April 2015, we planted a type of violet (*Viola betonicifolia var. albescens*) on the premises of the Kuroasaki Plant, which is a butterfly plant that attracts the Indian fritillary (*Argynnis hyperbius*). Immediately after the planting, we started observing a number of adult butterflies and larvae of the Indian fritillary. We also have had several chances to observe the eclosion process. Currently, we are working to expand the ecological network by moving some of the violets to the Tobata Plant, which is located about 4 km from the Kuroasaki Plant.



Enclosed Indian fritillary



Moving some of the Kuroasaki Plant's violets to the Tobata Plant

As an environmental management tool and as a tool for communicating with society, the DNP Group calculates and publicizes its environment-related costs in accordance with the Ministry of the Environment's *Environmental Accounting Guidelines* (2005 Edition). The scope of calculation covers DNP and its consolidated subsidiaries (more specifically, manufacturing sites, development centers, office buildings and sales offices of manufacturing companies and a distribution company in Japan).

Category	Investment (million yen)		Expense (million yen)		Details of major efforts	Page(s) on which data is listed
	FY2016	FY2017	FY2016	FY2017		
(1) Business area costs						
1) Pollution prevention costs	217	498	1,817	1,600	VOC collection and disposal equipment, wastewater treatment facility	23-25
2) Global environmental conservation costs	137	181	320	267	Conversion to inverters, waste heat recovery, switching to energy-saving lighting	20-22
3) Resource circulation costs	119	162	1,548	557	Furnace improvements, separation recycling, zero emissions (conversion to RPF/cement ingredients), resource recycling	26-28
(Total business area costs)	474	841	3,685	2,424		
(2) Up/downstream costs	0	0	115	121	Container and packaging recycling expense burden, recycling system development	29-31
(3) Administration costs	0	1	2,315	2,330	ISO 14001 inspection and registration costs, environmental education costs, environmental report composition costs	8-14, 31, 41
(4) R&D costs	0	0	1,928	3,213	Research and development into environmentally conscious products and services and production methods	29-31
(5) Social activities costs	0	0	18	18	Environmental conservation of areas outside plant compounds, biodiversity conservation, support for activities of environmental conservation groups	32-33
(6) Environmental remediation	0	0	0	0		9-12
Total	474	842	8,062	8,106		

● Environmental conservation costs to total costs ratio

Category	Consolidated total costs (million yen)	Costs (million yen)	Ratio
Investment of current period (FY2017)	57,000	842	1.4%
R&D cost of current period (FY2017)	31,375	3,214	9.7%

(1) Environmental conservation benefit related to resources input into business activities

Category of environmental conservation benefit	Category of indicator showing benefit	Indicator values			Remarks	Page(s) on which data is listed
		FY2016	FY2017	Difference		
1) Benefit arising from supplied resources						
Total energy input volume	Energy consumption (TJ)	17,645	16,724	-921		20-22
	Unit consumption per domestic sales for the above (TJ/billion yen)	14.6	14.1	-0.5	Energy consumed per billion yen of domestic sales	20-22
Input volume of water	Water usage (1,000 m ³)	11,000	9,600	-1,400		28
	Unit consumption per domestic sales for the above (1,000 m ³ /billion yen)	9.1	8.1	-1.0	Water usage per billion yen of domestic sales	28
Input volume of main raw materials	Supplied amount (1,000 tons)	1,963	1,889	-74		27
	Amount of undesired materials generated/ supplied (%)	14.9	14.9	0.0	Ratio of undesired materials to main raw materials	27

2) Environmental conservation benefit related to waste or environmental impact originating from business activities

Emissions to the air	SOx emissions (tons)	6.4	5.4	-1.0		17, 23
	NOx emissions (tons)	600	565	-35		17, 23
	Environmental pollutant emissions volume (tons)	4,141	4,831	690	VOC emissions volume	23
Water quality	COD discharge (tons)	33.7	20.8	-12.9		17, 24
	Emissions of environmental pollutants (PRTR-listed substances) (tons)	2.7	0.0	-2.7		25
Waste emission volume	Generated undesired materials (1,000 tons)	293	281	-12	Including undesired materials other than main raw materials	26-27
	Discharged waste (1,000 tons)	43.6	43.3	-0.3		26-27
	Unit consumption per domestic sales for the above (tons/billion yen)	36.1	36.5	0.4	Discharged waste per billion yen of domestic sales	26-27
	Recycle rate (%)	99.7	99.7	0.0	By category: paper (100%), waste plastics (99.6%), metals (98.2%) and glass (99.6%)	26-27
	Emissions of environmental pollutants (PRTR-listed substances) (tons)	1,000	1,000	0	Total for 28 substances reported	25
Volume of GHG emission	GHG emissions (1,000 t-CO ₂)	820	783	-37		20-21
	Unit consumption per domestic sales for the above (tons/billion yen)	680	660	-20	Emissions per billion yen of domestic sales	20-21

(2) Environmental conservation benefit related to goods and services produced by business activities

Category of environmental conservation benefit	Category of indicator showing benefit	Indicator values			Remarks	Page(s) on which data is listed
		FY2016	FY2017	Difference		
Benefit related to goods produced by business activities						
CO ₂ emissions after product shipment	CO ₂ emissions (1,000 t-CO ₂)	1,495	1,236	-259		19, 29-31
	CO ₂ emissions / domestic sales (1,000 t-CO ₂ /billion yen)	1.24	1.04	-0.2	CO ₂ emissions per billion yen of domestic sales	19, 29-31

(3) Other environmental conservation benefit

Category of indicator showing benefit	FY2016	FY2017	Difference	Remarks	Page(s) on which data is listed
Benefit related to the environmental impact of transportation					
Energy usage amount during shipment of goods (kl)	20,860	20,830	-30		16, 22
Energy usage amount during transport / gross sales (kl/billion yen)	14.8	14.7	-0.1	Energy usage amount per billion yen of consolidated sales	16, 22

Economic benefits of environmental conservation activities	Amount (million yen)			Remarks	Page(s) on which data is listed
	FY2016	FY2017	Difference		
(1) Increased sales 1) Economic benefit of R&D costs					
Sales of environmentally conscious products and services	589,800	599,300	9,500		16, 29-31
(2) Increased income 2) Benefit of resource recycling costs					
Income from recycling undesired materials	2,903	3,142	239	Shift toward valuable materials such as waste plastics, etc.	26-27
(3) Cost saving 3) Benefit of resource recycling costs					
Saving disposal costs by resource conservation	26	-14	-40		26-27

Results of Efforts

FY1972	Establishes the Environment Department within the head office to promote pollution prevention measures and communication with local residents
FY1990	Makes new efforts to deal with global environmental issues by establishing the Eco-Plan Promotion Office within the Environment Department
FY1992	Establishes the DNP Group Corporate Pledge and Code of Conduct for DNP Group Employees Establishes the Eco-Plan Promotion Targets, the elaborated voluntary plan based on the Environmental Declaration of the Code of Conduct, and starts activities by 4 sub-committees
FY1993	Starts the Eco-Report System, which is part of the DNP Group's environmental management system
FY1994	Remodels and expands the Environment Department into the Environment & Product Liability Department to strengthen our efforts towards comprehensive environmental issues, including product liability
FY1995	DNP wins the International Trade and Industry Minister's Prize in the 4th Grand Prize for the Global Environment Award. (The award was established in 1991 by the Japan Industrial Journal and the Fuji Sankei Communications Group, with special support by WWF Japan and sponsorship by the Environmental Agency, the Ministry of Economy, Trade and Industry and the Japan Federation of Economic Organizations)
FY1996	Begins performing Eco-Audits, the internal environmental audit performed by the Eco-Plan Promotion Office to upgrade the Eco-Report System
FY1997	Okayama Plant, Information Media Supplies Operations becomes the first in the printing industry to acquire ISO 14001 certification
FY1998	Mihara Plant, Display Components Operations acquires ISO 14001 certification Publishes the DNP Group Environmental Activity Report
FY2000	The Eco-Plan Promotion Office is dismantled and replaced with the DNP Environmental Committee to strengthen the system for promoting environmental activities DNP Facility Services becomes the first in the world to be certified for its comprehensive system with quality, environment, office safety, and HACCP
FY2001	DNP Tokai and Sayama Plant, DNP Technopack acquire ISO 14001 certification
FY2002	DNP Tokai acquires FSC-CoC certification
FY2003	Environmental Report Division receives the 6th Environmental Report Grand Prize for superior reporting Two types of fused thermal transfer materials of the Information Media Supplies Operations receive EPD "Type III" environmental labeling certification and registration
FY2004	DNP wins the Minister for the Environment's Prize in the 14th Grand Prize for the Global Environment Award 7th Environmental Report Prize awarded for excellence Eco-Report System implemented at overseas sites
FY2005	8th Environmental Report Prize / Sustainability Report Prize awarded for excellence

FY2007	PRTR 2007 Awards PRTR Honorable Mention (Tsuruse Plant) DNP Gotanda Building wins the Green Grand Prize in the Shinagawa-ku Green Award System
FY2009	Kanto Bureau of Economy, Trade and Industry Energy Management In Business Superiority Award (received by Akabane Plant, Commercial Printing Operations)
FY2010	DNP IMS Odawara receives the Kanagawa Prefecture Environmental Conservation (Air, Water, Soil) Award Revision of DNP Group Environmental Targets The DNP Emergent Evolution Forest Hakone Training Center 2 acquires Green Key certification
FY2011	DNP's independently developed Energy-Saving Total Management System is implemented at 36 Tokyo Electric Power locations New, leading-edge environmentally conscious plant for manufacturing flexible packaging is built in Kyotanabe Reductions in power consumption in the processes of manufacturing photomasks earns DNP the Energy Conservation Grand Prize for excellent energy conservation equipment, Jury's Special Prize awarded by the Energy Conservation Center, Japan (ECCJ)
FY2012	Guidelines for Procurement of Paper for Printing and Converting are established to protect biodiversity in our business operations, and projects to create green spaces are launched at Okayama Plant and DNP Chubu business sites Volume of GHG emissions are announced according to Scope 3 standards
FY2013	Targets for reduction of water usage are set Green Procurement Guidelines for Chemical Substances are set and management of chemical substances in products is strengthened
FY2014	Climate change prevention targets for FY2030 are set DNP is selected by CDP's Forest Program as sector leader in the Industrials & Autos sector DNP wins a Prize of Excellence (Judge's Prize) at the 18th Environmental Communication Awards
FY2015	DNP Group environmental targets are revised CDP places DNP on its "A List" DNP wins a Prize of Excellence (Judge's Prize) at the 19th Environmental Communication Awards
FY2016	DNP wins 26th Grand Prize for the Global Environment Award, Japan Business Federation Chairman's Prize DNP wins a Prize of Excellence (Judge's Prize) at the 20th Environmental Communication Awards DNP wins Biodiversity Action Award Japan 2016
FY2017	Hokkaido Coca-Cola Bottling wins a Special Review Panel Award in the 19th Japan Water Awards

Note: Organizations and the names used for them as of that time

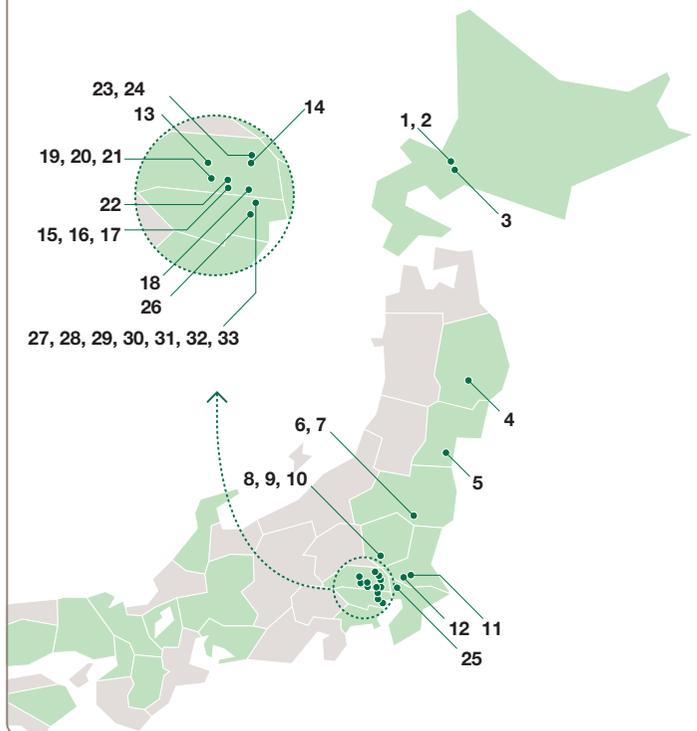
Domestic Manufacturing Sites with Required Business Performance Data Disclosure (1)

Organizations and the names used for them are current as of March 31, 2018.

Applies to DNP and non-manufacturing sites of all domestic companies in the group that are subject to consolidated financial accounting.

Business segments

●	Information Communication	"Other" refers to products that do not fall under the three segments or Group companies manufacturing products that span multiple segments.
▲	Lifestyle and Industrial Supplies	
■	Electronics	
□	Other	



Location	No.	Business segment	Site	Work content	
Hokkaido	Higashi-ku, Sapporo	1	●	Sapporo Plant, DNP Graphica Sapporo Plant, DNP Data Techno	Printing / bookbinding
	Higashi-ku, Sapporo	2	▲	Sapporo Plant, DNP Technopack	Manufacturing of packaging
	Kiyota-ku, Sapporo	3	□	Sapporo Plant, Hokkaido Coca-Cola Products	Manufacturing of beverages
Iwate	Kitakami	4	■	Kitakami Plant, D.T. Fine Electronics	Manufacturing of electronic precision parts
Miyagi	Miyagino-ku, Sendai	5	●	Sendai Plant, DNP Graphica	Plate-making / printing / bookbinding
Fukushima	Izumizaki, Nishi Shirakawa	6	▲	Izumizaki Plant, DNP Technopack	Manufacturing of packaging
	Izumizaki, Nishi Shirakawa	7	▲	Izumizaki Plant, DNP High-performance Materials	Manufacturing of solar cell filler
Tochigi	Tochigi	8	●	Utsunomiya Plant, DNP Graphica	Printing / bookbinding
		9	▲	Utsunomiya Plant, DNP Technopack	Manufacturing of packaging
		10	□	DNP Fine Chemicals Utsunomiya	Manufacturing of photographic materials and pharmaceuticals
Ibaraki	Ushiku	11	●	Ushiku Plant, DNP Data Techno	Manufacturing of various types of smart cards
	Tsukuba	12	□	Tsukuba Techno Center, DNP Engineering	Manufacturing of printing machines and machine tools
Saitama	Higashimatsuyama	13	●	Higashimatsuyama Plant, Oguchi Book Binding & Printing	Bookbinding
	Shiraoka	14	●	Shiraoka Plant, DNP Book Factory	Printing / bookbinding
	Miyoshi, Iruma	15	●	Tsuruse Plant, Publication Printing Operations	Plate-making / printing plate / printing / bookbinding
		16	▲	Tokyo Plant, DNP Living Space	Plate-making / printing plate / printing / processing
	17	●	Miyoshi Plant, Oguchi Book Binding & Printing	Bookbinding	
	Warabi	18	●	Warabi Plant, DNP Data Techno	Plate-making / printing / processing
	Sayama	19	▲	Sayama Plant No. 1, DNP Technopack	Manufacturing of packaging
		20	▲	Sayama Plant No. 2, DNP Technopack	Manufacturing of packaging
	21	●	Sayama Plant, DNP Imagingcomm	Manufacturing of thermal transfer carbon ribbons and dye-sublimation transfer materials	
	Fujimino	22	■	Kamifukuoka Plant, DNP Fine Optronics	Manufacturing of electronic precision parts
Kuki	23	●	Kuki Plant, Publication Printing Operations	Printing plate / printing / bookbinding	
	24	▲	Saitama Plant, DNP High-performance Materials	Manufacturing of solar cell filler	
Chiba	Kashiwa	25	▲	Kashiwa Plant, DNP Technopack	Manufacturing of packaging
Tokyo	Shinjuku-ku	26	●	Enoki-cho Plant, DNP Graphica	Plate-making / printing / bookbinding
		27	●	Kamiya Plant, DNP SP Tech	Manufacturing of all types of advertising items
	28	●	Akabane Plant, DNP Book Factory	Printing	
	29	●	Akabane Plant, DNP Graphica	Plate-making / printing / bookbinding	
	Kita-ku	30	●	Kamiya Plant, DNP Book Factory	Bookbinding
		31	□	DNP Logistics	Packaging / shipping
		32	▲	DNP Hosono	Processing filling and packaging
		33	●	Kamiya Plant, DNP Data Techno	Printing / bookbinding / processing

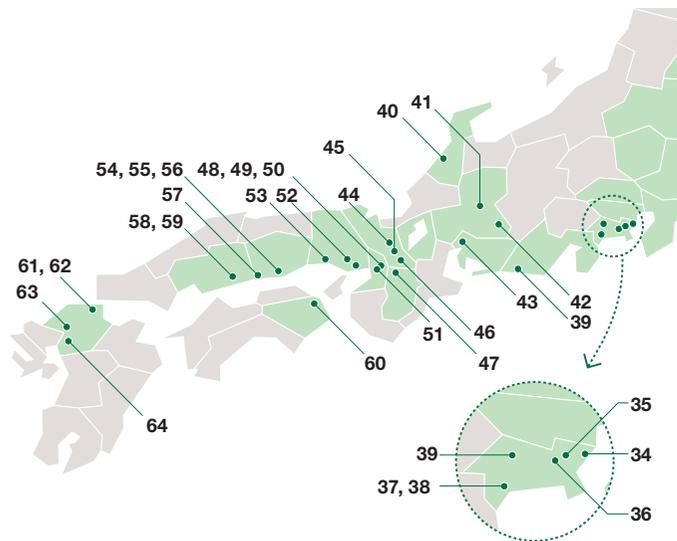
Domestic Manufacturing Sites with Required Business Performance Data Disclosure (2)

Organizations and the names used for them are current as of March 31, 2018.

Applies to DNP and non-manufacturing sites of all domestic companies in the group that are subject to consolidated financial accounting.

Business segments

●	Information Communication	"Other" refers to products that do not fall under the three segments or Group companies manufacturing products that span multiple segments.
▲	Lifestyle and Industrial Supplies	
■	Electronics	
□	Other	



Location	No.	Business segment	Site	Work content	
Kanagawa	Kawasaki	34	■	Kawasaki Plant, D.T. Fine Electronics	Manufacturing of electronic precision parts
	Tsuzuki-ku, Yokohama	35	▲	Yokohama Plant, DNP Technopack	Manufacturing of packaging
	Midori-ku, Yokohama	36	□	Tokyo Plant, DNP Fine Chemicals	Manufacturing of chemicals, etc.
	Odawara	37	▲	Sagami Yoki	Manufacturing of laminated tubes
	Aikawa, Aiko	38	▲	Tokyo Plant, DNP Elio	Printing and processing metal sheets
Shizuoka	Iwata	39	▲	Iwata Plant, DNP Tamura Plastic	Manufacturing of car supplies and various types of plastic products
Ishikawa	Hakusan	40	□	Hokuriku Techno Center, DNP Engineering	Manufacturing of printing machines and machine tools
Gifu	Gero	41	▲	Hagiwara Plant, DNP Tamura Plastic	Manufacturing of car supplies and various types of plastic products
	Nakatsugawa	42	▲	Tokai Plant, DNP Technopack	Manufacturing of packaging
Aichi	Moriyama-ku, Nagoya	43	●	Nagoya Plant, DNP Graphica	Plate-making / printing / bookbinding
Kyoto	Ukyo-ku, Kyoto	44	▲	Kyoto Plant, DNP Technopack	Manufacturing of packaging
	Minami-ku, Kyoto	45	●	Kyoto Plant, DNP Data Techno	Manufacturing of various types of smart cards
	Kyotanabe	46	▲	Tanabe Plant, DNP Technopack	Manufacturing of packaging
Nara	Kawanishi, Shiki	47	●	Nara Plant, DNP Data Techno	Manufacturing of various types of smart cards
Osaka	Neyagawa	48	▲	Neyagawa Plant, DNP Technopack	Manufacturing of packaging
		49	▲	Osaka Plant, DNP Elio	Printing and processing metal sheets
	50	●	Neyagawa Plant, DNP SP Tech	Manufacturing of all types of advertising items	
Hyogo	Kadoma	51	●	DNP Media Support	Manufacturing of magnetic cards
	Ono	52	●	Ono Plant, DNP Graphica	Printing plate / printing / bookbinding
Okayama	Himeji	53	■	DNP Precision Devices Himeji	Manufacturing of electronic precision parts
		54	●	Okayama Plant, DNP Imagingcomm	Manufacturing of dye-sublimation transfer materials
	Okayama	55	▲	Okayama Plant, DNP Living Space	Plate-making / printing plate / printing / processing
		56	■	Okayama Plant, DNP Fine Optronics	Manufacturing of electronic parts
	Kasaoka	57	□	Kasaoka Plant, DNP Fine Chemicals	Manufacturing of chemicals, etc.
Hiroshima	Mihara	58	■	Mihara East Plant, DNP Fine Optronics	Manufacturing of electronic precision parts
		59	■	Mihara West Plant, DNP Fine Optronics	Manufacturing of electronic parts
Tokushima	Tokushima	60	□	DNP Shikoku	Plate-making / printing / manufacturing of packaging
Fukuoka	Yahatanishi-ku, Kitakyushu	61	■	Kurosaki Plant, DNP Fine Optronics	Manufacturing of electronic precision parts
	Tobata-ku, Kitakyushu	62	▲	Tobata Plant, DNP High-performance Materials	Manufacturing of solar cell filler
	Minami-ku, Fukuoka	63	●	Fukuoka Plant, DNP Graphica Fukuoka Plant, DNP Data Techno	Plate-making / printing / bookbinding
		Chikugo	64	▲	Chikugo Plant, DNP Technopack

Overseas Manufacturing Sites with Required Business Performance Data Disclosure

Business segments

	Information Communication
	Lifestyle and Industrial Supplies
	Electronics

Country	City	No	Business segment	Site	Work content
Italy	Agrate Brianza	①		DNP Photomask Europe S.p.A.	Manufacturing of photomasks
Denmark	Karlsunde	②		DNP Denmark A/S	Manufacturing of projection television screens
Netherlands	Amsterdam	③		DNP Imagingcomm Europe B.V.	Manufacturing of information media supplies
USA	Concord, NC	④		DNP Imagingcomm America Corporation	Manufacturing of information media supplies
	Pittsburgh, PA	⑤		DNP Imagingcomm America Corporation	Manufacturing of information media supplies
Malaysia	Johor Bahru	⑥		DNP Imagingcomm Asia Sdn. Bhd.	Manufacturing of information media supplies
		⑦		Tien Wah Press (Pte.) Ltd.	Offset printing and binding
Indonesia	Pulo Gadung	⑧		PT DNP Indonesia	Manufacturing of packaging
	Karawang	⑨		PT DNP Indonesia	Manufacturing of packaging
Vietnam	Binh Duong Province	⑩		DNP Vietnam Co., Ltd.	Manufacturing of packaging

①, ②, ④-⑥ April 2017-March 2018 totals ③, ⑦-⑩ January 2017-December 2017 totals

Independent Review Report Comments by an Independent Institution

On-site visit



Mihara West Plant, DNP Fine Optronics



Chikugo Plant, DNP Technopack



Tobata Plant, DNP High-performance Materials

DNP Group Environmental Report 2018 Independent Verification Report



To: Dai Nippon Printing Co., Ltd.

July 26, 2018



Bureau Veritas Japan Co., Ltd.
System Certification Services Headquarters

Bureau Veritas Japan Co., Ltd. (Bureau Veritas) has been engaged by Dai Nippon Printing Co., Ltd. (DNP) to conduct independent verification of its environmental data selected for inclusion in the DNP Group Environmental Report 2018, issued under the responsibility of DNP. The aim of this verification is to consider the accuracy of environmental data detailed in the Report and to provide a verification opinion based on objective evidence.

1. Verification Outline

Bureau Veritas conducted the following verification based on agreement with DNP.

Scope of Verification	Sites Visited	Verification Methodology
Environmental performance data for FY2017 marked with the symbol "☑" in the DNP Group Environmental Report 2018	<ul style="list-style-type: none"> - DNP's head office - DNP Fine Optronics Co., Ltd. Mihara West Plant - DNP Technopack Co., Ltd. Chikugo Plant - DNP High-performance Materials Co., Ltd. Tobata Plant 	<ul style="list-style-type: none"> - Review of documentary evidence produced by DNP's head office and the sites visited - Interviews with relevant personnel of DNP's head office and the sites visited - Site inspection and review of data monitoring procedures - Comparison between the reported data and supporting documentary evidence

This verification was conducted using Bureau Veritas' standard procedures and guidelines for external verification of non-financial reporting, based on current best practice. Bureau Veritas refers to the International Standard on Assurance Engagements (ISAE) 3000 in providing a limited assurance for the scope of work stated herein.

2. Findings

On the bases of our methodology and the activities described above:

- Nothing has come to our attention to indicate that the reviewed information within the scope of our verification is inaccurate and does not provide a fair representation of the performance for the defined period.
- It is our opinion that DNP has established appropriate systems for the collection, aggregation and analysis of quantitative data within the scope of our verification.

Bureau Veritas has implemented a code of ethics across its business which is intended to ensure that all our staff maintain high standards in their day to day business activities. We are particularly vigilant in the prevention of conflicts of interest. Bureau Veritas activities for DNP are for sustainability reporting verification only and we believe our verification assignment did not raise any conflicts of interest.

Dai Nippon Printing Co., Ltd.

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