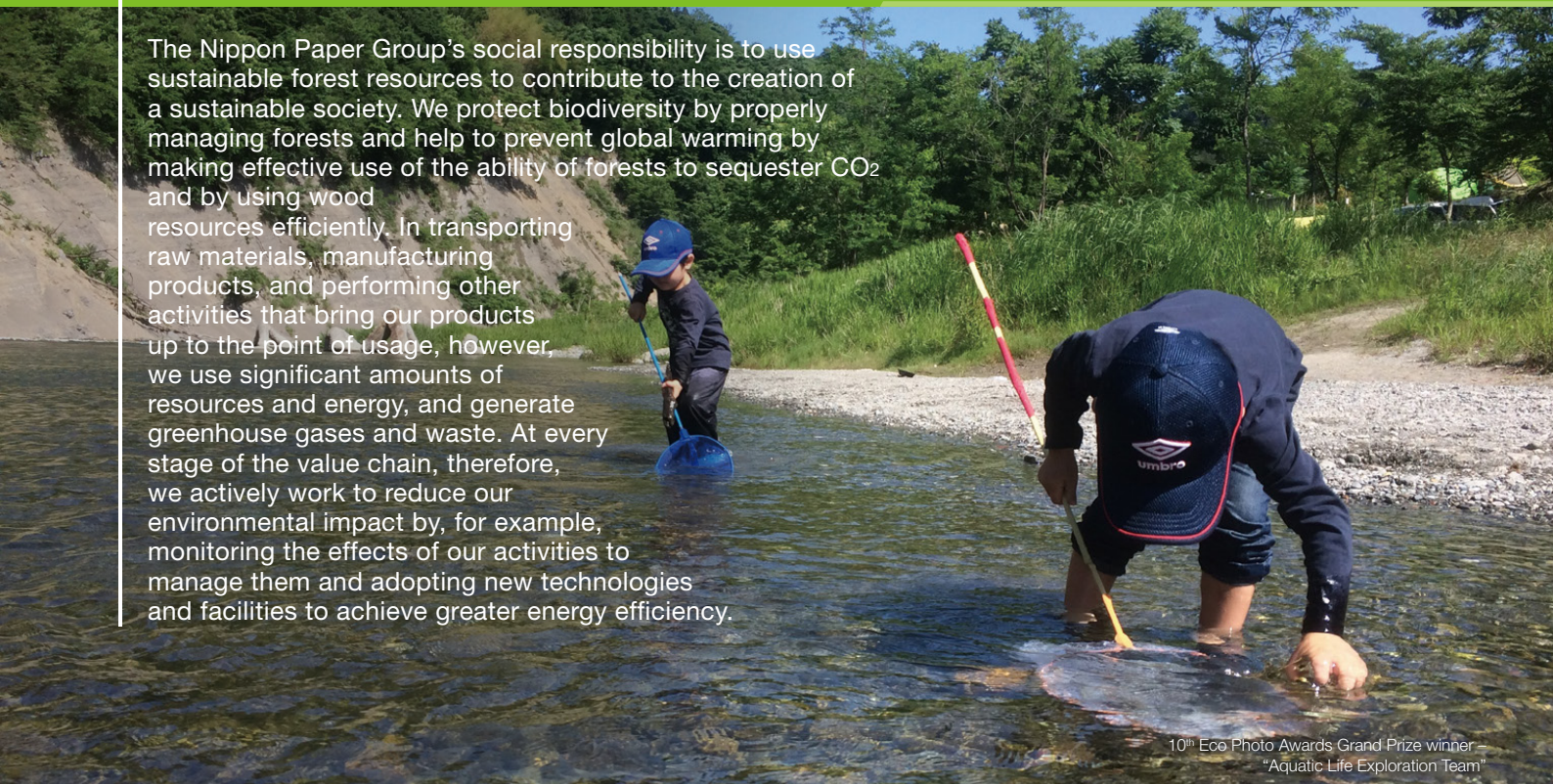


Environmental Responsibility

The Nippon Paper Group's social responsibility is to use sustainable forest resources to contribute to the creation of a sustainable society. We protect biodiversity by properly managing forests and help to prevent global warming by making effective use of the ability of forests to sequester CO₂ and by using wood resources efficiently. In transporting raw materials, manufacturing products, and performing other activities that bring our products up to the point of usage, however, we use significant amounts of resources and energy, and generate greenhouse gases and waste. At every stage of the value chain, therefore, we actively work to reduce our environmental impact by, for example, monitoring the effects of our activities to manage them and adopting new technologies and facilities to achieve greater energy efficiency.



10th Eco Photo Awards Grand Prize winner –
"Aquatic Life Exploration Team"

Indicators	Key Objectives	Performance (fiscal 2016)
Materiality: Climate Change Initiatives		
Greenhouse gas emissions	Reduce 10% compared to FY2013 result	Reduced 1.5%
Materiality: Reduction of Environmental Impacts		
Waste recycling rate	Increase to 98% or higher	98.4%
Materiality: Preserving Biodiversity		
Forest certifications for company-owned forests	100%	100%
Check for rare species prior to harvesting in company-owned forests	100%	100%

Policy and Management 32

Basic Stance / Environmental Action Plan (Green Action Plan) / Environmental Management Promotion Structure / Strengthening Environmental Compliance / Environmental Communication / Environmental Education and Training / Environmental Accounting

Reduction of Environmental Impacts 36

Material Balance / Measures for Preventing Air Pollution / Initiatives for Preventing Water Pollution / Preventing

Noise, Vibration, and Odors / Preventing Soil Pollution / Water Supply Risk related to Our Water Usage / Recycling Industrial Waste / Controlling Chemical Substances

Climate Change Initiatives 40

Basic Stance / Progress Report for the Green Action Plan 2020 Environmental Action Plan / Fuel Conversion Led by the Adoption of Biomass Boilers / Initiatives for Saving Energy in Manufacturing Processes / Absorbing and Sequestering CO₂ through Proper Management of Company-Owned Forests / Advancing Energy Efficiency in Logistics

Promoting Recycling 43

Expanding the Use of Wastepaper / Waste Recycling

Preserving Biodiversity 44

Basic Stance / Initiatives in Our Core Business Activities / Initiatives Leveraging Our Resources and Technologies

Policy and Management

We are putting in place a Group-wide environmental management system based on our Environmental Charter and engaging in environmentally friendly corporate activities.

Basic Stance

Endeavoring to reduce the environmental impact of our activities taking into consideration the unique characteristics of our business and wide-ranging social issues

To reduce the environmental impact of its production processes, the Nippon Paper Group, in upholding the principles and basic stance expressed in the Nippon Paper Group Environmental Charter, emphasizes environmental performance in selecting equipment and strives to increase daily operating efficiency.

The Nippon Paper Group Environmental Charter

(Established on March 30, 2001, and revised on March 30, 2007)

Philosophy

The Nippon Paper Group is committed to helping preserve the global environment over the long term and contributing to the development of a recycling based society by carrying out its corporate activities in recognition of the importance of biodiversity.

Basic Policy

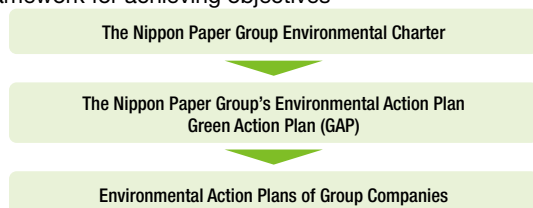
1. Act to counter global warming
2. Protect and develop forest resources
3. Increase use of recycled resources
4. Comply with environmental statutes and work to minimize our environmental impact
5. Develop environmentally friendly technologies and products
6. Engage in active environmental communication

Environmental Action Plan (Green Action Plan)

Setting forth specific objectives and actions

The Nippon Paper Group has established its Environmental Action Plan - the Green Action Plan (GAP) - in accordance with the six basic policies expressed in its Environmental Charter. Group companies have each established their own specific environmental action plans to reflect their own individual business circumstances based on the GAP. Their efforts to fulfill these plans are enhancing our ability to accomplish the GAP.

Framework for achieving objectives

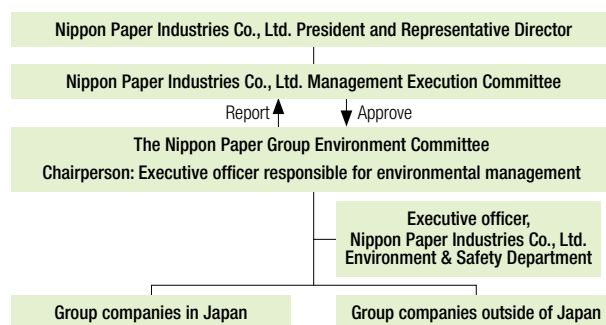


Environmental Management Promotion Structure

Putting in place a group-wide structure

The Management Execution Committee makes decisions on environmental strategy and oversees environmental activities, for the entire Group. Chaired by the executive officer responsible for environmental management, the Nippon Paper Group Environmental Committee applies the philosophy and basic policies of the Environmental Charter, which underpins the environmental management principles of Group companies, by drawing up and monitoring implementation of the Environmental Action Plan, and submitting progress reports to the Management Execution Committee. By deliberating and approving new initiatives, the Management Execution Committee promotes ongoing improvement in the Group's environmental activities.

The Nippon Paper Group's environmental management promotion structure (as of March 31, 2017)



● Strengthening environmental management systems

At the Nippon Paper Group, the environmental departments at our headquarters and production facilities work together to strengthen the environmental management systems.

Nippon Paper Industries, for example, has adopted a system for centrally managing emissions from the boilers of individual mills. This effort illustrates how the company's headquarters and production facilities work together to ensure compliance with laws and regulations, and reduce environmental impact.

● Introducing environmental management systems

As one measure aimed at promoting environmental management, the Nippon Paper Group is introducing various environmental management systems including ISO 14001, the international standard for environmental management, and Eco-Action 21. ISO 14001 certifications have been obtained by 93% of the principal production sites of Nippon Paper Industries Co., Ltd. and its consolidated subsidiaries.



➡ Please refer to the following web page for information on conditions with regard to ISO14001 and Eco-Action 21 certifications.
http://www.nipponpapergroup.com/csr/2017.3_ISO14001_e.pdf

The Nippon Paper Group Environmental Action Plan (Green Action Plan 2020) - Fiscal 2016 Progress Report

	Green Action Plan 2020	Progress	Page
1. Anti-global warming action	Reduce greenhouse gas emissions by 10% compared to fiscal 2013. ¹	•Reduced greenhouse gas emissions by 1.5% compared to fiscal 2013 by updating and consolidating facilities, and moving forward with fuel conversion.	40
	Reduce logistics-generated CO ₂ emissions.	•Continuously working to reduce CO ₂ emissions by shortening transportation distances and advancing highly efficient modal shift transport.	42
2. Protection and development of forest resources	Advance domestic company-owned forest operations and the overseas afforestation project (Tree Farm Initiative) to ensure the sustainable nurturing of forest resources.	•As of the end of 2016, total afforested areas came to 91,000 ha.	30
	Maintain forest certifications in all proprietary forests, both domestically and internationally.	•Currently maintaining SGEC, FSC ^{®2} , and PEFC certification for 181,000 ha of company-owned forests in Japan and overseas.	27, 28, 30
	Ensure that all wood materials for pulp and paper are endorsed under forest certification schemes.	•Using only PEFC- or FSC [®] -certified wood materials (including controlled material and controlled wood) for pulp and paper.	27
	Enhance traceability and facilitate the procurement of sustainable forest resources.	•In working to enhance traceability through the use of forest certifications, cleared the requirements of PEFC rules in their entirety and FSC [®] rules to 97% with respect to the assessment of imported wood chip risk in fiscal 2016.	26, 27
	Advance the use of wood fiber produced from domestically grown trees to promote sound growth of forest resources in Japan.	•Nippon Paper Industries Co., Ltd. used domestically produced wood for 37% of its needs.	25, 28
3. Recycling of resources	Promote greater use of wastepaper by achieving advances in wastepaper utilization technologies.	•As a result of vigorous efforts to use wastepaper, wastepaper pulp accounted for 38% of pulp used to produce paper, and 89% of pulp used to produce paperboard.	43
	Increase the waste recycling rate to at least 98%. ¹	•Waste recycling rate came to 98.4% because of efforts to reduce waste generation and to recycle boiler ash.	39
4. Observance of environment-related laws and reduction of environmental load	Use the environmental management system to strengthen environmental management and reduce environmental impact.	•ISO14001 and other environmental management system standards are being implemented in locations with high environmental impact to ensure regulatory compliance and reduce environmental impact.	32
	Properly manage chemical substances in accordance with the Nippon Paper Group Chemical Substance Management Guidelines.	•In locations where chemical substances are being used, records on substance types and amounts are being kept, and safety data sheets are being used, to properly manage chemical substances. •In fiscal 2016, water chillers were updated and recovery facilities were newly installed to reduce chloroform emissions at Nippon Paper Industries Co., Ltd.'s Iwakuni Mill.	39
5. Development of eco-friendly technologies and products	Enhance the more sophisticated use of wood materials.	•Developed Minerpa™, a functional material that is a composite of minerals and cellulose fiber, and offers excellent anti-odor, antibacterial, fire-resistance, and radiation shielding properties. •A high-capacity (annual capacity of 500 tonnes) production facility for industrial TEMPO-oxidized CNF was installed at Nippon Paper Industries Co., Ltd.'s Ishinomaki Mill. Operations began in April 2017. Finalized the decision to install a high-capacity (annual capacity of 30 tonnes) facility to produce CM-CNF at the Gotsu Mill. CM-CNF will be for use as a food and cosmetics additive. Operations scheduled to start in September 2017.	11, 52
	Develop equipment technology for facilitating a departure from reliance on fossil energy.	•Began test production of torrefied pellets, a new biomass solid fuel, in Thailand.	40, 41
	Reduce the environmental load through the provision of ecofriendly products and services.	•Nippon Paper Industries Co., Ltd. advanced the renewable energy business to help reduce its environmental load. It did this by starting to install wind turbines for a wind-power plant (scheduled to begin operating in January 2018) on land adjacent to the Akita Mill. •Sold CfFA® concrete admixture (making effective use of pulverized-coal boiler ash from Nippon Paper Industries Co., Ltd.'s Ishinomaki Mill) for use in recovery construction in the Ishinomaki area of Miyagi Prefecture, Japan. •Began sales of NP-PAK Bio paper cartons (made almost totally from plant-derived recyclable biomass material) for chilled liquids.	11, 43
6. Environmental communication	Disclose environment-related information to stakeholders and accelerate environmental communication through dialogue and other means.	•Shared risk information and invigorated dialogue with society through publication of the Sustainability Report and through environmental risk communication efforts undertaken at individual mills.	34
	Proactively participate in and support environment conservation activities.	•Actively participated in environmental protection endeavors including clean-up and greening initiatives organized by local communities, while promoting various activities including mill tours and internships.	64
7. Biodiversity commitments	Advance companywide biodiversity initiatives in accordance with the Nippon Paper Group Basic Policies on Protection of Biodiversity.	•As a fiscal 2016 education activity on the importance of protecting biodiversity, conducted environmental e-learning, under the theme of Forests and Biodiversity, for Group and affiliate employees. •Worked with the Wild Bird Society of Japan to conduct habitat surveys on birds in general, and the Blakiston's fish owl in particular.	34

¹ Production sites in Japan.² FSC® Logo License No.FSC®C120260, FSC®C012171, FSC®C023383

Environment performance data

<http://www.nipponpapergroup.com/english/csr/>

Policy and Management

Strengthening Environmental Compliance

Taking action in a two-pronged approach

In order to reduce the environmental impact of its business activities, the Nippon Paper Group is strengthening environmental compliance by placing equal emphasis on preventing problems and on establishing a framework that ensures all problems come to light.

We were not subject to any form of adverse disposition (revocation of licenses, orders to suspend operation or the use of facilities, or fines) with respect to compliance with environmental regulations in fiscal 2016.

To bolster environmental compliance

1. Building systems to prevent problems
 - Building a workplace that emphasizes the importance of the environment (environmental compliance training)
 - Strengthening the system for identifying applicable laws and regulations
 - Implementing measures from both the facility and technology perspectives
2. Establishing a framework that ensures all problems come to light
 - Bolstering environmental audits
 - Strengthening the environmental management structure
 - Engaging in environmental communication and active information disclosure

● Strengthening the framework for reliably identifying laws to be observed

To accurately respond to wide-ranging and relatively frequent changes in environmental legislation, Nippon Paper Industries has retained legal experts as advisors and implemented a legal and regulatory search system.

● Introducing equipment and facilities to prevent environmental accidents

Nippon Paper Industries identifies risks of environmental accidents in terms of both probability and potential impact, and introduces the equipment and facilities needed for prevention. Acting to prevent major chemical and oil spills - considered a top priority again in fiscal 2016 - the company took steps like installing liquid containment walls and surface oil detectors.

● Environmental audits emphasizing legal compliance and risk control

The environmental management guidelines on pollution prevention issued by the Japanese Ministry of the Environment and Ministry of Economy, Trade and Industry serve as the basis for internal audits by the Nippon Paper Group's various business locations, and for environmental audits by Nippon Paper Industry's head office Environment & Safety Department. The latter function as a double confirmation of legal compliance and include inspection of

chemical tanks and other facilities to prevent environmental accidents. A system of mutual audits has also been put in place by the Group as an additional step to strengthen compliance and risk control.

Environmental Communication

Reflecting feedback into our environmental activities

The Nippon Paper Group places particular emphasis on sharing risk information with local communities in an effort to build strong ties of trust with them. To this end, the Group engages in environmental risk communication with local residents and government authorities, as provided in the Nippon Paper Group Risk Communication Guidelines. In cases such as the installation of large-scale equipment, we also conduct explanatory meetings to provide a better understanding of any impact on the environment from installation work and operation of the installed facilities.

● Responses to opinions and complaints

In addition to receiving opinions and inquiries via its website, the Nippon Paper Group has established a complaint and inquiry contact at each of its mills. We have also adopted environmental monitoring systems that encourage input from local residents.

Mills that receive complaints move swiftly to determine possible causes, and take remedial action. In those instances where a permanent solution requires an extended amount of time to implement, all appropriate provisional measures are taken as quickly as possible. With each complaint, the Group takes steps to explain the details of remedial action to be taken and to obtain the necessary acknowledgement.

No. of environment-related complaints in Japan (fiscal 2016)

Complaints	No.	Complaints	No.
Noise	1	Vibration	1
Dust and mist dispersal	5	Smoke	0
Odor	2	Other	1
Total 10			

Environmental Education and Training

Supporting employees to learn

The Nippon Paper Group provides basic to specialized environmental education covering topics such as wastewater treatment plant operation. In addition, the Group encourages employees to participate in external training and take advantage of other opportunities to gain pollution prevention qualifications and expertise.

To help elevate the environmental protection awareness

of employees, we hold the Nippon Paper Group Eco-Photo Contest and conduct environmental e-learning. These activities take place in the month of June – Environment Month in Japan.

In 2017, large numbers of employees participated in our e-learning programs, which focused on forest certification systems.

Environmental Accounting

Environmental conservation expenses amounted to around ¥30.1 billion

Environmental accounting at domestic consolidated companies*

Environmental conservation costs

(Millions of yen)

Categories	Principal Activities	Investment	Cost
(1) Business area costs			
1. Pollution prevention costs	Maintaining, managing and improving air and water pollution prevention facilities, etc.	1,260	11,119
2. Global environmental conservation costs	Preventing global warming as well as maintaining and managing company-owned forests, etc.	4,037	722
3. Resources circulation costs	Effectively utilizing recycled paper as well as treating, reducing and recycling industrial waste, etc.	428	8,568
(2) Upstream / downstream costs	Recovering pallets, etc.	–	2,097
(3) Administration costs	ISO 14001 inspection, operation and management; environmental information disclosure; employee environmental education; and workplace cleaning initiatives, etc.	–	297
(4) R&D costs	R&D relating to environmentally friendly products as well as the reduction of environmental load imposed by paper manufacturing processes, etc.	–	994
(5) Social activity costs	Local community natural conservation, tree planting, cleaning and landscaping activities, as well as donations and support for environmental organizations, etc.	–	63
(6) Environmental remediation costs	Levy for pollution-related health damage compensation system (SOx), etc.	–	546
Subtotal		5,725	24,406
Total		30,131	

Environmental conservation impacts

Categories	Environmental Impact Indicators		Results	YoY Change
Effects related to resources introduced to business activities	Afforestation projects overseas	Overseas afforestation areas	91 k ha	Up 2 k ha
	Energy-saving measures	Fuel use (Heavy oil equivalent)	–	Up 37,358 kl
Effects related to environmental impact and waste from business activities	Greenhouse gas emissions		7.17 Mt	Up 0.27 Mt
	Air pollutant emissions	NOx emissions (NO equivalent)	8,002 t	Up 167 t
		SOx emissions (SO ₂ equivalent)	3,345 t	Up 671 t
		Soot and dust emissions	1,183 t	Down 52 t
	Effluent		881 Mt	Unchanged
	Water contaminant emissions	COD/BOD emissions	53,019 t	Down 238 t
		SS emissions	22,124 t	Down 1,072 t
	Final waste disposal		10.7 kt	Down 6.7 kt
Effects related to goods and services produced from business activities	Product recycling	Recycled paper utilization rate (paper)	38.4%	Up 0.6%
		Recycled paper utilization rate (paperboard)	88.7%	Up 0.1%
	Shipping material recycling	Pallet recovery rate	39.1%	Down 9%

* "k ha" = thousand hectares

Economic benefits of environmental conservation

(Millions of yen)

Effect	Amount
Income from company-owned forests in Japan	430
Reduced expenses from energy saved	1,344
Reduced disposal expenses through the effective use of waste	4,495
Gain on sales from the recycled waste	451
Reduced expenses through the recycling of shipping materials	49
Total	6,769

* Accounting standards are based on Environmental Accounting Guidelines 2005.

Reduction of Environmental Impacts

Ascertaining our material balance and reducing our environmental impact

Material Balance

Identifying and reducing the environmental impact of our business activities

The Nippon Paper Group engages in a broad range of paper-related and other business activities driven primarily by the Pulp and Paper Division, which accounts for 83% of

total net sales. Constituting most of the Group's material balance in Japan, this division is responsible for approximately 92% of the Group's water consumption and 96% of its CO₂ emissions there.

Woodchips and recycled paper make up the bulk of raw materials used to make paper. After converting these raw materials into pulp, the pulp is diluted with water to produce

Balance of materials (principal materials) ¹

[Units] GWh = Gigawatt hours BDT = Bone-dry tonnes ADt = Air-dry tonnes

Input				
Energy input		Other non-fossil fuels ² ----- 6,184 kt (Black liquor subtotal: ----- 4,620 kt)	Water consumption ----- 957 Mt	Raw materials
Purchased electricity -----	2,148 GWh	Chemical substances subject to the PRTR Law³ (Amount handled) ----- 12,012 t	River water -----	Woodchips ----- 5,361 BD kt
Oil -----	177 Ml		Industrial water -----	Logs ----- 724 BD kt
Coal -----	2,626 kt		Well water -----	Pulp ----- 478 AD kt
Gas -----	243 kt		Public water supply -----	Recycled paper (pulp) 3,139 AD kt
Other fossil fuels -----	18 kt			Base paper ----- 113 BD kt

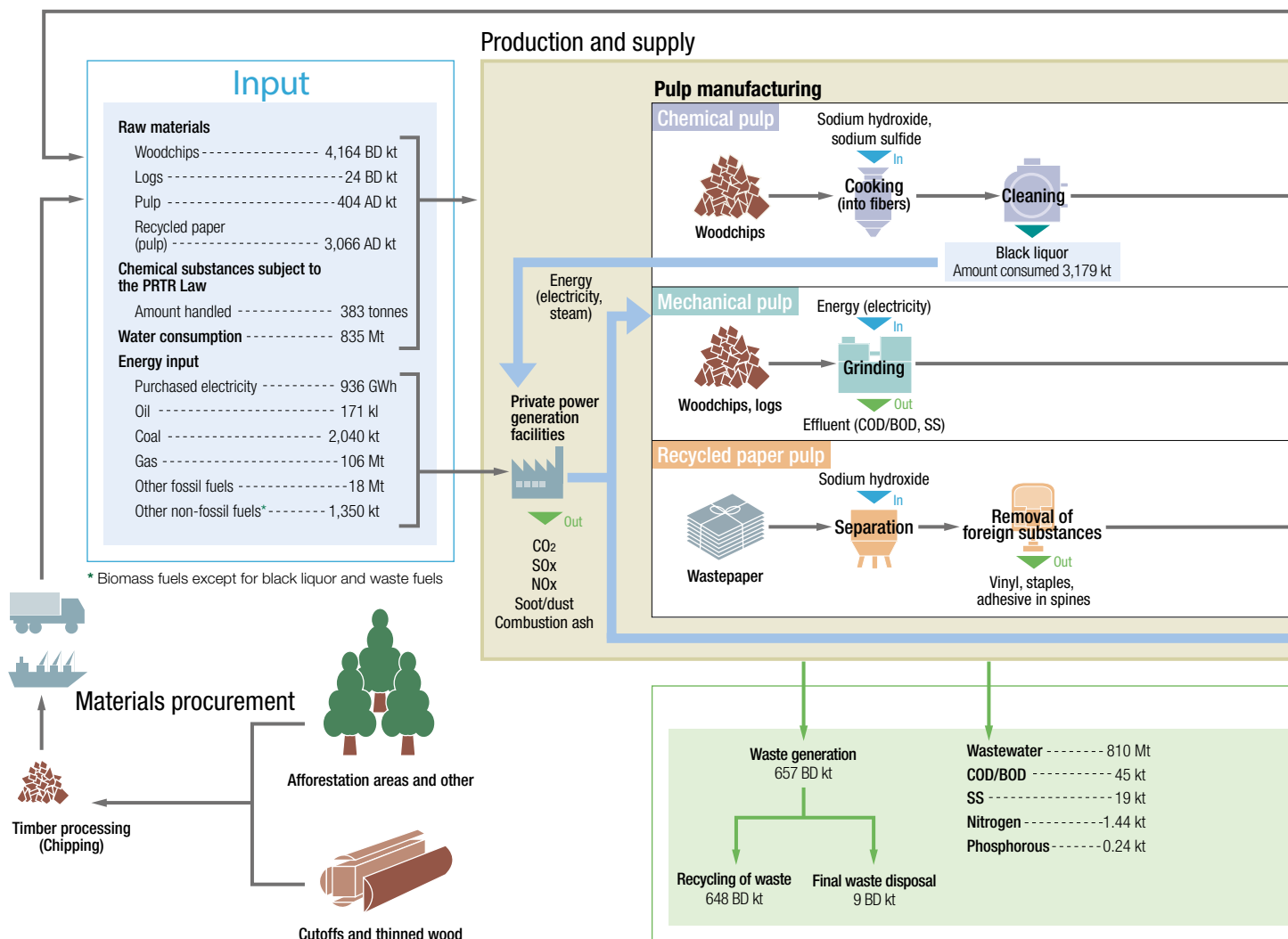
¹ In fiscal 2016, the scope of organizations covered in calculating the balance of materials was changed to include Amapá Florestal e Celulose S.A. (AMCEL) and Nippon Dynawave Packaging Company, and exclude Nippon Paper Industries

USA Co., Ltd.

² Biomass fuels and waste fuels

³ Japan only

Material balance in the Pulp and Paper Business in Japan (principal materials)



pulp slurry and then formed as wet thin sheets. The water is then removed by drying to make paper. In the pulp and papermaking processes, steam is used as a heat source and electricity as a power source. Pulp and paper mills are equipped with boilers that combust fuel to generate steam, and generators that create electricity with turbines driven by steam.

Unfortunate byproducts of the pulp and paper manufacturing process are effluents containing water contaminants as well as steam containing air pollutants and CO₂. Moreover, the fuels combusted by boilers produce ash waste. With this in mind, the Nippon Paper Group strives to reduce the environmental impact of these pollutants.

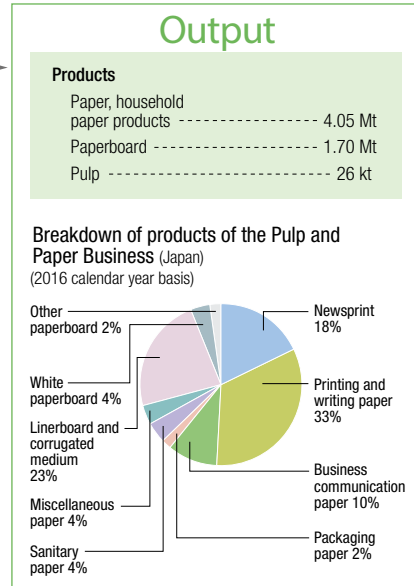
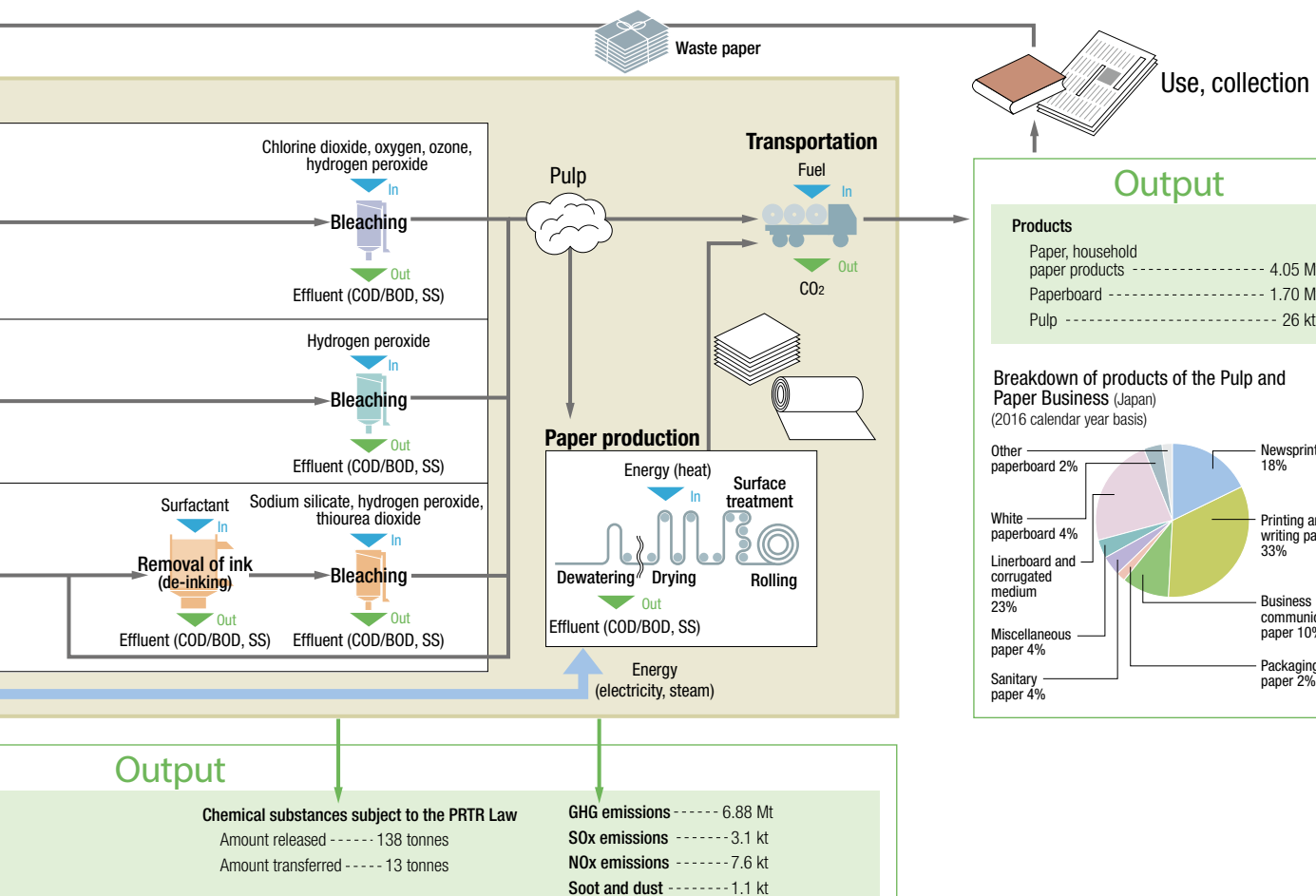
Output

GHG Emissions ----- 8.21 Mt
SOx emissions ----- 3.8 kt
NOx emissions ----- 9.4 kt
Soot and dust ----- 1.4 kt
Chemical substances subject to the PRTR Law³
 Amount released ----- 191 tonnes
 Amount transferred ----- 83 tonnes

Wastewater ----- 933 Mt
 Public water ----- 923 Mt
 Sewerage ----- 10 Mt
COD/BOD ----- 62.5 kt
SS ----- 25.5 kt
Nitrogen ----- 1.48 kt
Phosphorous ----- 0.25 kt

Total Waste Generated ----- 911 BD kt
 Final disposal subtotal ----- 106 BD kt
 Recycled subtotal ----- 805 BD kt

Products manufactured
 Paper, household paper -- 4.47 Mt
 Paperboard ----- 2.16 Mt
 Pulp ----- 227 kt
 Paper container ----- 100 kt
 Chemical products ----- 111 kt
 Building materials ----- 68 kt
 Electricity ----- 1,191 GWh



Reduction of Environmental Impacts

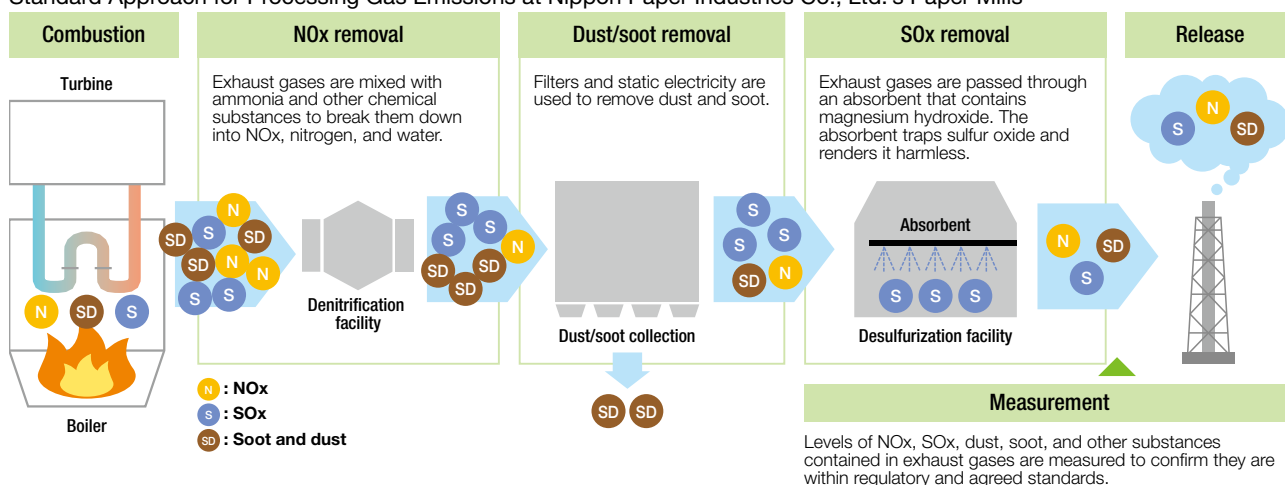
Measures for Preventing Air Pollution

Using chemical substances and filters to reduce emissions of air pollutants

The Nippon Paper Group uses boilers and turbines to generate power internally at its paper mills. The steam

emitted by boilers includes greenhouse gases, nitrogen oxide (NOx), sulfur oxide (SOx), soot, dust, and other air pollutants. To lower its environmental impact, the Group uses denitrification, desulfurization, dust collection, and other equipment to bring these pollutants within regulatory standards and standards agreed upon with local governments.

Standard Approach for Processing Gas Emissions at Nippon Paper Industries Co., Ltd.'s Paper Mills



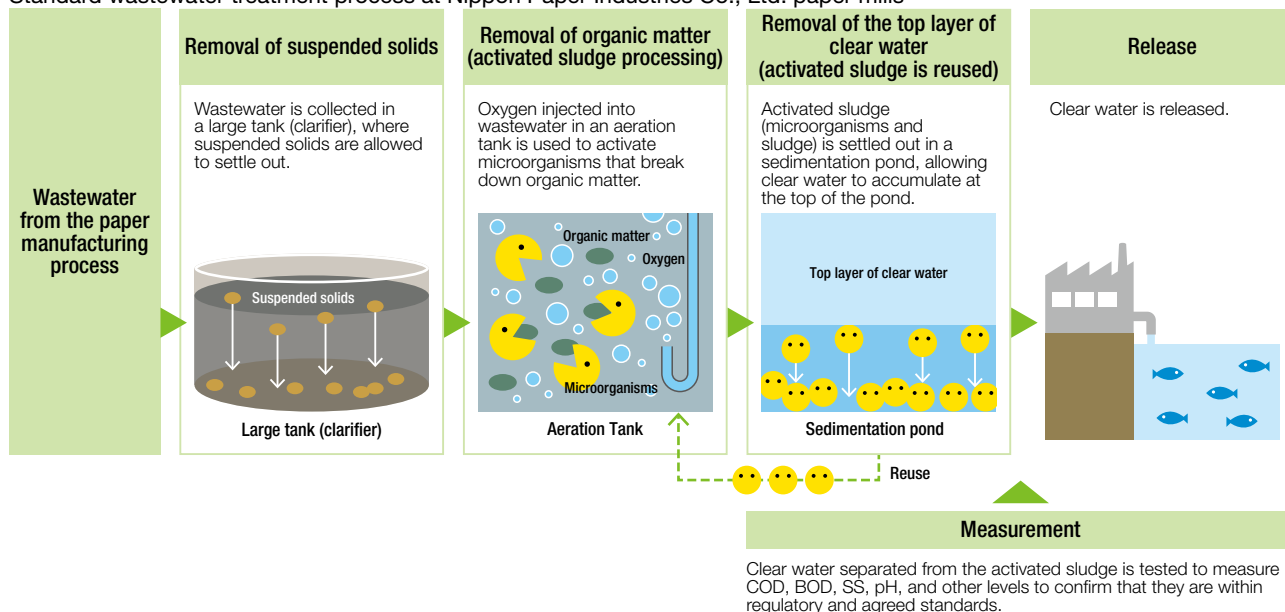
Initiatives for Preventing Water Pollution

Lowering discharges of water pollutants through the use of microorganisms

Wastewater from the production of paper contains suspended and organic matter originating from the minute pulp fibers, filler, and other materials that did not remain in

the paper. The Nippon Paper Group uses wastewater treatment facilities employing microorganism and other technologies to reduce levels of water pollutants measured, for example, in terms of COD, BOD, and SS levels. Through these measures and pH management, we are keeping pollutant levels within regulatory standards and standards agreed upon with local governments.

Standard wastewater treatment process at Nippon Paper Industries Co., Ltd. paper mills



Preventing Noise, Vibration, and Odors

Putting in place measures to reduce the impact on areas in proximity to mills

● Prevention of noise and vibration

Pulp and paper mills use large machines incorporating numerous motors and pumps that generate noise and vibration. Acting even when complaints have not been received, each mill takes steps such as installing sound insulation facilities or relocating machinery whenever an issue is determined to have arisen.



Before installation of sound insulation wall (left) and after (right) (Fuji Mill, Nippon Paper Industries)

● Prevention of odors

When making kraft pulp, foul odors from substances such as hydrogen sulfide, methyl mercaptan, methyl sulfide, and methyl disulfide can be generated. In addition to installing facilities that contain odors or break down the substances that emit them, we regularly measure odor levels and conduct patrols of surrounding areas to discover issues as early as possible.

Preventing Soil Pollution

Fiscal 2016, another year free of soil contamination

The raw materials and chemicals used by Nippon Paper Group mills contain almost no heavy metals, trichloroethylene or other soil contaminants.

Fiscal 2016 was another year in which there were no instances of contaminated soil generated at Group companies.

Water Supply Risk related to Our Water Usage

No Threats to Water Supplies

Presently, we have received no information from either government authorities or local communities that water usage by Nippon Paper Group company mills is having negative environmental impacts. Our operations are posing little risk to water supplies in Japan.

In addition, simple risk assessments performed by third parties have not indicated that water supplies are seriously threatened by our operations.

Recycling Industrial Waste

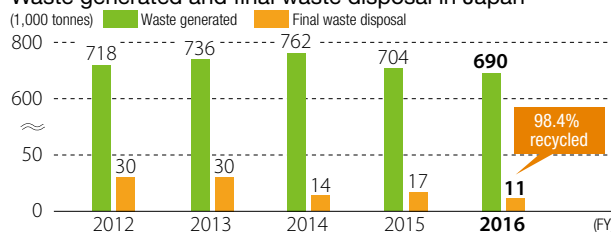
Working to make effective use of waste, while reducing waste generation

● Green Action Plan 2020 (GAP 2020) Progress Report

Under GAP 2020 (see page 33), the Group is working to increase its waste recycling rate to at least 98%.

To reduce the amount of industrial waste sent for final disposal by burial in landfills or by other means, we have undertaken various initiatives. These include, for example, revising production processes and using boiler ash as a construction material and for other purposes. As a result, our waste recycling rate rose to 98.4% in fiscal 2016.

Waste generated and final waste disposal in Japan



Controlling Chemical Substances

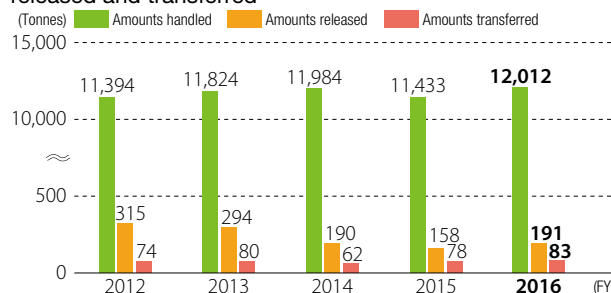
Working to make effective use of waste, while reducing waste generation

● Responding to the PRTR Law

The Pollutant Release and Transfer Register (PRTR) is a mechanism for businesses to use in tallying and reporting to authorities the wide variety of potentially hazardous chemical substances that are either emitted from their factories or transferred from their factories in waste.

Through risk communication meetings the Nippon Paper Group holds at its mills, we explain to local residents how chemical substances subject to the PRTR Law are being managed, and we provide updates on emissions and transfers.

Amounts of substances subject to the PRTR Law handled, released and transferred



Amounts of substances subject to the PRTR Law released and transferred

http://www.nipponpapergroup.com/csr/2017.3_PRTR_e.pdf

Climate Change Initiatives

Reducing greenhouse gas emissions at every stage of our business activities

Basic Stance

Working to build a low-carbon society

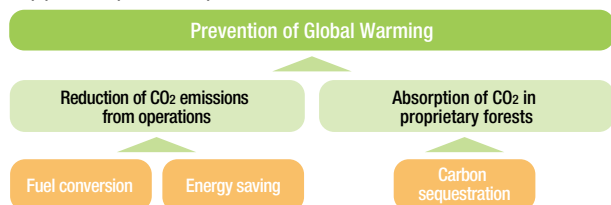
Keidanren (Japan Business Federation) and the Japan Paper Association both support the creation of a low-carbon society, and the Nippon Paper Group, as a member of both organizations, actively works to prevent global warming.

The Paris Agreement, signed in 2016, has taken effect and is expected to have a global impact on conditions surrounding the problem of climate change. For its part, the Nippon Paper Group will continue to strengthen measures supporting the creation of a low-carbon society.

● Three core initiatives

As a part of our efforts to prevent global warming across every stage of our business activities, we are (1) converting to non-fossil energy by employing boilers that use biomass and waste fuels, (2) conserving energy in each of our production and logistics processes, and (3) managing proprietary forests properly to ensure CO₂ absorption/sequestration (see pages 40-42).

Nippon Paper Group environmental initiatives

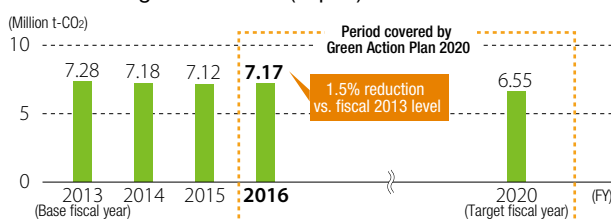


Progress Report for the Green Action Plan 2020 Environmental Action Plan

Working to achieve objectives

In its Green Action Plan 2020 (see page 33), the Nippon Paper Group has established the objective of reducing greenhouse gas emissions 10% compared to the fiscal 2013 level. In fiscal 2016, the first year covered by the plan, we vigorously moved forward with investments aimed at saving energy by, for example, consolidating facilities and updating equipment. As a result, our fiscal 2016 greenhouse gas emissions declined 1.5% compared to the fiscal 2013 level, despite lower production in our paper pulp operations.

Greenhouse gas emissions (Japan)*



* For companies covered by the Energy Conservation Act. These consist of certain consolidated group companies in Japan and certain nonconsolidated subsidiaries in Japan.

Fuel Conversion Led by the Adoption of Biomass Boilers

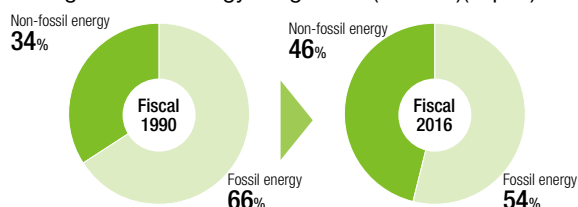
Actively using biomass and waste fuels to reduce fossil energy usage

The Nippon Paper Group has installed two types of boilers—high-efficiency boilers and boilers capable of burning construction waste and other woody biomass fuels; used tires; RPF*; and other waste fuels. Our use of these fuels allows us to reduce our usage of fossil fuels. This fuel conversion initiative helps to prevent global warming and slow the depletion of fossil resources.

As a result of energy saving activities and fuel conversion, the Group's fossil energy usage ratio in Japan fell to 54% in fiscal 2016, compared to 66% in fiscal 1990.

* RPF (Refuse paper and plastic fuel): Fuel derived from paper that is unusable as recycled paper and from waste plastic.

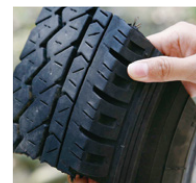
Change in fossil energy usage ratio (calories)(Japan)



Construction waste and other materials



RPF



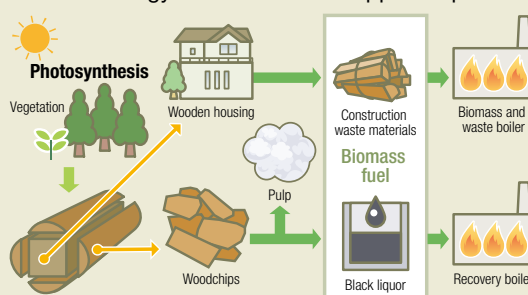
Used tires

One of the largest corporate users of biomass energy in Japan

The Nippon Paper Group actively applies biomass energy from sources such as black liquor and construction waste. The amount consumed accounts for up to 7%* of non-fossil energy (excluding nuclear and hydroelectric power) used in Japan. The Nippon Paper Group is one of the largest corporate users of biomass energy in Japan.

* In-house data prepared by Nippon Paper Industries Co., Ltd. using energy supply information (fiscal 2015 finalized information) published by the Natural Resources and Energy Agency.

Biomass energy utilization at the Nippon Paper Group



● Development of a new biomass solid fuel

Trees absorb CO₂ as they grow. When woody biomass fuel made from trees is burned, the CO₂ that results is CO₂ that was absorbed from the atmosphere and sequestered as the trees were growing, so there is no net impact on atmospheric CO₂ – woody biomass fuel, in other words, is carbon neutral.

Given this carbon-neutral characteristic of woody biomass fuel, the co-firing of woody biomass is being advanced to reduce the CO₂ emissions of coal-fired boilers. Woodchips and wood pellets, however, cannot be efficiently crushed and there are other issues, for example, with water repellency when stored outdoors.

To address these challenges, Nippon Paper Industries has applied torrefaction technology to carbonize woody biomass at a relatively low temperature to develop a new biomass solid fuel that has pulverization properties similar to those of coal and retains most of its energy value.



New woody biomass solid fuel made with torrefaction technology

Initiatives for Saving Energy in Manufacturing Processes

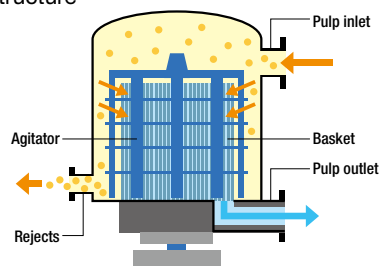
Actively adopting energy-saving facilities

Wastepaper pulp used as a raw material for paper includes extraneous material such as glue used in the assembly of magazines. Before this pulp can be used to make paper, therefore, it must be put through a screening process. In the screening process, wastepaper pulp is sent into a vessel through an inlet pipe. Within the vessel, the pulp is filtered through a basket with countless slits. Material too large to pass through the slits remains on the outside of the basket, where it is removed by a revolving agitator.

To reduce its energy consumption, Nippon Paper Industries Co., Ltd.'s Ishinomaki Mill has installed highly efficient filtering facilities that employ lightweight agitators equipped with modified fins to remove extraneous material at low RPM.

This is just one example of how the Nippon Paper Group adopts new facilities or updates existing facilities to continuously improve its energy-saving performance.

Agitator Structure



Absorbing and Sequestering CO₂ through Proper Management of Company-Owned Forests

Sequestering atmospheric CO₂ in forests and wood products

● Sequestering CO₂ with 181 thousand hectares of forests in and outside Japan

As trees grow, they absorb and sequester CO₂ from the atmosphere. It is widely recognized, therefore, that the proper protection of forests helps prevent global warming.

The Nippon Paper Group manages 181 thousand hectares of forests, 90 thousand hectares in Japan and 91 thousand hectares across four countries abroad. Through sustainable forest management, the Group maintains the CO₂ absorption and sequestration capabilities of trees. These forests, both in and outside Japan, continuously sequester approximately 33 million tonnes of CO₂.

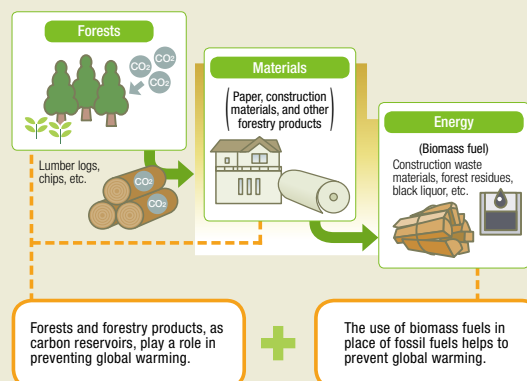
We are helping to prevent global warming not only by restricting CO₂ emissions but also by protecting forests.

Sequestering CO₂ in various wood products

CO₂ sequestered in trees as carbon remains sequestered even after trees have been processed into products like construction materials and paper. Products made from wood, therefore, work to prevent increases in atmospheric CO₂ concentrations. Using wood products and actively recycling wastepaper, in other words, by fixing CO₂ for extended periods of time in products, helps to hold down increases in atmospheric CO₂ concentrations.

Moreover, when wood products like construction materials reach the end of their useful lives they can be used as carbon-neutral biomass fuel, the burning of which does not increase atmospheric CO₂.

Helping to prevent global warming through the cascade-use of wood*



* "Cascade-use" refers to the full use of an individual tree for applications across the quality scale, from ones requiring very high quality to others for which quality is not a consideration, for maximum efficiency in resource usage.

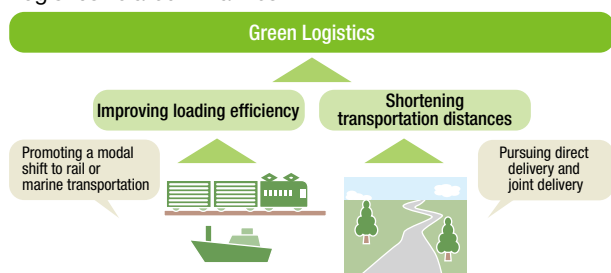
Climate Change Initiatives

Advancing Energy Efficiency in Logistics

Working to promote green logistics

The Nippon Paper Group focuses mainly on the two core initiatives of improving its loading efficiency and shortening transportation distances to reduce logistics-related CO₂ emissions.

Logistics-related initiatives



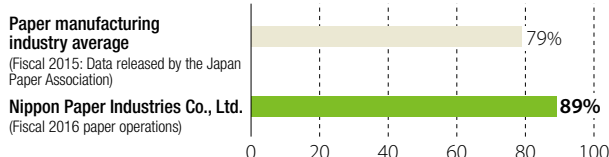
Promoting a modal shift in transportation to secure high loading efficiency

With a modal shift rate* of 89% in its operations in fiscal 2016, Nippon Paper Industries remains a top performer in the implementation of this transportation approach.

* Modal shift rate:

The percentage of rail or marine (including coastal shipping and ferries) transport in general cargo transported over 500 kilometers.

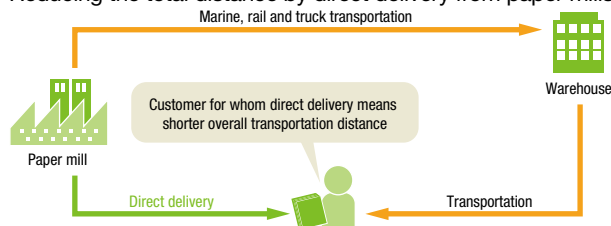
Comparison of modal shift rates



Working with logistics service providers to shorten transportation distances

The Nippon Paper Group is working with logistics service providers to bypass warehouses and deliver products directly to customers. This effort is intended to reduce CO₂ emissions by shortening overall transportation distances.

Reducing the total distance by direct delivery from paper mills



Obtaining Green Management Certifications

Green Management Certifications are awarded and registered by the Foundation for Promoting Personal Mobility and Ecological Transportation. Companies that undertake at least a certain minimum level of initiatives based on the Green Management Promotion Manual are eligible for these certifications.

Within the Nippon Paper Group, 16 business locations of 8 Group companies have received Green Management Certification. The Nippon Paper Group is actively implementing ecological driving, vehicle inspection and maintenance, reduction of vehicle disposal and waste generation, proper waste handling and recycling, and other practices consistent with green management.



Green Management Certification logo

Green Management Certifications (As of July 1, 2017)

Company
NIPPON PAPER LOGISTICS, Kyokushin Transport, Nanko Logistics Support, Hotoku, NP Unyu Kanto, NP Unyu Fuji, NP Unyu Kansai, and NP Unyu Iwakuni

* Consolidated and non-consolidated subsidiaries in Japan

Excellence Award Received under the Chiyoda Ward Global Warming Action Plan System

Nippon Paper Industries Co., Ltd. was named a winner of an Excellence Award by Tokyo's Chiyoda ward. Under its Global Warming Action Plan System, the ward, which has been selected by the Japanese government as an Environmental Model City, assesses the global warming action plans announced by eligible businesses. It then presents awards to the businesses with the best plans. Nippon Paper Industries Co., Ltd. was also named a winner in the Environmental Education Category in fiscal 2012.

For its fiscal 2016 Excellence Award, the Company received particularly high praise for its efforts to save electricity and other forms of energy, and for the contributions of its environmental education and internal and external information dissemination efforts toward the development of environmentally aware human resources. Taking this formal recognition by Chiyoda ward as an affirmation of its environmental initiatives, the Company has redoubled its commitment to pursuing various initiatives and information dissemination efforts to protect the environment.



Presentation of the Excellence Award by the Mayor of Chiyoda ward, Tokyo

Promoting Recycling

Contributing to the development of a recycling-based society

Expanding the Use of Wastepaper

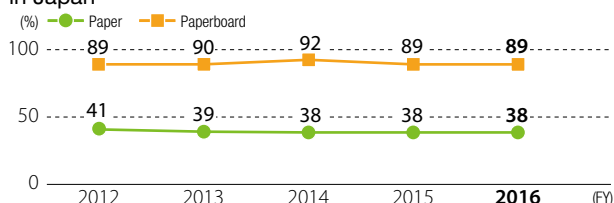
Actively promoting paper recycling

Despite efforts to secure forest resources through sustainable forest management, wastepaper continues to be an important resource for the paper industry.

The Nippon Paper Group is promoting paper recycling by working with customers to build wastepaper recycling systems, and by collaborating with citizens' and industry groups to conduct educational activities on wastepaper collection. The Group has also been working to further expand the use of wastepaper by developing technology for using types of paper that have proven difficult to recycle.

As paper and paperboard demand grows outside Japan, it is becoming more difficult to procure sufficient amounts of wastepaper in Japan. We, however, will continue with efforts to expand both wastepaper collection and the kinds of wastepaper that can be recycled.

Recycled paper utilization rate by the Nippon Paper Group in Japan



Collecting Paper-Pak cartons

Nippon Paper Industries Co., Ltd., a member of the Committee for Milk Container Environmental Issues (an organization composed of container manufacturers and manufacturers of dairy products), is helping to achieve the committee's goal of increasing the beverage carton collection rate to at least 50% by 2020.

To increase collection rates and promote recycling, the Company's Paper-Pak Sales Division has conducted three Paper-Pak carton recycling campaigns targeting Group employees. Participation rose on each occasion and employees have come to embrace the campaigns. During a two-month period in 2016, Group employees contributed approximately 16,300 Paper-Pak cartons from their households.

Going forward, we will continue efforts to place collection boxes at Group business locations and promote activities for Paper-Pak carton recycling outside the Group.

Paper-Pak carton recycling campaign results

Fiscal Year	Participants	Paper-Pak Cartons Collected
1st Campaign (December 2013 - January 2014)	129	5,721
2nd Campaign (September-November 2014)	201	16,512
3rd Campaign (August-September 2016)	255	16,277

Expanding the production of products made with wastepaper pulp in Australia

Australian Paper, located in the Australian state of Victoria, is that country's only company manufacturing eco-friendly copier paper – a product that incorporates wastepaper pulp. And, responding to the country's heightened environmental awareness, the company is increasing its production of eco-friendly products.

In fiscal 2015, Australian Paper began operations at facilities that are capable of producing 50,000 tonnes of wastepaper pulp annually, and it is working to expand and enhance its line of products incorporating wastepaper pulp.



REFLEX brand copier paper incorporating wastepaper pulp

Beginning in 2016, Australian Paper is putting to work its expanded capabilities to make products incorporating wastepaper pulp and strengthening its relationship with PLANET ARK – the country's best-known environmental NPO – to contribute to the building of a recycling-oriented society by promoting even greater use of recycled products.

Waste Recycling

Making effective use of waste

Advancing efforts to make effective use of ash and other manufacturing byproducts (see page 39.)

Case

Project for making and selling CfFA® (Carbon-free Fly Ash), a concrete admixture made with coal ash

In April 2016, Nippon Paper Industries Co., Ltd. began manufacturing and selling CfFA®, a concrete admixture made from coal ash – a byproduct from the coal-fired power plant at the Company's Ishinomaki Mill.

CfFA® consists of fly ash from which unburned carbon, a material that can have a negative effect on concrete quality, has been removed through a heat modification process.

Characterized by consistent quality, CfFA® has already been used to make national highway tunnels, breakwater tetrapods, seawalls, and other structures. Going forward, the Company will focus on having CfFA® contribute to disaster recovery and infrastructure construction in the Tohoku region of Japan.



Breakwater tetrapods in a drainage outlet at Nippon Paper Industries Co., Ltd.'s Ishinomaki Mill.

Preserving Biodiversity

Pursuing activities that protect the ecosystems of company-owned forests and leverage proprietary resources and technologies

Basic Stance

Formulation of a new basic policy

The business activities of the Nippon Paper Group entail the cultivation and utilization of forests and, therefore, have an inherently significant and wide-ranging impact on forest biodiversity. We recognize that the sustainable use of forests is fundamental to our existence and development as a going concern. The basic philosophy of the Nippon Paper Group Environmental Charter (see page 32) states that the Nippon Paper Group will engage in corporate activities that recognize the importance of biodiversity. Our Basic Policies on the Preservation of Biodiversity, established in April 2016, provides guidance for the pursuit of such activities.

Nippon Paper Group initiatives

Preserving biodiversity

1 Initiatives implemented in the conduct of our core business activities

- Protection of forest biodiversity
- Reduction of environmental impacts of production activities

2 Initiatives leveraging our resources and technologies

- Use of company-owned forests
- Use of proprietary technologies

1 Initiatives in Our Core Business Activities

Pass thriving forests on to future generations

In pursuing sustainable forest management (see pages 28 and 30), the Nippon Paper Group conducts biodiversity surveys in company-owned forests. We also strive to

reduce our impact on biodiversity by, for example, treating wastewater and controlling greenhouse gas emissions in our manufacturing processes.

Basic Policy on the Preservation of Biodiversity

(Established April 1, 2016)

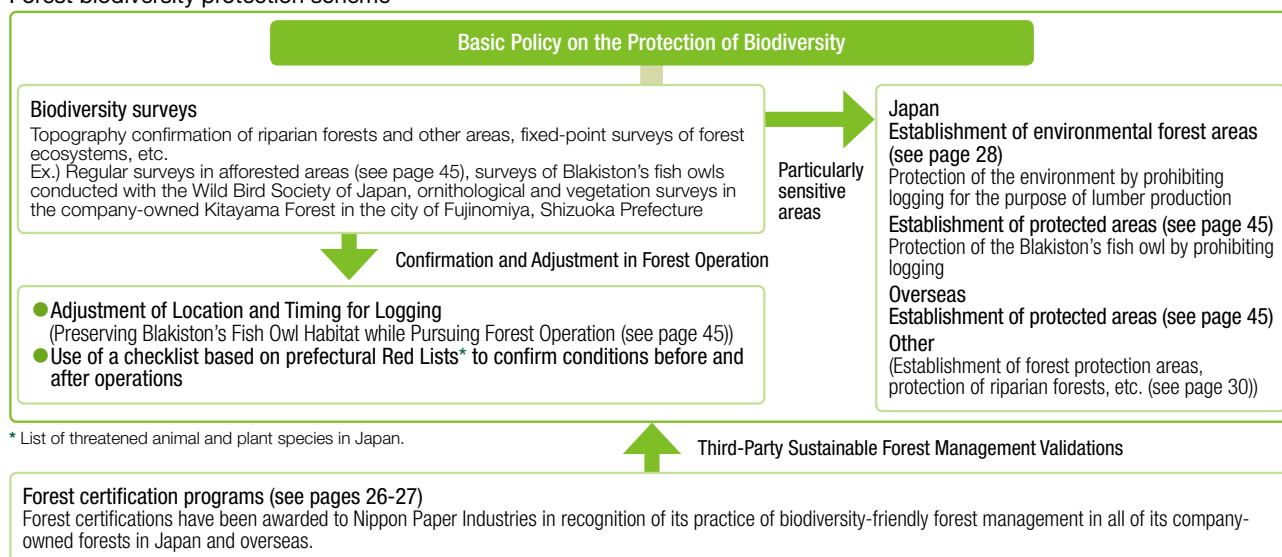
Principle

The Nippon Paper Group, a corporate group to which forest resources are of fundamental importance, appreciates the natural gifts bestowed by biodiversity and, by preserving biodiversity, aims to help create a sustainable society that can continuously enjoy ecosystem services.

Basic Policy

1. Recognizing the protection of biodiversity as a critical social issue, we will work to pursue business activities that are in harmony with the sustainable use of ecosystem services.
2. In supply-chain management, we acknowledge the impacts on biodiversity of cross-border use of ecosystem services, and will manage our ecosystem service usage properly.
3. In an effort to reduce environmental impacts on biodiversity, we will actively work to recycle and save resources.
4. We will promote the development of technologies, products, and services that contribute to the preservation of biodiversity and the sustainable use of ecosystem services.
5. Endeavoring to raise employees' awareness of biodiversity, and collaborating with stakeholders, we will contribute to the building of a society that nurtures biodiversity.

Forest biodiversity protection scheme



* List of threatened animal and plant species in Japan.



Breakdown of company-owned forests in Japan according to IUCN (International Union for Conservation of Nature) categories
http://www.nipponpapergroup.com/csr/IUCN2017_e.pdf

Case

Preserving Blakiston's fish owl habitat while pursuing business activities – Collaborating with the Wild Bird Society of Japan

In 2010, Nippon Paper Industries entered into an agreement with the Wild Bird Society of Japan where approximately 126 hectares of forestland owned by the company in the Nemuro region of Hokkaido was identified as a sanctuary for Blakiston's fish owl. This sanctuary is home to three confirmed braces of this endangered species.

In May 2015, we signed a memorandum of understanding* for the pursuit of business activities while

preserving Blakiston's fish owl habitat in company-owned forests located in the Kushiro region of Hokkaido. After collaborative surveys conducted in an atmosphere of mutual trust, we have agreed to standards for methods and timing for continuing lumber production, while also protecting habitat and breeding activity, without establishing protected areas.

* The activities pursued under this memorandum of understanding were presented with a 2015 Biodiversity Action Award by the Japan Committee for the United Nations Decade on Biodiversity.

Surveys undertaken with the Wild Bird Society

Fiscal Year	Survey Description
2010	Large trees suitable as Blakiston's fish owl habitat
2011	Bird species habitat
2012	Nesting survey focusing on white-tailed eagles and Steller's sea eagles, and an audio survey of nocturnal bird species
2013	Mammals and Blakiston's fish owl habitat
2014	Geographic activity scope of the Blakiston's fish owl
2015	Blakiston's fish owl habitat, other bird species habitat
2016	Blakiston's fish owl habitat, other bird species habitat



(Photo courtesy of the Wild Bird Society of Japan)

Blakiston's fish owl

Standing 70 to 80cm high and weighing 3 to 4.5 kg, Blakiston's fish owl is the world's largest owl, with a wingspan of 180 cm. Formerly numbering over 1,000 and found throughout Hokkaido, Blakiston's fish owls are now found mainly in the eastern parts of Hokkaido, with confirmed numbers of around 140, making up 50 braces. Blakiston's fish owl was identified as a national protected species in 1971, and placed on the Red List of critically endangered species by Japan's Ministry of the Environment.

Case

Conducting biodiversity research overseas (AMCEL S.A, Brazil and Volterra S.A., Chile)

AMCEL S.A., located in the Brazilian state of Amapa, owns approximately 310 thousand hectares of land and has set aside 170 thousand hectares as a conservation area.

Volterra S.A., in Chile, owns approximately 19 thousand hectares of forests and has designated about 5 thousand hectares as protected forests.

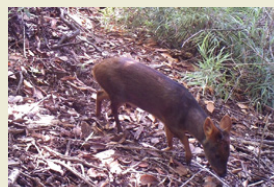
These areas are home to large numbers of plant and animal species, many of which are rare or endangered. Protecting them, therefore, is very meaningful. Both AMCEL and Volterra undertake surveys and other initiatives to research and monitor biodiversity in the areas they are protecting.



Vegetation survey



Releasing yellow-spotted Amazon River turtles



Pudu (a "near-threatened" species on the IUCN Red List)



Water-quality survey

Initiatives by afforestation companies in South America

Activity	Description
AMCEL S.A.	
Regular water inspections	Installation of equipment for monitoring the quality and level of water in the afforestation area, and performance of regular water inspections
Cooperation in a wildlife release program	Annual provision of the conservation area for use in a wildlife release program being conducted by the Brazilian Institute for the Environment and Renewable Natural Resources
Collaboration with the Federal University of Para	Ongoing monitoring by AMCEL following a joint mammalian habitat survey in cooperation with the university's Department of Biological Sciences in afforested and other areas. Ongoing monitoring of fish populations in waters adjacent to afforested areas in cooperation with the university's ecology research laboratory since 2016.
Collaboration with the local environmental research institution in Amapa state	A vegetation survey was initiated in a protected area to determine the distribution and status of plant life.
Collaboration with the Sao Paulo Research Foundation	Ongoing reproduction and survival surveys for yellow-spotted Amazon River turtles, an endangered species native to South America, were initiated in 2014 in protected and other areas.
Volterra S.A.	
Joint activity with the Universidad de Concepcion	Biodiversity surveys are being conducted on company land. The 2013 survey identified rare species including the endangered Chilean pine (<i>Araucaria araucana</i>).
Wildlife surveys in the company's protected forests	Using camera traps and other tools, surveys have identified mammals (including pumas) and bird species. The 2015 survey confirmed the existence of the "near-threatened" pudu and several rare species.
Regular river surveys	To research impacts of forest operations on ecosystems, surveys of river water quality and biodiversity are performed on a regular basis in company-owned afforested areas.

Preserving Biodiversity

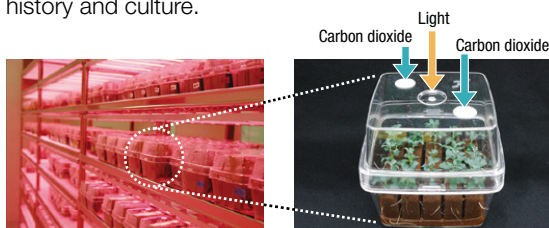
2 Initiatives Leveraging Our Resources and Technologies

Contributing to the protection of a variety of plant species

● Applying proprietary technology

Nippon Paper Industries Co., Ltd. is working to protect precious plant species. It does this by using a proprietary technology that encourages cuttings to take root in containers kept in a special cultivating room.

This technology encourages rooting by using a special cultivating room and cultivation containers to create ideal conditions for photosynthesis. It has proven effective even for producing seedlings of species that have been difficult to propagate with traditional methods. Nippon Paper Industries, therefore, is using it to propagate endangered plant species, to create offspring of beloved sakura trees in various places throughout Japan, and to undertake other initiatives that help to protect biodiversity and preserve history and culture.



Even plant species that normally fail to root by cutting are able to root



● Use of company-owned forests

Case

Supporting the activities of the Shirane-aoi wo Mamoru Kai

Shirane-aoi (*Glaucidium palmatum*: Japanese wood poppy) is designated as a “threatened II” species in the Red Data Book for Gunma Prefecture. To protect and breed this plant species, the Shirane-aoi Preservation Group was set up in December 2000, mainly at the initiative of Gunma Prefectural Oze High School and the residents of the village of Katashina in Tone-gun, Gunma Prefecture. As recognition of its achievements to date, it received the Greenery Day Minister of the Environment's Prize for Meritorious Service Related to the Natural Environment in April 2014.

Since its inception, Nippon Paper Development, which manages Nippon Paper Industries' Sugenuma Forest, has supported the operation of the Shirane-aoi Preservation Group, and Nippon Paper Industries has offered a portion of the Sugenuma Forest as a plantation site for Shirane-aoi. Since 2002, the Group has called for volunteers to participate in planting, seed collection, and other activities.



Planting Japanese wood poppies

Case

Agreement for Citizen-Participation-Based Forest Management -Collaborating with the Iriomote Island Ecotourism Association

In August 2017, Nippon Paper Industries Co., Ltd. entered into an agreement with the Okinawa District Forest Office - the local arm of the Forestry Agency's Kyushu Regional Forest Office - to carry out forest conservation activities such as the eradication of non-native plants in the approximate 9 ha of national forest on Iriomote Island. At the same time, the Company concluded an agreement regarding collaborative activities with the Iriomote Island Ecotourism Association, an NPO that has been working to preserve the natural environment and traditional culture of Iriomote Island since 1996.

Iriomote Island is covered with highly diverse forests, including Japan's largest mangrove forest and subtropical broad-leaved trees, providing a habitat for precious animal and plant species. One such species is the Iriomote wild cat, which has been designated a special national treasure and is listed as an endangered species IA. However, large numbers of invasive non-native plants have been found over an extensive area of the island.

Nippon Paper Industries will collaborate with the Iriomote Island Ecotourism Association to promote forest conservation activities, harnessing the experience the Company has developed over many years of managing its own forests throughout Japan and through its collaboration with the Wild Bird Society of Japan to protect the Blakiston's fish owl (an endangered species type IA) in a company-owned forest in Hokkaido.



Agreement signed with the head of the Okinawa District Forest Office



Agreement signed with the Iriomote Island Ecotourism Association