

Nippon Paper Group ESG Databook 2022

Nippon Paper Group publishes this ESG Databook to report to a wide range of stakeholders on its ESG (Environment, Society, Governance) initiatives. The Group also publishes an integrated report to communicate its long-term value creation.

This ESG disclosure has been prepared in accordance with the GRI Standards: Core option, and items are organized in line with the Group's important issues (materiality)*.

* Nippon Paper Group's important issues (materiality).

https://www.nipponpapergroup.com/english/csr/npg_ir_e_materiality.pdf

Period Covered

Fiscal 2021: April 1, 2021–March 31, 2022

Includes information from before April 1, 2021 and after March 31, 2022. Dates are indicated in such cases.

Scope of Organizations Covered

The reporting entity is Nippon Paper Industries Co., Ltd. Data, however, were compiled as of March 31, 2022 for Nippon Paper Industries Co., Ltd. and all 54 of its consolidated subsidiaries.

Scope of Environmental Coverage

The scope of the report covers the basic environmental policies, systems, environmental accounting, environmental performance, and other data for the 16 companies, including 2 non-consolidated subsidiaries with production facilities, named below. All major production locations are included.

Consolidated: Nippon Paper Industries; Nippon Paper Crecia; Nippon Paper Papyrus; Opal*¹; Jujo Thermal; Siam Nippon Industrial Paper; Nippon Seitai; Kyoei Seitai; N&E; Daishowa Uniboard; Nippon Paper Development; GAC; Amapá Florestal e Celulose*²; Nippon Dynawave Packaging

*¹ Paper Australia Pty Ltd.; Maryvale Mill.

*² In some cases referred to as AMCEL in this report.

(The contribution to total consolidated sales of the companies listed here was 89%.)

(Sales data includes trading companies that are members of the Nippon Paper Group and sell Group-made products to outside buyers.)

Non-consolidated: Nippon Paper Liquid Package Product Co., Ltd. and Akita Jujo Chemicals Co., Ltd.

Referenced Guidelines

- Environmental Reporting Guidelines (2018) of the Ministry of the Environment
- Sustainability Reporting Standards issued by the Global Reporting Initiative (GRI)
- United Nations Global Compact
- SASB Standards (VRF)
- ISO 26000, etc.

Guideline comparison table

<https://www.nipponpapergroup.com/english/csr/gri/>

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Disclaimer

This report includes not only statements of fact and historical data but also plans, forecasts, and estimates (forward-looking statements) based on the business plans and policies of the Nippon Paper Group. These forward-looking statements are the result of assumptions or judgments based on currently available information as this report was prepared. It should be noted that forward-looking statements may differ significantly from actual results due to the impacts of a number of important factors.

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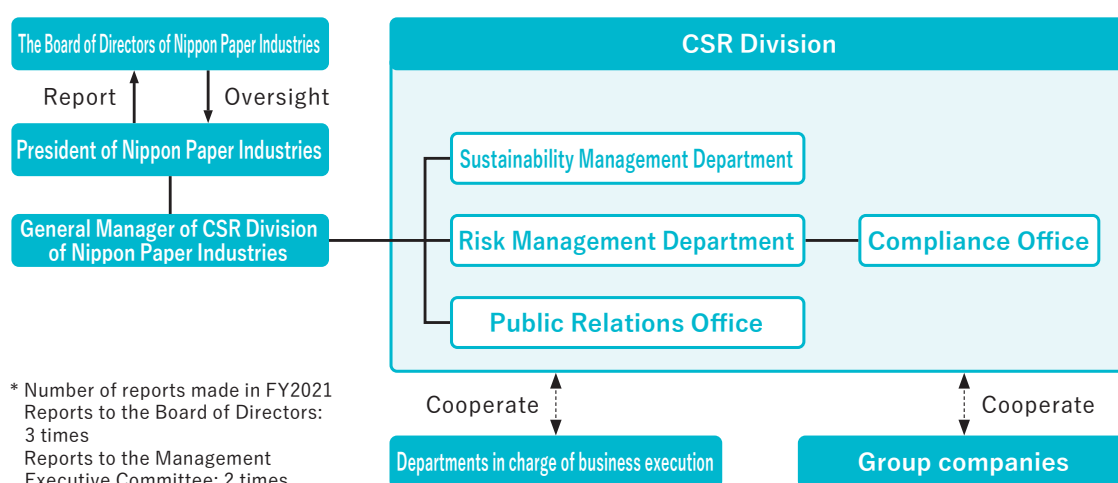
Sustainability Management

Nippon Paper Industries signed and joined the UN Global Compact in 2004. The Company promotes sustainability management that pursues both social and environmental sustainability and the future growth of the Company by realizing the Group Mission based on the Ten Principles of the UN Global Compact in four areas (human rights, labor, environment, and anti-corruption).

Establishment of Policy and System

1993	● Formulated Environmental Charter (Nippon Paper Industries)
2003	● Established the CSR Committee to promote the building of a management system to fulfill its corporate social responsibility
2004	● Formulated the “Philosophy and Basic Policy on Product Safety,” “Philosophy and Basic Policy on Human Rights, Employment and Labor,” “Philosophy and Basic Policy on Safety and Health Measures” and “Philosophy and Principles for Social Contribution Activities”
2005	● Formulated the “Principles and Basic Policies Concerning Raw Materials Procurement”
2008	● Established the CSR Division to reinforce CSR management
2016	● Formulated the “Basic Policy on the Preservation of Biodiversity ”based on the Philosophy of “Nippon Paper Group Environmental Charter”
2022	<ul style="list-style-type: none"> ● Formulated the “Nippon Paper Group Human Rights Policy” to enhance the effectiveness of its efforts to respect human rights, with the aim of achieving the Group Mission ● Revised the “Principles and Basic Policies Concerning Raw Materials Procurement” to enhance the effectiveness of its efforts to address social issues, including human rights and climate change

Promotion Structure



Initiatives regarding Sustainability

— Employee Education

Educational achievements (FY2021)

Themes and topics	Number of participants
Relationship between SDGs and the Group's products and services* ¹	4,670* ²
Relationship between SDGs and the Group's corporate activities* ¹	4,743* ²

*1 Implemented for the Nippon Paper Group

*2 Target of aggregation :Nippon Paper Industries (as of July 8, 2022)

— Providing Awareness-raising Opportunities

The Company holds lectures provided by external experts to business partners and Group employees, with a theme selected from a viewpoint of sustainability, on a periodic basis. In FY2021, it streamed a seminar entitled “Aiming for Carbon Neutrality by 2050: Roles Played by Forests,” which was viewed by about 850 participants.

Enhancement of Governance

》 **Corporate Governance Policy** (see P. 73)

》 **Basic Policy for Establishing the Internal Control System** (Japanese only)

https://www.nipponpapergroup.com/ir/governance/internal_control_system/

》 **Corporate Governance Report**

<https://www.nipponpapergroup.com/english/ir/governance/>

Initiatives for Strengthening Corporate Governance

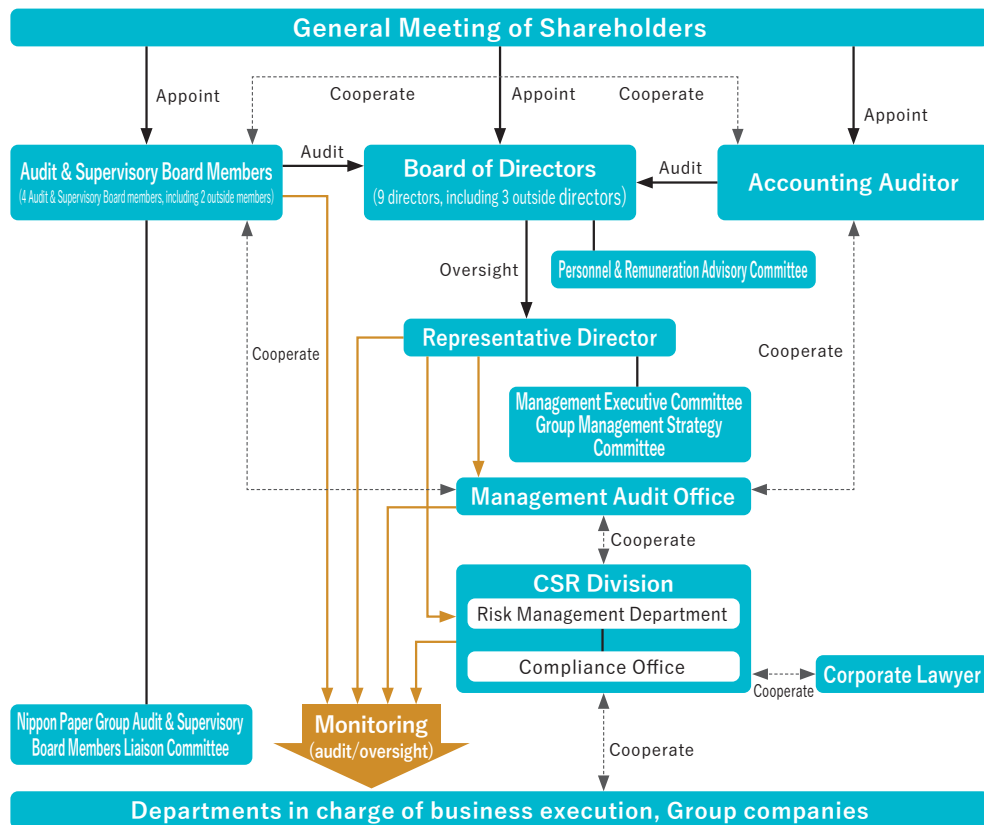
FY2006	<ul style="list-style-type: none"> ● Formulated the Basic Policy for Establishing the Internal Control System ● Shortened director terms to one year from two
FY2013	<ul style="list-style-type: none"> ● Adopted an executive officer system ● Began appointing one independent outside director
FY2015	<ul style="list-style-type: none"> ● Established the Corporate Governance Policy ● Began evaluating the effectiveness of the Board of Directors
FY2016	<ul style="list-style-type: none"> ● Established the Personnel & Remuneration Advisory Committee ● Increased the number of independent outside directors to two
FY2019	<ul style="list-style-type: none"> ● Increased the number of independent outside directors to three ● Appointed one female outside director and one female outside Audit & Supervisory Board member ● Ensured the Personnel & Remuneration Advisory Committee consists mainly of outside directors ● Introduced the Board Benefit Trust as a stock compensation system
FY2020	<ul style="list-style-type: none"> ● Revised part of the Corporate Governance Policy concerning the policy for determining director remuneration
FY2021	<ul style="list-style-type: none"> ● Added quarterly reports on operational issues as part of the agenda for meetings of the Board of Directors, in addition to existing monthly reports on operations

Corporate Governance Structure

Overview

Type of Organization	Company with Audit & Supervisory Board Members
Chairperson of the Board of Directors	Chairperson and Director: Fumio Manoshiro
Directors	9 (including 2 male and 1 female outside directors)
Audit & Supervisory Board Members	4 (including 1 male and 1 female outside Audit & Supervisory Board member)
Independent Officers	5 (including 3 outside directors and 2 outside Audit & Supervisory Board members)
Board of Directors Meetings Held in FY2021	Number of meetings: 13 ● Average rate of attendance by directors: 100.0% (outside directors: 100.0%) ● Average rate of attendance by Audit & Supervisory Board members: 100.0%
Audit & Supervisory Board Members Meetings Held in FY2021	Number of meetings: 14 ● Average rate of attendance by Audit & Supervisory Board members: 100.0%
Independent Accounting Auditor	Ernst & Young ShinNihon LLC

Corporate Governance Structure (As of July 1, 2022)



— Board of Directors

- The role of the Company's Board of Directors is stipulated in the Corporate Governance Policy. The Board is chaired by the Chairperson who is a director without representative authority.
- The Board of Directors shall bear the supervisory function of management as a whole and make the most appropriate decisions for the Company through deliberations, etc. on the execution of important business issues that are to be decided, under laws, regulations, and the Articles of Incorporation, by the Board of Directors. The Board of Directors shall also oversee the status of the execution of duties by the president and representative director and other corporate officers.
- In view of the importance of environmental and social challenges related to sustainability, the Board of Directors shall raise awareness among officers and employees, strive to facilitate the sustainable development of society, and enhance the corporate value of the Group by promoting active efforts to resolve challenges while giving consideration to stakeholders.
- The Company's Board of Directors is made up of internal directors who have excellent abilities to execute and manage each business in their charge and outside directors who have specialized knowledge and extensive expertise. In this way, the balance and diversity of knowledge, experience, and abilities are ensured.
- One-third of the Company's Board of Directors is made up of outside directors. Furthermore, the Company has appointed one female outside director and one female outside Audit & Supervisory Board member.
- The Company made a list of skills it expects each director in November 2021. Each skill has been identified from the standpoint of management strategies and priority issues, and designated taking into account management priorities toward achieving the basic Policy of the 2030VISION and the Group Mission.



Nippon Paper Group's important issues (materiality).
https://www.nipponpapergroup.com/english/csr/npg_ir_e_materiality.pdf

Directors' Skill Matrix

Position	Name	Skills								
		Corporate management	ESG/Sustainability	Finance/accounting	Personnel/Human resources	Risk management/Governance	Technology/R&D	Sales	Purchasing/Procurement	Internationality
Chairperson and Director	Fumio Manoshiro	○	○		○				○	
President and Representative Director	Toru Nozawa	○	○	○		○				
Executive Vice President and Representative Director	Kazumori Fukushima	○			○		○	○		
Director	Masanobu Iizuka	○					○			○
Director	Tomoyasu Itakura	○		○		○				
Director	Tomomi Nojiri		○				○	○		
Outside Director	Makoto Fujioka	○	○			○				
Outside Director	Yoko Hatta			○		○				○
Outside Director	Yutaka Kunigo	○	○						○	

* The above list does not represent all the knowledge and experience held by each director.

Director Attendance at Board of Directors Meetings (FY2021)

Position	Name	Attendance in FY2021	
Chairperson and Director	Fumio Manoshiro	13/13	100.0%
President and Representative Director	Toru Nozawa	13/13	100.0%
Executive Vice President and Representative Director	Kazumori Fukushima	10/10	100.0%
Director and Managing Executive Officer	Atsushi O'haru	10/10	100.0%
Director and Managing Executive Officer	Masanobu Iizuka	13/13	100.0%
Director and Executive Officer	Tomoyasu Itakura	10/10	100.0%
Outside Director	Makoto Fujioka	13/13	100.0%
Outside Director	Yoko Hatta	13/13	100.0%
Outside Director	Yutaka Kunigo	13/13	100.0%

— Management Executive Committee

- Usually, the Company's Management Executive Committee meets once a week to deliberate on important business issues under the authority of the president to assist in the execution of the president's duties.
- Committee membership is basically composed of the president, other directors (excluding outside directors) and general managers who do not serve as directors.
- Meetings of the Management Executive Committee, held once a month, are attended by outside directors and general managers of the Company's mills in order to share information on monthly financial results among management.

— Group Management Strategy Committee

- The Company's Group Management Strategy Committee meets as necessary and deliberates on management strategies by business segment and other important matters related to the Group.
- Committee membership is composed of the Company's management, including outside directors, and presidents of major companies of the Nippon Paper Group.

— Audit & Supervisory Board Members and Audit & Supervisory Board

- The Audit & Supervisory Board members of the Company attend important meetings, such as meetings of the Board of Directors, the Management Executive Committee, and the Management Strategy Committee. In addition to strict monitoring of the execution of business by directors, the auditors also audit whether all company operations are conducted strictly legally and appropriately by means of on-site audits of each division, business site, and company in the Group.
- The Audit & Supervisory Board periodically holds meetings with the representative directors, working to deepen mutual understanding.
- The Audit & Supervisory Board also strives to enhance group audits by strengthening cooperation with auditors of each Group company.

— Management Audit Office

- The Company's Management Audit Office is directly under the President's control. It conducts an internal audit of the Company and each Group company. It also conducts a comprehensive evaluation of the maintenance and operation of the internal control system as it relates to financial reporting.
- The Management Audit Office also holds monthly information exchange meetings with the Audit & Supervisory Board Members to ensure cooperation between Audit & Supervisory Board Members and internal audits.

— Personnel & Remuneration Advisory Committee

- Committee membership is composed of three outside directors who are independent officers, the Company's President and Representative Director, and General Manager of the Personnel & General Affairs Division.
- The Company's Personnel & Remuneration Advisory Committee receives inquiries from the Board of Directors on matters such as the selection process, qualifications, and reasons for nomination of director and Audit & Supervisory Board member candidates, the criteria for determining the independence of outside officers, and the remuneration system for directors. The committee responds to inquiries regarding appropriateness while obtaining appropriate involvement and advice from independent outside directors and conducting inquiries based on its assessment of the Company's business performance and other factors.
- The Board of Directors shall make decisions regarding nomination of directors and Audit & Supervisory Board members, and compensation for directors etc., after receiving reports from the Personnel & Remuneration Advisory Committee.
- In FY2021, opinions on evaluation for representative directors were exchanged in addition to previous agendas.
- The number of periodic meetings is to be increased to four times per year starting from FY2022 to enhance agendas covered.

Attendance at Personnel & Remuneration Advisory Committee (FY2021)

Position	Name	Attendance in FY2021	
President and Representative Director	Toru Nozawa	3/3	100.0%
Outside Director	Makoto Fujioka	3/3	100.0%
Outside Director	Yoko Hatta	3/3	100.0%
Outside Director	Yutaka Kunigo	3/3	100.0%
General Manager, Personnel & General Affairs Division	Koichiro Takahashi	3/3	100.0%

Independent Officers

- The Company designates all outside directors who meet the requirements as independent officers.
- When appointing candidates for outside directors or outside Audit & Supervisory Board members, the Company judges their independence by taking into consideration whether they satisfy the independence criteria provided by the Tokyo Stock Exchange and the requirements for independence provided by laws and regulations (having not served as director, employee, etc. of the Company and its subsidiaries in the past), in addition to considering the existence of any conflicts of interest with general shareholders.

Evaluation of the Effectiveness of the Board of Directors

- The Company's Board of Directors has been conducting self-evaluations of its effectiveness since FY2015.
- Once per year, the secretariat of the Board of Directors conducts a survey of the directors and Audit & Supervisory Board members regarding management and the discussions held at its meetings. The results of the survey are reported to the Board of Directors, which analyzes and evaluates its effectiveness through deliberations, etc. on the reported contents and works toward improvement based on the results thereof.

— Initiatives in FY2021

- Evaluation of the effectiveness of the Board of Directors conducted in FY2020 identified the following two challenges: (i) to hold discussions from a medium- to long-term perspective; and (ii) to enhance matters to be reported and secure more time for deliberation.
- In regard to holding discussions from a medium- to long-term perspective, the Board of Directors held repeated discussions and deepened understanding of medium- to long-term strategic issues during the course of formulation of the “2030VISION” announced in May 2021 as well as the “Medium-Term Business Plan 2025.” Meanwhile, in order to enhance matters to be reported, the Board started to gather quarterly reports on operational issues concerning technological departments, R&D departments, raw materials departments, logistics departments, sales departments, and CSR departments, in addition to existing monthly reports on operations. Also, it was confirmed that the understanding of the contents of deliberated matters had improved by providing prior explanations according to projects.
- A questionnaire survey conducted in FY2021 identified the following challenges: follow-ups of important projects, enhancement of discussions to monitor the progress of and take measures to achieve targets set out in the “2030VISION” and the “Medium-Term Business Plan 2025,” and increasing opportunities for opinion exchange between outside directors and representative directors. The Company will work to strengthen governance through these initiatives.

Officer Remuneration

- The Board of Directors decides remuneration for officers after receiving a report from the Personnel & Remuneration Advisory Committee.
- The standard amount of monthly remuneration for directors shall be decided according to their responsibilities within the Company. Of that, 70% shall be fixed and the remaining 30% shall be, in principle, paid after adjustment based on the degree of achievement of the Medium-Term Business Plan. The standard amount is determined using objective survey data from outside sources and considering factors including the Company’s performance, the scale of business, and managerial circumstances. Performance indices are established to effectively function as motivation to achieve performance targets, they are reevaluated as necessary in response to changes of circumstance.
- Monthly remuneration for outside directors and outside Audit & Supervisory Board members shall be fixed. In light of their responsibilities, contributions to the executive shareholding association are on a voluntary basis.
- The Company has introduced Board Benefit Trust (BBT) as a stock compensation plan since FY2019 for directors (excluding outside directors) separately from their monthly compensation. The objective of BBT is to further clarify the link between the compensation provided to directors and the Company’s share value and thereby increase directors’ motivation to contribute to improving the Company’s medium- to long-term performance and increasing its corporate value by sharing the benefits and risks associated with share price fluctuations with shareholders.
- The composition ratio of fixed remuneration, performance-based remuneration, and stock remuneration provided to directors is appropriately established based on the objectives of each type of remuneration.

Total Amount of Remuneration, etc. for Directors and Audit & Supervisory Board Members*1 (FY2021)

	Number of Executives*2	Total Amount of Remuneration, etc. by Type			Total Amount
		Fixed Remuneration	Performance-Based Remuneration	Stock Remuneration	
Directors	12	¥297 million	¥72 million	¥31 million	¥401 million
(Outside directors)	(3)	(¥38 million)	(—)	(—)	(¥38 million)
Audit & Supervisory Board Members	5	¥58 million	—	—	¥58 million
(Outside Audit & Supervisory Board Members)	(2)	(¥13 million)	(—)	(—)	(¥13 million)

*1 Figures are rounded down to the nearest million yen.

*2 Includes three directors and one Audit & Supervisory Board member who resigned during FY2021.

Remuneration for Internal Directors

	Fixed Remuneration	Performance-Based Remuneration	Stock Remuneration
Method	Cash payment		Points granted
Payment allowance	Up to ¥700 million per year		Up to 25,000 points per year (1 point = 1 share)
Payment period	Monthly (no bonuses or retirement benefits)		Director resignation (cumulative points converted to shares)
Calculation method	Determined according to their respective responsibilities		Points granted according to their respective responsibilities
	70% paid as fixed remuneration	30% paid, in principle, after adjustment based on the degree of achievement of the Medium-Term Business Plan	
Performance standards	—	70%: Consolidated results (mainly net sales and operating income) 30%: Non-consolidated results (mainly net sales and operating income)	—
Other	Fixed amounts contributed to the Company's executive shareholding association		—

Cultivation of Successors to the President and Directors

— Successor to the President

- The Company intends to develop candidates for succession to the presidency by placing them in important roles such as executives and directors.
- Personnel matters related to executives and directors who are potential presidential candidates are deliberated by the Personnel & Remuneration Advisory Committee, which is an advisory body that reports to the Board of Directors. The Board of Directors, upon receiving the report, will carefully examine its contents, deliberate, and decide on the candidate.
- The Board of Directors supervises the development of candidates to become the next president in a systematic and ongoing manner.
- The process for the appointment and dismissal of the president is the same as that for candidates for directors, in that the Personnel & Remuneration Advisory Committee conducts a review and submits a report based on consultations with the Board of Directors.

— Developing Candidates for Directors

From the standpoint of securing human resources capable of assuming management in the future, the Company makes a point of placing employees—particularly those in career-track positions—in various positions and rotations in different departments. It also tries to appoint employees as early as possible to positions as managers and other important posts and positions in which they assist management, such as the top management of affiliated companies and overseas subsidiaries. In this manner, it strives to develop a robust base of employees with highly sophisticated expertise and work experience, cultivating them for selection as the next generation of director candidates.

— Policy for Executive Training, etc.

- To support the execution of duties by directors, the Company provides information on matters necessary for their roles and functions (such as economic conditions, industry trends, legal compliance, corporate governance, finance, and accounting) on an ongoing basis.
- The Company also ensures opportunities to participate in external training based on the needs of individual directors to assist officers in executing their duties.

Risk Management

Basic Policy

- ① Prioritizing human life and safety
- ② Continuing business

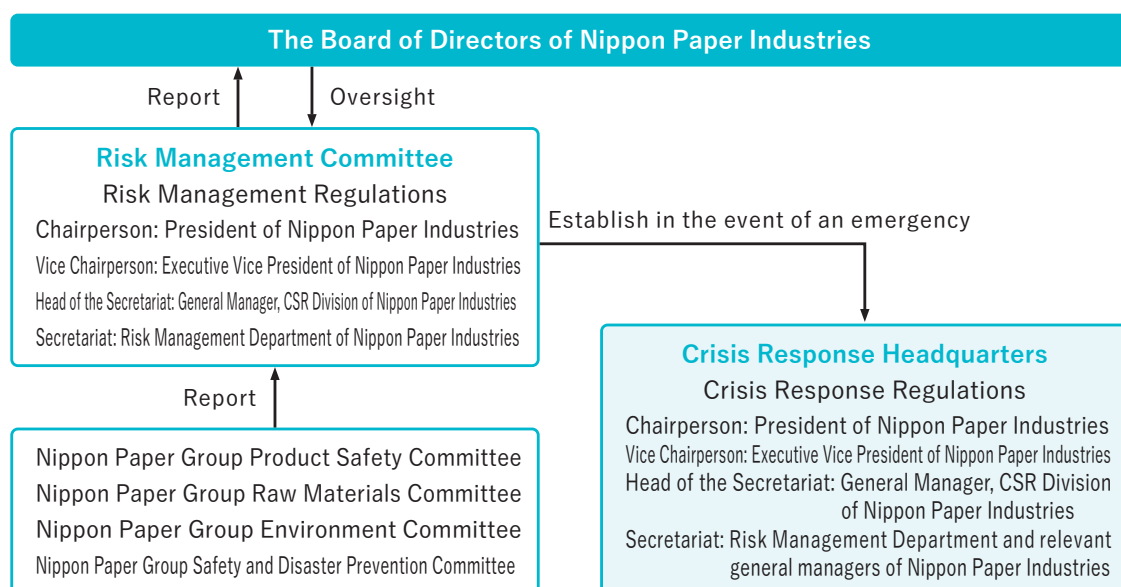
Under these policies, the Company will follow and comply with the guidance and recommendations of national and regional governments.

All possibilities that may result in a physical or economical loss or a loss of credit or disadvantage to the Nippon Paper Group are considered risks to the Group, which are as follows;

- (1) Legal and regulatory compliance risk
- (2) Labor-related risk
- (3) Business-related risk
- (4) Finance-related risk
- (5) Disaster-related risk
- (6) Information systems-related risk
- (7) Other risks

Promotion Structure

- The Company has established its Risk Management Committee, which is chaired by the president and representative director, operates under the supervision of the Board of Directors of the company, and holds meetings at least once a year. In normal operations, the committee regularly identifies and evaluates the Group's risks, considers and deliberates measures to reduce its risks, and when the risks occur in reality, and reports the results to the Board of Directors.
- Committees chaired by each general manager of a department of the Company which is in charge of risks in respective fields related to product safety, procurement of raw materials, the environment, and safety and disaster prevention examine and deliberate such risks and report the results to the Board of Directors of the Company through the Risk Management Committee.
- In an emergency, a Crisis Response Headquarters will be launched. The crisis response headquarters swiftly carry out initial responses and BCPs (business continuity plans) in emergencies, depending on risks, such as earthquakes, typhoons, and infectious diseases.



Risk Management Activities

— Risk Identification

In FY2021, risk assessment was carried out for the Company (headquarters and mills) and five consolidated and non-consolidated subsidiaries. Through the assessment, the Group not only identified risks but also confirmed those that had emerged in FY2021 and those that would become increasingly significant. Based on discussions on the assessment results by related departments and the Risk Management Committee, the Company's business risk is recognized as described below.

	Summary	Main initiatives to mitigate risks
Major risks related to management strategies	Risks related to delays in business structure transformation and creating new businesses <ul style="list-style-type: none"> Response to the market contraction in the paper business 	<ul style="list-style-type: none"> A shift of management resources to growth businesses such as the daily-life products business, etc. Promotion of development of paper products which will replace plastics, mainly for containers and packaging Expanded use of woody biomass such as cellulose nano fibers (CNF) Expansion of overseas business and development of synergistic effects with existing businesses
	Risks related to climate change <ul style="list-style-type: none"> Response to the full-fledged introduction of carbon pricing and emission trading 	<ul style="list-style-type: none"> Reduction of greenhouse gas (GHG) emissions Conversion to renewable energy-sourced fuels Maximization of the value of forests such as improving the productivity of forest resources held
	Risks of fluctuations in product demand and market conditions <ul style="list-style-type: none"> Fluctuations in demand based on economic conditions, etc. Fluctuations in product prices based on developments in market conditions, etc. 	<ul style="list-style-type: none"> Reorganization of production structure Cost-cutting efforts Securing profits by maintaining sales prices Tapping into new needs
	Risks related to raw material and fuel procurement, and international transportation <ul style="list-style-type: none"> Price fluctuations due to global and Japanese market conditions Global shortage of container transportation capacity Surging ocean freight rates due to a hike in prices of raw materials and fuels 	<ul style="list-style-type: none"> Utilization of pre-order schemes Building relationships with shipping companies Consideration of joint transportation and procurement with other companies Long-term contracts and multiple purchases
Major risks related to the business environment and business activities	Risks related to production facilities <ul style="list-style-type: none"> Problems occurring at facilities Fires 	<ul style="list-style-type: none"> Regular inspection of production facilities Strategic renewals of vulnerable areas
	Risks related to natural disasters and infectious diseases <ul style="list-style-type: none"> Earthquakes, tsunamis, typhoons, and floods COVID-19 	<ul style="list-style-type: none"> Establishment of the Crisis Response Headquarters Formulation of BCM (business continuity management) Formulation and revision of infectious disease response guidelines
	Risks related to environmental laws and regulations	<ul style="list-style-type: none"> Response to amendments to environmental laws and regulations
	Risks related to retention of human resources and labor affairs <ul style="list-style-type: none"> Retention of human resources, in an appropriate manner, based on the human resources strategies 	<ul style="list-style-type: none"> Development of a working environment premised upon flexible and diverse work styles Operation of the Occupational Safety and Health Management System
	Risks arising from product liability	<ul style="list-style-type: none"> Enrollment in product liability insurance Establishment and utilization of the Product Safety Committee

— Formulation of BCPs

- The Company continues to formulate BCPs based on the BCM scheme it worked on in FY2020, to address large-scale natural disasters, which have become more frequent in recent years.
- The Company (headquarters) not only stockpiled food and daily commodities but also added supplies for when it launches the Crisis Response Headquarters, along with identifying critical operations. In addition, BCPs organized by each department are made known within the Company.
- The Company (mills) is working to revise the existing BCPs to incorporate earthquakes, tsunamis, typhoons, floods, and volcanic eruptions as expected disasters.
- Each Group company has confirmed that the establishment of the Crisis Response Headquarters has been almost completed. The group will further organize and enhance its BCPs.

Holding of Risk Management Committee meetings and reporting to the Board of Directors (FY2021)

	Number of Times	Attendees
Risk Management Committee	1	Nippon Paper Industries President, Executive Vice President, and all general managers (General Manager, CSR Division; General Manager, Personnel & General Affairs Division; General Manager, Corporate Planning Division; General Manager, International Business Division; General Manager, Biomass Material Business Division; General Manager, Financial Division; General Manager, Raw Materials and Purchasing Division; General Manager, Research and Development Division; General Manager, Technical & Engineering Division; General Manager, Energy Business Division; General Manager, Sales Planning Division; General Manager, Paper-Pak Sales Division; General Manager, Chemical Sales Division; General Manager, Newsprint Sales Division; General Manager, Printing Paper Sales Division; General Manager, Business Communication Paper Sales Division; and General Manager, Duplex Board & Packaging Paper Sales Division)
		Nippon Tokai Industrial Paper Supply President
Reporting to the Board of Directors	1	Nippon Paper Industries Chairman, President, Executive Vice President, and all directors

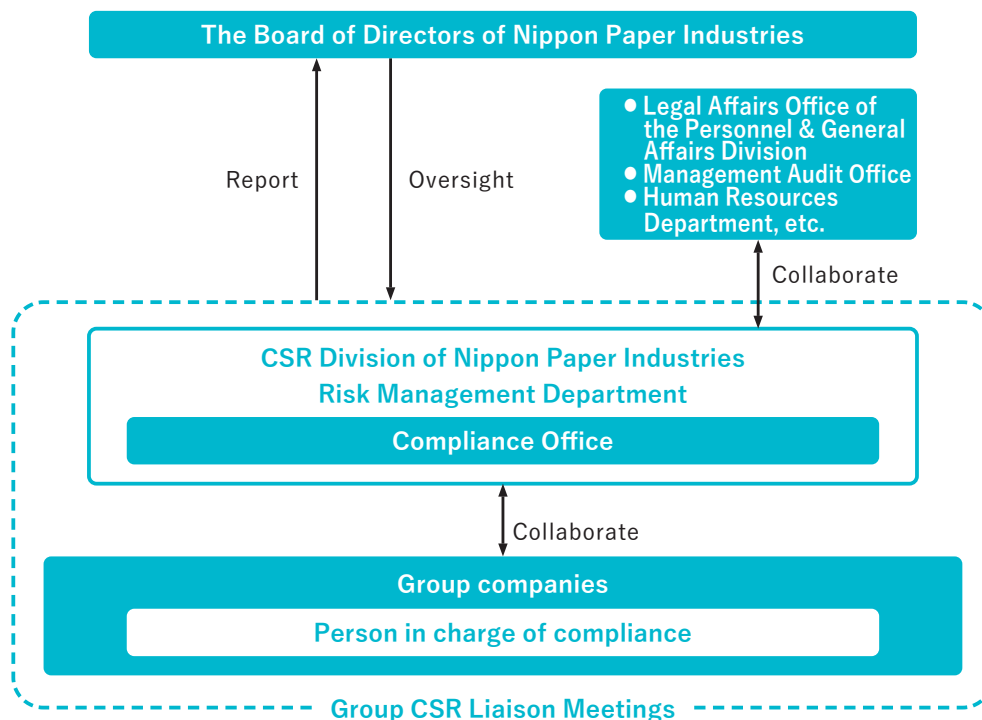
Compliance

》 Corporate Governance Policy (see P. 73)

》 Nippon Paper Group Action Charter and Nippon Paper Industries Codes of Conduct (see P. 80)

- Based on the Nippon Paper Group's Action Charter, the Group's position is that "Compliance goes beyond laws and regulations to include decency, common sense, customs, and other rules and 'social norms' that are expected by society in general, and the Group is called upon to respond to the expectations and trust of society."
- The Company has established the Compliance Office, and continually carries out activities that raise Group employees' awareness of compliance.
- In addition to the Company, its Group companies also have their respective codes of conduct.

Promotion Structure



Specific Initiatives

— Personal Information Protection

- In accordance with the Personal Information Protection Law, the Company tracks and manages the personal information held by each department, including the timing and purpose of use, in a control ledger.
- The ledgers are reviewed annually to ensure proper management.

→ Basic Policies of Nippon Paper Industries Concerning Privacy Protection:
<https://www.nipponpapergroup.com/english/terms/>

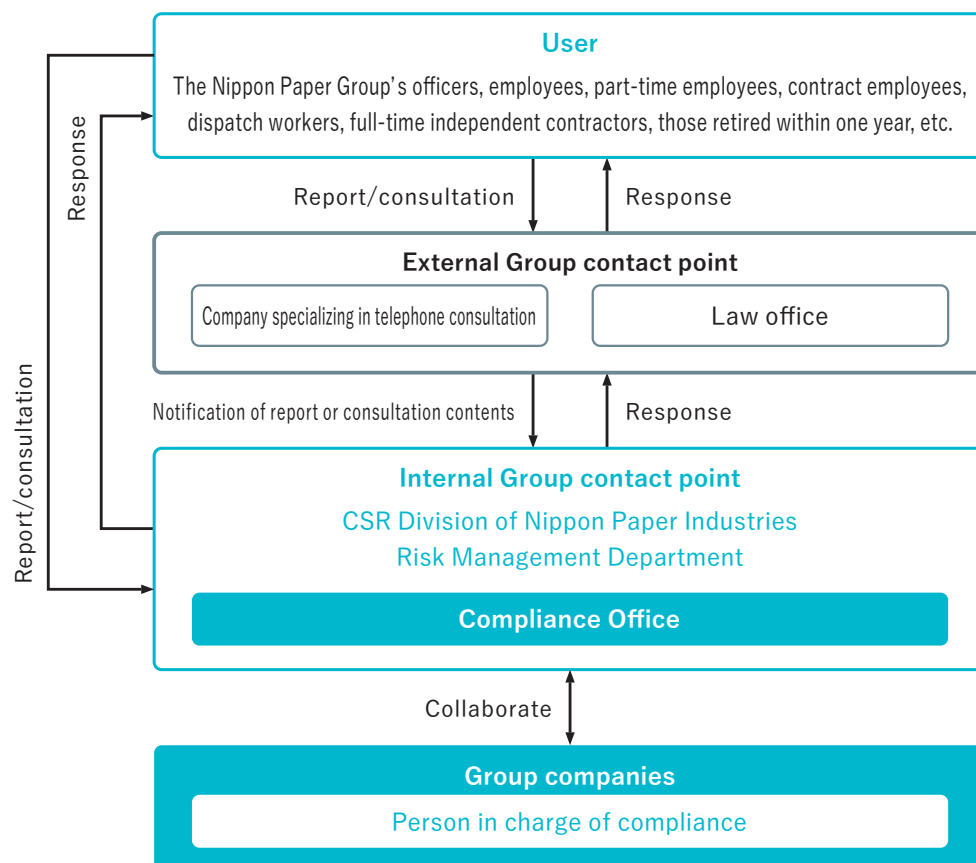
— Intellectual Property Rights Protection

The Group places great importance on intellectual property rights in all its business activities. The Group also adheres strictly to all applicable laws and regulations.

— Internal Whistleblower System “Nippon Paper Group Helpline”

- The Company has set up the Nippon Paper Group Helpline which makes it possible for employees to directly report and consult on any conduct that violates laws, regulations, social norms, or corporate ethics and that may become a problem in the workplace. The Company periodically notifies employees about the Helpline.
- The Company has distributed compliance cards to all Group employees, contractors, etc. to inform them about the Helpline, and that it accepts a wide range of consultations and reports through multiple channels including telephone, email, and mail.
- The Nippon Paper Group Helpline can even be used anonymously under the protection of privacy.
- The Nippon Paper Group Helpline Regulations, which stipulates the operation of the Nippon Paper Group Helpline, corresponds to the amended Whistleblower Protection Act, which came into force in June 2022.
- The operation status is reported to the Board of Directors of the Company, and in addition, to Audit & Supervisory Board members and the Management Executive Committee on a quarterly basis.
- Opinions, etc. from third parties who are not eligible for the use of the Helpline are accepted through “Contact Us” on the Nippon Paper Group website, and are appropriately handled by the Compliance Office and other relevant departments.

→ “Contact Us” on the Nippon Paper Group website:
<https://www.nipponpapergroup.com/english/inquire/>



Number of Reports Made to Helpline

FY2017	FY2018	FY2019	FY2020	FY2021
32	33	46	39	43

- To reinforce measures to prevent harassment issues, which made up the largest number of reports in FY2021, the Company started a harassment avoidance training program mainly for managers and supervisors at mills of the Company in the second half of FY2021.

— Preventing Corruption

- “Fairness” is one of the Values that the Group’s employees place importance on to realize its Mission.
- The Nippon Paper Group Action Charter stipulates that “we shall abide by the letter and the spirit of laws and regulations, and comply with the highest ethical standards and social codes of conduct, both in Japan and abroad.”
- The Nippon Paper Codes of Conduct specifically state that the Company will engage in “fair, transparent, and liberal manner.”
- During the course of the compliance training program that it conducts strategically, the Group educates its employees so that they would not have any inappropriate relationships with Japanese and overseas local government agencies and employees in places where the Group conducts business or would not give or receive improper gains to or from customers, business partners, etc. through sales or purchasing activities. The Group also implements corrective measures if any suspicious incident arises.
- In FY2021, the Group was subject to no legal actions whatsoever involving incidents of corruption or public legal cases regarding corruption, anti-competitive behavior, anti-trust, or monopolizing practices.

→ Nippon Paper Group’s Basic Policy on Prevention of Bribery of Public Officials:
https://www.nipponpapergroup.com/english/ir/BasicPolicyonPreventionofBribery_EN.PDF

→ Nippon Paper Group’s Basic Policy on Compliance with Competition Laws:
https://www.nipponpapergroup.com/english/ir/BasicPolicyonCompliancewithCompetitionLaws_EN.PDF

— Compliance Education

- The Group systematically carries out compliance training.
- Furthermore, compliance training is carried out in sessions such as training for new supervisors and new employees, including training for executives of the Company and its Group companies.

Educational achievements (FY2021)

Category	Themes and topics	Number of sessions held	Number of participants
Compliance	• What is compliance? ^{*1}	Once a year	About 5,300 ^{*2}
	• Harassment-related topics	22 sessions in total	About 820 in total
Legal affairs ^{*1}	• Prevention of insider trading	One course at a time, every six months, in turn	5,494 in total ^{*2}
	• Exclusion of anti-social forces		
	• Protection of personal information		
	• Preparation and storage of contract documents		
	• Compliance with anti-bribery/competition laws		
	• Raising sensitivity to legal risks		
Intellectual property rights	• Basic information, etc. concerning patents	19 sessions in total	1,324 in total
Information Security ^{*1}	• Prevention of information leakage incidents, etc.	Once a year	About 6,600 ^{*3}

*1 Provided as an e-learning course

*2 Only for Nippon Paper Industries

*3 For those including contractors, etc.

Dialogue with Stakeholders

》 Corporate Governance Policy (→P.73)

》 Disclosure Policy (→P.82)

》 Corporate Governance Report

<https://www.nipponpapergroup.com/english/ir/governance/>

Activities in Detail

— Annual General Meeting

- Nippon Paper Industries works to energize its general shareholders' meetings and ensure smooth exercise of shareholders' voting rights.
- The Company sent out advance notice of convocation of the 98th Ordinary General Meeting of Shareholders to be held on June 29 2022, and published the contents on the Group website well ahead of time. The Company has also accepted the exercise of voting rights on the Internet through the "Smart Voting" website for exercising voting rights for smartphones.
- At the venue of the Meeting, the Company thoroughly took preventive measures against COVID-19 including asking visitors to wear masks, conducting body temperature checks, sanitizing their hands with alcohol-based sanitizers, and arranging the seating to ensure ample space between seats.

→ Annual General Meeting information:
<https://www.nipponpapergroup.com/english/ir/shareholder/meeting/>

— IR Activities

- The Corporate Planning Department is responsible for the Company's IR activities. The Corporate Planning Department, along with other relevant departments, engages in constructive dialogues with shareholders and investors and gathers management analysis and opinions from the perspective of capital providers.
- In addition, IR activities are regularly reported at the Group Management Strategy Committee Meeting (reported once in FY2021).

IR Activities in FY2021

IR activities	Number of times
Operating results and Management briefings	2 times
Operating results briefings	2 times
Individual meetings	80 times

— Communication Activities

- The Company mails shareholder newsletters to shareholders twice a year.
- The Group operates its website to communicate information on the Company's activities to a wide range of stakeholders as and when it becomes available. "The Group publishes information on corporate activities to a broad range of stakeholders, and receives questions and opinions through the website."
- The Group has established the Nippon Paper Group Risk Communication guidelines, and it works to communicate with local governments and communities with regard to environmental issues in those areas where the Group's mills are located (→P.31).
- The Company held discussions between the President and mid-level employees and managers from July 2021 to April 2022 with the aim of promoting the 2030 Vision and Medium-Term Business Plan 2025 (total of 46 sessions, 691 participants).

Main communication activities

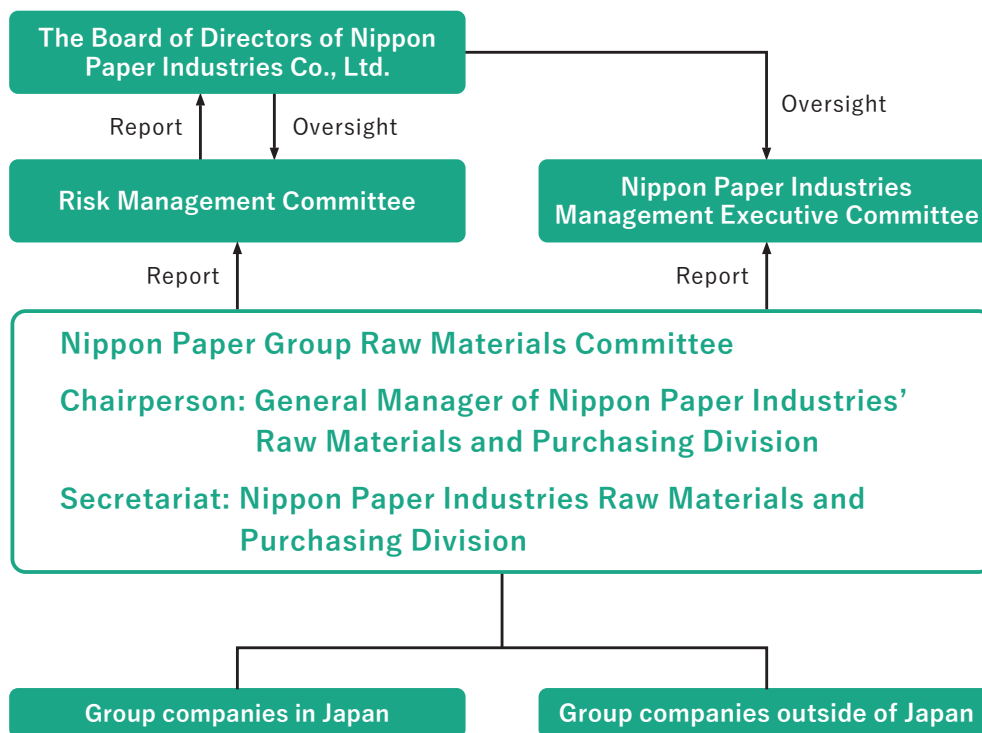
Stakeholder	Major point of contact	Means of communication
Employees	Human resource sections	Labor-management councils, labor-management committees
Customers	Sales sections, Product safety sections Customer assistance channels	Individual interviews, inquiries to customer relations sections
Suppliers	Procurement sections	Individual interviews, inquiries to customer relations sections
Local communities, NPOs/ NGOs	Responsible sections within mills, CSR sections	Risk communication, Individual interviews
The media	Public relations sections	Press releases, interviews
Students	Human resource sections	Individual interviews, meetings
Shareholders (shareholders, investors, etc.)	General affairs sections, IR section	General shareholders' meetings, shareholder communications, integrated reports, explanatory meetings

Policy and Management

》 Principles and Basic Policies Concerning Raw Materials Procurement (see P. 83)

- The Nippon Paper Group revised the Principles and Basic Policies Concerning Raw Materials Procurement in September 2022.
- In the process of its revision, the Group has had discussions with external experts and incorporated stakeholders' opinions.
- The Group also communicates the content of these Principles and Basic Policies to suppliers around the world by making both Japanese and English language versions and displaying them on its website.
- The Group conducts regular questionnaire surveys and interviews to audit critical suppliers regarding these concerns.

Structure for Promoting Raw Materials Procurement Management



Sustainable Procurement of Wood Raw Materials

Key points of sustainable wood resources procurement

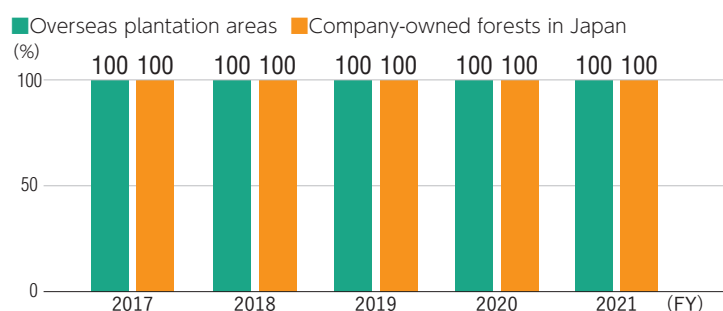
- 1) Sourcing from sustainable forests (sustainability)
- 2) Clearly identifying the origin of timber (traceability)
- 3) Maintaining full accountability (accountability)

Sustainable Procurement of Wood Raw Materials

— Procurement from Own Forest

- The Group procures woody raw materials with proper planning and management.
- The Group also obtains third-party forest certification regarding the sustainability of these forests.
- The Group is promoting overseas afforestation business and utilization of company-owned forests in Japan and aiming for stable procurement by utilizing its own resources.

Forest Certification Acquisition Rate in Company-owned Forests



Forest Certification (Japanese only):

<https://www.nipponpapergroup.com/csr/forest/sustainability/certification/>

— Procurement from Other Forests

- The Group is working to build a procurement system that enables it to trace woody raw materials back to the forests from which they were sourced.
- The Group utilizes forest certification schemes as a tool to check that procurement of woody raw materials is being conducted appropriately.

— Enhancement of the Group's Supply Chain Management

- The Group carries out the following as a supplier risk assessment.
 - ▶ New supplier: By conducting site visits and supplier questionnaires (including the consideration of environment and society), the Group confirms whether it meets the Nippon Paper Group's procurement policy and whether it has any risks before starting trading.
 - ▶ Existing supplier: Check for risks through regular site visits and annual supplier surveys (including the consideration of the environment and society) before continuing trading.
- The Group checks the status of forest certification and the background of resources at the time of contract with the supplier.
- The Group takes corrective actions with suppliers which, it is determined, present high risks.

— Improve Employee Skills Related to Procurement

The company provides in-house training on sustainable resource procurement which is taken by all employees* involved in the procurement of wood raw materials.

* 18 participants (As of April 1, 2022)

Eradicating Illegal Logging

- Nippon Paper Industries, Nippon Paper Papyrus and Nippon Paper Creca have established a Legality Certification Due Diligence System Manual for the purpose of verifying the legality of the wood raw materials that they procure. The companies carry out due diligence of all wood raw materials procured both in Japan and overseas.
 - ▶ New business partner: Implemented at the time of starting trading
 - ▶ Existing business partners: Conducted regularly every year
- In FY2021, the Group carried out due diligence and verified the legality of all of its wood raw materials.

→ Legality Certification Due Diligence System Manual (Japanese only)
<https://www.nipponpapergroup.com/csr/DDmanual.pdf>

— Response to the Clean Wood Act

Nippon Paper Industries, Nippon Paper Papyrus, Nippon Paper Creca and Nippon Paper Lumber completed their registrations as both a Type 1 and Type 2 Wood-related Businesses under the Act on Promotion of the Distribution and Use of Legally Harvested Wood (the Clean Wood Act). In compliance with this law, the companies confirm the legality of the covered items they handle.

Registration details

Business registered	Registration number	Effective registration period	Institution conducting registration	Products
Nippon Paper Industries	JIA-CLW-I, II No. 17024	March 19, 2018 to march 18, 2023	Japan Gas Appliances Inspection Organization	Wood pulp and copier paper, form paper, coated paper for inkjet color printers, uncoated printing paper, coated printing paper, and tissue paper and toilet paper that use wood pulp
Nippon Paper Papyrus	JIA-CLW-I, II No. 19001	April 26, 2019 to April 25, 2024		
Nippon Paper Creca	JIA-CLW-I, II No. 19002	April 26, 2019 to April 25, 2024		
Nippon Paper Lumber	JPIC-CLW-I, II 54	July 6, 2018 to July 5, 2023	Japan Plywood Inspection Corporation	Logs, sawn boards and square timbers, single and sliced veneers, plywood and laminated veneer lumber and laminated wood, wood materials for wooden pallets, chips, or flakes

Action Plan for Wood-based Raw Material Procurement

The Nippon Paper Group has put in place its Action Plan for Wood-based Raw Material Procurement to practice CSR procurement, in keeping with the Principles and Basic Policies Concerning Raw Materials Procurement.

→ Action Plan for Wood-based Raw Material Procurement (Japanese only)
<https://www.nipponpapergroup.com/csr/forest/sustainability/actionplan/index.html>

Sustainable woody resource procurement scheme

Principles and Basic Policies Concerning Raw Materials Procurement

Action Plan for Wood-based Raw Material Procurement

		Japanese Resources	Overseas Resources
Basic Policy and Scheme		<ul style="list-style-type: none"> ●Based on verifications by organizations approved by forest, timber or lumber industry organizations specified in the Guideline for Verification of Legality and Sustainability of Wood and Wood Products established by Japan's Forest Agency in connection with government procurement initiatives to fight illegal logging in accordance with the Law on Promoting Green Purchasing. 	<ul style="list-style-type: none"> ●Respond to the requirement as an individual company using its own approach to verification, as provided in the Guideline for Verification of Legality and Sustainability of Wood and Wood Products established by Japan's Forest Agency. ●Based on the Japan Paper Association's guideline for measures against illegal logging.
Implementation content	Overall	●Confirmation based on a due diligence system (DDS) for verifying legality under the Clean Wood Act	
	Confirmation of Legality and Traceability	<ul style="list-style-type: none"> ●Traceability based on the Guide line for Verification of Legality and Sustainability of Wood and Wood Products established by Japan's Forest Agency ●Confirmation of basic information relating to forest operations. Information examples include compliance with laws and regulations, tree species, and whether forest certifications have been obtained. 	<ul style="list-style-type: none"> ●On a ship-by-ship basis, the relevant documents confirm that wood logging areas and suppliers comply with relevant laws and regulations and do not contain illegal logging materials. ●On-site checks by employees assigned to local offices ●Questionnaires and local interviews (Every effort is made to enhance traceability by confirming compliance with statutory requirements regarding forest management, tree species, and the acquisition of forest certifications.) <p><small>*In FY2021, it was determined, based on questionnaire responses and shipping and other documents provided by each supplier, that no illegally logged woodchips or pulp were procured from overseas suppliers.</small></p>
	Confirmation of sustainability	<ul style="list-style-type: none"> ●Based on information from sources such as results of supplier questionnaire surveys*(once a year) and local interviews, the following has been confirmed. • Policies or systems have been established for addressing human rights and labor matters. (Workers' collective bargaining rights and free association rights, No forced labor, No child labor or discrimination, Being protected in health and safety, Considering the rights of indigenous peoples) • Fair transactions have been conducted. • Social contribution initiatives have been undertaken to improve relations with local communities. • The environment has been considered. • Logging and forest management activities that are considered to protect biodiversity have been conducted. • Biodiversity surveys have been conducted. • Forest certification has been obtained. <p><small>*target : Import chip, domestic and import pulp</small></p> <ul style="list-style-type: none"> ●The Group disseminates its procurement policy by describing it in the supplier questionnaire (Japanese and English). 	
	Third-Party Audits	<p>The following have been implemented for all procured wood resources.</p> <ul style="list-style-type: none"> ●Annual audits by the Japan Paper Association's illegal logging monitoring project. ●Annual risk assessments based on the due diligence system of the Programme for the Endorsement of Forest Certification (PEFC), a forest certification organization. 	
Implementation Results (FY2021)		357 chip suppliers, 7 pulp suppliers (Implemented for all suppliers) Confirmation of conformance with the above action plan	22 chip suppliers, 13 pulp suppliers (Implemented for all suppliers) Confirmation of conformance with the above action plan

Third-Party Sustainable Forest Management Validations

Forest certification system: System for the certification by third-party organizations that forests are being sustainably managed

At Nippon Paper Industries

- All company-owned forests in Japan and overseas have received forest certifications.
 - All wood-based raw materials are certified by FSC® or PEFC.
- (All procured chips have been produced with wood from forests with an FM certification^{*1} or have undergone a risk assessment for the CoC certification^{*2}.)

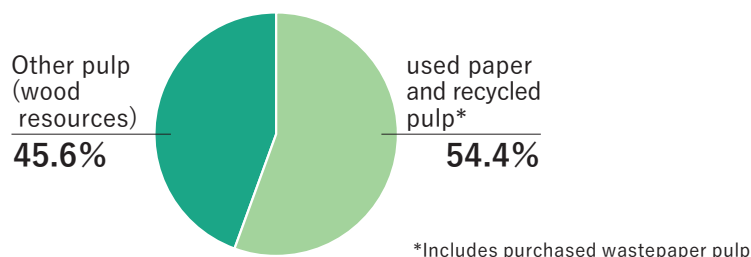
^{*1} FM (Forest Management) certification: Certification of forests with sustainable forest management

^{*2} CoC (Chain of Custody) certification: Certification of certified materials that are properly distributed and processed

Current Status of Raw Materials Procurement

Current Status of Paper Raw Materials Procurement (Nippon Paper Group)

Breakdown of major raw materials for paper products (Consolidated companies in Japan, FY2021)



Initiatives aimed at stable wastepaper procurement

- The Group continues to maintain the stable procurement system that it has built over the course of many years in cooperation with the wastepaper industry.
- For the purpose of stable resource procurement for newspapers, the Company is building and expanding a “Closed Loop System” in which the Company directly purchases used newspapers collected by newspaper companies.
- In order to promote paperizing, in response to the global trend of eliminating the use of plastic by replacing it with paper, the Company is working on constructing a recycling system for presently unusable wastepaper including used food trays.

Amount of used paper and recycled pulp procured* (FY2021)

Used paper (kt)	Recycled pulp (kt)	Total (kt)
2,674	10	2,684

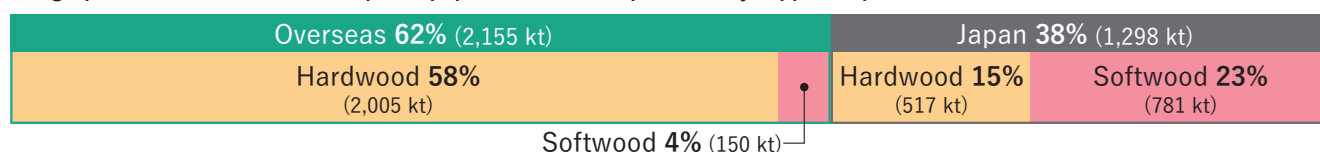
* Target of aggregation : Consolidated companies in Japan excluding Cresia Kasuga

Initiatives aimed at stable wood resource procurement

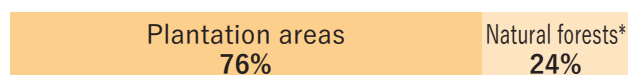
Nippon Paper Industries procures most of the woody raw materials as wood chips and some as pulp.

- ▶ Woodchips : About 60% from overseas, about 40% from Japan
- ▶ Woodchips from overseas : To ensure stable overseas procurement, sources of woodchip imports are diversified between Australia, South America, and other parts of the world.

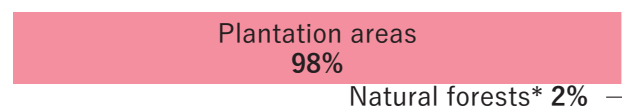
Geographic breakdown of woodchips for paper manufacture procured by Nippon Paper Industries (FY2021) (Bone dry units, kt=kilotonnes)



Hardwood resource breakdown (2,522 kt)



Softwood resource breakdown (931 kt)



*Natural forests as indicated here refer to either wood sourced from forests certified under certification schemes, wood sourced from secondary forests, or lumber waste wood chips that can be judged to be sustainable.

Tree species and countries of origin for overseas woodchips for paper manufacture procured by Nippon Paper Industries (FY2021)

Hardwood

Country	Percentage	Species
Vietnam	31%	Acacia
South Africa	25%	Acacia, Eucalyptus
Australia	21%	Eucalyptus
Brazil	11%	Eucalyptus, Acacia
Chile	7%	Eucalyptus
Thailand	5%	Eucalyptus
Total	100%	

Softwood

Country	Percentage	Species
Australia	86%	Pinus radiata
Russia	14%	Yezo spruce
Total	100%	

Sustainable Forest Management

- Forestry management considers not only economic, but also environmental and social sustainability.

The Nippon Paper Group definition of sustainable forest management

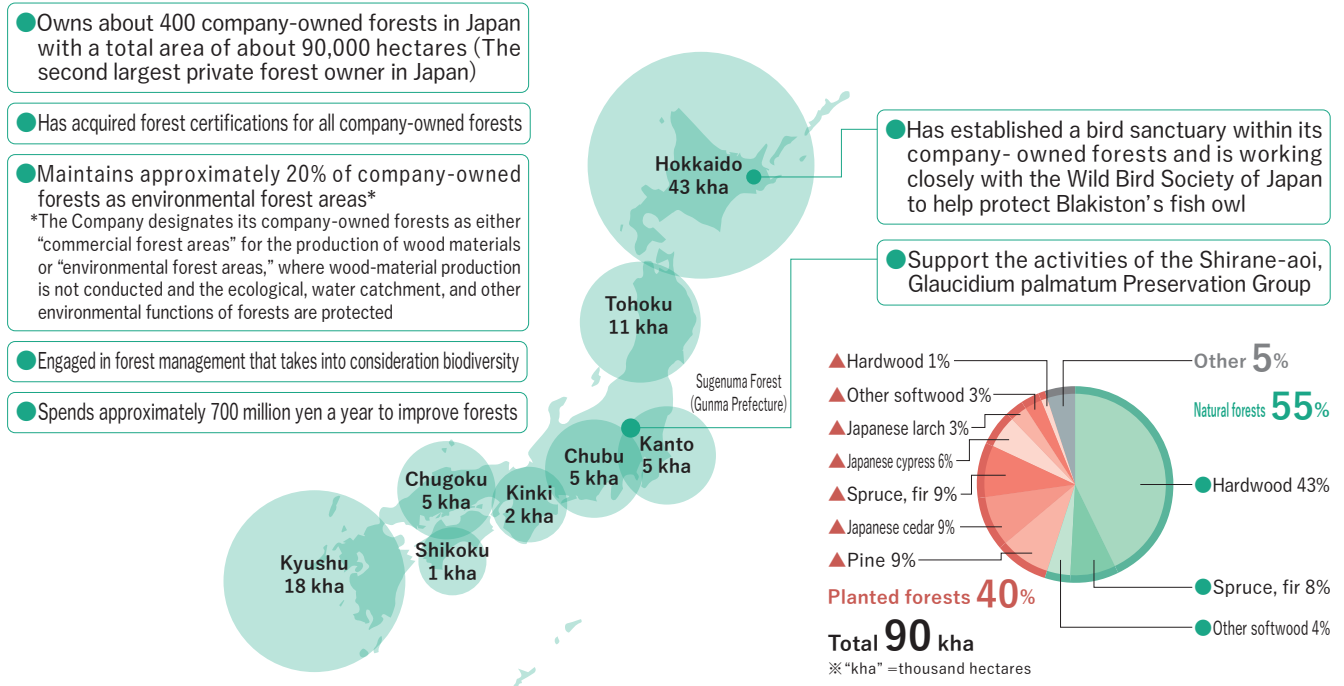
- 1) Biodiversity is preserved.
- 2) The productivity and soundness of the forest ecosystem is maintained.
- 3) Soil and water resources are conserved.
- 4) Diverse social needs are satisfied.

- All company-owned forests in Japan (90,000 hectares, at the end of 2021) have received forest certifications.
- All overseas afforestation areas managed by the Company (72,000 hectares, at the end of 2021) has received forest certifications.

Protecting and Nurturing Japan's Forest Resources

— Sustainable Management of Company-Owned Forests in Japan

Nippon Paper Group, as a company owning forests and utilizing forest resources, aims to enhance the productivity of company-owned forests and carries out balanced and sustainable forest management which can fully demonstrate public interest functions such as forest biodiversity conservation and water source retention.



→ Representative company-owned forests in Japan (Japanese only)
<https://www.nipponpapergroup.com/csr/forest/own/japan/>

Forest Certification Status of Company-owned Forests in Japan

Company-owned Forests in Japan (by Region)	Certification system name	Date acquired
Hokkaido	SGEC	Dec. 2005
Tohoku	SGEC	Oct. 2007
Kanto, Chubu, Kinki (partial)	SGEC	Oct. 2007*
Kinki, Chugoku, Shikoku	SGEC	Dec. 2006
Kyushu	SGEC	Mar. 2005

*Obtained for Kitayama Forest in Shizuoka Prefecture only in December 2003.

— Invigorating Japan's Forest Industry

- The Group is promoting the maintenance of the domestic supply chain and the further use of domestic timber, with the forestry policy based on the basic policy of “green growth through the forest, forestry and timber industries” promoted by the Government of Japan.
- The Company is implementing initiatives to utilize 90,000 hectares of Company-owned forest in various regions of Japan as a field to support forestry revitalization.

<Examples of Activities Utilizing Company-owned Forests>

- ▶ Afforestation of elite tree* seedlings in company-owned forests for reforestation from FY2022 (see P.23)
- ▶ Consideration and implementation of introduction of cutting-edge technology for more sophisticated and labor-saving forestry (see P.23)
- ▶ Participation in large-scale forestry business complexes formed by public-private collaboration, aiming at streamlining forestry operation (see P.23)
- ▶ Biodiversity conservation and water source retention activities in collaboration with companies in different business fields or NPOs (see P.43-44)

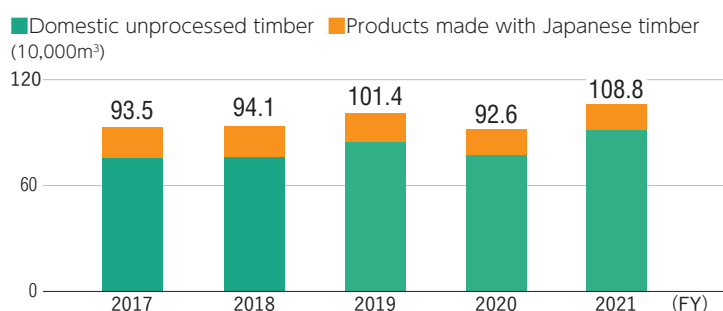
* Seedlings with great growth characteristics and very little pollen designated by the government

— Promoting the use of domestic timber

With its network for domestic timber collection in Japan and its ability to handle a comprehensive lineup of products—ranging from good quality timber for lumber use to lower grade timber for use as wood chips for paper manufacture and wood biomass fuels—Nippon Paper Lumber is actively developing its domestic timber business with the goal of annual sales* of domestic unprocessed timber of 1 million m³.

* Does not include woodchips for paper manufacturing use.

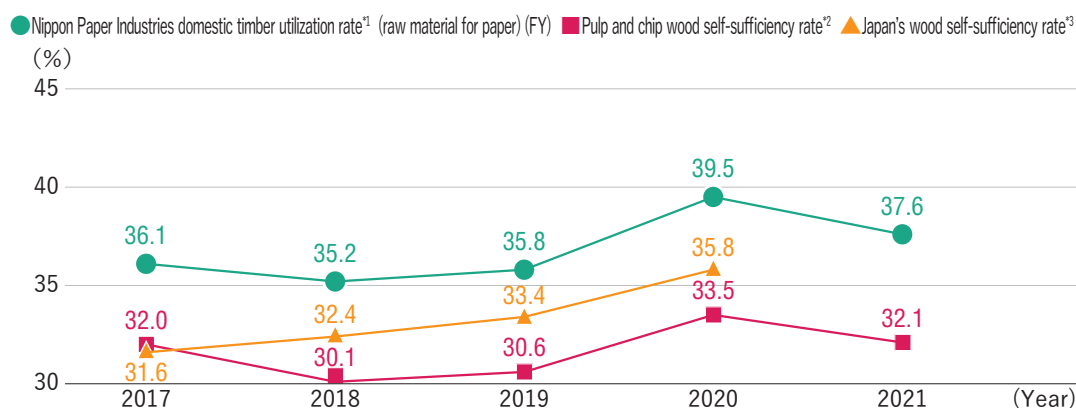
Domestic timber sales results by product type (Nippon Paper Lumber)



— Efforts to use more domestic wood as a raw material for paper

- The Company is working to increase the percentage of domestically produced wood it uses to make paper. This figure was 37.6% in FY2021.
- The volume of domestic wood chips used by the Company to make paper accounts for around 10% of Japan's total timber demand. That volume is having an impact on the supply-demand balance of Japanese timber and Japan's wood self-sufficiency rate.

Domestic timber utilization rate (Nippon Paper Industries)



*1 It includes sawmill residues.

*2 Source : Yearbook of Paper and Pulp Statistics issued by the Ministry of Economy, Trade and Industry of Japan.

*3 Source : Supply and Demand of Lumber (Lumber material self-sufficiency rate) issued by the Forest Agency of Japan

CASE STUDY

Expansion of Business of Elite Seedlings for Forestry (Nippon Paper Industries)

The Company will contribute to the revitalization of forestry in Japan by expanding the business of elite seedlings for forestry in collaboration with the Forestry Agency and seedling traders. It received certifications as a "specified breeding company" due to the production of seedlings of elite trees in Hokkaido and Kumamoto as well as in Shizuoka, Tottori, Hiroshima and Oita. The Company will expand the scale of the business and spread it to the remaining area, considering the trend in demand. At the same time, it will promote value enhancement of company-owned forests by afforestation of elite trees and other seedlings one after another in reforested land owned by the Company.

CASE STUDY

Use of Cutting-edge Technology (Nippon Paper Industries, Nippon Paper Lumber)

Nippon Paper Industries and Nippon Paper Lumber are examining the acquisition of forest resource information using a drone and aerial laser and labor saving in and streamlining of forest management in company-owned forests. The companies concluded an agreement on the implementation of cutting-edge technology on-site with Shizuoka Prefecture in May 2022, and will demonstrate cutting-edge technology using company-owned forests in Shizuoka. The Company will also streamline the creation of J-Credits* in company-owned forests by acquiring forest information using such data.

* J-Credit Scheme is a system to certify the amount of CO₂ and other greenhouse gas emissions reduced by energy saving and the use of renewable energy or absorbed through proper forest management, as "credit."

CASE STUDY

Public-private Collaboration in the Formation of Large-Scale Forestry Business Complexes (Nippon Paper Industries)

Since 2011, as a private-sector company that owns a forest in the Itsuki region of Kumamoto, the Company has been involved in an agreement to promote forest management in the region, alongside Kyushu Regional Forest Office, Itsuki Village, ITSUKI Forest Owner's Cooperative, and others. Currently, the field environment is a large-scale forestry operation of over 20,000 hectares, and the partnership is engaged in reasonable road building and efficient forestry operations. In FY2021, it implemented cooperative shipping with the aim of building a stable supply chain for timber and is planning the expansion of the business.

CASE STUDY

Supply of SGE-Certified Wood

Nippon Paper Lumber received CoC certification of SGE for the first time in Japan. In 2018, the Company used Nippon Paper Lumber's CoC certification to supply SGE-certified material from its Kitayama company-owned forest (Fujinomiya, Shizuoka) to the Exhibition Building Wooden Grid Project at the Mt. Fuji World Heritage Center, Shizuoka. This is the first case of acquiring "SGE/PEFC CoC Project Certification" in Japan. SGE-certified lumber from company-owned forests was also supplied for use in the construction of the Japan National Stadium, which was completed in 2019.

Overseas Afforestation

- The Group conducts forest management by paying attention to the local residents including indigenous people, culture and tradition of each region and natural environment and ecosystem. The Group also contributes to local economies by creating employment opportunities and providing support for educational activities (see P.70).
- The Group performs afforestation work on grasslands, former farms and pastures, and on harvested plantation land, selecting and planting species, focusing mainly on fast-growing Eucalyptus, according to individual climatic conditions and materials available for making paper.
- In order to maintain a balance between areas planted with Eucalyptus and the biodiversity needs of each region, the Group manages plantation areas appropriately with consideration of the landscape, such as keeping native waterside forests where the potential effects on the ecology are large.
- Afforestation project companies in each location engage in afforestation projects that pay consideration to biodiversity, have established protected zones on company-owned land for the protection of biodiversity, and are engaged in initiatives such as wildlife (animal and plant) habitat research (see P.43-44).
- When conducting new development, the Group carries out environmental and social assessments and gives prior briefings to local residents including indigenous people.
- The afforestation project companies conduct regular visits and meetings for communities surrounding the afforestation areas they own, in order to confirm the opinions and demands of local people with regard to their project activities. Procedures have also been established for assessing and reviewing social contribution activity programs run by these companies based on requests received from local residents via these communication activities.
- Forest certification has been obtained and maintained for all overseas afforestation projects managed by the Group.

Overview of Overseas Forests under Nippon Paper Group Management (as of December 31, 2021)

Company	Country	plantation area (10 k ha)	Background
Amapá Florestal e Celulose S.A. (AMCEL)	Brazil	6.5	Wholly owned subsidiary of Nippon Paper Industries
Nippon Paper Resources Australia Pty.Ltd. (NPR)	Australia	0.7	Wholly owned subsidiary of Nippon Paper Industries (Management of PTP, BTP, etc.)

Status of forest certification acquisition for overseas afforestation projects

Overseas plantation project by operating company	Country	Certification system name (License no.)	Acquisition year
PTP	Australia	Responsible Wood	2006
BTP	Australia	Responsible Wood	2006
AMCEL	Brazil	FSC® (FSC®C023383) CERFLOR	2008 2014

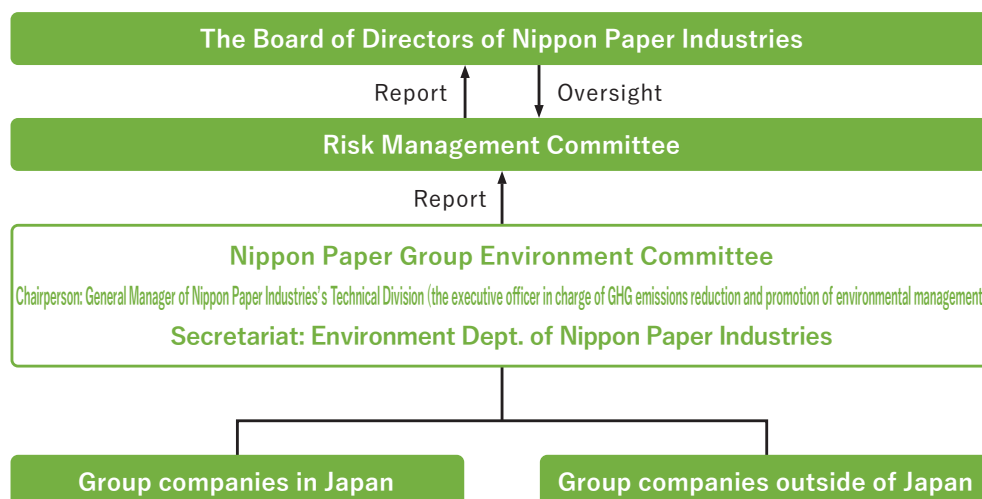
Examples of Activities to Coexist with Local Communities (see P.70)

country	Examples of Activities to Coexist with Local Communities	
	Contributions to Local Communities	Respect for indigenous peoples
Brazil	<ul style="list-style-type: none"> ● Vocational training for local residents in communities surrounding afforestation areas ● Vocational training for women living in local communities (makeup, accessory making, etc.) ● Supporting sports classes for children from low-income families ● Partnership with military police (sponsorship of education and sports classes for children from low-income families run by military police) ● Distribution of a food basket to low-income families ● Financial support for protection of wild animals and environmental education activities 	<ul style="list-style-type: none"> ● Designation of areas with indigenous heritage sites identified on company-owned land as permanent protected zones
Australia	<ul style="list-style-type: none"> ● Cooperation with firefighting activities in times of forest fires in the local area, as members of a fire brigade consisting of local afforestation-related companies 	<ul style="list-style-type: none"> ● Protection of indigenous heritage sites identified in afforestation areas

Policy and Management

》 The Nippon Paper Group Environmental Charter (see P.86)

Environmental Management Promotion Structure



— Environmental management systems

Acquisition of ISO 14001 Certification (as of March 31, 2022)

Company Name	Mills/Operating Division/Production Subsidiaries
Nippon Paper Industries	Asahikawa Mill, Siraoi Mill, Akita Mill, Ishinomaki Mill, Iwanuma Mill, Nakoso Mill*, Kanto Mill, Fuji Mill, Gotsu Mill, Otake Mill, Iwakuni Mill, Yatsushiro Mill, Higashimatsuyama Mill
Nippon Paper Liquid Package Product	Egawa Mill, Ishioka Mill, Miki Mill
Nippon Paper Crecia	Tokyo Mill, Kaisei Mill, Koyo Mill, Kyoto Mill
Crecia-Kasuga	Shin-Fuji Mill
Nippon Paper Papylia	Harada Mill, Suita Mill, Kochi Mill
NP Trading	Headquarters/Sapporo Branch Office/Chubu Branch Office/ Kansai Branch Office/Chugoku Branch Office/Kyushu Branch Office/Shizuoka Sales Office
Daishowa Uniboard	Headquarters/Miyagi Mill
N&E	Headquarters Mill
Nippon Paper Ishinomaki Technology	Headquarters
Opal	Acquired at 4 sites
Jujo Thermal	Kaattua

* Manufacturing of non-carbon paper, heat-sensitive paper, inkjet paper and other information paper and wholesaling of electric power

- Nippon Paper Industries has obtained ISO 14001 certification for 100% of its production locations.
- Nippon Paper Industries has obtained ISO 14001 certification for 50% of its environment-related matters to be reported.

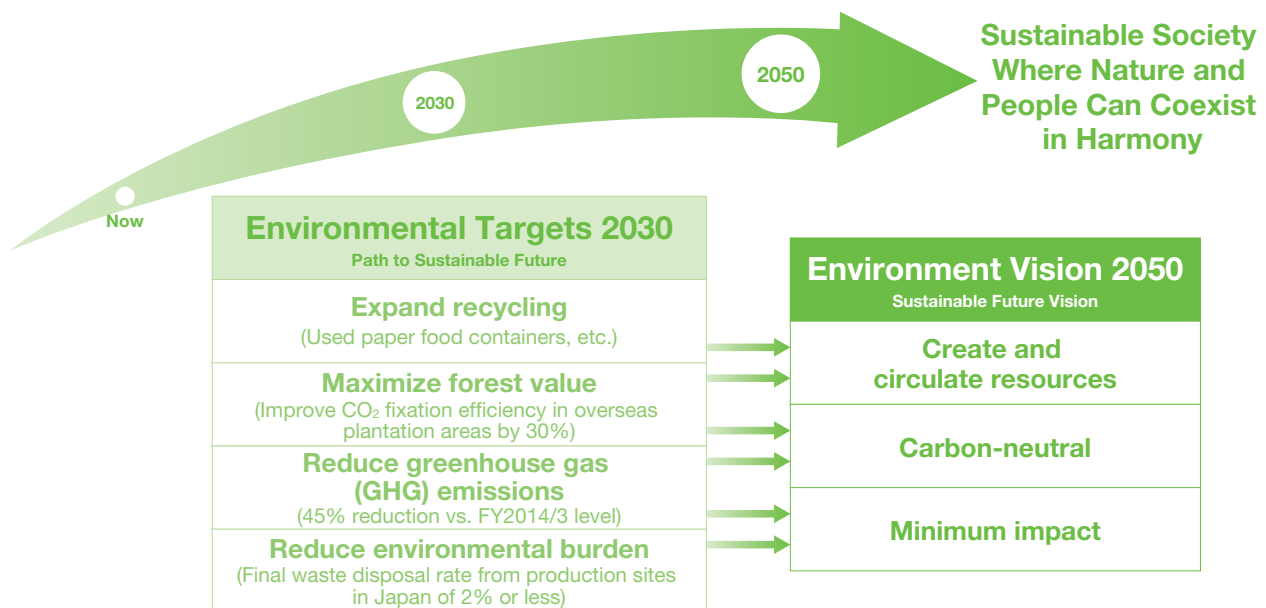
The status of Eco-Action 21 acquisition (as of March 31, 2022)

Company Name	Mills/Operating Division/Production Subsidiaries
Akita Jujo Chemicals	Head Office Plant

Nippon Paper Group Environmental Vision 2050 (Sustainable Future Vision), Nippon Paper Group Environmental Targets 2030: Path to Sustainable Future

Aiming for a Sustainable Society Where Nature and People Can Coexist in Harmony

In order to be more effective in dealing with environmental issues such as climate change, which are highly uncertain and require long-term responses and countermeasures, it is necessary to have a vision and goals based on a medium- to long-term perspective. The Group has formulated targets for 2030 by backcasting from the ideal state of the Group in 2050, and the entire Group is working together to achieve them.



Nippon Paper Group Environmental Vision 2050 (Sustainable Future Vision)

1. Carbon-neutral

Reduce greenhouse gas emissions to virtually zero.

- ▶ Minimize greenhouse gas emissions through the efficient use of energy and the use of renewable energy sources.
- ▶ Minimize greenhouse gas emissions in the value chain through collaboration with stakeholders.
- ▶ Become carbon neutral by offsetting residual emissions through CO₂ absorption and fixation in forests and CO₂ removal technologies.

2. Creation and circulation of resources

Create sustainable forests that conserve biodiversity and procure and supply resources.

- ▶ Maintain and expand forests with multifaceted value and maximize forest value.
- ▶ Procure and supply a variety of woody biomass resources that can be used as raw materials for various products.

Promote the utilization of woody biomass resources to contribute to better living in a circulation-oriented society.

- ▶ Provide a variety of materials and products made from woody biomass resources.
- ▶ Promote resource circulation and product recycling as a social infrastructure.

3. Minimum impact

Minimize the environmental impact of the Group's business activities.

- ▶ Minimize the input and output of resources that impact the environment.
- ▶ Provide society with products and services that have a low environmental impact throughout their entire life cycle.

Nippon Paper Group Environmental Targets 2030: Path to Sustainable Future

1. Reduce greenhouse gas emissions

Reduce greenhouse gas emissions through fuel conversion and energy conservation measures.

- ▶ Reduce direct greenhouse gas emissions by 45% from FY2013 levels.
- ▶ Accelerate fuel conversion and increase the ratio of non-fossil energy use to at least 60%.
- ▶ Improve total energy consumption per unit of production and distribution by 1% from the previous year.
- ▶ Reduce greenhouse gas emissions from domestic product transportation in the paper and paperboard business by 23% relative to FY2020 levels through modal shift and other measures*.
- ▶ Collaborate with stakeholders to reduce indirect greenhouse gas emissions.

* Applied to Nippon Paper Industries.

2. Promote the creation and circulating of resources

Promote the protection and cultivation of forest resources and biodiversity-conscious forest management.

- ▶ Improve CO₂ fixation efficiency in overseas forest plantations by 30% compared to 2013 levels.
- ▶ Obtain and maintain forest certification for all company forests in Japan and overseas.
- ▶ Ensure the traceability and sustainability of all woody biomass resources used.
- ▶ Promote the use of forest resources in Japan.

Promote the circulation of resources.

- ▶ Work to build a recycling system that promotes resource circulation
- ▶ Utilize 12,000 t/year of unused recovered paper, which has been difficult to recycle, through the development of recovered paper utilization technology.

3. Reduce environmental impact

Reduce the environmental impact of manufacturing processes.

- ▶ Reduce air pollutants by 15% and water pollutants by 15% compared to FY2018.
- ▶ Reduce the final disposal of industrial waste at production sites in Japan to 2% or less.
- ▶ Provide society with products and services that have minimal environmental impact throughout their entire life cycle.

Nippon Paper Group Environmental Targets 2030: Path to Sustainable Future

1. Reduce greenhouse gas emissions

Reduce greenhouse gas emissions through fuel conversion and energy conservation measures.

Target	Progress and Status of Initiatives
▶ Reduce direct greenhouse gas emissions by 45% from FY2013 levels.	The Group reduced GHG emissions (Scope 1 and 2) by 20% compared with FY2013.
▶ Accelerate fuel conversion and increase the ratio of non-fossil energy use to at least 60%.	The non-fossil energy ratio to energy used was 46%.
▶ Improve total energy consumption per unit of production and distribution by 1% from the previous year.	Total energy consumption per unit of Nippon Paper Industries decreased by 6% in the paper business and 1.3% in the paperboard business in production processes, and increased by 2.6% in logistics processes, compared with 2020.
▶ Reduce greenhouse gas emissions from domestic product transportation in the paper and paperboard business by 23% relative to fiscal 2020 levels through modal shift and other measures*.	GHG emissions increased by 3% compared with FY2020, due to an increase in the transportation volume associated with recovery in production due to the impact of the COVID-19 pandemic.
▶ Collaborate with stakeholders to reduce indirect greenhouse gas emissions.	The Group calculated Scope 3 emissions from major pulp and paper companies in Japan and is considering measures to reduce indirect GHG emissions.

* Applied to Nippon Paper Industries.

2. Promote the creation and circulating of resources

Promote the protection and cultivation of forest resources and biodiversity-conscious forest management.

Target	Progress and Status of Initiatives
▶ Improve CO ₂ fixation efficiency in overseas forest plantations by 30% compared to 2013 levels.	The Company conducts research and development such as elite tree selection on an ongoing basis with the aim of improving CO ₂ fixation efficiency.
▶ Obtain and maintain forest certification for all company forests in Japan and overseas.	The Group has obtained and maintained forest certification (FSC ^{*1} , PEFC, and SGECC) for all of the company-owned forests in Japan and overseas.
▶ Ensure the traceability and sustainability of all woody biomass resources used.	The Group has worked to confirm sustainability and enhance traceability by making use of forest certification systems, and through other efforts. The wood chips and pulp used for papermaking in FY2021 were all made from wood approved by FSC ^{*2} or PEFC (including controlled wood and controlled sources).
▶ Promote the use of domestic forest resources.	The use of domestic wood at all Nippon Paper mills reached 37.6% in FY2021 (based on actual purchases).

Promote the circulation of resources.

▶ Work to build a recycling system that promotes resource circulation	The Company has been conducting a test and verification project for collection of paper used for food containers since April 2021, with the support of Hamamatsu City. In addition, the Company started to build a recycling system by installing recycling facilities in Fuji Mill of Nippon Paper Industries which is slated to start operation in October 2022.
▶ Utilize 12,000 t/year of unused recovered paper, which has been difficult to recycle, through the development of recovered paper utilization technology.	The amount of previously unused and hard-to-process wastepaper used in FY2021 was 22.5 tonnes (22.14 tonnes of plastic compound paper and 0.34 tonnes of used paper cups) (consumed at Kanto Mill (Soka) of Nippon Paper Industries).

3. Reduce environmental impact

Reduce the environmental impact of manufacturing processes.

Target	Progress and Status of Initiatives
▶ Reduce air pollutants by 15% and water pollutants by 15% compared to FY2018.	The Group reduced air pollutants and water contaminants through initiatives related to facility improvement and energy saving. SO _x 34%, NO _x 22%, soot and dust 21%, COD/BOD 23%, and SS 9% (reduction rate at production sites in Japan compared with FY2018)
▶ Reduce the final disposal of industrial waste at domestic production sites to 2% or less.	The final disposal of industrial waste at production sites in Japan was 2.1%.
▶ Provide society with products and services that have minimal environmental impact throughout their entire life cycle.	The Group sells products such as heat-sealing plastic-free paper "Lamina®" and multi-functional corrugated paper "Waterproof Liner" as products that contribute to reduction of the use of plastics, and to resource recycling.

*1 FSC® Logo License No. FSC® C023383 (AMCEL:Brazil)

*2 FSC® Logo License No. FSC® C001751 (Nippon Paper Industries)

Strengthening Environmental Compliance

— Two-Pronged Approach to Environmental compliance

The Group is strengthening its environmental compliance from a preventive standpoint, using a two-pronged approach of establishing frameworks for preventing problems and ensuring that no problems are missed, and engaging in its business activities while giving priority to legal compliance.

Two-Pronged Approach

- | | |
|---|---|
| <p>1. Building Systems to Prevent Problems</p> <ul style="list-style-type: none"> • 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 | <p>2. Establishing a Framework that Ensures All Problems are Covered</p> <ul style="list-style-type: none"> • Enhancement of environmental audits • Enhancement of environmental management system • Engaging in environmental communication and active information disclosure |
|---|---|

Environment-related* fines and penalties

Environment-related fines and penalties (FY2021)	0 Yen
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* Decrees and regulations regarding the environment of water intake, wastewater, air, and waste

— Systems to Ensure that the Laws and Regulations in Japan and Overseas to be Complied with are Identified

To respond accurately to wide-ranging and relatively frequent changes in environmental legislation, the Group has developed a framework which uses a legal and regulatory search system, etc. to search for and share information on revised laws and relevant trends, and which ensures a reliable approach to legal compliance.

— Introducing Equipment and Measurement Devices to Prevent Environmental Accidents

- The Group extracts the risk of environmental accidents from two perspectives: the possibility of an accident and its impact on the environment, and introduces equipment and measurement equipment necessary for preventing accidents.
- Each Group company is engaged in continuous measures to prevent large-scale leaks of oil or chemical agents, including the installation of liquid containment barriers (oil fences, etc.) and measuring devices.

— Environmental Audits Emphasizing Legal Compliance and Risk Control

Based on the “Environmental Management for Pollution Prevention,” an action guideline for environmental management issued by the Ministry of the Environment (MOE) and the Ministry of Economy, Trade and Industry (METI), the Group conducts regular environmental audits by double-checking through internal audits by each business site and audits by the head office’s environmental department.

<Examples of Environmental Audits>

- ▶ Document audit (confirmation of management records such as drainage)
- ▶ On-site audit (confirm equipment such as chemical tanks)
- ▶ Mutual audit between group companies

Environmental Communication

The Group has also established the Nippon Paper Group Risk Communication Guidelines and is implementing initiatives based on the guidelines.

<Examples of Environmental Communication>

- ▶ Environmental risk communication for local residents and local governments (at least once a year in principle).
- ▶ Preliminary briefing session on the environmental impact of construction and operation when introducing large equipment, etc.

— Responses to Opinions and Complaints

- The Group has a system to accept opinions.
 - ▶ Acceptance of opinions and inquiries on the Company website
 - ▶ Establishment of a contact point for complaints and inquiries at mills
 - ▶ Utilization of an environmental monitoring system to request local residents to provide information
- When a complaint is received, the Group moves swiftly to determine possible causes, and implement emergency and permanent solutions. The Group also explains to the person who lodged the complaint what happened and what was done to resolve the situation, so that they can be satisfied that the Group has responded appropriately.

Environment-Related Complaints in Japan (FY2021)

Complaints	Noise/Vibration	Odor	Dust and mist dispersal	Smoke	Other	Total
Number	4	6	1	0	0	11

— Environmental Education and Training for Employees

The Group conducts environmental education for employees.

<Examples of Environmental Education>

- ▶ Encourage participation in pollution control-related qualifications and external training to gain specialized knowledge
- ▶ Activities to raise employees' awareness of environmental conservation (every June, Environmental Month holds a photo contest "Nippon Paper Industries Group Eco-Photo Contest" and environmental e-learning)

Educational achievements (FY2021)

Program Name	Number of participants
Let's reduce plastic waste! ~ New law is made ~	Over 7,400

Addressing Climate Change

- The Nippon Paper Group sees addressing climate change as one of its material issues for realizing the Group Mission.
- Under the 2030VISION, in its mid- and long-term basic policy, the Company states “reduce GHG emissions and respond to drastic changes in social conditions, including environmental issues, etc.,” and it will work to reduce GHG (greenhouse gas) emissions and implement green strategies to achieve carbon neutrality by 2050.
- Japan Paper Association, of which the Company is a member, listed five targets including “Achieving a Low Carbon Society” as environmental policy in 2012, and is working to achieve a course of action to materialize them.

The Nippon Paper Group's FY2030 Targets

Reduce GHG emissions (Scope 1 and 2) by 45% compared with FY2013

- Reduce fossil fuel use by maximizing the use of existing infrastructure

Green strategy

- Improve CO₂ fixation efficiency in overseas plantation areas by 30% compared to 2013
- Respond to demands to eliminate and reduce plastic (increase products that replace plastic with paper)



Carbon neutrality in 2050

Initiatives to Achieve Carbon Neutrality

- The Group is working to achieve carbon neutrality at each stage of its value chain through three key initiatives: shifting to alternative fuels (fuel conversion), promoting energy saving in production and logistics processes (energy saving) and absorbing and fixing CO₂ through the appropriate management of company-owned forests (carbon sequestration).
- The Company has reviewed the Group energy mix and introduced internal carbon pricing (2,000 Yen/t-CO₂) from 2021 in order to accelerate the reduction of GHG emissions.

Realize carbon neutrality



The Nippon Paper Group's initiatives

Reduction of GHG emissions from business activities

Absorption and fixation of CO₂ in Company-owned forests

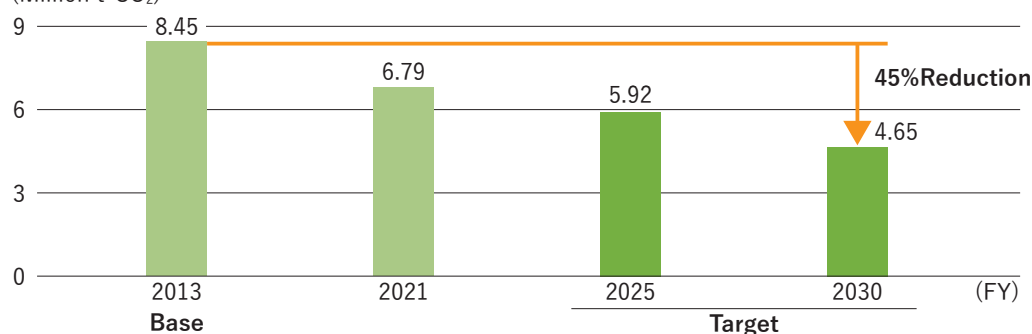
Fuel conversion

Energy conservation in manufacturing and logistics processes

Absorption and fixation of CO₂ through appropriate management of company-owned forests

GHG Emissions (Scope 1 and 2)

(Million t-CO₂)



GHG emissions (Scope 3, FY2021)

Scope of organizations covered : Nippon Paper Industries, Nippon Paper Crexia, Nippon Paper Papyrus

Scope of businesses covered : paper and paperboard business, daily-life products business

Category		Emissions (thousand t-CO ₂)
1	Purchased goods and services	1,806
2	Capital goods	97
3	Fuel- and energy-related activities (not included in scope 1 or scope 2)	1,149
4	Upstream transportation and distribution	683
5	Waste generated in operations	57
6	Business travel	1.8
7	Employee commuting	6.0
8	Upstream leased assets	Not applicable
9	Downstream transportation and distribution	237
10	Processing of sold products	67
11	Use of sold products	0
12	End-of-life treatment of sold products	173
13	Downstream leased assets	Not applicable
14	Franchises	Not applicable
15	Investments	Not applicable
Total		4,276

Category 2,6,7 : Applies to all businesses, including other than scope of businesses covered

Category 11 : Paper and paperboard products, which are our main products, are assumed not to use energy when using the products

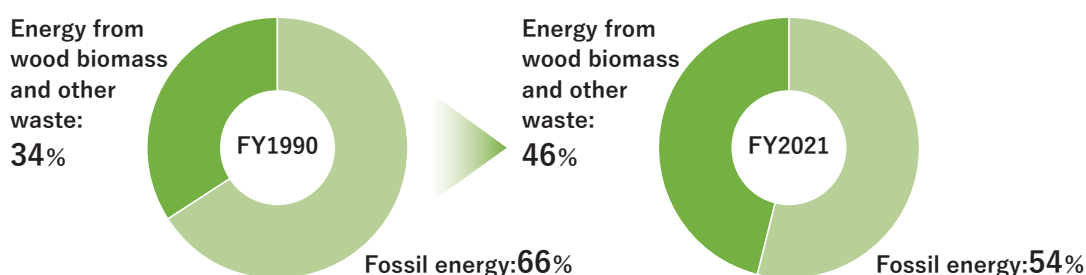
Fuel Conversion

- The Group uses black liquor (produced as a byproduct of the production of pulp) and construction waste materials as wood biomass fuels. At the same time, it appropriately procures wood biomass through its domestic and overseas wood biomass collection network for utilization as a renewable source of energy.
- The amount of woody biomass energy used by the Group in FY2021 was equivalent to around 3.4%^{*1} of all non-fossil energy supplied in Japan (excluding nuclear and hydroelectric power).
- The Group has also installed two types of boilers—high efficiency boilers, and boilers capable of burning construction waste and other biomass fuels, used tires, RPF^{*2} and other waste fuels.

^{*1} Estimated by Nippon Paper Industries based on domestic primary energy supply data (finalized data for FY2020) published by the Agency for Natural Resources and Energy

^{*2} RPF: Refuse derived paper and plastics densified fuel. This is a high-grade solid fuel made mainly from those paper and plastic industrial waste materials which are difficult to recycle. (From the website of Japan RPF Industry Association)

Fossil energy usage ratio (calorie conversion) of all fuels used



CASE STUDY**Use of Torrefaction Technology and Wood Biomass Fuels**

The Company has established a torrefaction technology to manufacture new woody biomass fuel as an alternative to coal for thermal power stations.

Torrefaction is a technology that carbonizes woody biomass at a relatively low temperature. This has been developed for the production of fuels which remain relatively high in calories, are easy to crush, and have developed a water resistance that makes them suitable for outdoor storage. The fuel produced by the torrefaction technology can be used in the existing thermal power generating equipment, and contributes to the reduction of GHG emissions.

CASE STUDY**In-house Production of Solid Fuel from Waste**

The Company's Otake Mill converts the paper sludge^{*1} and wastepaper residues^{*2} produced in the manufacture of linerboard and corrugated medium (for containerboard) into solid form on site, and uses it as a form of energy to drive the mill itself. In FY2021, the mill produced 6,940 BD t^{*3} of fuel. Self-production of fuel from waste leads to reductions in coal usage, and also contributes to reducing the amount of waste sent for final disposal through the recycling of waste.

^{*1} A sludge produced in the manufacture of paper. It contains mainly cellulose fibers and minerals drained during the paper dewatering / drying process.

^{*2} Foreign matter produced when processing wastepaper.

^{*3} As of April 2019, the mill has also begun accepting waste plastic refuse from the city of Otake as a raw material.

Energy Conservation in Manufacturing and Logistics Processes

— Promoting energy-saving in manufacturing processes

- The Group has been working continuously to implement energy saving at its paper mills in Japan for many years. It endeavors to increase the effectiveness of these efforts by seeking to share examples of effective initiatives with other mills.
- Knowledge obtained through efforts at mills in Japan has also been applied at the paper mills of overseas Group companies in countries such as Australia and Thailand.
- The Group is striving to save energy in and outside Japan by introducing more efficient facilities and reviewing manufacturing processes.

<Examples of Energy-saving in Manufacturing Processes>

- ▶ Reduction of heating steam in the system by efficiently collecting hot water (Asahikawa mill, Nippon Paper Industries)
- ▶ Use of a highly efficient beating machine at the beating process in manufacturing (Akita mill, Nippon Paper Industries)
- ▶ Utilization of a co-generation system (Use of steam with high temperature and pressure obtained in combustion at a boiler in power generation and production processes)

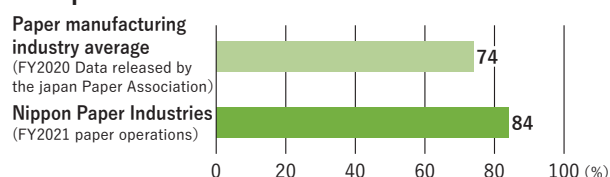
— Promoting energy-saving in logistics processes

The Group is working to implement green logistics that will lead to reductions in greenhouse gas emissions, from the two perspectives of improving loading efficiency and shortening transportation distances.

<Examples of Energy-saving in Logistics Processes>

- ▶ Promoting a modal shift (Long-distance transportation by loading a large amount of goods at one time on railroads and coastal vessels)
- ▶ Pursuing direct delivery and joint delivery (Direct delivery without going through the warehouse in cooperation with the distributor)

Comparison of modal shift rates



Green Management Certifications* (Consolidated and non-consolidated subsidiaries in Japan as of April 15, 2022)

Company	NIPPON PAPER LOGISTICS, Kyokushin Transport, Nanko Logistics Support, Hotoku, NP Unyu Kanto, NP Unyu Fuji, NP Unyu Kansai, and NP Unyu Iwakuni
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Of those locations that have obtained certification, 16 locations at 8 companies have obtained Green Management Certification Long-Time Commendation, which is awarded to business locations that have been certified and registered for 10 years continuously since the date of their initial registration (in the first year).

* A system in which the Foundation for Promoting Personal Mobility and Ecological Transportation acts as a certification body and certifies and registers businesses that are making efforts above a certain level based on the Green Management Promotion Manual.

Eco Rail Mark Certifications* (as of July 31, 2021)

Company	Certification type
Nippon Paper Industries	Eco Rail Mark for companies
	Eco Rail Mark for products (paper, white paperboard)

* The certification, established by the Ministry of Land, Infrastructure, Transport and Tourism, applies to companies (and the products of companies) which use more than given percentage of rail freight transportation, which generates lower unit CO₂ emissions.

CASE STUDY**Efforts for double-coupled trucks**

NIPPON PAPER LOGISTICS is participating in the creation of advanced logistics technology and new systems by investing in NEXT Logistics Japan Co., Ltd. (NLJ) in 2021 in order to optimize the working hours of truck drivers during transportation and reduce the environmental burden. Currently, as part of this, it has started the operation of NLJ's double-connected trucks* and the efforts to change drivers at intermediate points during long-distance transportation (relay transportation).

* Each of them has the transportation capability equivalent to roughly two heavy-duty trucks, and CO₂ emissions per weight of the trucks (vehicles over 21m) are reduced by about 30% compared to ordinary heavy-duty trucks (12 m vehicles) (according to NLJ actual values).

Absorption and Fixation of CO₂ through Appropriate Management of Company-owned Forests

- The Group is in compliance with the Clean Development Mechanism (CDM) of the Kyoto Protocol and considers that the forests absorb CO₂ while growing and the CO₂ is deemed emitted to the atmosphere when trees are harvested.
 - The forests owned by the Group in Japan and overseas are harvested and replanted based on the business plan for the purpose of using resources.
 - Part of the amount of CO₂ absorbed through proper forest management and continuous thinning has been certified as "J-credits*" after inspection.
- * A system in which the government certifies as "credits", the amount of CO₂ emissions reduced through the introduction of energy-saving equipment, the use of renewable energy, and the absorption of CO₂ through appropriate forest management.
- The amount of net absorption of CO₂ in company-owned forests in Japan and overseas (amount of absorption minus amount of harvesting) was approximately 250 thousand tonnes, and the total amount of sequestered CO₂ was approximately 31 million tonnes.
 - The Group estimates that the amount of sequestered CO₂ in forests in environmental protection area established in afforestation projects overseas is approximately 10 million tonnes.

J-クレジット販売実績

Company	Credit name	FY2017	FY2018	FY2019	FY2020	FY2021
Nippon Paper Industries	Fuji/Kitayama company-owned forest thinning promotion project	2cases	—	1case	—	2cases
Nippon Paper Lumber	Gunma/Sudagai company-owned forest thinning promotion project	3cases	—	2cases	1case	2cases

CASE STUDY**Utilization of J-Credits**

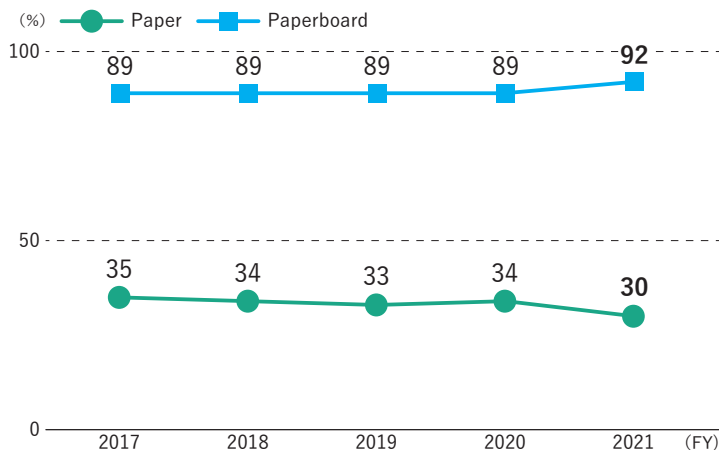
In FY2021, the Group's J-Credit was used in International Coastal Cleanup conducted by the employees of Coca-Cola System as a carbon offset (offset of 1-tonne of CO₂ per participant to promote reduction of CO₂ emissions).

Promotion of Resource Circulation

Initiatives for Using Wastepaper

The Nippon Paper Group considers wastepaper as important raw material and is working on the recycling of unused wastepaper.

Trend of used paper utilization rate (in Japan*)

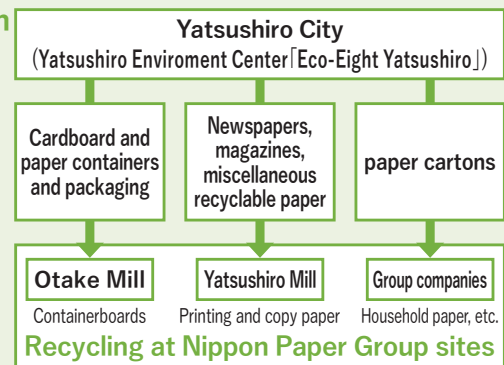


*From FY2021, Crecia-Kasuga is also included in the scope

CASE STUDY

Circular Use of Wastepaper in Collaboration with Local Governments

The Company's Yatsushiro Mill, in partnership with the city of Yatsushiro, has built a comprehensive wastepaper recycling system for the wastepaper generated in Yatsushiro. A wide variety of used paper (newspapers, magazines, corrugated cardboard, paper cartons, paper containers and packaging) collected by Yatsushiro City is accepted by the Yatsushiro Mill and other plants of the Group, recycled using facilities and technologies such as recovered paper pulp production facilities, and used as raw materials for making paper.



CASE STUDY

Collaborative business for recycling used food paper containers (Nippon Paper Industries)

The Company has been conducting tests of self-collection of paper containers for ice cream and other foods with the support of Hamamatsu City since April 2021. This project, being carried out together with Hamamatsu Green Wave Co., Ltd. and NPO Ecolife Hamamatsu, uses collection boxes installed at Ecohama, a facility in Hamamatsu City to raise environmental awareness, and other locations where used paper containers are collected and brought to one of the Company's mills to be utilized as raw material for paper. This will contribute to raising general consumers' awareness of recycling, reducing the volume of incinerated rubbish and fixing carbon by prolonging use of woody resources.

CASE STUDY

Closed Loop Initiatives (Nippon Paper Industries)

In order to make long-term, stable use of collected waste newspaper as a recycled resource and raw material for newsprint, the Company has constructed a closed loop scheme in which it purchases wastepaper directly from newspaper companies, which are its customers.

CASE STUDY

Collection and Recycling of Paper Cups (Nippon Paper Industries)

The Company collects paper cups used at its head office and recycles them into material for containerboard at its Ashikaga Mill. Since this initiative was launched in September 2019, the Company has collected a total of around 363,000 cups (as of July 31, 2022).

CASE STUDY

Paper Carton Recycling “PakUpcycle®”

The Company has conducted various initiatives with a catch phrase of “PakUpcycle®,” coined by us by combining “Pak” (beverage paper pack) and “Upcycle” (to reuse unnecessary items through processing to add value as a product).

<Paper-Pak Carton Collection and Recycling>

The Company has installed Paper-Pak collection boxes at Group company sites and is working to increase employee awareness of Paper-Pak recycling. In addition, the Company has positioned the collection of paper cartons as an activity that enables society as a whole to make effective use of resources, and is working with collection companies to strengthen the efforts to promote recycling at various facilities and schools. In 2017, the Company commenced collection activities using a proprietary method, primarily in Nerima City, Tokyo (four tonnes were collected in FY2021). The collected Paper Paks are used as raw material for household paper products.

<Recycling of Beverage Paper Packs with Aluminum>

The Company is working on the development of mixture of polyethylene and aluminum jointly with RIPRO Corporation, Japan and HAGIHARA INDUSTRIES INC. to material-recycle* the mixture processed as waste in the recycling process of the beverage paper packs with aluminum. In 2021, a boundary stake made of the mixture was introduced in several forestry unions.

* Recycling method in which waste is recycled as raw material for a new product

Waste Recycling

The Group is advancing initiatives such as revising production processes and making effective use of boiler ash as civil engineering material in order to reduce the amount of industrial waste sent to landfill and other forms of final disposal.

Waste generated and final waste disposal (in Japan*)

*From FY2021, Crecia-Kasuga is also included in the scope

CASE STUDY

Circular Use of Quicklime (Nippon Paper Industries)

At its papermaking mills, the Group uses quicklime to recover chemicals used in the pulp manufacturing processes and to manufacture fillers that impart functionality to paper. Quicklime waste is generated in this process. The Group has so far disposed of this material as an industrial waste. However, the Company's Ishinomaki and Iwanuma mills have started collaborating with a supplier that can recycle quicklime waste. Under this collaboration, the Ishinomaki and Iwanuma mills are working to reuse quicklime waste as a resource.

CASE STUDY

Processing Coal Fly Ash from a Boiler into a Construction Material (Nippon Paper Industries)

The Ishinomaki Mill operates a coal boiler to privately generate electricity on site. In the process, combustion ash is generated in its coal boiler. The Company processes the combustion ash through heat modification, and sells the material as CfFA® (Carbon-free Fly Ash) concrete admixture. Mixing CfFA® into concrete has the effect of making it more durable and longer lasting. CfFA® has so far been adopted in earthquake recovery construction (bridges and seawalls, etc.) in the Tohoku region of Japan.

CASE STUDY

Local Production and Consumption of Energy (Nippon Paper Industries)

At the Company's Nakoso Mill, waste generated in neighboring areas is actively used as fuel. This waste includes shiitake mushroom beds and rubber chips from artificial turf. The use of waste as fuel allows the Nakoso Mill to reduce its use of fossil fuels. The local production and consumption of fuel has not only contributed to reducing GHG emissions from the Nakoso Mill, but it has also helped to reduce waste generated in local areas.

Response to the Plastic Resource Circulation Act

The Group is working on the control of generation and discharging of waste plastic and its recycling pursuant to the Plastic Resource Circulation Act, established in April 2022.

— Control of Generation and Discharging

- The Group is striving to control the generation and discharging of plastic waste by encouraging simple packaging and the use of returnable containers for products in which plastic is used in its business activities.
- As for waste plastic derived from waste paper used as raw material, the Group is encouraging waste paper suppliers to prevent mixture of plastic through Japan Paper Association.

— Recycling

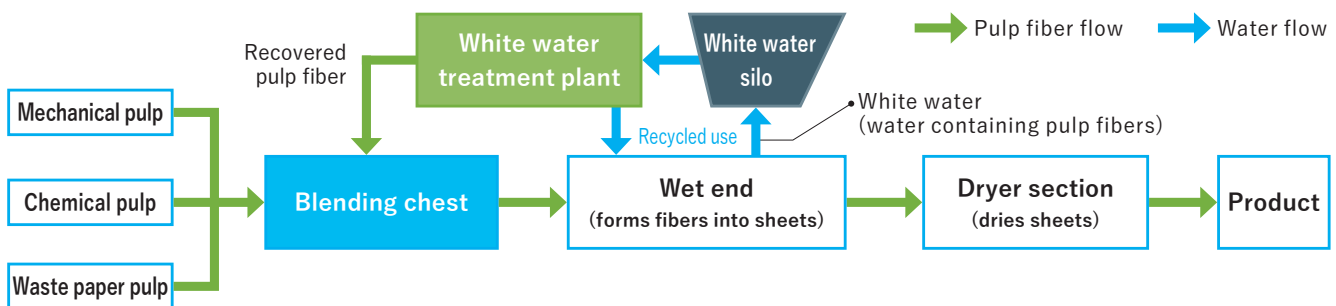
- As it is difficult to material-recycle waste plastic derived from waste paper, the Group burns and collects it as heat to use it as energy to operate mills as thermal recycling.
- The Company's Otake Mill conducts thermal recycling by transforming waste plastic and other wastes generated in Otake City as well as in the mill into solid fuel (see P. 34).

Alleviation of Environmental Burden

Effective Use of Water Resources

- The Group's main mills are working on saving of water by recovering "white water," which contains very fine pulp fibers from the wet end of the papermaking process, and recycling it.
- In FY2021, the Group has received no information from local government authorities or residents to indicate that the mills operated by the Group companies are having an environmental impact as a result of their water intake, and water risks in Japan and overseas are persistently low.

Water Recycling System

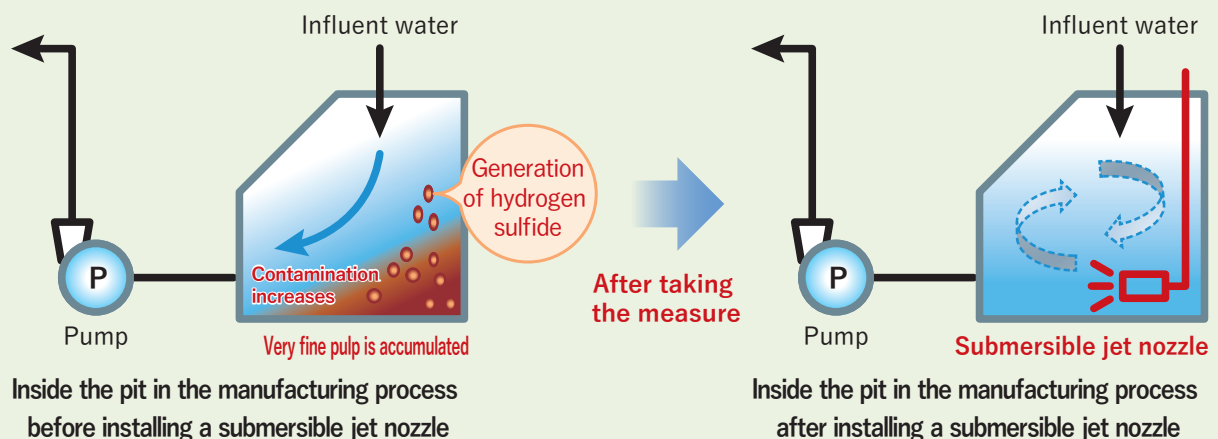


CASE STUDY

Initiative for Water Saving in Manufacturing Processes (Nippon Paper Industries)

There is a concern that water saving in manufacturing process may result in an increase in recycled water, contamination of the system caused by closing the processes and the generation of hydrogen sulfide derived from corruption generated by accumulated very fine pulp. In order to save water use and mitigate the concern, the Company installed a submersible jet nozzle with an eductor effect* in Ashikaga and Yatsushiro mills. This makes it possible to purify inside the system by eliminating the contamination at the bottom of the pit due to strong currents in the liquid. The Company will introduce the nozzle in other mills in Japan.

* Sucking up the liquid inside the pit and discharging it with supplied water using pressure difference



Controlling Chemical Substances

- The Group examines the chemical substances it uses in its production processes in accordance with its Chemical Substance Management Guidelines. The Group exercises risk management by monitoring how much of these substances is used and how much is released into the environment. The Group also takes corrective actions as necessary.
- The Group discloses information on its management, release, and transfer of PRTR*-controlled substances to local stakeholders through environmental risk communications at each of its mills and other production sites.

Amounts of Substances Subject to the PRTR Law Released and Transferred*¹ (FY2021)

Cabinet Order No.	Chemical Substance	Amount Released	Amount Transferred	Total released and transferred
1	Water-soluble zinc compounds	300	0	300
2	Acrylamide	11	0	11
4	Acrylic acid and water-soluble salt	14	0	14
9	Acrylonitrile	1.4	0	1.4
53	Ethylbenzene	1.4	0	1.4
57	Ethylene glycol monoethyl ether	250	5,100	5,350
80	Xylene	555	0	555
85	Glutaraldehyde	17	1.7	19
127	Chloroform	39,252	40,000	79,252
149	Tetrachloromethane	0	35,000	35,000
154	Cyclohexylamine	730	0	730
186	Dichloromethane; Methylene dichloride	10,000	80	10,080
213	N,N-dimethylacetamide	130	190	320
232	N,N-dimethylmethanamide	38	190	228
243	Dioxins* ²	764	4,122	4,886
245	Thiourea	2,300	0	2,300
251	O,O-dimethyl O-3-methyl-4-nitrophenyl phosphorothioate; fenitrothion; MEP	0.3	0	0.3
272	Water-soluble copper salts (except complex salts)	7.9	0	7.9
296	1,2,4-trimethylbenzene	491	0	491
297	1,3,5-trimethylbenzene	5.9	0	5.9
300	Toluene	27,652	18,200	45,852
302	Naphthalene	0.4	0	0.4
304	Lead	0	0	0.0
305	Lead compounds	0.4	0	0.4
318	Carbon disulfide	6,547	0	6,547
332	Arsenic and its inorganic compounds	0.4	0	0.4
333	Hydrazine	370	0	370
374	Hydrogen fluoride and its water-soluble salts	26,130	0	26,130
392	N-hexane	1.4	0	1.4
395	Water-soluble salt of peroxodisulfate	1,300	0	1,300
400	Benzene	0.2	0	0.2
405	Boron compounds	20,806	0	20,806
406	Polychlorinated biphenyls; PCBs	0	7,187	7,187
407	Poly(oxyethylene)alkyl ether(alkyl C=12-15)	6.3	0	6.3
411	Formaldehyde	939	85	1,024
412	Manganese and its compounds	4.6	0	4.6
415	Methacrylic acid	2.0	0	2.0
420	Methyl methacrylate	23	0	23
438	Methylnaphthalene	722	85	807
1-044	Alkyl(C=12-16) (benzyl) (dimethyl) ammonium chloride	866	0	866
1-380	1-hydroxyethane-1,1-diylidiphosphonic acid	2,880	0	2,880
2-060	Geraniol	268	0	268
Total* ³ Unit : kg		142,625	106,119	248,743

*1 A summary of the volumes Group companies reported in accordance with the PRTR Law.

*2 Dioxins unit : mg-TEQ

*3 Dioxins are not included in total data.

Preventing Soil Pollution

- The raw materials and chemicals used by the Group's mills contain almost no heavy metals, trichloroethylene or other soil contaminants.
- FY2021 was another year in which there were no instances of contaminated soil generated at the Group companies.

Preventing Air and Water Pollution

- The Group has introduced equipment and technology to reduce air pollutants such as sulfur oxides (SOx) and nitrogen oxides (NOx) and organic substances contained in wastewater to the standard levels designated by laws and regulations, or the levels agreed upon with local governments, or lower, before discharge.
- The Group carries out activated sludge treatment to reduce contaminants in wastewater.
- Contaminants in the air are reduced with NOx removal equipment, desulfurization equipment, a dust collector, etc.

Preventing Noise and Vibration

The Group is engaged in efforts utilizing IoT technologies to prevent the occurrence of noise and vibrations.

CASE STUDY

Development and Introduction of “e-musen junkai®” (E-wireless Patrol) System (Nippon Paper Industries, NIPPON PAPER UNITEC)

Nippon Paper Industries and NIPPON PAPER UNITEC have developed the “e-musen junkai®” (e-wireless patrol) system, which uses wireless sensors to constantly monitor equipment for signs of abnormalities. The system enables early detection of abnormalities by accumulating and monitoring the data of technology and technique of human experiences and feeling that cannot be quantified using IoT. This will contribute to the prevention of equipment problems and the solution to issues related to the difficulty in inheritance of technique due to labor shortage. The Company introduces the system in its mills and sells it in Thailand and other countries (see P. 52).

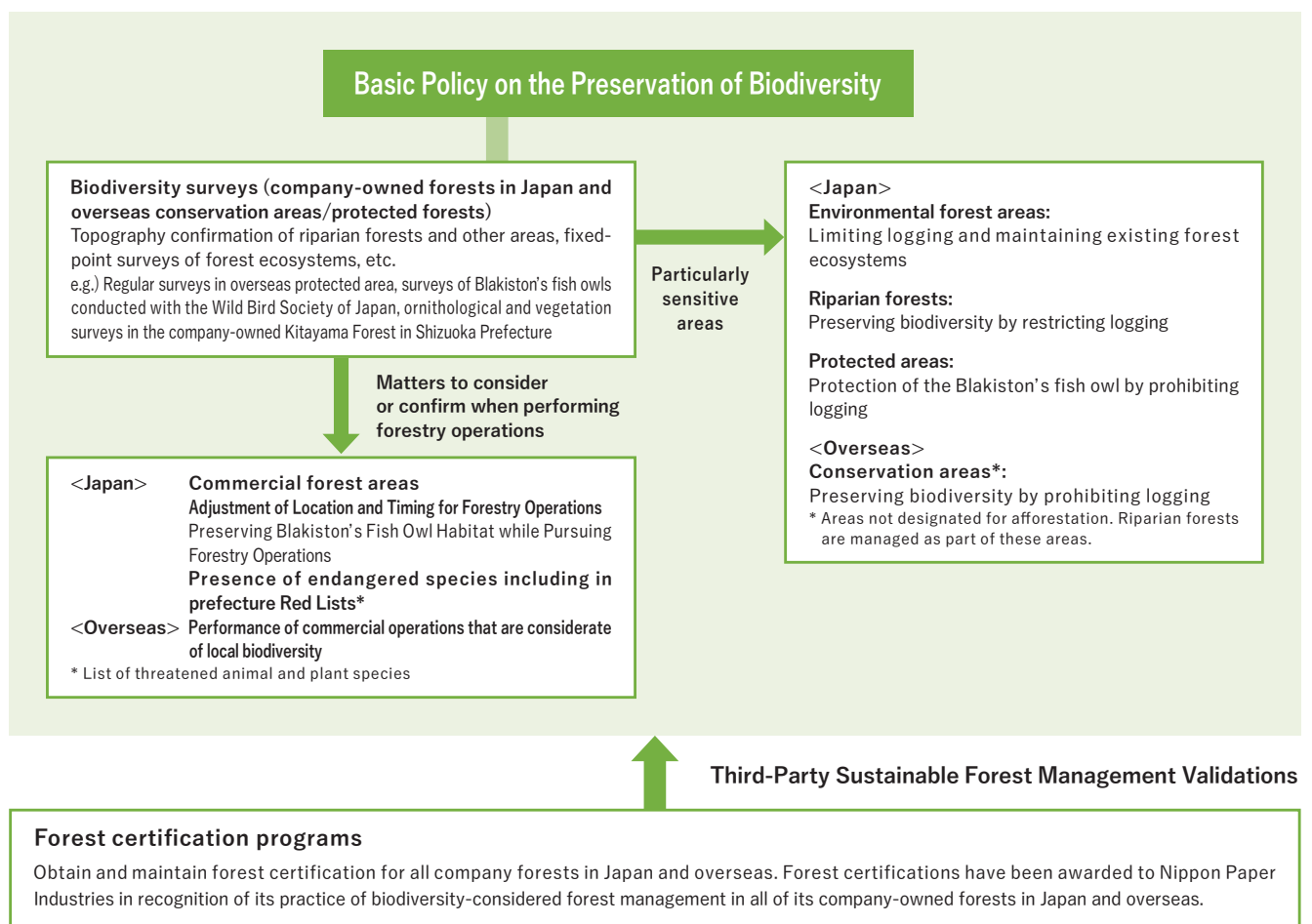
Preserving Biodiversity

》 Basic Policy on the Preservation of Biodiversity (see P. 87)

Biodiversity Conservation Initiatives

- Nippon Paper Industries' business foundation is forest resources. In Nippon Paper Group Environmental Targets 2030, the Group has set targets for sustainable forest management that consider biodiversity.
- The Group sustainably procures wood resources, which are the raw materials for the Group's products, from properly managed forests.
- The Group manages sustainable forests in its own forests in Japan and overseas.
- In its existing businesses, topographical information on riparian forests and other landforms that need to be taken into account is confirmed and fixed-point surveys of forest ecosystems are carried out, while forests for economic use and those for environmental conservation are managed appropriately, for example by establishing protected areas and protected forests that are not logged to conserve biodiversity.
- The Group works to reduce its impact on biodiversity in its manufacturing processes of paper and other products, such as by processing wastewater and reducing greenhouse gas emissions.

Nippon Paper Group's Biodiversity Conservation Initiatives (Summary)



CASE STUDY

Preserving Blakiston's fish owl* habitat while Pursuing Business Activities- Collaborating with the Wild Bird Society of Japan (Nippon Paper Industries)

The Company carries out initiatives to conduct business activities while protecting Blakiston's fish owl habitat with the Wild Bird Society of Japan.

Collaborating with the Wild Bird Society of Japan

Year	Activities
2010	Entered into an agreement on the protection of wild birds with which forestland owned by the Company in Doto, Hokkaido was identified as a sanctuary.
2015	Set a new standard for the compatibility of business activities with the preservation of Blakiston's fish owl habitat in company-owned forests in Doto, Hokkaido. Won Biodiversity Action Award of the Ministry of the Environment.
2020	Installation of artificial nest boxes to support Blakiston's fish owl breeding
2021	Won Hokkaido Biodiversity Conservation Awards of the Hokkaido Government.

* 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



(Photo courtesy of the Wild Bird Society of Japan)

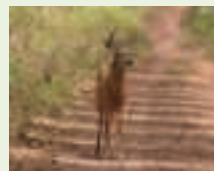
CASE STUDY

Conducting Biodiversity Research Overseas (AMCEL Brazil)

AMCEL owns approximately 300 thousand hectares of land and has set aside 170 thousand hectares as a conservation area. This conservation area includes forests of high conservation value and is home to large numbers of plant and animal species, some of which are rare or endangered.

Biodiversity Conservation Initiatives of AMCEL

Activities	Description
Regular water inspections	Installation of equipment for monitoring the quality and level of water in the afforestation area, and performance of regular water inspections
Wild animal and plant habitat research in company-owned forest	AMCEL conducts habitat research and monitoring of wild animals and fish in afforestation areas in a joint effort with multiple research institutions and ecologists.
Monitoring of vegetation in protected areas	AMCEL conducts continuous monitoring research of vegetation in protected areas



Monitoring wild animal life



Monitoring Vegetation

CASE STUDY

Supporting the Activities of the Shirane-aoi* wo Mamoru Kai

To protect Shirane-aoi (*Glaucidium palmatum*: Japanese wood poppy), 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 Katashina in Tone-gun, Gunma. On the part of the Nippon Paper Group, Nippon Paper Development—which manages Nippon Paper Industries' Sugenuma Forest—has supported the operation of the Shirane-aoi Preservation Group since its initial establishment, and has made a portion of the Sugenuma Forest available to the Group. Since 2002, Group employees have participated as volunteers in activities.

* Designated as a "Threatened II" species for Gunma Prefecture

CASE STUDY

Eradicating Invasive Plant Species from Iriomote Island~Cooperation with the Iriomote Island Ecotourism Association (Nippon Paper Industries)

Based on the agreement concluded in 2017 with the Forest Agency Kyusyu Regional Forest Office Okinawa District Forest Office, the Company is conducting emergency countermeasures to exterminate the alien species *Amerindia leopardus**, which has invaded Iriomote Island, as well as conducting surveys on the state of invasion of alien plants, together with the NPO Iriomote Island Ecotourism Association, in about 9 hectares of national forests on the island.

* A plant in the Asteraceae (sunflower) family which originated from the Americas, but was introduced throughout Okinawa for greenifying slopes and embankments, etc. It has strong propagating capabilities, and there are concerns over its impact on local ecosystems.

CASE STUDY

Mutual cooperation in forest management with Coca-Cola Bottlers Japan

The Company, Nippon Paper Group company Marunuma Kogen Resort and Coca-Cola Bottlers Japan Inc. (hereinafter CCBJ) cooperate for the conservation and protection of forest and water resources. They are collaborating on initiatives to keep “Healthy forest” that nurtures “rich water.” The water source area of CCBJ’s Saitama Mill and Iwatsuki Mill are located in part of Suganuma company-owned forest in Katashina Village, Gunma Prefecture (1,746 ha), and the Group promotes the activities of forest conservation and maintenance.

Other environment-related data

Environmental Accounting* (Domestic)

* Calculation standards are based on the Environmental Accounting Guidelines 2005

Environmental Conservation Costs (FY2021)

(Millions of Yen)

Categories	Main contents	Investment	Cost
(1)Business area costs			
①Pollution prevention costs	Measures against air pollution, water pollution, noise and vibration	1,643	11,677
②Global environmental conservation costs	Company-owned forest in Japan nursery care, overseas plantation business, energy-saving investment	2,293	687
③Resources circulation costs	Efficient use of resources, cost of waste management	2,415	8,136
(2)Upstream/downstream cost	Expenses related to collection, recycling, and disposal of pallets and packing materials	—	3,596
(3)Administration cost	Costs for employee training, maintaining ISO 14001, analysis of air and water quality, and management of various conferences	—	286
(4)R&D cost	Product development that contributes to environmental conservation, such as promoting the use of recovered paper, and reduction of environmental impact at the manufacturing stage	—	2,876
(5)Social activity costs	Social contribution activities, group support, corporate action report, Eco-Products	—	62
(6)Environmental remediation costs	Pollution Health Compensation Levy	—	443
Total		6,351	27,763

Environmental conservation impacts (FY2021)

Categories	Environmental Impact Indicators		Results	YoY Change
Effects related to resources introduced to business activities	Plantation projects overseas	Overseas plantation areas	72kha	Down 11kha
	Energy-saving measures	Fuel reduction (Heavy oil equivalent)	35,576kl	Down 1,9062kl
Effects related to environmental impact and waste from business activities	Greenhouse gas emissions		5.58Mt	Down 0.17Mt
	Air pollutant emissions	NOx emissions (NO equivalent)	6,807t	Down 461t
		SOx emissions (SO2 equivalent)	2,362t	Up 350t
		Soot and dust emissions	900t	Up 32t
	Effluent		799Mt	Up 1Mt
	Water contaminant emissions	COD/BOD emissions	37,633t	Down 5,562t
		SS emissions	18,042t	Down 516t
	Final waste disposal		12.1kt	Down 2.1kt
Effects related to goods and services produced from business activities	Product recycling	Recycled paper utilization rate (paper)	30%	Down 4%
		Recycled paper utilization rate (paperboard)	92%	Up 3%
	Shipping material recycling	Pallet recovery rate	42%	Down 4%

Environmental Benefits of Environmental Conservation (FY2021)

(Millions of Yen)

Effect	Amount
Income from company-owned forests in Japan	690
Reduced expenses from energy saved	1,935
Reduced disposal expenses through the effective use of waste	3,494
Gain on sales from the recycled waste	464
Reduced expenses through the recycling of shipping material	1,566
Total	8,149

Balance of Materials

Balance of Materials for All Businesses (Principal Materials) (3 years)

[Units] GWh = Gigawatt hours, BDt = Bone-dry tonnes, ADt = Air-dry tonnes Note: t indicates Tonnes(also called Metric Tons)

		Unit	FY2019*1	FY2020*1	FY2021*1
Input					
Energy Input	Purchased electricity	GWh	2,100	1,934	2,425
	Oil	Thousand kl	447	578	434
	Coal	Thousand t	2,637	2,039	2,287
	Gas		272	299	302
	Other fossil fuels		28	23	27
	Non-fossil fules*2		5,997	5,347	5,919
	(Of which Black liquor)		4,643	3,985	4,307
Chemical substances subject to the PRTR Law*3	Amount handled	t	9,270	11,568	11,094
Water Intake	Amount of total water intake	Million t	930	880	953
	River water		757	710	615
	Industrial water		143	140	291
	Well water		29	29	46
	Public water supply		1	1	1
	Rainwater		0	0	0
	Seawater, sea, ocean		0	0	0
	External waste water		0	0	0
Raw Material	Woodchips	Thousand BDt	5,228	5,446	4,699
	Logs	Thousand ADt	805	702	857
	Pulp		512	446	492
	Recycled paper(Pulp)		2,705	3,202	2,802
	Base Paper		102	123	122
	Others		—	—	384
Output					
Gas Emissions	GHG emissions	Million t-CO ₂	7.40	6.90	6.79
	(Scope 1)		6.62	6.26	5.83
	(Scope 2)		0.78	0.64	0.96
	Emissions by type of greenhouse gas (Scope 1)				
	CO ₂	Million t-CO ₂	6.09	5.79	5.38
	CH ₄		0.02	0.03	0.03
	NO ₂		0.50	0.44	0.43
	SOx emissions	Thousand t	3.97	2.83	3.02
	NOx emissions		10.82	9.39	8.99
Soot and dust	1.61		1.10	1.23	
Chemical substances subject to the PRTR Law*3	Amount released	t	141	150	143
	Amount transferred		80	94	106
VOCs (volatile organic compounds)*4	Emissions	t	41	49	51
Waste Water	Waste water total	Million t	905	843	890
	Public water		896	835	877
	Sewerage		9	8	13
	COD/BOD	Thousand t	59	53	50
	BOD		—	—	43
	COD		—	—	7
	SS		26	24	25
	Nitrogen		1.5	1.3	1.3
	Phosphorous		0.2	0.2	0.2
Waste	Total Waste Generated	Thousand BDt	989	760	848
	Final disposal subtotal		141	72	102
	Recycled subtotal		848	688	746
	Hazardous waste generation*5	BDt	—	1,541	1,610
Products manufactured	Paper, Household Paper	Million t	4.02	3.29	3.64
	Paperboard		2.04	1.88	1.90
	Pulp	Thousand t	239	221	156
	Paper container		88	92	95
	Chemical products		100	93	62
	Building materials		126	80	197
	Electricity	Electricity	GWh	2,199	2,384

*1 Coverage : FY2019 https://www.nipponpapergroup.com/english/csr/npg_csrr2020_e_all.pdf#page=2

FY2020 https://www.nipponpapergroup.com/english/csr/npg_esgdb2021_e_contents.pdf

FY2021 https://www.nipponpapergroup.com/english/csr/npg_esgdb2022_e_contents.pdf

*2 Biomass fuels (including black liquor) and waste fuels

*3 Japan only. Dioxins are not included in total data.

*4 Coverage:Nippon Paper Industries, Nippon Paper Crecia, Nippon Paper Papyrus

*5 Only in Japan, Aggregated by specially controlled industrial waste

Balance of Materials in the Pulp and Paper Businesses in Japan(Principal Materials) (3 years)

[Units] GWh = Gigawatt hours, BDt = Bone-dry tonnes, ADt = Air-dry tonnes Note: t indicates Tonnes(also called Metric Tons)

		Unit	FY2019*1	FY2020*1	FY2021*1
Input					
Energy Input	Purchased electricity	GWh	895	804	985
	Oil	Thousand kl	159	147	137
	Coal	Thousand t	1,773	1,619	1,521
	Gas		97	101	140
	Other fossil fuels		27	23	27
	Non-fossil fules* ²		4,281	3,582	3,823
	(Of which Black liquor)		3,130	2,561	2,803
Chemical substances subject to the PRTR Law* ³	Amount handled	t	402	341	482
Water Intake	Amount of water intake	Million t	805	757	756
	Water intensity	t /product-t	155	168	158
Raw Material	Woodchips	Thousand BDt	4,102	3,344	3,453
	Logs		28	23	20
	Pulp	Thousand ADt	424	350	393
	Recycled paper(Pulp)		2,619	2,658	2,693
	Base Paper		—	—	0.4
	others		—	—	0.3
Output					
Gas Emissions	GHG emissions	Million t-CO ₂	6.00	5.49	5.51
	(Scope 1)		5.56	5.17	5.04
	(Scope 2)		0.44	0.31	0.47
	GHG emissions intensity during production	t-CO ₂ / product-t	1.16	1.24	1.15
	SOx emissions	Thousand t	3.2	1.7	2.1
	NOx emissions		8.2	7.0	6.5
	Soot and dust		1.3	0.8	0.9
Chemical substances subject to the PRTR Law* ³	Amount released	t	97	104	97
	Amount transferred		0.22	6	15
VOCs (Volatile Organic Compounds)	Amount released	t	41	49	51
Waste Water	Waste water total	Million t	789	731	729
	COD/BOD	Thousand t	40	36	38
	SS		18	16	18
	Nitrogen		1.4	1.2	1.3
	Phosphorous		0.1	0.1	0.2
Waste	Total Waste Generated	Thousand BDt	700	553	582
	Final disposal subtotal		19	13	12
	Recycled subtotal		681	541	570
Products manufactured	Paper, Household Paper	Million t	3.6	2.9	3.1
	Paperboard		1.6	1.6	1.6
	Pulp	Thousand t	14	11	17

*1 Coverage : FY2019/Nippon Paper Industries, Nippon Paper Crecia,Nippon Paper Papylia

FY2020/Nippon Paper Industries, Nippon Paper Crecia,Nippon Paper Papylia

FY2021/Nippon Paper Industries, Nippon Paper Crecia,Nippon Paper Papylia,Crecia-Kasuga,Fukuda Paper MFG

*2 Biomass fuels (including black liquor) and waste fuels

*3 Japan only. Dioxins are not included in total data.

Other environment-related

External Awards for Environmental Conservation Activities (FY2021)

Award	Recipient
Sainokuni Saitama Small and Medium Enterprise CO ₂ Reduction Grand Prize "Outstanding performance award"	GAC
Fukushima Minpo Fukushima industry award "Special Prize"	Nippon Paper Industries Nakoso Mill

Environmentally-participating initiatives and external collaboration, etc.

Name	Organizer	Year of participation
GX League Basic Concept	KEIDANREN (Japan Business Federation)	2022
Task Force on Climate-related Financial Disclosures (TCFD)		2021
Committee on Nature Conservation	KEIDANREN (Japan Business Federation)	1992
Japan Partnership for Circular Economy	KEIDANREN (Japan Business Federation)	2021
Initiative for Biodiversity Conservation	KEIDANREN (Japan Business Federation)	2021

Safety Improvement and Stable Supply of Products

》 Philosophy and Basic Policy on Product Safety (see P. 87)

Product Safety Management Promotion System



- The Group complies with laws, regulations, etc. in Japan and overseas, and strives to ensure product safety using management methods appropriate to each business or product.
- The Nippon Paper Group Product Safety Subcommittee exchanges information and opinions related to product safety among Group companies, discusses countermeasures if there are any concerns and reports to the Nippon Paper Group Product Safety Committee.
- Product Safety Committees or similar organizations have been established at each Group company to promote product safety activities.

Approach toward Product Safety

- The Group operates a broad range of businesses including package, household paper, healthcare, and chemicals businesses, in addition to paper and paperboard businesses.
- The Group ensures, and reviews as necessary, the product safety by managing businesses and products according to their characteristics, in accordance with laws, regulations, etc. including the Food Sanitation Act and the Act on Securing Quality, Efficacy and Safety of Products Including Pharmaceuticals and Medical Devices (Pharmaceutical and Medical Device Act).
- With regard to food-related products, the Group engages in management in accordance with legal regulations on food safety, management systems and standards, and acquires certifications such as FSSC 22000 as necessary.

FSSC 22000 Certification Status (as of March 31, 2022)

Company Name	Mill, Operating Division
Nippon Paper Industries	Gotsu Mill*1
Nippon Paper Liquid Package Product	Egawa Mill, Ishioka Mill, Miki Mill
Opal	Acquired at seven locations
Nippon Dynawave Packaging*2	

*1 CMC (carboxymethyl cellulose), cellulose powder, stevia and licorice sweeteners (all for use in food)

*2 Acquired certification for the manufacture of liquid packaging boards

ISO 22000 Certification Status (as of March 31, 2022)

Company Name	Mill, Operating Division
Nippon Paper Papylia	Kochi Mill*
Opal	Opal Cartons NZ Christchurch
Jujo Thermal	Kaattua

* Production of liquid filter papers and food packaging papers that come into direct contact with food

Akita Prefecture HACCP Certification Status (as of March 31, 2022)

Company Name	Mill, Operating Division
Akita Jujo Chemicals	Headquarters factory

Halal Certification*¹ Status (as of March 31, 2022)

Company Name	Mill, Operating Division
Nippon Paper Industries	Gotsu Mill* ²

*¹ Halal certification is presented for products that, upon inspection of raw materials, production processes, ingredient and product storage conditions, and other matters, have been determined to be in keeping with Islamic law. Products exported to Islamic countries should be Halal certified.

*² Certification obtained for the nucleic acid (RNA-M), dissolving pulp and CMC (carboxymethyl cellulose)

— Response to the Positive List System for Food Product Utensils, Containers, and Packaging

- Food product utensils, containers, and packaging (made of synthetic resin) of the Group, as well as base paper for them, are in conformance with the Positive List System (which allows only substances that have been evaluated as safe; “PL System”) for synthetic resins stipulated by the Food Sanitation Act.
- Introduction of a PL System for paper and paperboard is also under consideration, and the Group is preparing to respond.

Quality Management Initiatives

Each Nippon Paper Group company works to acquire ISO 9001 international quality management standard certification as necessary and has established a system for quality management suited to the characteristics of its products to ensure, and review from time to time, maintaining required quality.

ISO 9001 Certification Status (as of March 31, 2022)

Company Name	Mill, Operating Division
Nippon Paper Industries	Shiraoi Mill* ¹ , Akita Mill, Nakoso Mill* ² , Kanto Mill, Fuji Mill Yoshinaga, Gotsu Mill* ³ , Otake Mill, Iwakuni Mill* ⁴ , Chemical Sales Division Higashimatsuyama Mill
Nippon Paper Industries CNF-related* ⁵	Research and Development Division's Fuji Innovative Materials Research Laboratory, Ishinomaki Mill's Cellulose Nanofiber Development Section, Biomass Material Business Division's Biomass Materials Sales Promotion Department
Nippon Paper Crecia	Tokyo Mill
Nippon Paper Papyrus	Harada Mill, Suita Mill, Kochi Mill
Nippon Seitai	Hokkaido Office, Maebashi Mill, Saitama Mill, Kansai Office
Kyouei Seitai	
NIPPON PAPER UNITEC	Five head office sites at headquarters (plant engineering/electricity/control systems/mechatronics/construction)
Nippon Paper Ishinomaki Technology	Headquarters
GAC	Headquarters/Mill, Marketing Division
Flowric	Headquarters, Concrete Research Center, Nagoya Mill
N&E	Head Office Plant
Opal	28 locations certified
Jufo Thermal	Kaattua
Siam Nippon Industrial Paper	
Nippon Dynawave Packaging	
TS Plastics	

*1 Certified for pulp and 10 machines for the production of base paper for food, and cellulose powder.

*2 Certified for the production of non-carbon paper, thermal paper, ink-jet paper and other business communication papers

*3 Certified for the production of CMC, cellulose powder, nucleic acid and yeast

*4 Chemical Production Department is certified

*5 Obtained certification for the design, development, and manufacturing of TEMPO-oxidized pulp, TEMPO-oxidized metal supported pulp, TEMPO-oxidized CNF, and CNF-reinforced resin businesses

— Quality Audits at Companies Making Paper Containers for Liquids

The Paper-Pak Sales Division of the Company implements the following initiatives at the business locations of Nippon Paper Liquid Package Product, which are production bases:

- ▶ Provide quality and technical support as needed
- ▶ Conduct on-site quality meetings and audits of product safety and hygiene on an annual basis

— Paper and Paperboard Business Quality Assurance Initiatives

The paper and paperboard business of the Company implements the following initiatives for quality assurance:

- ▶ Assign technical experts to each sales division of the paper and paperboard business to listen directly to customers' needs and wants
- ▶ Make use of internal database, etc. which links production, sales, and technical departments to share necessary information among all personnel who are engaged in quality management
- ▶ The Risk Management Department, which is not a quality management department, audits the operational status of the above to confirm its proper operation.

— Responding to Instances of Defective Products

The Group has put a management system in place to prevent product defects, and also has prepared responsive measures just in case any product defects do occur.

< Example: Paper and Paperboard Business of Nippon Paper Industries >

- ▶ Establish reporting lines in case of a defect and launch an emergency organization as necessary
- ▶ Ensure traceability
- ▶ Take out product liability insurance (PL insurance) for main products
- ▶ Implement countermeasures horizontally to prevent similar defects

— Initiatives toward Guaranteeing Wastepaper Pulp Blending Ratios, etc.

The Company has established respective systems to manage percentages of wastepaper pulp content in its products, certified forests, and the use of its products made with wood from forest thinning, among other things, in order to meet requirements of customers.

- ▶ At the head office, procedures have been established and followed for identification of brands subject to management, issuance of certificates, etc.
- ▶ The Company manages production procedures at each of the Group's mills, based on the ISO 14001 environmental management system.
- ▶ Operational management of the foregoing is confirmed through internal and external audits, and each department makes revisions as necessary.

The Stable Supply of Products

The Group is implementing the following initiatives to ensure stable supply of products:

- ▶ To provide customers with the necessary supply at the necessary time, the Group works to secure stable raw materials supply and systematically develops and updates production facilities.
- ▶ Sales departments and production units coordinate on developing flexible and lean production plans and manage inventories appropriately.
- ▶ In December 2020, the Group established business continuity management (BCM) standards in the event that it becomes difficult to carry out normal business due to large-scale disasters, infectious diseases, etc. Each department then formulates business continuity plans (BCPs) based on those standards and revises them as necessary.

CASE STUDY

Establishment of a System to Respond to Earthquakes and Other Disasters (Nippon Paper Industries)

In the event of damage to production equipment and facilities as a result of a major disaster, the Newsprint Sales Division of the Company has a system in place to follow the emergency response guidelines established by the Japan Paper Association's Newsprint Committee to maintain the smooth supply of newsprint.

CASE STUDY

Development and Introduction of "e-musen junkai®" (e-wireless patrol) System (Nippon Paper Industries, NIPPON PAPER UNITEC, and Sakurai)

In the past, signs of abnormalities in equipment have been discovered mainly by people patrolling production facilities. With the e-wireless patrol system, IoT technology is used to accumulate temperature and vibration acceleration data on equipment in operation, enabling the monitoring of trends in these numerical data. This helps to prevent equipment problems and stabilizes operations (see P. 41).

The Company is installing the e-wireless patrol system at all of the mills in Japan and selling it to companies outside the Group. The Company sells the system in Thailand as well.



"e-musen junkai" (e-wireless patrol) system webpage (Sales company: Sakurai) (Japanese only):
<https://www.sakurai.co.jp/landing/e-musen/index.html>

Responses to Changes in the Social Environment

Identifying Customers' Needs

Nippon Paper Group engages in proactive communication to identify customer needs across a wide range of areas, from day-to-day sales activities to quality patrols by engineering staff.

- ▶ Respond to customers engaged in CSR procurement *¹ with questionnaires and other materials concerning our CSR initiatives
- ▶ Be registered as a supplier with a global platform for disclosure of information relating to CSR procurement
 - EcoVadis (Nippon Paper Industries): Registered in 2016, and won a Gold Medal in 2021
 - Sedex (Nippon Paper Liquid Package Product Egawa Mill): Registered in 2019, and undergone SMETA audits of its CSR assessments
- ▶ Accepting factory tours*² and inspections
- ▶ Holding technical lectures for customers (Nippon Paper Industries)
 - Conducting technical lectures “Paper-Pak School” for customers in charge of filling machines at dairy and beverage companies in the Technical Center of Nippon Paper Liquid Package Product (in Gokamachi, Ibaraki Prefecture).
- ▶ Customer consultation desk (Nippon Paper Crecia)
 - Offering a system whereby the opinions and questions of customers can be utilized for the further development and improvement of products.



*¹ Activities whereby an enterprise attempts to fulfill its social responsibilities when procuring raw materials across its entire supply chain by demanding that suppliers engage in environmental and social initiatives.

*² Restrictions on factory tours in some areas to prevent the spread of COVID-19.

System for Advancing New-product Development

- The Group has established its New Product Development Committee to accelerate business structure transformation.
- The committee discusses themes related to the development of new products and new businesses (such as the development of products derived from wood resources in line with growing environmental awareness), and (1) selects a person responsible for the development, (2) allocates resources, and (3) determines whether to continue/discontinue the themes properly.
- New Product Development Team under the committee searches for themes related to new products and new businesses, and manages the progress of development themes.



Products that Contribute to the Building of a Sustainable Society

As a comprehensive biomass company shaping the future with trees, the Group develops various businesses that maximize the use of renewable woody resources using diverse technologies and expertise, and the products and services it provides have a high affinity with building a sustainable society and SDGs (Sustainable Development Goals)*. The Group is developing various products using woody resources procured from forests with sustainable management. Furthermore, the Company utilizes the characteristics of woody resources and provides environmentally friendly products which reduce usage of fossil-based raw materials and improve recyclability and transportation efficiency etc.

* As a comprehensive biomass company shaping the future with trees, the business development of the Nippon Paper Group will contribute to the achievement of the SDGs.



Products that Contribute to the Building of a Sustainable Society(Japanese only):
<https://www.nipponpapergroup.com/csr/sdgs-product/>

Respect for Human Rights

》 The Nippon Paper Group Human Rights Policy (→P.88)

- This Policy has been prepared in Japanese and English and is available to all stakeholders in the world on the Nippon Paper Group website.
- In addition to this Policy, all business entities of the Group comply with laws and regulations including minimum wages.

The Nippon Paper Group's Commitments Relating to Human Rights

2004	● Signed and began participating in the United Nations Global Compact	● Expressed support for the Ten Principles in four areas, including human rights every year in the CSR Report and Integrated Report (Message from the President)
2004	● Formulated the Philosophy and Basic Policy on Human Rights, Employment and Labor	—
2005	● Formulated the Principles and Basic Policies Concerning Raw Materials Procurement	● Became advocate for consideration of human rights throughout the supply chain
2022	● Formulated the Nippon Paper Group Human Rights Policy by revising the existing Philosophy and Basic Policy on Human Rights, Employment and Labor.	<ul style="list-style-type: none"> ● Revised in accordance with international human rights norms, endorsing the UN's Guiding Principles on Business and Human Rights ● Declared respect for human rights in all business activities of the Group
2022	● Revised the Principles and Basic Policies Concerning Raw Materials Procurement	● Revised the content to make the response to social issues such as respect for human rights and climate change more effective

Promotion Structure

The Group has established its Risk Management Committee, which is chaired by the president and representative director, operates under the supervision of the Board of Directors of the Company, and holds meetings at least once annually. This risk management promotion structure handles risks related to the Group's human rights (see P.9).

Human Rights Due Diligence

— Past initiatives

2007-	● Confirmed initiatives related to human rights in audits for overseas chip suppliers based on the Action Plan for Wood-based Raw Material Procurement
2011-	● Confirmed initiatives related to human rights in CSR audits for overseas consolidated companies
2015-	<ul style="list-style-type: none"> ● Conducted on-site interviews concerning human rights at overseas chip suppliers ● Conducted interviews concerning human rights at contractors in Japan
2021-	● Conducted human rights due diligence by the Human Rights Working Group

— Human Rights Due Diligence

- The Company launched the Human Rights Working Group and introduced human rights due diligence in 2021.
- Since 2022, the Company has listed and evaluated human rights risks (forced labor, child labor, freedom of association, discrimination, customer-related risks, and community-related risks) for all stakeholders (employees and customers of the Company itself and the Group companies, local communities, etc.) in value chains related to the paper and paperboard business, the paper carton business, and the chemical business. Then the Group has identified the highest priority human rights risks and considered countermeasures for these.
- The Company will continue to regularly evaluate human rights risks and work to expand the scope of coverage.

Activities Related to Respect for Human Rights

— Confirmation of Consideration for Human Rights at Overseas Wood Chip Suppliers

- Based on the Principles and Basic Policies Concerning Raw Materials Procurement, the Company has employees in charge of procurement or local representatives visit overseas wood chip suppliers to conduct interviews covering matters such as health, hygiene, safety, disaster preparedness, working conditions, and local environmental concerns.
- The target area of the surveys is all countries from which the Company procures wood chips, with priority given to countries with high-volume transactions or high risks.
- The contents of the interviews and inspections are reviewed annually. Based on the results of the interviews, the Company carries out improvements of human rights.

Results of On-Site Surveys of Overseas Chip Suppliers

Year of Survey	Country	Results
FY2017	Vietnam, United States	No problems found.
FY2018	Vietnam, Chile	No problems found.
FY2019	Malaysia, Russia	No problems found.
FY2020	Thailand	No problems found.
FY2021	Australia	No problems found.

— Human Rights Surveys at Contracted Mills in Japan

- The Company sends surveys to contracted mills in Japan and has them conduct a self-check, mainly to confirm compliance with labor and safety laws and regulations (once a year).
- Survey results are shared with the human resource managers of each mill for the purpose of support for improvements.
- Follow-up surveys have been conducted since FY2019.

— Internal Human Rights Surveys

The Group conducts annual CSR surveys to confirm the status of human rights initiatives at each Group company.

— Education and Training

- In pursuit of personnel management cognizant of human rights, the Nippon Paper Group has employees responsible for personnel matters participate in training courses hosted by government agencies
- The Group conducts compliance training (see P.14) to encourage all employees to help prevent harassment in the workplace.

— Labor Initiatives

The Group supports the universal principles advocated by the UN Global Compact (freedom of association and recognition of the right to collective bargaining) (see P. 2).

— Local Community Initiatives

The initiatives to consider the human rights of local people in the vicinity of the Group operations are as follows:

- ▶ Environmental risk communications (see P.31)
- ▶ Human rights considerations for overseas forest plantations (see P.24-25)

— Relationships with External Organizations

- The Company has been a member of Amnesty International Japan since 2007 and has the opportunity to share opinions at least once a year. In FY2021, the Company exchanged opinions about matters such as consideration for human rights at overseas wood chip suppliers and women's participation and advancement in the workplace.
- The Company has participated in EcoVadis since 2016 and is registered as a supplier. In 2021, the Company's human rights and other initiatives were evaluated and the Company was awarded a Gold Medal (see P.53).
- The Company is a member of the Global Compact Network Japan's Human Rights Due Diligence Subcommittee and exchanges information and opinions on recent human rights trends and each company's efforts.

— Remedy Mechanism

- The Company accepts inquiries regarding concerns about any possible violation of human rights through the Nippon Paper Group Helpline (→P.13), which the Company set up as an internal whistleblower system.
- Inquiries are also accepted through the Group's corporate website in both Japanese and English from anyone.
- The Company's Compliance Office and associated departments respond to inquiries received through the Nippon Paper Group Helpline and the Group's corporate website.
 - ▶ Number of human rights complaints: 18 (Nippon Paper, FY2021)
- The Group was subject to no legal actions whatsoever regarding human rights in FY2021.



Nippon Paper Group Inquiries
<https://www.nipponpapergroup.com/english/inquire/>

Realizing Diverse Work Styles

Improving Its Working Environment for Diverse Work Style

- Nippon Paper Industries focuses on improving its working environment where employees can demonstrate their abilities more. The Company is also working to create a working environment that realizes diverse work styles and to review its working system.
- In addition to promoting diversity through the development of an environment that realizes diverse work styles, the Company is formulating a BCP for situations that require responses, such as pandemics.

<Examples of systems related to working conditions>

- ▶ Term-end allowance system that reflects the contribution to corporate performance
- ▶ Annual paid leave
- ▶ Compensation such as allowances and substitute leave for overtime work and work other than general working hours (early morning work, late night work, etc.)
- ▶ Half-day unit acquisition of expired annual paid leave (preserved leave)
- ▶ Acquisition of expired annual leave for volunteer activities
- ▶ A system that allows employees to apply the preserved leave (expired annual paid leave) for short-term childcare (paid leave can be used)
- ▶ Financial assistance for employees transferred alone (without their family) who are not the head of their household
- ▶ A system to allow employees to take leave when accompanying their spouses during an overseas assignment
- ▶ A system to allow employees to take leave for volunteering (Japan Overseas Cooperation Volunteers, etc.)
- ▶ A system to overseas personnel (treatment tailored to other countries. For those seconded from Japan, overseas secondment system, hardship allowance, etc.)
- ▶ Guaranteeing exercise of civil rights*

* If employees exercise their right to vote or any other civil rights or perform a public duty during working hours for an unavoidable reason, they must be given the time required for such action based on their request and they shall be deemed to have worked during that time.

Systems introduced and revised in FY2021

- ▶ Elimination of the core time (the time during which employees must be at work) of the flextime system
- ▶ A system to work from home (permanent system) (target persons: employees who handle work that can be done from home and who can work autonomously)
- ▶ A system for taking annual paid leave in hourly increments

Systems introduced and revised in April 2022

- ▶ Application of expired annual paid leave to absence from work related to fertility treatment and pregnancy and intermittent absence from work associated with treatment of a disease
- ▶ Extension of a period of application of childcare support measures, etc. (extended from before enrollment in elementary school to the end of the third grade of elementary school)
- ▶ Revision of the salary increase rule for those who have taken childcare leave or nursing-care leave

— Response to the Act on Advancement of Measures to Support Raising Next-Generation Children

- In April 2021, the Company formulated its Action Plan based on the Act on Advancement of Measures to Support Raising Next-Generation Children, which supports employees in balancing work and childcare.
- The Company has implemented systems that exceed the provisions stipulated under Japan's Child Care and Family Care Leave Act. This includes extensions to the exemption period for overtime working hours, the application period for childcare, and paid leave for child-rearing.
- The Company has been designated by Japan's Minister of Health, Labour and Welfare as a company that supports child rearing and has obtained the right to display the Kurumin mark (2016 certification).

— Initiatives to Help Employees Balance Work with Nursing Care Commitments

- The Company has established schemes that exceed the provisions stipulated by Japanese law regarding nursing-care leave and other considerations for supporting employees in maintaining a balance between work and care-giving commitments.
- The Company issued a Nursing Care Handbook summarizing information necessary for achieving a balance between work and nursing care, including preparation for care-giving, necessary actions, and details of support offered by the company and by society. The handbook has also been posted on the Company's internal intranet to enable employees to access it at any time.

Work-Life Balance Indicators

(— is unaggregated)

	Scope	Unit	FY2017	FY2018	FY2019	FY2020	FY2021
Employees taking child-care leave	Consolidated companies in Japan	Persons	26	23	23	28	30
Male		Persons	0	3	2	5	13
Female		Persons	26	20	21	23	17
Recently giving birth		%	100	100	100	92	94
Who returned to work		%	100	90	100	100	99
Employees taking maternity/paternity leave	Consolidated companies in Japan	Persons	148	183	203	154	170
Male		Persons	122	163	184	129	152
Female		Persons	26	20	19	25	18
Average number of days taken for maternity/paternity leave	Consolidated companies in Japan						
Male		Days	3.4	3.7	3.8	4.0	4.0
Female		Days	78.0	79.2	67.9	77.7	88.9
Employees taking nursing-care leave	Consolidated companies in Japan	Persons	1	2	1	0	1
Total number of working hours	Nippon Paper Industries						
Non-management employees		Hours per person	1,903	1,900	1,885	1,861	1,870
All employees		Hours per person	1,927	1,923	1,894	1,888	1,905
The rate of annual paid leave taken by employees	Consolidated companies in Japan	%	—	—	74.4	64.7	70.8
	Nippon Paper Industries	%	71.8	75.1	76.6	67.9	73.6

— Initiatives to Shorten Working Hours

- The Company aims to make the total average working hours per year less than 1,850 hours for all employees, and is working on initiatives to promote the taking of annual paid leave, to thoroughly implement an office leaving time no later than 7:00 p.m. and no-overtime days, and improve work efficiency at each department.
- The Company has been promoting work-life balance since FY2021 by enabling flexible work styles for employees through the work-from-home system and the flextime system with no core time.

— Welfare

The Company has the following welfare programs.

<Examples of welfare programs>

- ▶ Provision of company housing, single dormitories, etc.
- ▶ Provision of recreational facilities
- ▶ Supporting property formation (property formation savings, the employee stockholding association (which regular employees can join), housing loan system, etc.)

Active Roles for Diverse Personnel

Recruitment and Employment

The Nippon Paper Group strives to stabilize employment and continue to recruit new employees and hire without discrimination based on the “Nippon Paper Group Human Rights Policy.”

- ▶ Clearly and formally communicate the recruitment process to all recruitment candidates
- ▶ Instruct interviewers in training sessions to prohibit discrimination based on race, religion, nationality, place of origin, gender, educational background, etc.
- ▶ Employment based on the place of operation

— Recruitment of New Graduates

The Company discloses information on the hiring of new graduates on its website.

— Mid-career Hiring

In addition to utilizing human resources within the company, the Company is also hiring mid-career employees, and will continue to do so in the future.

— Employment of People with Disabilities

- As of April 1, 2022, the employment rate of persons with disabilities in Nippon Paper Industries is 2.35%, achieving the statutory employment rate of 2.3%. The Company will continue to maintain and improve the employment rate at each site.
- The Company aims to achieve the employment rate of people with disabilities of 2.8% by 2030 (120% of the statutory employment rate).
- In order to avoid mismatches at the time of recruitment, the Company provides pre-training at workplaces before new hires join the Company. In addition, to ensure retention of new hires after joining the Company, we conduct regular follow-up interviews at one, three, and six months and a year after they joined the Company.
- The Company assigns people with disabilities to workplaces in consideration of the nature of their disabilities.
- The head office of Nippon Paper Industries is equipped with barrier-free toilets which can be used by not only people with disabilities but also by anyone. Mills are pushing forward with the installation of barrier-free toilets one after another.

— Employment of Elderly Persons

- The Nippon Paper Group has implemented its Reemployment after Retirement System to respond to the needs of a super-aged society and to facilitate the passing on of skills.
- In FY2002, Nippon Paper Industries introduced a reemployment system to allow employees to work up to the age of 65.
- In response to the amended Law Concerning Stabilization of Employment of Older Persons, which took effect in April 2013, the Company has prepared rules that will allow employees of retirement age to continue working based on their desire and skills, at least until they begin to receive pensions.

— Rehiring Retired Employees

The Company has established a system that allows employees who have retired for any reason to play an active role in the Company again by making use of the experience and abilities cultivated while at the Company.

— Dispatched Workers

The cost of accepting dispatched workers is borne by the Company.

Employment Indicators

	Scope	Unit	FY2017	FY2018	FY2019	FY2020	FY2021
Number of employees on a consolidated basis ^{*1}	Consolidated companies	Persons	12,881	12,943	12,592	16,156	16,129
Male		Persons	11,451	11,503	11,118	13,984	13,926
Female		Persons	1,430	1,440	1,474	2,172	2,203
Number of overseas employees		Persons	2,582	2,587	2,504	5,961	6,050
Male		Persons	2,257	2,263	2,158	4,965	5,038
Female		Persons	325	324	346	996	1,012
Percentage of upper management from the local community		%	80.6	82.1	89.3	94.7	94.6
Number of new graduates hired	Consolidated companies in Japan	Persons	245	200	182	214	209
Male		Persons	220	171	146	167	166
Female		Persons	25	29	36	47	43
Number of mid-career recruits	Consolidated companies in Japan	Persons	198	204	222	172	122
Male		Persons	169	180	199	149	109
Female		Persons	29	24	23	23	13
Number of employees seeking reemployment after retirement	Nippon Paper Industries	Persons	46	168	95	80	126
Number of employees reemployed after retirement age	Nippon Paper Industries	Persons	46	168	95	81	126
	Consolidated companies in Japan	Persons	227	332	296	301	591
Average age of employees ^{*1}	Consolidated companies in Japan	Years	43.4	43.4	43.7	43.6	44.4
Male		Years	43.4	43.3	43.6	43.6	44.4
Female		Years	43.5	43.6	43.7	43.5	43.9
Average years of employment ^{*1}	Consolidated companies in Japan	Years	19.4	19.3	19.2	18.8	19.0
Male		Years	19.6	19.5	19.3	19.1	19.3
Female		Years	18.0	17.8	17.8	17.0	16.9
Turnover rate(Includes employees leaving at the mandatory retirement age) ^{*1}	Consolidated companies in Japan	%	2.6	5.7	4.6	3.0	3.3
Number of Managers ^{*1*2}	Nippon Paper Industries	Persons	1,095	1,134	1,112	1,132	1,218
Female		Persons	27	26	27	30	33
	Consolidated companies in Japan	Persons	2,305	2,227	2,302	2,385	2,404
Female		Persons	55	55	62	67	69
	Consolidated companies outside Japan ^{*3}	Persons	139	151	196	358	556
Female		Persons	20	24	33	82	129
Percentage of female employees in management ^{*1*2}	Nippon Paper Industries	%	2.47	2.29	2.43	2.65	2.71
	Consolidated companies in Japan	%	2.39	2.47	2.70	2.81	2.87
	Consolidated companies outside Japan ^{*3}	%	14.4	15.9	16.8	22.9	23.2
Dispatched workers ^{*1}	Consolidated companies in Japan	Persons	105	89	108	111	105
Male		Persons	39	41	47	46	38
Female		Persons	66	48	61	65	67
Percentage of dispatched workers	Consolidated companies in Japan	%	1.0	0.8	1.1	1.1	1.0
Number of part-time workers ^{*1}	Consolidated companies in Japan	Persons	431	465	512	514	465
Male		Persons	245	293	293	290	279
Female		Persons	186	172	219	224	186

*1 Fiscal year-end data

*2 Percentage of only full-time employees which excludes associate directors, employees commissioned for specific purposes, employees on temporary assignment from other companies, and other non-full-time personnel

*3 Managerial personnel at the level of section manager or positions higher

— Other Employment-related Information

- The Company conducts risk assessments and respond to labor issues related to new business and existing business.
- The Company did not carry out layoffs in FY2021.
- There were no employees affected by the Company's M&As in FY2021.

Number of Employees by Age Group (Nippon Paper Industries, March 31, 2022)

	Unit	Less than 30	30 to 50	Over 50	Total
Number of employees	Persons	931	3,041	2,551	6,523
Male	Persons	852	2,798	2,289	5,939
Female	Persons	79	243	262	584

Number of Employees by Region (March 31, 2022)

	Unit	Japan	Oceania	Asia	North America	Other
Number of employees	Persons	10,150	4,465	241	515	758
Male	Persons	8,955	3,694	178	442	657
Female	Persons	1,195	771	63	73	101

Promotion of Women's Participation and Advancement in the Workplace

The Company obtained "L-boshi certification (level 2)" from the Tokyo Labor Bureau in February 2022.

— Responding to the Act on Promotion of Women's Participation and Advancement in the Workplace

Action Plan based on the Act on Promotion of Women's Participation and Advancement in the Workplace

In order to create an employment environment in which diverse human resources can demonstrate their abilities and play an active role throughout their lives, the Company will formulate an action plan as follows.

1. Planning period

Five years from April 1, 2021 to March 31, 2026

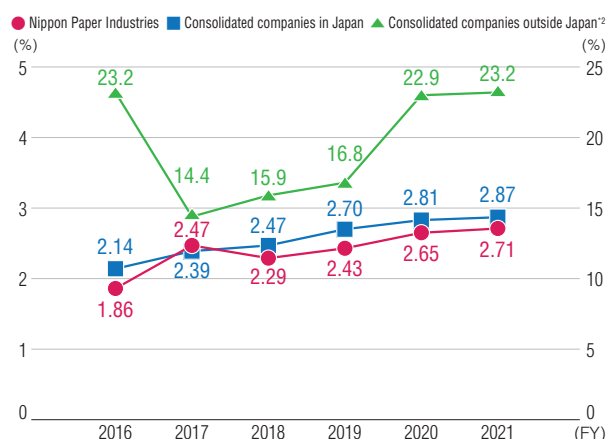
2. Contents

Goal 1 The Company will set the ratio of female employees, compared to male employees, promoted to section manager from a lower rank in the previous three business years at 80% or higher.

Goal 2 At head office divisions, which have no production sites, the rate of usage of systems such as flexitime, taking leave in hourly increments and working from home will be set at 70% for both men and women to promote diversity.

— Percentage of Female Employees in Management and Hiring of New Graduates for Career-Track Positions

Percentage of Female Employees in Management^{*1}



^{*1} Percentage of only full-time employees which excludes associate directors, employees commissioned for specific purposes, employees on temporary assignment from other companies, and other non-full-time personnel

^{*2} Managerial personnel at the level of section manager or positions higher

Hiring of new graduates for career-track positions (Nippon Paper Industries)

	Unit	FY2018	FY2019	FY2020	FY2021	FY2022
Career-track hires	Persons	53	50	48	43	48
Female	Persons	13	13	17	13	19
Percentage of women	%	25	26	35	30	40

Initiatives Aimed at Developing Human Resources

— Training Personnel to Match the Group's Ideal Vision

The Company's ideal vision for personnel is "leaders who will promote change," and the Company is implementing the following initiatives to strengthen the development of such personnel.

- ▶ Hiring human resources with the abilities to continue attempting new challenges, to exercise fair judgement and to engage in teamwork by involving those around them, and the mental strength to overcome difficulties
- ▶ As the Company's goal to develop "autonomous human resources", promoting the development of leaders with a global perspective who can take on new challenges

— Leadership Training System

Nippon Paper Industries trains its career-track employees through OJT (on-the-job training), planned rotations and OFFJT (off-the-job training, including grade-specific training and selective training programs).

- ▶ Fostering leaders with broad perspectives who do not become fixated on a single issue, by transferring them to various positions both within and outside their department, and at affiliate companies in a planned manner
- ▶ In addition to grade-specific training until employees are promoted to management roles, they are also dispatched to overseas business locations under the Company's overseas assignment system in OFF-JT
- ▶ After employees are promoted to management positions, the Company also conducts training for further promotion, etc.

— The Five Pillars of Human Resources Development

The Company provides its employees with fair learning opportunities, and has developed a system for enabling those with motivation and abilities to further increase their skills, with a focus on the following five key points.

① Support for self-development and voluntary skill acquisition

- ▶ Correspondence education (Approximately 240 courses)
Examples of courses: logical thinking, accounting, presentations, languages, etc.
- ▶ Selective group training
Training examples: accounting, leadership, logical communication, etc.
- ▶ Job-level-based training such as that for new hires, groups based on the year of joining the Company, and new managers, is conducted jointly by Group members.
- ▶ Job-level-based training at the head office
- ▶ Job-level-based training at mills is conducted not just for a single mill but together with neighboring mills.
- ▶ Dispatching employees to colleges/universities in Japan (to obtain a degree)

② Assignment of the right people to the right positions

- ▶ Implementation of employee surveys to ascertain what kind of job assignments they wish to have (target: all employees, once a year).
- ▶ Introduction of an internal recruitment system so that individual employees can consider their skills and how they want to develop their careers, and then apply for positions posted by any Nippon Paper Group member company.
- ▶ Introduction of an "internal side occupations program**"

* A system in which an employee is allowed to be engaged in operations of a department in which they are interested, while retaining the position in their own organization

③ Development of employees capable of acting on a global stage

- ▶ Recruiting applicants and implementing a short-term internship and long-term dispatch system for overseas bases of the group.

④ Reinforcement of production frontline capabilities

- ▶ Creating a committee to strengthen frontline capabilities in FY2006 in all mills.
Organizing and operating systems under which technologies and skills that should be carried forward at individual production sites are identified, and training is prioritized based on analyses of the strengths and weaknesses of, and skills needed by, individuals.

⑤ Support for the planning of lives and careers

- ▶ Offering Life Plan Seminars and other types of seminars to enhance employee understanding of each company's and the government's programs, as well as the need to develop meaningful life plans that include health management.

— Provision of Education and Training

- In FY2021, the number of hours of education per employee at consolidated companies in Japan was 5.1 hours.
- The Company's educational expenses related to human resource development supervised by the Human Resources Department in FY2021 amounted to ¥41,754,032. The educational expense per employee who received education was ¥52,323 and the time required for education per such person was 17.6 hours.

Major Training Sessions Provided (Nippon Paper Industries, FY2021)

Type of training, etc.		Expense (Thousand Yen)	Hours per person	Number of participants
Career advancement	Job-level-based	34,425	224.5	269
	Selective	1,525	21	91
Training for evaluators		4,688	7.5	179
Language training		1,116	2	259

CASE STUDY

Implement Small Group Activities^{*1} Globally

The Group engages in small group activities both in Japan and overseas. These activities help attendees to better understand operations in their respective workplaces, and to share examples of good practices from other workplaces both in Japan and abroad.

- ▶ Nippon Paper Industries: Holding companywide presentation meeting^{*2} (once a year)
- ▶ Nippon Paper Group (including overseas): presentation meeting^{*3} (once a year)

^{*1} Employees form small groups and work together to achieve improvements in areas such as business operations and quality, and to reduce costs

^{*2} Held online in FY2021 to prevent the spread of COVID-19

^{*3} Held online for Japanese Group companies only in FY2021 to prevent the spread of COVID-19

Engagement Enhancement

— Fair Evaluation and Compensation

- The Company carries out the following as part of a fair and transparent personnel examination.
 - ▶ Inform employees of salary system (salary standards and salary increase procedure)
 - ▶ Clarification of evaluation criteria
 - ▶ Conducting review sessions, in which managers provide feedback on performance evaluations (target: all general employees, twice per year).
 - ▶ Introduction of outside companies specializing in human resource assessment to enhance objectivity for decisions on promotions to management and other positions
- The Company has adopted a "Performance Evaluation System" under which compensation to employees is determined depending on their performance.
- The Company has established a program such as president awards, business site manager awards, president awards for patents, and outstanding technician awards, to recognize special achievements.
- The Company has established a system under which incentives are paid to achievements of employees.
 - ▶ e-Kaizen Program: A proposal system for business improvement. The impact of proposals is evaluated in points and incentives are paid according to the points
 - ▶ Invention Compensation System: Appropriate consideration will be paid to employee invention in accordance with the Patent Act
- There is no difference between male and female in the salary system of the Company.

— Engagement Survey

- The Company has conducted an employee engagement survey once in two years since 2019.
- The Company considers that this survey is important to reinforce the relationship of employees to the Company so that they head in the same direction and grow together. The Company strives to promote communication, improve the working environment, and make such other efforts based on the results obtained through the surveys.

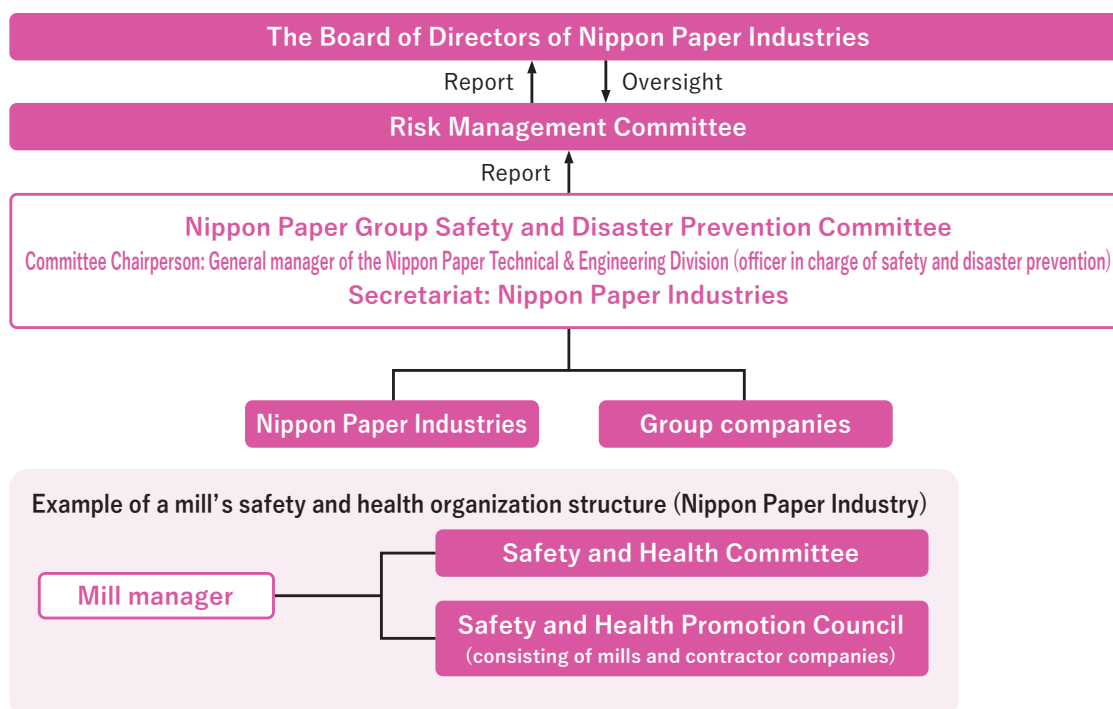
Industrial Relations

- The Group participates in the United Nations Global Compact and supports the universal principle of labor standards advocated by the United Nations regarding “approval of freedom of association and the right to collective bargaining.”
- Labor unions have been formed at Nippon Paper Industries and the majority of its consolidated subsidiaries. Irrespective of the existence of a labor union, however, every effort is made to maintain smooth industrial relations at all Group companies.
- The Company has adopted a union-shop system and all of the employees covered by collective bargaining agreements are union members. (Number of labor union members as of March 31, 2022: 4,613)
- Under the shared objective of building a better company, the Company has established a series of dedicated committees on labor-management issues, covering areas such as the operation of labor and management agreements, and staffing adjustment measures. Based on the agreements between employees and the management, the Company takes various measures and works to improve the working conditions and environment. In addition to these efforts, regular central meetings of leadership from both sides provide a forum to discuss diverse issues including corporate management and working conditions.

Occupational Safety and Health

》 Philosophy and Basic Policy on Safety and Health Measures (see P.90)

Occupational Safety and Health Promotion Structure



- Nippon Paper regularly holds health and safety meetings attended by both employees and management, including safety and health personnel from the head office, mills, and labor unions, where the opinions of employees are represented.
- Meetings of the Safety and Health Committee and Safety and Health Promotion Council (consisting of mills and contractors) are held separately at each location including mills and offices once a month.
- The Company promotes safety and health management activities by cooperating and collaborating with management and employees, as well as contractors and related sub-contractors working at each location.
- The Nippon Paper Group Philosophy and Basic Policy on Safety and Disaster Prevention also applies to any contractors and sub-contractors working on site.

— Occupational Safety and Health Management System

- The Group operates its own Nippon Paper Occupational Safety and Health Management System (NPSS)*.

* The Company incorporates specific ongoing and voluntary activities at each mill and business site into safety and health plans in accordance with company policies and measures relating to safety and health. The system is helping to improve safety and health levels through the prevention of occupational accidents, promotion of worker health, and creation of comfortable working environments. In addition to existing work, if there is new work or a change in work, the Group predicts health and safety risks and takes preventive measures.

- The Group formulates and promotes safety and health plans for each mill, business site, and Group company, and conducts Mill Safety Audits at least once a year as part of its drive to improve safety standards.
- The Company also incorporates into its safety activities any advice from external experts on ways to improve its standards, including safety diagnoses conducted by the Japan Industrial Safety and Health Association.

Acquisition of ISO 45001 Certification (as of the end of 2021)

	Number of certified companies	Total number of companies
Consolidated Group companies in Japan	0	28
Consolidated companies outside Japan	2*	12
Total	2	40

* Certified companies: Jujo Thermal and Opal (Opal has ISO45000 certification at 14 locations and AS4801 certification at 9 locations)

External Awards for Safety Activities (FY2021)

Award	Awarded Company, Office
61st National Conference of the Pulp and Paper Industry on Safety and Health (Safety Award)	Nippon Paper Industries Iwanuma Mill and Nippon Paper Papyrus Suita Mill
61st National Conference of the Pulp and Paper Industry on Safety and Health (Safety Excellence Award)	Nippon Paper Industries Kushiro and Iwakuni Mills
2022 Company with an Excellent Safety and Health Environment (Gold Medal)*	Siam Nippon Industrial Paper

*Received the 2022 award

Efforts regarding Hygiene and Health

— Disease Prevention and Early Detection Initiative

The Group implements the following initiatives aimed at preventing illnesses or detecting them at an early stage:

- ▶ Many Group companies that are members of the Nippon Paper Industries Health Insurance Union check for lifestyle diseases together with regular physical examinations.
- ▶ Improve work environments based on the results of regular workplace visits by industrial physicians.
- ▶ Conduct medical examinations for the spouses of employees

— Tackling Mental Health

The Company implements the following initiatives on mental health:

- ▶ Internet-based mental health care and counseling services for all employees.
- ▶ Regular stress checks that ask employees to fill out a form once a year.

Efforts regarding Safety and Disaster Prevention

In July 2020, the Company formulated and implemented the Medium-Term Safety Activity Plan.

Medium-Term Safety Activity Plan

Plan pillars

(1) Developing safe working environments, (2) Managing risks, (3) Training personnel to work safely

Ultimate Environment

Eliminating all personal injuries*¹ within its mills

The goal

To build a foundation for achieving zero disasters based on an independent safety-conscious climate

Plan Duration

2020-2025

Performance Indicators*²

2020-2022 Serious occupational accident eradication measures period
(Serious occupational accidents: 0, Frequency rate for lost-worktime injuries: 0.4)

2023-2025 Period for preparing for zero occupational accidents
Serious occupational accidents: 0, Frequency rate for lost-worktime injuries: 0.1

*1 This ultimate environment includes all stakeholders on Nippon Paper Group premises including Group employees, employees of contractors working on site, and visitors from outside.

*2 Mill management indicators are determined every 12 months

— Safety Education

- The Nippon Paper Group promotes further safety and health awareness by providing opportunities for safety education throughout the Group, including to employees, contractors, and sub-contractors.
- The Company formulates annual Occupational Safety and Health Management System plans at each of its mills and offices, and implements safety education. It also has a system to review and improve educational content and the intended audience as necessary.
- The Company without fail implements the education mandated under the Industrial Safety and Health Act based on the Guidelines on Safety and Health Education established by the Ministry of Health, Labour and Welfare. It also implements education on topics such as emergency lifesaving, heat stroke prevention, and traffic safety, as well as safety education to visitors.
- The Company encourages participation in safety-related qualifications (e.g., RST*) and external training to gain specialized knowledge.

*Rodoshō (Ministry of Labor in Japanese) Safety and Health Education Trainer

- The Company conducts a survey once a year to keep abreast of the status of safety and health education at each of its mills and offices.

— Ensuring Thorough Safety on Site

- Based on its mission of eliminating all personal injuries within its mills, the Company conducts safety patrols in collaboration with labor unions and contractors, and gives instructions and guidance to correct unsafe practices.
- Provide personal protective equipment and other safety equipment for safety and health-related work.
- Provide guidance to contractors and promote voluntary safety activities, including risk prediction and risk assessments.

— Responding to Work Tasks with a High Risk of Injury

The Group implements the following measures for operations with a high risk of injury:

- ▶ Manage facilities in accordance with Japan's Industrial Safety and Health Law and other laws and regulations, and regularly evaluate workplace environments.
- ▶ In locations where chemical substances are handled, the Group investigates the dangers and toxicity of these substances and uses what it learns to take appropriate risk reduction measures and manage residual risks.

— Preparing for Natural Disasters and Fires

The Group implements the following measures in preparation for natural disasters and fires:

- ▶ Create disaster preparedness manuals reflecting local hazard map information.
- ▶ Conduct regular disaster preparedness training in cooperation with local fire departments and other public safety authorities.
- ▶ Undergo regular disaster prevention surveys by specialist risk assessment companies.*

*At Nippon Paper Industries

— Raising awareness of traffic safety

The Group implements the following initiatives aimed at raising awareness of traffic safety:

- ▶ Conduct traffic safety education and seminars.
- ▶ Participate in traffic safety campaigns hosted by local police stations.

Occupational Accidents

Frequency rate for occupational accidents requiring time off from work^{*1}

(Calendar year)

	2016	2017	2018	2019	2020	2021
Nippon Paper Industries	0.15	0.65	1.21	0.73	0.39	0.51
Nippon Paper Group ^{*2}	0.10	0.69	1.16	0.54	0.37	0.46
Nippon Paper Group ^{*2} (contractors only)	0.57	0.61	0.54	0.98	1.10	0.62
Manufacturing industry	1.15	1.02	1.20	1.20	1.21	1.31
Pulp, paper and converted paper product manufacturing industry	1.31	1.46	1.88	1.94	1.54	1.85

*1 Indicates how often occupational accidents occur in terms of the number of accidents causing injuries or deaths per million work hours.

*2 Scope: Manufacturing locations of Nippon Paper Industries, Nippon Paper Crecia, Nippon Paper Papylia, and Nippon Paper Liquid Package Product

Occupational Accident Severity Rate^{*1}

(Calendar year)

	2016	2017	2018	2019	2020	2021
Nippon Paper Industries	0.01	0.03	0.02	0.03	0.01	0.04
Nippon Paper Group ^{*2}	0.01	0.02	0.03	0.03	0.01	0.03
Nippon Paper Group ^{*2} (contractors only)	0.04	0.03	0.47	0.55	1.10	0.09
Manufacturing industry	0.07	0.08	0.10	0.10	0.07	0.06
Pulp, paper and converted paper product manufacturing industry	0.04	0.24	0.22	0.63	0.39	0.06

*1 Indicates the seriousness of occupational accidents in terms of the number of workdays lost per 1,000 work hours.

*2 Scope: Manufacturing locations of Nippon Paper Industries, Nippon Paper Crecia, Nippon Paper Papylia, and Nippon Paper Liquid Package Product

Number of work-related employee/contractor fatalities of Nippon Paper Group^{*}

(Calendar year)

	2017	2018	2019	2020	2021
Nippon Paper Group Employees	0	0	0	0	0
Contractors	0	1	1	2	0
Total	0	1	1	2	0

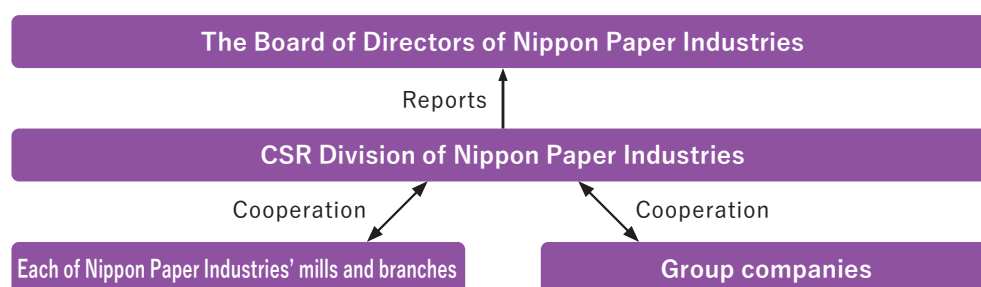
*Scope: Manufacturing locations of Nippon Paper Industries, Nippon Paper Crecia, Nippon Paper Papylia, and Nippon Paper Liquid Package Product

• In 2021 there were no work-related fatalities in the Group.

Co-existence with Communities

》 Philosophy and Principles of Social Contribution Activities (see p.91)

Structure for Promoting Social Contribution Activities



Social Contribution Activities

Personnel responsible for social contribution activities at each of the Company's mills and other Group companies constantly engage in the following locally focused activities in their communities.

- ▶ Increase the community involvement of Group company's mills and overseas affiliates
- ▶ Promote activities that effectively utilize the resources and expertise of each Group company
- ▶ Promote corporate citizenship activities in which employees play an active role
- ▶ Effectively use the company-owned forests in Japan (about 90,000 hectares)
- ▶ Employ effective PR inside and outside the Group

Social Contribution Activity Expenses (Nippon Paper Industries)

	FY2019	FY2020	FY2021
Social Contribution Activity Expenses (Donation Amount) (Million Yen)	87	75	58

— Support for Employees' Social Contribution Activities

The Company systematically supports employees' participation in volunteer activities.

- ▶ A system to allow employees to take leave for volunteering (Japan Overseas Cooperation Volunteers, etc.)
- ▶ Acquisition of expired annual leave for volunteer activities

The Nippon Paper Group's principal social contribution activities

Principal activities	Specific examples
Local community activities	
Cleaning activities	Cleaning activities around business sites, etc Donation of flower seedlings to elementary schools, etc
Local community safety and disaster prevention	Children's "emergency 110" patrol project(110 is the number to dial for emergency assistance in Japan) Traffic safety initiatives Cooperation in preventing bank transfer fraud Participation in fire brigades in afforestation areas*
Preserving local community cultures	Donation of stand-type paper bags (to put used disposable chopsticks and towels after meals), etc. to elementary and junior high schools to coincide with hometown lunch days
Respect for indigenous peoples	Protecting indigenous heritage sites* Designating indigenous heritage sites as permanent protected zones*
Holding and participating in local events	Participating in and sponsoring local events Opening of recreational facilities to the public
Social welfare activities	Copier-paper sale in support of the Pink Ribbon Campaign Distributing food baskets to low-income families* Participating in and cosponsoring social welfare events
Providing awareness-raising opportunities	Sustainability Lecture (on-demand distribution)
Advancing science and technology	Supporting the Fujihara Foundation of Science
Disaster relief activities	Donations in the event of a natural disaster Loan of temporary housing land for victims of heavy rain disasters
Environmental activities	
Utilizing company- owned forests	Supporting the activities of the Shiraneaoi Preservation Group
Preserving biodiversity	Conducting business activities while protecting Blakiston's fish owl habitat Improving breeding conditions for the Blackiston's fish owl by installing artificial nesting boxes Eradicating invasive plant species from Iriomote Island
Promoting recycling activities	Collection and recycling of used paper cups in-house Recycling Paper-Pak containers
Accountability to local communities	Environmental risk communication
Educational activities	
Utilizing company-owned forests	Conducting the annual School of Friendship for Forests and Paper
Providing opportunities o tour group companies and their mills	Acceptance of factory tours
Employment support	Internships that welcome students for opportunities to experience a workplace Implementation of vocational training for community residents around plantations*
Classes taught by employees	Cooperation in teaching school classes
Music appreciation	Sponsoring music competitions
Providing educational opportunities through sports	Supporting sports classes for children from low-income families*
Providing products to classrooms	Providing in-house products to educational institutions

*Overseas activities

External Evaluation

Main ESG indices adopted



2022 CONSTITUENT MSCI JAPAN
ESG SELECT LEADERS INDEX

2022 CONSTITUENT MSCI JAPAN
EMPOWERING WOMEN INDEX (WIN)

Nikkei Climate 1.5°C Target Index

Environmental rating



DBJ Environmental Rating
The Development Bank of Japan rated us in their highest rank ("Environmental consideration is particularly advanced"). November 2018



Top level "AAA"
"ESG / SDGs evaluation-type found procurement":
Awarded by Sumitomo Mitsui Banking Corporation

Supplementary Data

Principal organization memberships (as of July 2022)

Organization	Position
Japan Paper Association	Vice Chairman
Japan Tappi	President
Forest Management Association	Director
Japan Woody Bioenergy Association	Director
Agricultural Resource Certification Council	Director
Paper Recycling Promotion Center	Vice President
Japan Paper Exporters' Association	Director
Japan Paper Importers' Association	Director
Japan Association of Milk Packaging and Machinery	Chairman
Committee for Milk Container Environmental Issues	Vice Chairman
Association of Large-scale On-site Power-plant Owners	Director
NanoCellulose Japan	Chairman
Japan Clean Ocean Material Alliance	Executive Secretary

Political contribution amount (Nippon Paper Industries)

	FY2019	FY2020	FY2021
Political contribution amount (thousand yen)	140	35	100

Status of CoC certification acquisition at principal production sites (as of July 31, 2022)

Company Name	FSC®		PEFC
	Mill, Production Company	License no.	Mill, Production Company
Nippon Paper Industries	Asahikawa Mill	FSC®C001751	
	Shiraoi Mill		Shiraoi Mill
	Ishinomaki Mill		Ishinomaki Mill
	Iwakuni Mill		Iwakuni Mill
	Yatsushiro Mill		Yatsushiro Mill
	Iwanuma Mill		
	Akita Mill	FSC®C133166	Akita Mill
	Nakoso Mill	FSC®C020977	
	Soka Mill	FSC®C133163	
	Ashikaga Mill		
	Fuji Mill Yoshinaga, Fuji	FSC®C133678	Fuji Mill Yoshinaga
	Otake Mill	FSC®C132226	Otake Mill
	Gotsu Mill	FSC®C154187	
Other Nippon Paper Group Companies	Nippon Paper Papyrus Harada Mill, Kochi Mill	FSC®C005984	Nippon Paper Papyrus Harada Mill, Kochi Mill
	Nippon Paper Crecia Kaisei Mill, Koyo Mill, Kyoto Mill, Tokyo Mill	FSC®C124287	
	Nippon Dynawave Packaging	FSC®C131932	Nippon Dynawave Packaging
	Siam Nippon Industrial Paper	FSC®C135609	
	Jujo Thermal	FSC®C012566	Jujo Thermal
	Opal Opal Cartons Auckland	FSC®C127957	Opal Opal Cartons Auckland
	Opal Cartons Christchurch		Opal Cartons Christchurch
	Opal Australian Paper Maryvale Mill	FSC®C002059	Opal Australian Paper Maryvale Mill
	Opal Australian Paper Preston		Opal Australian Paper Preston
	Opal Cartons Botany	FSC®C127957	
	Opal Cartons Heidelberg		
	Opal Cartons Regency Park		
	Opal Fibre Packaging Launceston		Opal Fibre Packaging Launceston
	Opal Fibre Packaging Brooklyn		Opal Fibre Packaging Brooklyn
	Opal Fibre Packaging Scoresby		Opal Fibre Packaging Scoresby
	Opal Fibre Packaging Revesby		Opal Fibre Packaging Revesby
			Opal Bag Solutions Thomastown
			Opal Bag Solutions Revesby

Corporate Governance Policy

Chapter 1 General Provisions

Article 1 (Purpose)

This Policy defines guidelines of basic views on the Company's corporate governance so that the Nippon Paper Group (hereinafter referred to as the "Corporate Group") can achieve sustainable growth and medium to long term increases in corporate value based on the Corporate Group's philosophy itemized below:

Corporate Group's Philosophy

Mission - Reason for existence in society and significance -

The Nippon Paper Group aims to contribute to better living and cultural progress everywhere it does business

Vision - Vision for implemented the philosophy -

A corporate group that meets the following requirements and is sustainably needed by society

1. Drive social sustainability through our business
2. Delight our customers
3. Instill pride in employees
4. Give back to society

Values - Values to which employees attach importance to implement the philosophy, and judgment criteria -

Challenge : Embrace new challenges

Fairness : Be fair

Teamwork : Champion teamwork

Slogan - Near-term policy factored in the business environment –

Nippon Paper Group : Shaping the future with trees

Constantly creating new value and contributing to better living and cultural progress, as a comprehensive biomass company shaping the future with trees.

Over many years, we have nurtured trees, made paper, and offered a wide range of products that support people's life and culture.

We have managed forests in an appropriate manner, and pursued a variety of businesses by fully utilizing wood resources out of sustainably managed forests.

Those businesses address social issues such as global warming and depletion of resources on earth, and contribute to running sustainable society.

Going forward, we will continue to provide a wide range of products and services that make the most of the outstanding properties of wood, as we strive to maximize the value of sustainable forest resources for the future.

Article 2 (Basic views on corporate governance)

1. The Company shall make the top priority of management further enhancing management transparency among its stakeholders including shareholders, in order to achieve fair management. To ensure separation between business execution and management supervision, the Company shall adopt the executive officer system and strive to strengthen the supervisory function of the Board of Directors. In addition, the Company shall, as the headquarters for managing the Group, promote its growth strategy, monitor businesses under its control, and promote legal compliance. The Company shall work on further reinforcing corporate governance by providing the following policies:
 - (i) The Company shall, having respect for shareholders' rights, work to put in place an environment where its shareholders can exercise their rights in an appropriate manner and ensure the substantive equality of shareholders.
 - (ii) The Company shall recognize the importance of social responsibilities and public duties, strive to appropriately collaborate with various stakeholders including shareholders, employees, customers, business partners, creditors, and local communities, and develop a corporate culture and climate for business to be operated in a sound manner based on strict self-discipline.
 - (iii) The Company shall provide for its disclosure policy separately, make appropriate disclosures of corporate information including non-financial information, and strive to ensure the transparency of corporate management.
 - (iv) The Company shall work on strengthening the functions of the Board of Directors based on fiduciary responsibility and accountability to shareholders. It shall promote the use of independent outside directors, establish voluntary committees to ensure the transparency of procedures concerning executive appointments and compensation in particular, and have independent outside directors as key members. It shall make analyses and evaluations on the effectiveness of the Board of Directors as a whole and strive to improve the functions of the Board of Directors.
 - (v) The Company shall have constructive dialogues with shareholders, in order to contribute to its sustainable growth and medium- to long-term increases in corporate value.
2. The Board of Directors shall, as core management principles that all of the Company's officers and employees share, and on which all activities rely, separately provide the Nippon Paper Group Action Charter and the Nippon Paper Codes of Conduct.

Chapter 2 The Company's Corporate Governance Structure

Article 3 (Roles of the Board of Directors)

1. The Board of Directors shall bear the supervisory function of management as a whole including the execution of duties by executing persons, ensure fair and transparent management, and make the most appropriate decisions for the Company through decisions, etc. on the important execution of business that are to be made by the Board of Directors under laws and regulations.
2. Regarding the execution of business other than the execution of important business set forth in the preceding Paragraph and its decisions, its authority shall be delegated to the President & Representative Director and other Corporate Officers, and the Board of Directors shall supervise the status of the execution of duties by the President & Representative Director and other Corporate Officers.
3. Outside directors shall, to enhance the Corporate Group's sustainable growth and medium to long-term corporate value, supervise the execution of business by the Board of Directors, the senior management, etc., and conflicts of interest between the Company and the senior management, etc., from the viewpoint of stakeholders.
4. In view of the importance of environmental and social challenges related to sustainability, the Board of Directors shall provide various philosophies and basic policies regarding social responsibilities to be performed by Corporate Group companies, raise awareness of officers and employees, and strive to facilitate the sustainable development of society and enhance the corporate value of the Corporate Group by promoting active efforts to resolve challenges while giving consideration to stakeholders.

Article 4 (Composition of the Board of Directors)

1. The Company's board members shall number 12 or fewer members as provided for by the Articles of Incorporation. While based on the necessary and appropriate number to ensure the effective management system required for a holding company that bears the supervisory function for executing the Group's business and substantive discussions at board meetings, the composition of the Board of Directors shall also be decided by fully taking into account the viewpoint of ensuring diversification and expertise in the Board of Directors.
2. The Company's Board of Directors shall ensure a balance of knowledge, experience and abilities within the Board of Directors as a whole and diversification by having it composed of inside directors who have excellent abilities to execute and manage each business in charge and outside directors who have specialized knowledge and extensive experience.

Article 5 (Nomination policy of nominees for directors)

1. The Board of Directors shall decide nominees for directors of the Company from among a wide variety of human resources on the condition that they have all the requirements listed below:
 - (i) Those who have extensive knowledge of and a wealth of experience in the Corporate Group's management control s and business operations; and

- (ii) Those who fully understand the social responsibilities and missions of the Company's business and can exercise management control and perform business operations in a fair and precise manner based on strict self-discipline.
- 2. Notwithstanding the provision set forth in the preceding Paragraph, nominees for outside directors shall be decided from among a wide variety of human resources on the condition that they meet all the requirements listed below:
 - (i) Those who meet the criteria for judging independence provided for by the Tokyo Stock Exchange and are deemed not likely to generate conflicts of interest with general shareholders
 - (ii) Those who understand the Company's management philosophy and have a full understanding of the Corporate Group's social responsibilities and roles; and
 - (iii) Those who fully recognize the role of an outside director can supervise the Company's directors and management and can offer precise and appropriate opinions and advice using expert knowledge and experience in the fields of corporate management, economics, legal affairs, accounting, tax affairs, auditing,

Article 6 (Nomination policy of nominees for statutory auditors)

- 1. The Board of Directors shall, with the consent of the Board of Statutory decide nominees for the Company's statutory auditors from among a wide range of human resources on the condition that they meet all the requirements listed below:
 - (i) Those who have extensive knowledge and a wealth of experience of the Corporate Group's management controls and business operations; and
 - (ii) Those who can conduct audits on the status of business execution by directors from a fair and objective standpoint and can contribute to enhancing the soundness and transparency of management
- 2. Notwithstanding the provision set forth in the preceding Paragraph, nominees for outside statutory auditors shall be decided from among a wide range of human resources with the consent of the Board of Statutory Auditors on the condition that they meet all the requirements listed below:
 - (i) Those who meet the criteria for judging independence provided for by the Tokyo Stock Exchange and are deemed not likely to generate conflicts of interest with general shareholders
 - (ii) Those who understand the Company's management philosophy and have a full understanding of its social responsibilities and roles;
 - (iii) Those who fully recognize the role of an outside statutory auditor and can audit the status of business execution by directors from a neutral and objective viewpoint and contribute to enhancing the soundness and transparency of management using expert knowledge and experience in the fields of corporate management, economics, legal affairs, accounting, tax affairs, audit, etc.

Article 7 (Policy for directors and statutory auditors training, etc.)

1. The Company shall continuously provide information on economic circumstances, industry trends, legal compliance, corporate governance, financial accounting and other matters that directors and statutory auditors require for performing their roles and functions as well as give support for the execution of duties of directors and statutory auditors by ensuring opportunities to participate in external training that each director and statutory auditor desires.
2. In addition to the preceding Paragraph, the Company shall ensure outside directors and outside statutory auditors have opportunities for forming a full understanding through explanations from each division in charge, director in charge, or other suitable persons of the Corporate Group's management strategy, business plans, status of each business, business environment, business challenges, when they assume the relevant post and in a timely manner during their tenure of office.

Article 8 (Policy for deciding compensation, etc. of directors and statutory auditors)

1. Regarding a director's monthly compensation, his/her base compensation shall be decided according to his/her job responsibilities at the Company. Of that, 70% shall be fixed and the remaining 30% shall be paid on a sliding scale based on the achievement of the mid-term management plan. The base compensation shall be determined by using objective external survey data and taking into consideration the Company's business performance, business size, business environment, etc. Performance indicators shall be set to function effectively as motivation for achieving performance targets, and reviewed as necessary according to changes in the business environment. In addition, directors shall contribute a certain amount of their monthly compensation to the Directors' Shareholding Association to acquire treasury shares. Meanwhile, they shall receive neither bonuses nor directors' retirement benefits.
2. The Company shall pay stock-based compensation to directors by way of the Board Benefit Trust in order to further clarify the linkage between director compensation and its stock value and have them share with its shareholders not only the benefits of an increase in share prices but also the risks of a decline in share prices, thereby increasing their consciousness of the need to contribute to the improvement of the Company's business performance and to increasing in its corporate value over a medium- to long-term. For share-based compensation, treasury shares acquired through a trust with the monetary contributions from the Company and monetary equivalent of treasury shares converted at market value shall be given to directors through the trust. The number of shares to be provided shall be calculated based on the number of points according to job responsibilities. In principle, share-based compensation shall be paid upon retirement of directors. The composition ratio of fixed compensation, performance-linked compensation, and share-based compensation for directors shall be appropriately set in light of the purpose of each compensation.
3. Regarding outside directors and outside statutory auditors, monthly compensation shall be fixed. Meanwhile, in view of their job responsibilities, contributions to the Directors' Shareholding Association shall be left to their discretion.

Article 9 (Personnel & Remuneration Advisory Committee)

1. The Company shall, as an advisory body to the Board of establish the Personnel & Remuneration Advisory Committee whose key members are independent outside directors to further enhance corporate governance.
2. The Personnel & Remuneration Advisory Committee shall, with regard to the nomination process, quality and the reason for nomination of nominees for the Company's directors and statutory auditors, the criteria for judging the independence regarding independent outside directors, directors' compensation structure, etc., study their appropriateness, etc. upon receipt of inquiries from the Board of Directors and submit recommendations in consideration of evaluations of the Company's business performance, etc.
3. The members of the Personnel & Remuneration Advisory Committee shall be composed of the President & Representative Director General Manager for Personnel & General Affairs Division and independent outside directors, and Manager of Personnel Department shall serve as the secretariat of the Committee.
4. The Personnel & Remuneration Advisory Committee shall proceed with its studies while receiving appropriate involvement and advice from independent outside directors.
5. The Board of Directors shall, after receiving recommendations from the Personnel & Remuneration Advisory Committee, make a decision on nominations for directors and statutory auditors, compensation for directors, etc.

Chapter 3 Responses to Protect Stakeholders' Interests

Article 10 (Management system for related party transactions)

In case the Company conducts transactions with its officers, major shareholders, etc. (related party transactions), it shall, in advance, submit the said transactions to the Board of Directors and obtain its approval, except in clear cases where the said transaction terms and conditions are similar to those of general transactions, so that such transactions may not harm the Company, common interests of shareholders, etc. Material facts on the said transactions shall be reported to the Board of Directors.

Article 11 (Policy for strategic holding of stocks, etc.)

1. The Company considers it critical to build cooperative relationships with various companies to expand business and achieve sustainable development. From the long-term viewpoint of enhancing the Company's corporate value, the Company shall hold stocks that it deems strategically necessary, taking into comprehensive account importance on business strategy, relationships with business partners, etc.
2. Of listed stocks held based on the preceding Paragraph (hereinafter, "strategic holdings of stocks"), major stocks shall be verified with regard to the effects of holding them, etc. in terms of the medium to long term economic rationale for holding, maintaining, and reinforcing comprehensive relationships with business partners and reports thereon shall be made to the Board of Directors on a regular basis every year.

3. Regarding the exercise of voting rights on strategic holdings of stocks, the Company shall closely examine the contents of proposals and appropriately exercise rights after making a judgment on whether or not the said proposals will contribute to increasing the corporate value of the Company and the investee company. Regarding proposals that impair the corporate value of the Company and the investee company, the Company shall not agree to vote for them.

Article 12 (Whistle blowing system)

1. The Company shall set up a whistle blowing system (Nippon Paper Group Help Line) so that the Corporate Group's employees, etc. may directly report to or consult with a contact within the Group or external contact office outside day-to-day reporting lines with regard to acts violating laws and regulations, social norms, corporate ethics, company rules, etc. or inappropriate acts without having concerns about the risk of suffering disadvantageous treatment and also so that such reports and consultations may be objectively verified and dealt with in an appropriate manner.
2. The operational status of the whistle blowing system shall be reported to the operating manager by the unit responsible for operations on a case-by-case basis and the operating manager shall make reports to the Board of Directors where appropriate. In addition, the unit responsible for operations shall make regular reports to the statutory auditors with regard to the status of whistle blowing from the Corporate Group's employees, etc.

Chapter 4 Dialogues with Shareholders, etc.

Article 13 (Policy for constructive dialogues with shareholders, etc.)

1. The Company shall attach importance to constructive dialogues with shareholders, etc. and strive to have dialogues with them at various opportunities.
2. The Company shall, through constructive dialogues with shareholders, etc., make efforts to obtain their understanding on the Corporate Group's management policy and simultaneously work on the Corporate Group's sustainable growth and medium to long term increase of corporate value by listening to the opinions of shareholders, etc., and absorbing analyses of management and opinions from the standpoints of capital providers, etc. to reflect them in its management.

Supplementary Provisions

Article 1 (Enforcement of the Policy)

The Policy shall come into force as from November 5, 2015

Article 2 (Amendment and repeal of the Policy)

Amendment and repeal of the Policy shall require approval from the Board of Directors

Action Charter

1. We shall pursue a sustainable growth for the future to contribute to society through our business activities.
2. We shall abide by the letter and the spirit of laws and regulations, and comply with the highest ethical standards and social codes of conduct, both in Japan and abroad.
3. We shall conduct our business in a fair, transparent and liberal manner.
4. We shall win the trust of customers through the development and provision of socially useful and safe products and services.
5. We shall disclose corporate information positively and fairly to all stakeholders of the Group.
6. We shall actively address environmental issues, and shall endeavor to conserve and enhance the environmental state of our planet.
7. We shall maintain consistency between the corporate development and the personal contentment of individual employees, and create a company filled with dream and hope.

Codes of Conduct

1. Fulfillment of social responsibilities

- (1) We shall contribute to society through our business activities, centered on paper manufacturing, as a good corporate citizen.
- (2) When conducting businesses overseas, we shall respect local cultures and customs,
- (3) We shall stand up firmly against antisocial factions and groups.

2. Fair, transparent and liberal corporate activities

- (1) We shall not become involved in a cartel, collusive behavior, inappropriate labeling or other acts that violate the provisions and spirit of Anti-Trust Law and related regulations, and we shall conduct fair business transactions.
- (2) We shall not become involved not only in bribery of public officers, illegal political contributions or offering of profits, but also in actions that could be conceived as back-scratching or cozy relations with legislature or administrative bodies.
- (3) We shall not become involved in after-hours entertainment or gift giving that is unacceptable given community standards and general business practice.

3. Winning trust of customers

- (1) We shall consistently provide products and service that are socially useful, of high quality and with a high degree of safety, and environmentally friendly.
- (2) We shall provide quality labels and other product information accurately and fairly, to enable customers

to make informed choices.

- (3) We shall take every opportunity to listen to the opinions of customers, and endeavor to maximize customer satisfaction.

4. Strict handling of corporate information

- (1) We shall manage business information, intellectual property rights, customer information, personal information and other important internal information strictly and appropriately.
- (2) We shall not obtain or use information on customers or competitors in an illegal way.
- (3) We shall respect the intellectual property rights of others.

5. Fair and positive disclosure of corporate information

We shall positively disclose not only business-related information but also fair and reliable information on our environmental and community activities to our customers, consumers, shareholders, investors, business partners, regional communities, administrative bodies, employees and other stakeholders.

6. Active involvement with environmental issues

- (1) We shall promote afforestation projects, to create and make effective use of sustainable forest resources.
- (2) We shall promote energy conservation, the use of wastepaper and other measures to effectively use resources that are limited in quantity.
- (3) We shall manage and reduce all types of discharge and waste generated in the course of corporate activities.
- (4) We shall research and develop manufacturing technologies, and products and services that are in harmony with the environment.

7. Desirable mindset of employees

- (1) To act with a willingness to improve oneself and to take up challenges, to make corporate development consistent with personal contentment.
- (2) To abide by laws, regulations and social codes, and to be responsible for one's own conduct.
- (3) To respect each other's human rights and to consider the positions of others when taking action.
- (4) To distinguish at all times between official and private settings, and to avoid using business positions for personal benefit.
- (5) To restrain from using for private purposes nonpublic information obtained in one's company or in the course of business.

Established on April 1, 2004

Disclosure Policy

1. Basic Disclosure Stance

Nippon Paper Group (the Group) pursues a fundamental policy of disclosing corporate information proactively and fairly to all Group stakeholders, and raising the level of management transparency in accordance with its Action Charter and Codes of Conduct.

2. Criteria for Disclosure

1. The Group conducts expeditious disclosure based on the principles of transparency, fairness and consistency, in line with the Japanese Corporate Law, Financial Instruments and Exchange Act and other relevant laws, as well as the Rules on Timely Disclosure of Corporate Information (the Rules on Timely Disclosure) stipulated by the securities listing regulations of security exchanges.
2. Even for information that does not fall under the categories stipulated in the relevant laws and the Rules on Timely Disclosure, the Group carries out rapid and accurate disclosure of information useful to stakeholders and the broader society, to the fullest extent possible, regardless of any advantages or disadvantages that may accrue to the Group as a result of such information disclosure.

3. Methods of Disclosure

1. Information disclosure pursuant to the Rules on Timely Disclosure is conducted through the Timely Disclosure network (TDnet) operated by the Tokyo Stock Exchange (TSE) and media organizations such as press clubs affiliated with these securities exchanges.
2. For information that does not fall under the categories stipulated in the Rules on Timely Disclosure, depending on the importance and urgency of the information in question, the Group carries out disclosure through an appropriate method or methods, including the issuing of press releases and the holding of press conferences.
3. The information disclosed in accordance with the two methods outlined above is posted promptly on the Group's Web site.

4. Silent Period

To prevent unauthorized release of earnings information and ensure fairness, the Group observes a "silent period" from the day following the closing date of each fiscal period until the date on which each set of financial results is announced. During the silent period, as a rule, the Group refrains from responding to questions regarding its financial results and from making related comments. However, in the event that during the silent period it becomes clear to Group management that results are likely to differ substantially from forecasts previously disclosed, the Group will effect an information disclosure in the appropriate manner.

5. Disclaimers

1. Any information disclosed by the Group that is not historical fact comprises forward-looking statements, which have been made based on judgments and assumptions using the best information available at the time of disclosure. Actual results may differ materially from forecasts due to a range of contingencies, including, but not limited to, macroeconomic conditions and other external factors.
2. While the Group endeavors to ensure the accuracy of the information it discloses, the Group does not guarantee or give any warranty as to the accuracy, timeliness or completeness of the information or material it discloses, or of any information provided by external Web sites linked from the Group's Web site. Furthermore, the Group assumes no liability or responsibility for any damage to users of this Web site, or to users' computers or other property, arising from users' access, use or downloading of any information or materials provided on this Web site.
3. Information disclosed by the Group is provided solely for the purpose of facilitating greater understanding of the Group. No information is disclosed for the purpose of soliciting investments. Any investment decisions made by users of this information are made at the user's own discretion and risk.

6. Changes to Information Disclosed and Disclosure Policy

1. Any information disclosed by the Group is subject to change without notice.
2. The Group may, without notice, amend or change this disclosure policy, as it deems appropriate.

The Nippon Paper Group

“Principles and Basic Policies Concerning Raw Materials Procurement”

Since the establishment of the “Philosophy and Basic Policy Concerning Raw Materials Procurement” on October 5, 2005, the Nippon Paper Group (the “Group”) has been developing a raw materials procurement system that can be deemed credible by a wide range of stakeholders. The Group has been striving to implement this through managing its global supply chain in a way to address relevant environmental and social challenges. To achieve its mission, which is “to contribute to better living and cultural progress everywhere it does business,” the Group has revised the Group’s procurement policy to the “Principles and Basic Policies Concerning Raw Materials Procurement” (the “Policies”). The revision is intended to enable the Group to address issues such as human rights and climate change more effectively. At the same time, the Group has recently established the “Wood Resources Procurement Guidelines” (the “Guidelines”) for forest resources, which are the core resources of the Group’s business operations.

The Policies and the Guidelines were prepared by studying relevant guidelines such as the “OECD Due Diligence Guidance for Responsible Business Conduct” and other guidelines, and based on advice from external experts. Moreover, both the Policies and the Guidelines conform to the “Nippon Paper Group Human Rights Policy”, which has been developed according to international standards relating to human

rights. The “Nippon Paper Group Human Rights Policy” is based on the “Guiding Principles on Business and Human Rights” developed by the United Nations, and also aligns with the “International Bill of Human Rights” and the “ILO Declaration on Fundamental Principles and Rights at Work”.

The Policies and the Guidelines are communicated to all stakeholders by publishing them on the Group’s website in both Japanese and English. The Group also works to build a sustainable supply chain in cooperation with suppliers through risk minimization and improvement processes in accordance with the Policies and the Guidelines.

■ Governance

The Policies and Guidelines are reviewed once a year by the Nippon Paper Group Raw Materials Committee under the supervision of the Board of Directors of Nippon Paper Industries Co., Ltd., based on changing social situations and business trends.

■ Scope of Application

The Policies and Guidelines cover all raw materials and fuels procured by Nippon Paper Industries Co., Ltd., and its consolidated subsidiaries, for the manufacture of products.

[Principles]

We shall strive to contribute to better living and cultural progress everywhere it does business through implementing sustainable procurement practices for raw materials in collaboration with our suppliers. To do this, we shall make our best effort to identify social and environmental issues relating to our procurement practices and to address the challenges identified.

[Basic Policies]

1. Legal compliance and fair and equitable transactions
 - (1) We respect international standards and comply with relevant laws and regulations.
 - (2) We conduct fair business transactions and provide equitable opportunities for competition.
 - (3) We adequately manage information obtained through our procurement activities.
2. Addressing social issues
 - (1) We ensure prevention of human rights violations and workers’ rights violations by facilitating the efforts to respect human rights issues* within our supply chains.

* Anti-discrimination or harassment, anti-forced labor or child labor, respect for workers’ rights (the right to organize, bargain and act collectively), prevention of low-wage labor and excessive working time, ensuring occupational safety and health, etc.
 - (2) We promote our initiatives to respect the rights of local communities* in the regions where we procure

raw materials. By doing so, we aim to harmoniously coexist with local communities and to contribute to the community development.

* Ensuring provision of sufficient information in advance and seeking the understanding of local communities in utilizing land and resources in the relevant area, respect for the rights and culture of indigenous peoples, provision of support and employment opportunities to local residents, etc.

- (3) We carry out confirmation to ensure that we do not procure illegally harvested wood, conflict minerals and other resources that may involve human rights violations.

Note: This Paragraph 2 of the Policies aligns with the “Nippon Paper Group Human Rights Policy”.

3. Addressing environmental issues

- (1) We use forest and water resources sustainably for the conservation of such resources.
- (2) We minimize our negative impact on biodiversity and take measures for its conservation.
- (3) We carry out procurement in a manner that contributes to energy saving and reduction of greenhouse gas emissions as part of our response to climate change.
- (4) We seek to make effective use of resources and to reduce waste by promoting the use of recycled materials, such as used paper, to contribute to building a society based on a circular economy.
- (5) We work to mitigate any potential environmental impact by procuring raw materials with chemical substances that have been properly managed and handled.

4. Ensuring traceability and monitoring

- (1) We ensure traceability according to the levels of associated risks and implement Paragraphs 1 to 3 of the Policies above throughout our supply chain during our procurement activities.
- (2) We conduct monitoring and aim to minimize the risk and impact of the implementation of Paragraphs 1 to 3 of the Policies.
- (3) We conduct interviews with suppliers who do not conform with Paragraphs 1 to 3 of the Policies, request improvement, and provide support to help with such improvement. If no improvement is made, we review whether to continue transactions with them.

5. Communication with stakeholders

- (1) We reflect on our dialogues with stakeholders on our processes to improve our procurement activities.
- (2) We actively disclose information about the Group’s procurement activities.

(Revised on September 1, 2022)

Wood Resources Procurement Guidelines

The Nippon Paper Group is committed to addressing social and environmental challenges including human

rights issues in accordance with the “Principles and Basic Policies Concerning Raw Materials Procurement”. The Group strives to source its raw materials according to the “Wood Resources Procurement Guidelines” below in order to use forest resources sustainably.

* Applicable to whole logs, wood products, woodchips and pulp for paper manufacture, and wood biomass for fuels that have been procured by Nippon Paper Industries Co., Ltd. or its consolidated subsidiaries in order to manufacture their relevant products.

1. We do not procure illegally harvested wood.
2. We are committed to the promotion of zero deforestation and do not engage in procurement that is complicit in forest reduction or degradation.
3. We do not engage in procurement that contributes to the degradation of forests that are categorized as High Conservation Value (HCV), such as forests with biodiversity importance, and forests with High Carbon Stock (HCS).
4. We promote forest resource management and resource procurement that contribute to the increase of CO₂ absorption and fixation from forests.
5. We strive to vitalize the forestry industry of relevant countries and promote the use of wood resources originating from the countries where products are manufactured for the Group.
6. We promote the use of recycled materials such as sawmill residues, wood construction waste, and unused wood materials.
7. We aim to increase procurement of wood resources that are audited or certified by third parties such as forest certification systems.
8. We ensure traceability of the wood resources we procure to confirm the point of origin, the forest type, and the forest management method.
9. We actively hold dialogues and engage with our suppliers to promote communication throughout the supply chain.

(Established on September 1, 2022)

The Nippon Paper Group Environmental Charter

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

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

Basic Policy on the Preservation of Biodiversity

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.

(Established April 1, 2016)

Philosophy and Basic Policy on Product Safety

Philosophy

We pledge to work to improve safety at every stage of the life cycle of our products, from design to manufacture, supply, and disposal, and to provide products and services that the public can trust.

Basic Policy

1. To provide safe products and services in response to the continued trust of our customers.
2. To respect related laws and standards in order to guarantee the safety of our products and services.
We pursue safety not only as expected under Japanese laws but also from a global perspective.
3. To provide customers with precise information on the safety, features, and correct usage of our products.
4. To set up a product and service safety management structure and ensure that all group employees have a thorough awareness of the importance of product safety.

(Established on October 1, 2004, revised on August 1, 2014)

Nippon Paper Group Human Rights Policy

The Nippon Paper Group adopted the “Philosophy and Basic Policy on Human Rights, Employment and Labor” on October 1, 2004, stipulating respect for human rights, including non-discrimination, prohibition on forced labor and child labor. We also adopted the “Philosophy and Basic Policy Concerning Raw Materials Procurement” on October 5, 2005, stipulating respect for human rights through the entire supply chain as a basic policy, and thereby promoting dialogues with stakeholders concerning raw materials procurement.

Against this backdrop and based on these previous measures taken, we hereby adopted the Nippon Paper Group Human Rights Policy, aiming at fulfilling our group mission, “contributing to better living and cultural progress everywhere it does business”, and in order to ensure increased effectiveness in respecting human rights.

This Policy was drafted in accordance with the international standards including principles concerning fundamental rights expressed in the International Bill of Human Rights and the ILO Declaration on Fundamental Principles and Rights at Work, guided by the UN Guiding Principles on Business and Human Rights, and with advice given by external experts. The Policy was approved by the board of directors of the Nippon Paper Industries, Co., Ltd. on May 30, 2022.

This Policy is drafted in dual languages (Japanese and English) and is made known to all stakeholders by disclosing it through website of the Nippon Paper Group.

■ Scope of Application and Expectations for Business Partners

This Policy applies to all directors, officers, and employees of the Nippon Paper Group.

The Nippon Paper Group expects that our business partners, including suppliers, promote measures concerning respect for human rights in collaboration with us, and we will exercise leverage for their support

and compliance with this Policy.

■ Compliance with Applicable Laws and Regulations

The Nippon Paper Group complies with laws and regulations applicable in each country and region where we conduct business activities. Provided that, in case there is any conflict between the international human rights standards and laws and regulations of each country and region, we will seek ways to honor the principles of the internationally recognized human rights.

■ Human Rights Due Diligence

The Nippon Paper Group establishes the process of human rights due diligence in accordance with the steps based on the UN Guiding Principles on Business and Human Rights, and endeavors to prevent or mitigate adverse impacts on human rights.

■ Dialogue and Consultations with Stakeholders

In implementing this Policy, the Nippon Paper Group will hold sincere consultations with stakeholders potentially affected by our business activities.

■ Education

The Nippon Paper Group provides periodic education and training for all directors, officers, and employees to ensure appropriate implementation of this Policy.

■ Remedies

In case we identify that we have caused adverse human rights impacts directly or indirectly, the Nippon Paper Group will take remedial measures through dialogue and appropriate procedure, utilizing existing grievance mechanisms. In particular, as grievance mechanisms in accordance with the UN Guiding Principles on Business and Human Rights, we notify and operate the “Nippon Paper Group Helpline”, which enables consultation and direct reporting for all directors, officers, and employees. We also operate the “Application Form for Inquiries concerning the Nippon Paper Group”, which enables reporting from outside companies through our website.

■ Information Disclosure

The Nippon Paper Group discloses information on measures taken concerning human rights through our website, etc..

■ Material Issues concerning Human Rights

The Nippon Paper Group recognizes our material issues concerning human rights as attached, and will proceed with measures to respect human rights based on this Policy. We will try to review material issues at an appropriate timing following changes in social circumstances or business trends.

Date of adoption: May 30, 2022

[Annex attached]

[Annex]

<p>1. Prohibition on Discrimination and Harassment</p> <p>We do not discriminate people on grounds including nationality, race, national origin, sex, age, religion, disease, disability, sexual orientation and gender identity. We do not conduct any act of harassment, including sexual harassment and power harassment.</p>
<p>2. Prohibition of Forced Labor and Child Labor</p> <p>We do not allow forced labor in any form of employment. We do not allow employment of children under minimum age of employment specified by laws and regulations of each country and region.</p>
<p>3. Respect for Labor Rights</p> <p>We respect workers' freedom of association, right to collective bargaining and right to act collectively. We strive to prevent low-wage labor and excessive working time.</p>
<p>4. Facilitation of Pleasant Working Environment</p> <p>We understand the importance of occupational safety and health as well as maintaining workers' work-life balance, and try to promote physical and mental health. We establish and maintain structures to make the most of the individuality and capabilities of a diverse range of human resources, and promote personal training and skill development programs to help improve individual employees' abilities and skills.</p>
<p>5. Co-existence with Regions and Local Communities</p> <p>We understand the possibility that our business activities could give impact on local communities, including socially vulnerable group of people, including children, older persons, indigenous peoples, migrants, national and ethnic minorities, and different risks that may be faced depending on attribution including sex. We will strive to coexist with local communities. We also endeavor to conserve environment which future generations may live without anxiety.</p>

Philosophy and Basic Policy on Safety and Health Measures

Philosophy

In addition to acknowledging that it is the company's duty to guarantee safety and health, and to strive to develop pleasant, improved working conditions, we pledge to work ceaselessly to prevent any and all accidents, minor or major.

Basic Policy on Safety and Health

1. To respect the Industrial Safety and Health Law.
2. To establish self-imposed standards and step up daily management.
3. To set up a management structure and clearly define roles, responsibilities, and authority.
4. To strive to improve safety and health training.
5. To develop and maintain a safe, pleasant working environment.

Basic Policy on Safety and Risk Prevention

1. To respect laws and regulations pertaining to safety and risk prevention.
2. To establish self-imposed standards and step up daily management.
3. To set up a management structure and clearly define roles, responsibilities, and authority.
4. To strive to improve safety and risk prevention education and training.
5. To work in cooperation with related government and local communities and share information.

(Established on October 1, 2004)

Philosophy and Principles for Social Contribution Activities

Philosophy

As a member of society, we shall proudly promote activities that contribute to social development.

Principles

1. We shall pursue activities that contribute to cultural heritage and development.
2. We shall pursue activities that contribute to conservation and improvement of the environment.
3. We shall pursue activities that contribute to the development of communities.

(Established on April 1, 2004)

The Nippon Paper Group endorsed the Task Force on Climate-related Financial Disclosures (TCFD) in April 2021 with the aim of disclosing appropriate information on its response to climate change issues.

Governance

The Group has positioned the reduction of GHG emissions as a management issue and has been working on it by setting quantitative targets since 2008. The Board of Directors of the Company regards addressing climate change issues as an important issue in realizing the Group's Mission. In addition to the Risk Management Committee, the Nippon Paper Group Environmental Committee reports on and oversees the Company's efforts. From FY2021, the director in charge of GHG emission reduction and environmental management has been reporting to the Board of Directors on issues once a quarter.

Risk Management

The assessment of and response to climate change-related risks is integrated into the Group's risk management system and is managed by the Risk Management Committee (see P.9 of ESG Databook 2022). In order to appropriately foresee risks, the Nippon Paper Group Environmental Committee, established under the Risk Management Committee, collects and analyzes information, identifies climate-related risks and promotes countermeasures. The Group has also set up a Climate Change Strategy Working Group to gather information and forecast risks.

Indicators and Targets (FY2030)

The Group will continue to analyze 1.5°C scenarios, expand indicators and targets, and strengthen risk management.

- GHG reduction plan: GHG emissions (Scope 1+2) 45% reduction (compared to FY2013)
Non-fossil energy use ratio of 60% or more
- Amount of investment to address climate-related risk: ¥52.0 billion
- Internal carbon price: Introduced in FY2021, but temporarily ceased being used in FY2022 due to a surge in the price of fuels such as coal

Strategy and Scenario Analysis

As a scenario analysis for the year 2021, the Company drew up a vision of society against the backdrop of growing awareness of ESG issues. Using two different scenarios (1.5°C scenario and 4.0°C scenario), the Company conducted qualitative and quantitative assessments of the impacts of climate change risks and opportunities as of 2030 and 2050 on its financial plans, and reported the results to the Board of Directors.

— Scenario Analysis Methods

(1) Establishing an image of society

1.5°C scenario (RCP 2.6)

All kinds of policies will be introduced to keep temperature rise below 1.5°C, and at the same time, society as a whole will take action to limit temperature rise. As a result, temperatures will rise slowly, and therefore, by 2030, there will be little change from the current situation in terms of severe disasters, temperature rises, and precipitation patterns. In markets, production and consumption activities giving priority to environment conservation such as an increase in ethical consumption, will increase.

4°C scenario (RCP 8.5)

No policies will be introduced to control temperature rise. While some stakeholders will take actions to limit temperature rise from the perspective of promoting ESG management, regardless of whether policies are introduced or not and regardless of what society as a whole is doing, society generally will not take actions to limit temperature rise. As a result, temperatures will rise more rapidly than in the 1.5°C scenario, and the frequency of severe disasters will increase, temperatures will rise, and precipitation patterns will be more changeable in 2030 than in the current situation.

(2) Evaluation Items

Risk: likelihood of occurrence, timing of occurrence, timing of impact, financial impact

Opportunity: likelihood of occurrence, timing of occurrence, timing of impact, financial impact, market growth

— Summary of Analysis Results

Since the pulp and paper industry is an energy-intensive industry, transition factors such as the introduction of policies and changes in market needs are major risks, as well as physical factors such as an increase in the number of catastrophic disasters. In response to this, the Company is focusing on 45% reduction of GHG emissions, shift to multiple production sites, and green strategy. In regard to GHG emission reduction in particular, the Company will work to ensure strategic resilience by taking additional measures and achieving GHG reduction targets at an early stage through accelerated realization of scenarios in the 2030 Vision.

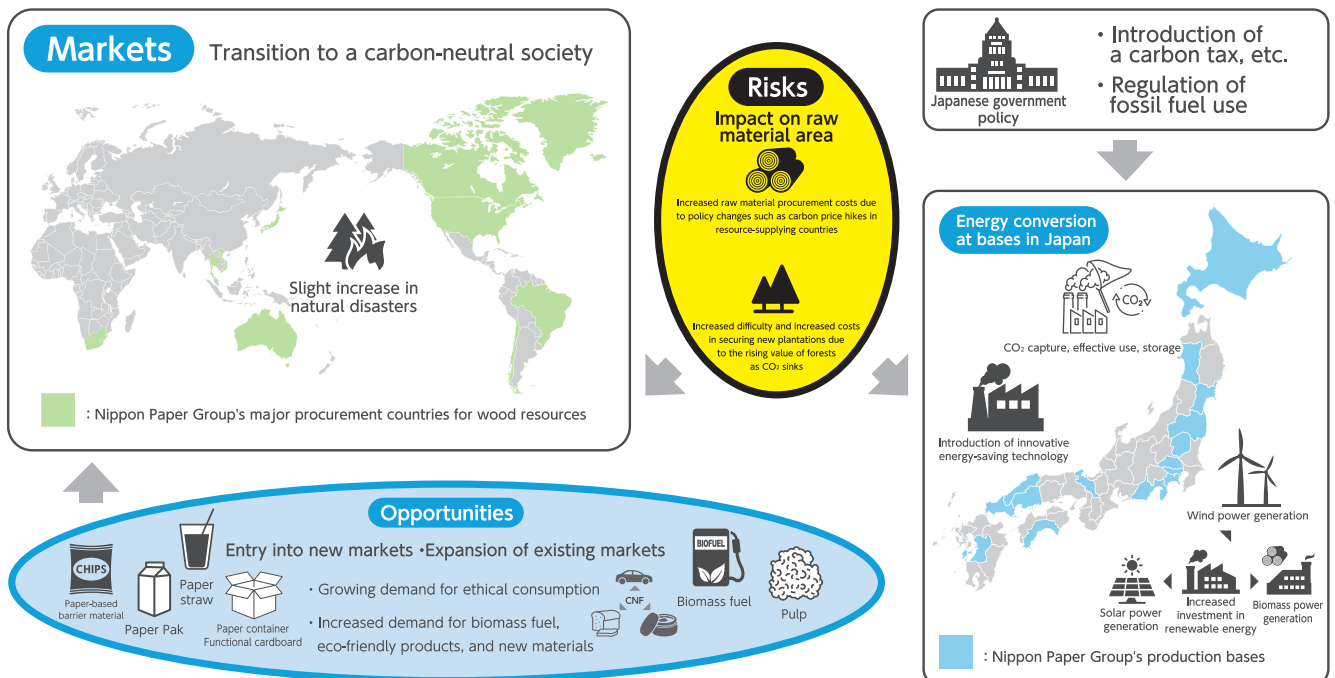
On the other hand, there are many opportunities for the Company to leverage its strengths to enter, and grow in, markets that are being created and expanded due to the introduction of policies and changes in market needs. As for adaptation to climate change, measures to shift to multiple production sites will lead to increased sales, while the development and sale of environmentally friendly and adaptive products needed by society will also provide opportunities for growth in a market that is expected to expand.

【1.5°C scenario】

2030

Costs such as a carbon tax will increase.

On the other hand, new business opportunities such as biofuels, environmentally friendly products, and new materials will emerge.

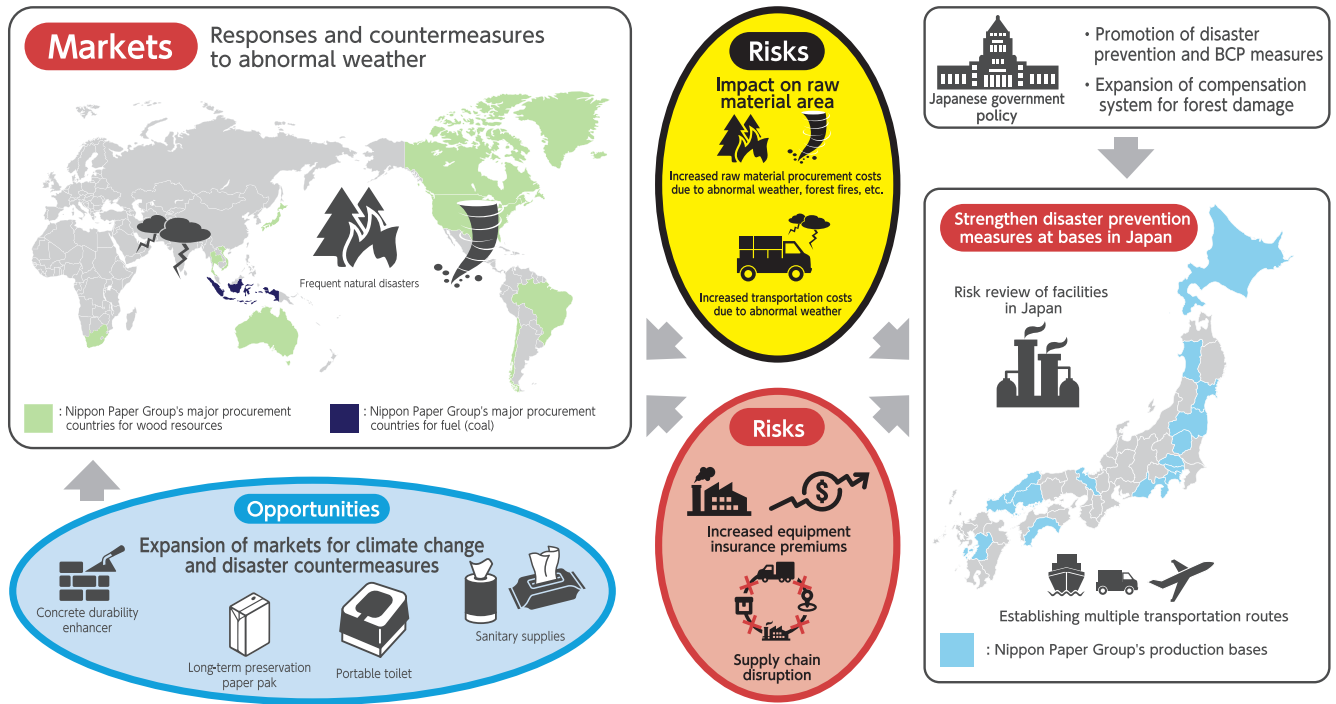


【4°C scenario】

2030

Increased physical risk.

On the other hand, business opportunities for climate change and disaster response products will expand.



Climate Change-Related Risks

Risks as of 2030

Factors		Impact on the Company	Risk assessment	
			1.5°C scenario	4°C scenario
Transition factors	Policy introduction (e.g., carbon tax, changes in energy mix)	• Energy procurement costs will increase.	High	Low
		• Capital investment costs for fuel conversion and energy conservation will increase.		
		• Raw material procurement costs will increase.	High	Low
		• Increased acquisition cost of plantation project sites	Medium	Low
	Changes in market needs	• Increased procurement costs for certified wood chips	Medium	Medium
		• Development costs and capital investment costs for reducing environmental impact will increase.	Medium	Low to medium
		• Sales from non-renewable power generation projects will decrease.	High	Low
Physical factors	Increase in the number of severe disasters (frequent typhoons and heavy rains)	• Stoppage of raw material procurement, production, product transportation, etc., resulting in reduced production volume and delayed or halted deliveries of products	Medium to high	High
		• Procurement, manufacturing, and logistics costs will increase.		
		• Increase in turbidity of rivers, etc., from which water is taken, resulting in production stoppage and delay or stoppage of deliveries of products		
	Increase in temperature and change in precipitation patterns	• Losses in the company's plantation assets	Medium	High
		• Raw materials will become difficult to procure and procurement costs will increase.		
		• Costs for search for alternative materials and technology development will increase.		
		• Sales volume decreases or sales price declines due to difficulty in maintaining quality.		

1. Transition Factors

1-1. Risks Mainly Due to the Introduction of Policy

<Hikes in carbon and fuel prices due to introduction of carbon tax, etc.>

Under the 1.5°C scenario, carbon prices will increase mainly due to the introduction of policies such as carbon taxes, emissions trading schemes, and bans on the use of coal-fired power generation. At the same time, it is expected that fossil fuel prices will rise, and fuel procurement costs will increase. Since the pulp and paper industry is energy-intensive, financial plans are at risk of being significantly affected by the introduction of these policies.

Under the 4°C scenario, carbon prices will not increase and fossil fuel prices are not expected to rise significantly because no policies will be introduced, but changes in supply and demand for fossil fuel will occur and fuel prices will fluctuate. This is already part of the Company's normal risk management and the risk of being affected is considered to be small.

Meanwhile, in response to risk of rising fossil fuel prices expected in the 1.5°C scenario in which all kinds of policies will be introduced, the Group will make maximum use of its Nippon Paper Lumber biomass procurement network, which is one of the largest timber procurement companies in Japan, reducing this risk by accelerating the shift to non-fossil fuels.

In addition, in regard to carbon price hikes due to the introduction of emissions trading schemes and carbon tax, the Group will mitigate risk of an impact on financial plans related to carbon price hikes at an early stage by taking speedier actions to reduce GHG emissions. As part of its measures to reduce GHG emissions, the Group employs energy-saving measures to reduce the use of coal on an ongoing basis. As an indicator, the Group is improving energy consumption per unit of paper and paperboard at its mills by at least 1% per annum. At the same time, the Group is also working on initiatives such as a shift to recycled fuels such as biomass and waste fuels, and to maximize the use of black liquor* which is a carbon-neutral fuel.

While the Group has set a target of achieving "45% reduction of GHG emissions (compared to FY2013)" in its 2030 Vision, the path to be followed for achieving the target has become much clearer through the execution of various measures. In addition, social demand for reduction of GHG emissions and the possibility of carbon price hikes are growing. Accordingly, the Group has judged that actions are needed to be taken in a manner speedier than ever, and has begun looking at reducing GHG emissions targets even further.

The Group will mitigate risk of an impact on financial plans related to carbon price hikes at an early stage by considering reorganization of the production system, reducing GHG emissions in an integrated manner, and achieving low-carbon consumption early through steps such as controlling output from, or even ceasing the operation of, coal boilers.

The Group believes that there is a high possibility of carbon price hikes triggered by future introduction of emissions trading schemes and other such systems. Therefore, the Group will also work to mitigate risks by participating actively in creating systems, rules, etc., for example through the GX League Basic Concept advocated by the Ministry of Economy, Trade and Industry, so that these systems will contribute to growth of companies.

* Black liquor is comprised mainly of a wood component, lignin, and created as a by-product during the course of pulp manufacturing.

<Changes in energy composition>

In the 1.5°C scenario, there is a risk that the demand for biomass fuels will increase due to policies to promote the introduction of renewable energy, causing fuel prices to rise and procurement costs to increase. At the same time, under the current FIT system, there is a risk that the procurement cost of wood chips for paper production will also increase due to competition with biomass fuels.

This phenomenon is already apparent, but under the 4°C scenario, no further policy tightening will take place, and price fluctuations will remain within our normal risk management.

In response to procurement risk associated with increased demand for biomass fuel due to the introduction of policies, the Company believes that it can procure biomass fuel in a stable and low-cost manner by making maximum use of the biomass procurement network of Nippon Paper Lumber, one of the largest wood procurement companies in Japan. With regard to wood chips for papermaking, the Company will reduce risks by securing raw materials and stabilizing purchase prices by strengthening relationships of trust based on our long track record with existing suppliers and developing and adopting inexpensive local resources.

<Impact on raw material procurement>

Since the Company imports most of the raw materials necessary for its manufacturing from overseas, it may be affected by the policy trends of resource-supplying countries. Under the 1.5°C scenario, carbon prices are expected to be raised due to stricter policies in resource-supplying countries, and there is a risk that raw material procurement costs will increase.

The Company collects information on policies in resource-supplying countries and strives to predict the occurrence of risks, while at the same time trying to reduce risks by diversifying supply sources.

<Expansion of the carbon credit market>

In the 1.5°C scenario where the world is aiming for carbon neutrality (net zero CO₂), the market is expected to expand due to increased demand for carbon credits. As a result, the demand for credits from forest absorption is expected to increase, and there is a risk that an increase in the number of plantation projects, for the purpose of creating credits, will lead to an increase in the price of land suitable for plantation and an increase in the cost of land acquisition for the Company's plantation business. Such trends have already been seen in some regions.

On the other hand, under the 4°C scenario, some stakeholders may secure plantation land from the perspective of promoting ESG management, regardless of whether policies are introduced or not, and regardless of the movements of society as a whole, but the risk of such actions on the Company's plantation business is considered to be small.

Expansion of the plantation business requires a large area of suitable land for plantation, so rising land prices may pose a risk to the Company. However, the Company can reduce this risk by utilizing its strengths, such as its proprietary technology for breeding and propagating highly efficient CO₂-fixing trees and operating plantation businesses in cooperation with third parties.

1-2. Risks Arising Primarily from Changes in Market Needs

<Rapid increase in demand for environmentally friendly products>

Under the 1.5°C scenario, demand for environmentally friendly products is expected to increase, and there is a risk that technology development costs, capital investment costs, etc. will increase in response to this demand while products and services with high environmental burden will no longer be selected in the market.

In the future, the market is expected to favor products and services derived from renewable raw materials, due to expectations of being environment friendly. Therefore, the Company believes that by accurately identifying and forecasting customer needs and further promoting the "paperization" that it is already working on, the Company will be able to promote the replacement of materials with renewable biomass materials, reduce risks associated with changes in market needs, and at the same time seize this as an opportunity to expand its business. The Company will further accelerate reduction of GHG emitted over the course of product manufacturing. At the same time, by taking advantage of the fact that its production bases are dispersed throughout Japan, the Company will offer products that contribute to the reduction of GHG emissions throughout the supply chain by shortening the transportation distance to delivery destinations and reducing GHG emissions during transportation through the use of multiple production bases.

In addition, as part of changes in market needs, under the 1.5°C scenario, the demand for certified paper based on the forest certification system, which indicates that the paper is made from forest resources that have been properly managed, will increase more than ever due to the heightened awareness of the whole society about the proper management and use of forests, which will increase the procurement cost of certified wood chips that are a limited resource. To reduce this risk, the Company will maintain and continue good relationships with certified timber suppliers, and at the same time, it will secure certified timber in a stable and efficient manner by acquiring certification in new plantation areas and by supporting suppliers in expanding certified resources.

2. Physical Factors

2-1. Risk Due to the Increase in the Number of Severe Disasters

<Damage to production bases and distribution networks>

Under the 4°C scenario, severe disasters such as typhoons and torrential rains are expected to become more frequent, and the probability of damage to production bases and distribution networks is expected to increase, so the risk of a decrease in production volume due to temporary production stoppages and delays or stoppages in deliveries will become greater. In addition, in the event that the power supply is interrupted due to damage to power lines or other essential services, there is a risk that production sites that do not have their own power generation facilities will be forced to temporarily suspend production.

Although the Company cannot control the occurrence of natural disasters, it is working to reduce risks by establishing elaborate systems to ensure business continuation, such as backup systems for production and inventory controls. The Company is also trying to reduce risks by promoting measures to adapt to climate change, such as bulking up equipment installation sites and installing in-house power generation equipment for use in times of disaster.

<Deterioration of water intake quality>

The Company's main business, pulp and paper, uses water in its manufacturing process. If the water quality (turbidity) of the rivers, etc. from which water is taken deteriorates due to typhoons or heavy rains, product quality cannot be maintained, and there is a risk that production will be suspended until the water quality improves. This event is already occurring, but is expected to become more frequent under the 4°C scenario. Natural disasters are unavoidable, but the Company is taking measures to ensure that operations can continue as long as possible by strengthening its water intake purification facilities and methods, and at the same time, working to reduce risks by developing a detailed system for business continuity in case production is suspended.

2-2. Risk Due to Rising Temperatures and Changing Precipitation Patterns

<Forest fire occurrence>

As temperature rises, under the 4°C scenario, forest fires are expected to occur more frequently around the world.

Since the Company's business model is based on forest resources, fires in the forests of its wood chip suppliers or in its own forests could pose a major risk in terms of stable procurement of raw materials and procurement costs. In addition, in the event that the Company's own forests are damaged by fire, there is a risk that the value of the Company's own forests will decline, and revenue from the Company's plantation business will decrease. In order to reduce these risks, the Company is strengthening its fire prevention and extinguishing systems in its own forests, and at the same time, it is trying to reduce these risks by dispersing its own forests and suppliers in multiple countries and regions.

<Deterioration in plant growth>

The growth of plants is greatly affected by temperature and rainfall. Since the Company uses plant-derived raw materials such as wood chips, various types of pulp, starch, etc., there is a risk that procurement of raw materials will become difficult and procurement costs will rise in the 4°C scenario where plant growth is expected to decline due to rising temperatures and changes in rainfall patterns. In the event that the Company has difficulty in procuring raw materials, it would be hard to maintain the quality and function of its products, which may be a risk that its sales volume and price decrease. However, the Company is working to reduce these risks by diversifying its raw material supply sources and continuing to search for alternative materials.

— Opportunities for Business Expansion

Opportunities as of 2030

Factors			The Company's opportunities	The Company's strength	Market growth	
					1.5°C scenario	4°C scenario
Transition factors	Policy introduction (e.g., carbon tax, changes in energy mix)	• Renewable energy will be introduced.	• Demand for power generation facility locations will increase.	• Company-owned forests and land in Japan, etc. • Biomass fuel production technology • Fuel procurement network • Existing boiler facilities and operation technologies	Expansion	Stable
			• Demand for biomass fuels will increase.			
			• Waste-derived fuels such as refuse derived paper and plastics densified fuel (RPF) and waste tire-derived fuel will be utilized more often.			
		• Next-generation vehicles are becoming increasingly popular.	• Storage batteries will spread and demand for raw materials for storage batteries will increase.	• CMC Technology and Production Facilities • CNF Technology and Production Facilities	Significant expansion	Expansion
			• Demand for CNF will increase due to the need to reduce the weight of automobiles.			
		• Carbon credit market will be activated.	• Demand for forest absorption credits will increase.	• Company-owned forests in Japan • Forest management technology • Breeding and propagation technology	Significant expansion	Stable
	Changes in market needs	• Resources will become more difficult to obtain due to stricter policies in resource-providing countries.	• Demand for domestic lumber will increase.	• Company-owned forests and in japan seedling businesses • Recycled paper procurement network • Collaboration with Stakeholders • Unused recovered paper recycling technology	Expansion	Stable
			• Demand for recycled paper will increase.			
		• Carbon recycling is advancing (utilization of carbon resources).	• Increasing demand for carbon fixation and utilization by forests	• Breeding technology for high CO ₂ fixation efficiency trees • Company-owned forests in Japan	Expansion	Stable
			• Demand for chemical raw materials using carbon-neutral CO ₂ will increase.	• Biomass-derived CO ₂ supply infrastructure (recovery boilers) • Chemical CO ₂ fixation and utilization technology	Significant expansion	Stable
			• Small scale fuel demand will increase.	• Fuel procurement network	Expansion	Stable
			• Increased opportunities to sell products with reduced CO ₂ emissions during distribution while handling shipments from each production site	• Multiple production sites	Expansion	Stable
Physical factors	Increase in the number of catastrophic disasters	• Demand for environmentally friendly products will increase.	• Demand for biomass materials will increase as the need for paperizing increases due to decarbonization.	• Woody biomass materials development technologies (CNFs, paper-based packaging materials, liquid containers, functional corrugated cardboards, biocomposites, etc.) • Technologies to extract and utilize lignin • Technology for recycling unused waste paper	Significant expansion	Expansion
			• Demand for lignin products will increase.			
		• Demand for environmentally friendly products will increase.	• Demand for paper made from sustainably sourced forest materials will increase.	• Track record of procuring certified forest materials • Relationship of trust with excellent suppliers • Sustainable forest management	Expansion	Expansion
			• Demand for products that reduce GHG emissions from livestock farming will increase.	• Cellulose material utilization technology	Expansion	Stable
			• Demand for halogen-free resins with low environmental burden will increase.	• Functional resin technology	Expansion	Expansion
			• Increased need to purchase from suppliers with established elaborate systems for business continuity	• Multiple production sites	Expansion	Significant expansion
	Increase in temperature and change in precipitation patterns	• Overseas raw material suppliers and distribution networks are damaged.	• Demand for domestic lumber will increase.	• Domestic Company-owned forests and seedling Businesses • Recycled paper procurement network • Fuel procurement network • Collaboration with stakeholders • Unused recovered paper recycling technology	Expansion	Significant expansion
			• Demand for recycled paper will increase.			
			• Domestic demand for waste-derived fuels and biomass fuels will increase.			
		• Increasing need to strengthen buildings	• Demand for concrete admixtures and other materials will increase.	• Admixture for concrete (fly ash) technology	Expansion	Expansion
		• Demand for long-term food storage will increase.	• Demand for long-term storage aseptic paper pak will increase.	• Total System Supplier	Expansion	Expansion
		• Decreases in the amount of plant growth	• Demand for environmental stress tolerant trees will increase.	• Breeding and propagation technology	Expansion	Expansion

1. Transition Factors

1-1. Opportunities Associated with the Introduction of the Policy

<Increase in demand for renewable energy>

In the 1.5°C scenario, policies are expected to promote the introduction of renewable energy, which will increase the demand for locations to install solar, wind, and small hydroelectric power generation facilities, as well as the demand for biomass fuels.

The Company owns its forests and land in Japan, and it has an opportunity to expand its business of supplying renewable energy in cooperation with power generation companies. Increasing demand for biomass fuels will provide an opportunity to expand the biomass fuel sales business by making maximum use of the procurement network of Nippon Paper Lumber, one of the largest wood collection and sales companies in Japan.

In the 1.5°C scenario, where a rapid increase in demand for renewable energy is expected, the Company believes that it has the tangible and intangible assets, such as biomass boilers and facilities and technologies that use black liquor, a carbon-free fuel, to meet this demand, and can quickly respond to this market expansion and capture business opportunities.

<Dissemination and expansion of next-generation vehicles>

Since the transportation sector accounts for about 20% of Japan's CO₂ emissions, it is predicted that next-generation vehicles such as electric vehicles will become more popular in the future.

In March 2021, the New Industry Creation Hatchery Center (NICHe) at Tohoku University announced that it had discovered that CNFs have a powerful energy storage effect, and that it had succeeded in developing the world's first dry, lightweight supercapacitor by using the Company's TEMPO-oxidized CNF^{*1} to create an uneven surface with a controlled CNF surface shape. In addition to enabling high-voltage charging in a shorter period of time than conventional lithium-ion batteries, CNF-based energy storage is a technology that is expected to solve the problem of increasing energy storage capacity, which is currently an issue for electric vehicle batteries, and could make a significant contribution to the spread of electric vehicles, etc. The global supercapacitors market was valued at approximately USD 5.02 billion in 2021, and is expected to grow at a rate of 23.9% per annum from 2022 to 2030, reaching USD 22.5 billion in 2030.^{*2}

With the spread of next-generation vehicles, the need to reduce vehicle weight is expected to increase further. The size of the fiber-reinforced plastics market, including automotive components, was USD228.4 billion in 2019 and is expected to reach USD295.6 billion by 2027.^{*2} Currently, glass (glass fiber) and carbon (polymer-reinforced carbon fiber) are the most commonly used fibers for reinforcing materials, but with the spread of electric vehicles and other vehicles, there is a growing need for lightweight materials to further improve fuel efficiency. The specific gravity (weight per unit volume) of CNF is lower than that of other fibers, making it a highly effective lightweight fiber. In addition, CNF is a carbon-neutral, plant-derived material with multifaceted value in environmental conservation, as it has less performance degradation due to material recycling than glass fiber reinforced resin. The global market scale of CNF is expected to be about USD70 million in 2022, but it is expected to expand to about USD250 million by 2030, as it is gradually adopted as a composite reinforcing material for automotive components.^{*3}

The diffusion of next-generation vehicles is a highly feasible event in both scenarios, with or without the introduction of policies, but in the 1.5°C scenario, the diffusion will be rapid due to policy support. The Company believes that it has the technological superiority and technological development capability to respond to this rapid spread, and that it can promptly respond to the rapid market expansion and grow the Company's business.

*1 Cellulose Nano Fiber

*2 Report by Report Ocean (U.S.) dated December 17, 2020

*3 Source: Yano Research Institute, https://www.yanoresearch.com/en/press-release/show/press_id/2959

<Expansion of the carbon credit market>

In the 1.5°C scenario where the world is aiming for carbon neutrality (net zero CO₂), the carbon credit market is expected to expand due to increased demand, and the demand for forest absorption credits is expected to increase accordingly.

The Company owns approximately 90,000 hectares of its forests in Japan and operates tree plantation projects in various overseas countries. In addition to forest management technology cultivated through the management of Company-owned forests in Japan and overseas plantation projects, the creation of carbon credits by utilizing the Company's unique breeding and propagation technology that enables highly efficient CO₂ fixation is expected to enable the Company to enter the expanding market and capture business opportunities. The Company is committed to making contribution to formulation of rules regarding how forest absorption credits should be shaped and utilized from a forest owner's perspective, through such initiatives as the GX League Basic Concept advocated by the Ministry of Economy, Trade and Industry.

<Strengthen the policies of resource-providing countries>

Since the Company imports most of the raw materials necessary for its manufacturing from overseas, it may be affected by the policy trends of resource-supplying countries. In the 1.5°C scenario, there is a risk that raw material procurement costs will increase if resource-providing countries tighten their policies and raise carbon prices. On the other hand, the Company owns forests in Japan and utilizes such resources, and at the same time, it operates a seedling business that contributes to creation of new resources. The Company has also established diversified procurement networks in Japan for resources such as fuels and recovered paper. Accordingly, the Company is able to make a shift to utilization of domestic resources. In addition, the Company has already become one of the top-ranked companies in Japan in terms of the domestic timber utilization rate.

The Company is working with stakeholders to create a closed-loop recycling system for recovered paper, and at the same time, it is leveraging its strengths to make efficient and stable use of diverse resources, such as utilizing technologies to make use of paper that is difficult to recycle, such as used paper containers for food and beverage applications.

With the aim of establishing a used paper container recycling business, the Company is working to install facilities for recycling paper containers for foods and beverages in Fuji Mill, which is slated to start operation in the fall of 2022. In addition, the Company recycles used paper containers in cooperation with Hamamatsu City, and has established a scheme for separation and collection of paper cups and paper pak products. The Company aims to collect and use unused recovered paper, such as used paper containers, stably (12,000 tons per year) in 2030.

Under the 1.5°C scenario, the Company expects the impact of the policies of resource-providing countries to occur within five years, but the Company believes it can maintain and expand its business by taking advantage of its access to domestic resources.

<Promotion of carbon recycling>

In the 1.5°C scenario, carbon recycling, which is the process of capturing and reusing CO₂ from the atmosphere, is expected to progress rapidly, along with the reduction of GHG emissions through the reduction of fossil fuel use.

In the Company's overseas tree plantation business, by continuing the cycle of planting, cultivation, logging (wood chip production), and reforestation, the Company's forests absorb and fix atmospheric CO₂ into the forest every year and use it as a woody biomass resource. As an example, the annual production volume of wood chips by AMCEL (Brazil), the Group's plantation company, is equivalent to approximately 1.5 million tonnes of forest CO₂ absorption. By positioning its overseas plantation business as a carbon recycling business and promoting the use of its proprietary breeding and propagation technologies that enable highly efficient CO₂ fixation, the Company can improve its CO₂ absorption and fixation capacity and contribute to the recycling of carbon resources, not just in the Company's own forests.

The Company aims to improve the CO₂ fixation efficiency in overseas tree plantation projects by 30% by FY2030, as compared with FY2013. The Company intends to secure future resources for the Company by contributing to improvement of productivity of forests across the globe and an increase in CO₂ fixation through provision of our breeding and propagation technologies and plantation technologies to other companies. The Company entered into a strategic partnership agreement concerning a plantation project in Indonesia with Marubeni Corporation in 2022, and commenced provision of technological support. In addition, the Company aims to secure about 0.1 million hectares of new plantation resources mainly in Asia. Since CO₂ derived from biomass obtained from sustainable forests is considered carbon neutral, carbon negativity (negative emissions) can be achieved by separating and recovering the CO₂ generated from the combustion of biomass fuels and storing it underground or recycling it.

In the future, with the practical application of technologies for CO₂ separation, underground storage, and recycling, the Company can expect to achieve carbon negativity using CO₂ generated from biomass boilers and black liquor-fueled recovery boilers operating in Japan.

1-2. Opportunities Associated with Transition to a Decentralized Society

Under the 1.5°C scenario, the transition from a metropolitan-intensive society to a decentralized society is expected to proceed. As a result, local production and local consumption of energy will increase, and small-scale demand for fuel will likely increase. This trend has already begun, but it is expected to accelerate under the 1.5°C scenario.

In response, the Company will have the opportunity to expand its biomass fuel sales business by making full use of the biomass procurement network of Nippon Paper Lumber, which is one of the largest wood collection and sales networks in Japan. In addition, with the shift to a decentralized society, the places of consumption of products are also expected to become more dispersed.

In the 4°C scenario, regardless of the temperature rise, there will be a shift to decentralization, but at a slower rate than in the 1.5°C scenario, in part due to the impact of increased risk of infectious diseases.

In both scenarios, the Company believes that it can maintain and expand its business by taking advantage of the fact that its mills are dispersed throughout Japan and by responding to the decentralization.

1-3. Opportunities Arising from Changes in Market Needs

<Increase in demand for biomass materials>

The Company has built a business model based on carbon-neutral forest resources, which enables it to provide products that meet the needs of customers who prefer environmentally friendly products. There is an ongoing movement to switch from plastic to paper packaging as a means of solving the problem of ocean plastic. In the 1.5°C scenario, this trend will be further accelerated in combination with climate change issues, and the demand for the use of biomass materials in various products other than packaging materials is considered to increase.

As part of the Company's strategy to meet the increasing demand for biomass materials, it is promoting "paperization" under the slogan, "Let paper do what it can do". In addition to developing and marketing "SHIELDPLUS®", a paper packaging material with unprecedentedly excellent barrier properties against oxygen and water vapor, the Company has also developed and started marketing products such as "waterproof liner", a multifunctional base paper for corrugated board that is a sustainable alternative to Styrofoam boxes, "SPOPS®", a replaceable paper container, and "School POP®", which enables drinking without using straws.

Moreover, biomass composites, which are made of "KC FLOCK®", powdered cellulose created by finely grinding pulp, and plastic, are under consideration for various applications as a material with low environmental burden, as the Company can reduce the use of plastic while improving the strength by using biomass composites. It believes that, by providing powdered cellulose suitable for composite material, it can respond to changing market needs and capture and expand business opportunities.

<Increased demand for products derived from sustainable forests>

The Company confirms the legality and sustainability of all wood raw materials it procures and ensures traceability through its supplier questionnaires, site visits and audits. At the same time, all of its woody raw materials are FM (Forest Management) materials under the forest certification system and have been risk assessed and managed.

In addition to utilizing the forest certification system, the Company has adopted a due diligence system to confirm the legality and sustainability of its wooden raw materials, and it has established a system that enables it to promptly respond to inquiries from customers regarding raw material procurement. In addition, in order to supply certified forest paper, for which demand has been increasing in recent years, the Company will establish a system to secure certified forest materials in cooperation with suppliers.

The Company's sustainable procurement of forest resources is based on trusting relationships with its suppliers that it has built over the years, and the Company ensures certainty through its due diligence system and forest resource creation in procurement activities. Moreover, the Group's "Philosophy and Basic Policy Concerning Raw Materials Procurement" was revised in 2022 to strengthen the contents, and the "Principles and Basic Policies Concerning Raw Materials Procurement" was newly established under said policy with the aim of, among others, responding to demand of customers by improving the reliability of wood raw materials that the Group uses.

The Company has been producing various products ranging from pulp to dispersants for industrial use and additives for use in lead-acid batteries which use lignin as a raw material, aiming for full use of wood resources. The Company is committed to continuing to provide environmentally friendly products using sustainable wood resources as raw materials.

<Increase in products that reduce greenhouse gas emissions>

The amount of greenhouse gases generated during the conversion of cattle excrement into fertilizer accounts for about 30% of the total emissions from the agriculture, forestry, and fisheries sectors in Japan, and research is being conducted to reduce these emissions.

Using the Company's proprietary technology to extract only cellulose fiber, which is easily digestible by cattle, from wood chips, it is developing livestock feed with superior fiber content and nutritional value. Feeding highly digestible feed to cows is expected to reduce the amount of water in their excrement and reduce the greenhouse gases produced when making fertilizer.

Reducing greenhouse gas emissions from the livestock industry is a global challenge, and a 1.5°C scenario could accelerate efforts to achieve this goal and expand the market for feedstuffs with the potential to reduce emissions. The Company believes that it can capture this business opportunity by utilizing the technologies it has accumulated in the pulp and paper business.

2. Physical Factors

2-1. Opportunities Due to the Increase in the Number of Severe Disasters

<Increase in demand for stable supply of products>

Severe weather disasters, such as typhoons and torrential rains, are expected to cause damage to production bases and distribution networks, further intensifying the demand from customers to maintain a stable supply of products.

In response, the Company is working to formulate a detailed system for business continuity. It is developing a system that will allow it to manufacture products at multiple plants. Since severe disasters are expected to become more frequent in the 4°C scenario, the Company believes that it can take advantage of the fact that its factories are dispersed throughout Japan to accelerate the transition to a more flexible production system and further strengthen its system for business continuity.

Also, in the event that its overseas raw material suppliers are damaged and opportunities for domestic timber, recovered paper and domestic non-fossil fuel use expand significantly, the Company can take advantage of its strong timber, recovered paper and fuel procurement network as well as its efforts to secure recovered paper raw materials in collaboration with its customers. Furthermore, it believes that it can also maintain and expand its business by utilizing its unused recovered paper recycling technology and making extensive use of domestic resources.

<Increasing need for strengthening of buildings>

The Company sells “CfFA®”, an admixture for concrete made from coal ash, a byproduct of in-house power generation, by modifying it with its unique technology. “CfFA®” is also used in earthquake reconstruction projects, as it can be used to make concrete more durable and longer lasting.

In the 4°C scenario, severe disasters caused by typhoons and torrential rains will become more frequent, and this market is expected to grow as the strength of buildings needs to be improved. On the other hand, even in the 1.5°C scenario where severe disasters do not occur frequently, demand is expected to increase for earthquake countermeasures, etc. The Company believes that it can maintain and expand its business by utilizing its unique technologies.

<Increase in demand for long-term storage food containers>

The market for containers for long-term storage is expected to grow, as local governments and households are becoming increasingly concerned about the importance of storing emergency food supplies to prepare for severe disasters that are expected to occur not only in a 4°C scenario but also in a 1.5°C scenario.

The Company sells FUJIPAK, which enable room-temperature distribution and long-term storage of beverages and tofu. In addition, the “non-aluminum FUJIPAK,” which does not use aluminum foil and can be distributed at room temperature, is attracting attention as an environmentally friendly container because it improves recyclability and reduces greenhouse gas emissions.

The Company has developed a new container, NSATOM®, which enables it to fill a wider variety of contents in addition to its long-term storage function. Since paper containers that can be stored for a long time are expected to contribute to de-PE and food loss prevention, it will continue to develop new containers that meet the needs of the market and strengthen the Company’s stable supply system.

2-2. Rising Temperatures and Changing Precipitation Patterns

<Increasing demand for environmental stress tolerant plants>

Since plants cannot move on their own, environmental changes such as rising temperatures can cause stress and result in poor growth, development of plants that can tolerate high temperatures, salt damage, and drought has long been underway.

Under the 4°C scenario, the demand for environmental stress tolerant plants may increase because the appropriate areas for plant growth are expected to change and decrease due to climate change.

The Company has been developing tree breeding and propagation technologies for many years and has developed a number of proprietary technologies for these. Because tree breeding takes time, it will be difficult to expand the business rapidly in 2030, but the Company will work to expand its business quickly after 2030, when the value of forests will further increase toward carbon neutrality.