

Nippon Paper Group ESG Databook 2021

The Nippon Paper Group issues ESG Databook to provide stakeholders with a broad overview of its efforts to meet its corporate social responsibilities (CSR). The Group also publishes an integrated report to communicate about our long-term value creation.

Our CSR disclosure has been prepared in accordance with the GRI Standards: Core option.

Period Covered

Fiscal 2020: April 1, 2020–March 31, 2021

Includes information from before April 1, 2020 and after March 31, 2021.
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, 2021 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 and environment performance and other data for the 15 companies, including 2 non-consolidated subsidiaries with production facilities, named below. All major production locations are included.

Consolidated: Nippon Paper Industries Co., Ltd.; Nippon Paper Crecia Co., Ltd.; Nippon Paper Papylia Co., Ltd.; Opal Co., Ltd.; Jujo Thermal Oy; Siam Nippon Industrial Paper Co., Ltd.; Nippon Seitai Corporation; N&E Co., Ltd.; Daishowa Uniboard Co., Ltd.; Nippon Paper Development Co., Ltd.; GAC CO., LTD.; Amapá Florestal e Celulose S.A.; Nippon Dynawave Packaging Co.

*1 Paper Australia Pty Ltd.; Maryvale Mill.

*2 Partially referred to as AMCEL in this report

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

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

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 sustainability accounting standards
- 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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website

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

Sustainability Management

Basic Stance

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 and enhancing activities to fulfill its corporate social responsibility based on the Ten Principles of the UN Global Compact in four areas (human rights, labor, environment, and anti-corruption).

Under the 2030VISION formulated in May 2021, the Company clearly states that it will promote sustainability management as a comprehensive biomass company shaping the future with trees.

→2030Vision

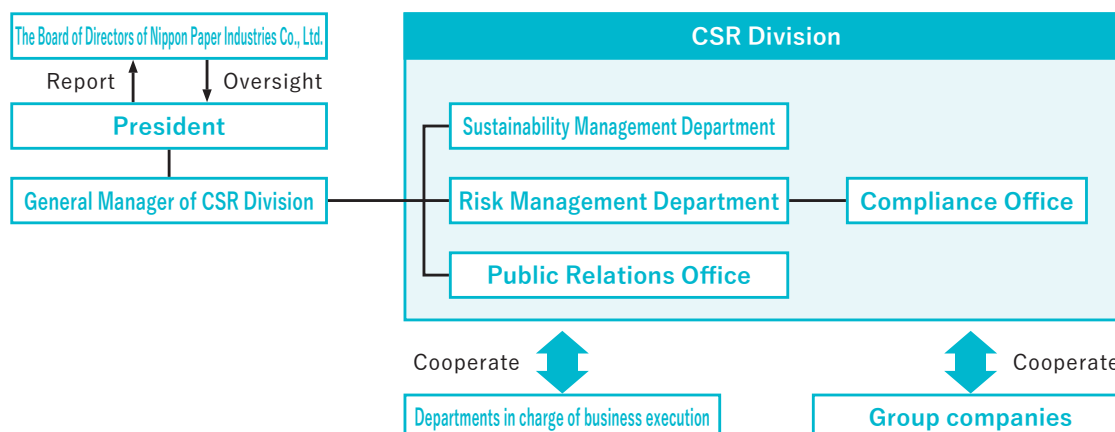
https://www.nipponpapergroup.com/english/ir/NPI_Medium-Term%20Business%20Plan%202025_english.pdf



Promotion Structure

The Company formulated an Environmental Charter in 1993 to take a long-term standpoint on addressing circulation of resources and environmental preservation. The Company established a CSR committee in 2003 and used this as a basis to promote building a management framework to fulfill its corporate social responsibilities and has established principles and basic policies related to raw material procurement, the environment, product safety, human rights, employment and labor, safety and disaster prevention and contributions to society. The Company established a new CSR Division in 2008 leading to stronger CSR management.

Currently, the CSR Division, which reports directly to the president of the Company, includes the Sustainability Management Department, Risk Management Department, Compliance Office, and Public Relations Office, and is engaged in responding to ESG issues, promoting risk management and disclosing appropriate information toward realizing the Vision within the Group Mission.



Corporate Governance

Basic Stance

As the holding company of the Nippon Paper Group, Nippon Paper Industries established its Corporate Governance Policy in November 2015 as a guideline for the Company's basic approach to management and control of the group, so as to achieve sustainable growth and enhance corporate value over the medium to long term in line with its corporate mission.

The Company's highest management priority is to further enhance management transparency to shareholders and other stakeholders, and to realize fair management.

The Company has adopted an executive officer system and is working to strengthen the oversight function of its Board of Directors to ensure the separation of business execution and management oversight. The Company is implementing growth strategies, monitoring businesses under its control, and promoting compliance.

→Corporate Governance Policy

https://www.nipponpapergroup.com/english/ir/governance/governance_policy/E-CGP_20200515.pdf

→Corporate Governance Report

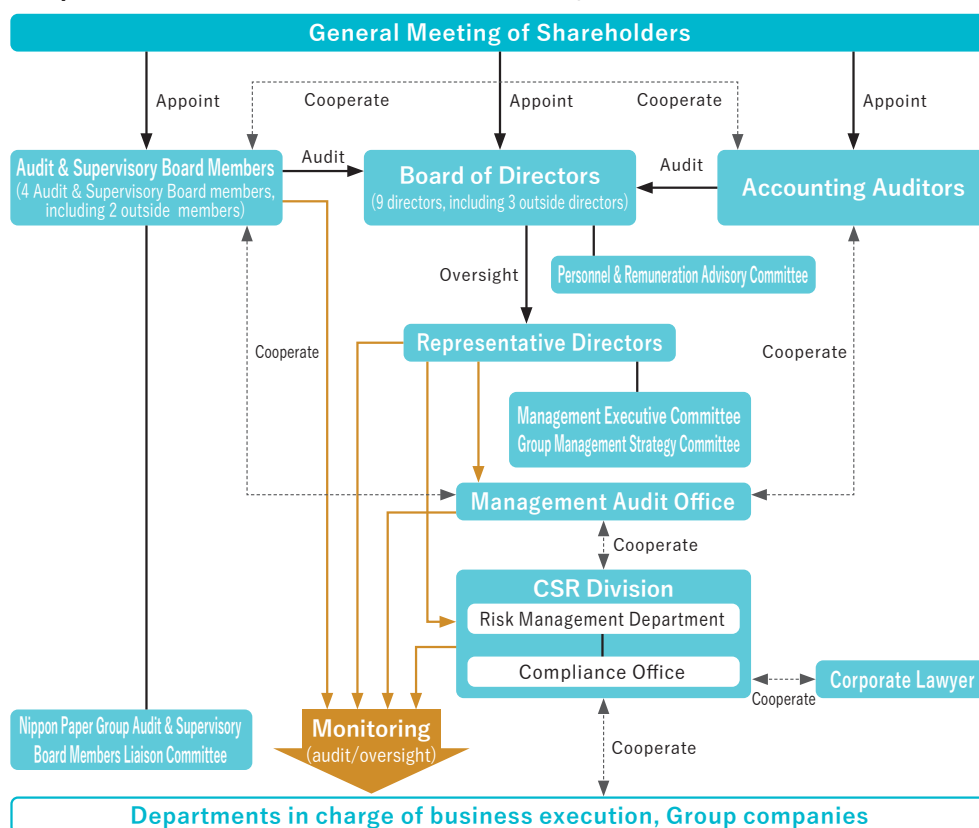
<https://www.nipponpapergroup.com/english/ir/governance/>

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 independent outside directors
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

Corporate Governance Structure

Corporate Governance Structure (As of July 1, 2021)



Type of Organization	Company with Audit & Supervisory Board Members
Chairman of the Board of Directors	Chairman and Director: Fumio Manoshiro
Number of Directors	9 (including 3 outside directors)
Number of Audit & Supervisory Board Members	4 (including 2 outside Audit & Supervisory Board members)
Number of Appointed Independent Officers	5 (including 3 outside directors and 2 outside Audit & Supervisory Board members)
Board of Directors Meetings Held in FY2020	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: 98.1%
Audit & Supervisory Board Members Meetings Held in FY2020	Number of meetings: 14 Average rate of attendance by Audit & Supervisory Board members: 100.0%
Independent Accounting Auditor	Ernst & Young ShinNihon LLC

Director Attendance at Board of Directors Meetings

Position	Name	Attendance in FY2020
Chairman and Director	Fumio Manoshiro	13/13 100%
President and Representative Director	Toru Nozawa	13/13 100%
Executive Vice President and Representative Director	Kazufumi Yamasaki	13/13 100%
Director and Senior Managing Executive Officer	Akihiro Utsumi	13/13 100%
Director and Managing Executive Officer	Takeo Konno	13/13 100%
Director and Executive Officer	Masanobu Iizuka	13/13 100%
Outside Director	Makoto Fujioka	13/13 100%
Outside Director	Yoko Hatta	13/13 100%
Outside Director	Yutaka Kunigo	13/13 100%

— Board of Directors

- In May 2006, the Company formulated its Basic Policy for Establishing the Internal Control System.
- The role of the Company's Board of Directors is stipulated in the Corporate Governance Policy.
- The Board of Directors of the Company 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 supervise 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.
- The board achieves a 1/3 ratio of outside directors among the board members. Furthermore, the Company has appointed one female outside director and one female outside member of the Audit & Supervisory Board.

→Basic Policy for Establishing the Internal Control System

https://www.nipponpapergroup.com/ir/pdf/internal_control_system/ (Japanese only)

— Management Executive Committee

- Usually, the Company's Management Executive Committee meets once a week to deliberate on important management-related matters 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.
- The Company's Group Management Strategy Committee deliberates on management strategies by business segment and other important matters related to the Group.
- Committee membership is composed of the Company's management and presidents of major companies of the Nippon Paper Group.

— Audit & Supervisory Board Members and Audit & Supervisory Board

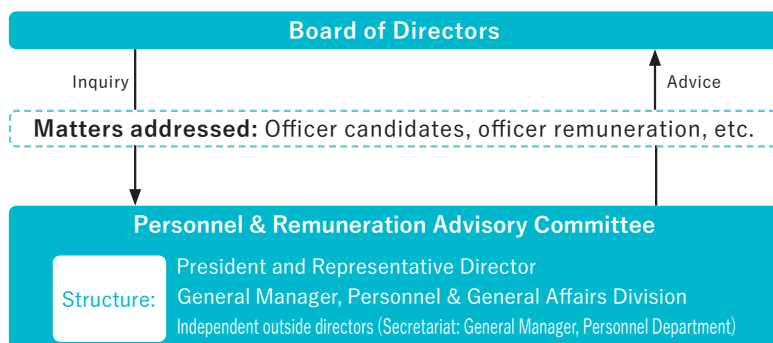
- The Audit & Supervisory Board members of the Company attend important meetings, such as meetings of the Board of Directors, the Management Executive Committee, and the Management Strategy Committee. In addition to strict monitoring of the execution of business by directors, the auditors also audit 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, and 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

- 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.



Attendance at Personnel & Remuneration Advisory Committee

Position	Name	Attendance in FY2020	
President and Representative Director	Toru Nozawa	2/2	100%
Director, Senior Managing Executive Officer, General Manager, Personnel & General Affairs Division	Akihiro Utsumi	2/2	100%
Outside Director	Makoto Fujioka	2/2	100%
Outside Director	Yoko Hatta	2/2	100%
Outside Director	Yutaka Kunigo	2/2	100%

Independent Officers

- The Company designates all outside directors who meet the requirements as independent officers.
- When appointing candidates for outside director or outside Audit & Supervisory Board member, 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.

[Outside Directors]

Makoto Fujioka

Mr. Fujioka was Deputy Director-General for Trade and Industry, Ministry of Economy, Trade and Industry (currently the Ministry of Economy, Trade and Industry) and Ambassador Extraordinary and Plenipotentiary stationed in the United Arab Emirates. He has also acted as an executive of a private company. He is expected to supervise and advise the execution of duties of the Company's other directors from an objective perspective using extensive knowledge and international awareness gained through his experience in both the public and private sectors.

Yoko Hatta

Although Ms. Hatta has never been engaged in corporate management directly, it is expected that she will draw on her broad work experience with international accounting firms, considerable expertise in international tax practices etc., and experience as an outside statutory auditor of the Company (from June 2016 to June 2019), to supervise and advise the execution of duties by the Company's other directors from an objective perspective.

Yutaka Kunigo

Mr. Kunigo engaged in a wide range of fields at Tokyo Gas Co., Ltd., such as engineering, personnel affairs, procurement, sales, and overseas operations. He is expected to supervise and advise on the execution of duties of the Company's other directors from an objective perspective using extensive experience and broad knowledge accumulated through his experience in managing a company as an executive.

[Outside Audit & Supervisory Board Members]

Takafumi Okuda

Although Mr. Okuda has never been engaged in corporate management directly, it is expected that his extensive experience and broad knowledge accumulated as a legal professional in a judicial organization, will enable him to act as an auditor of the Company and audit the execution of business activities by the Company's directors from an independent and objective perspective, and also contribute to improving the soundness and transparency of the Company's management.

Nanako Aono

The Company determines that Ms. Aono's experience in serving as a director and auditor in private sector companies in a wide range of fields together with the extensive knowledge she has accumulated as a certified public accountant, will enable her to audit the execution of business activities by the Company's directors from an independent and objective perspective, and also contribute to improving the soundness and transparency of the Company's management.

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.

Outline of the Results of the Analysis and Evaluation in FY2020, surveyed in December, 2020.

- The results of the analysis showed the board was broadly appropriate overall in the five viewpoints of composition, agenda items submitted at meetings, conduct at meetings, training of directors and Audit & Supervisory Board members, and provision of information and support for outside directors.
- The board has since added "Discussion by the Board of Directors" as an evaluation point and assessed whether or not discussions were being held based on medium- to long-term viewpoints. The Board of Directors guaranteed opportunities to discuss strategic matters and the Company's long-term vision at board meetings. This has deepened awareness of medium- to long-term strategic issues and the board's oversight function has improved.

Officer Remuneration

- The Board of Directors decides remuneration for officers after receiving a report from the Personnel & Remuneration Advisory Committee.
- In accordance with the revised Companies Act, which took effect on March 1, 2021, the Board of Directors has resolved to partially revise the Basic Policy on Corporate Governance to improve the transparency of procedures for determining executive compensation.
- The standard amount of monthly remuneration for directors shall be decided according to his/her responsibilities within the Company. Of that, 70% shall be fixed and the remaining 30% shall be paid after adjustment based on the Company's performance in the preceding business year. The standard amount is determined using objective survey data from outside sources and considering to factors including the Company's performance, 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 in FY2020*1

	Number of Executives*2	Total Amount of Remuneration, etc. by Type			Total Amount
		Fixed Remuneration	Performance-Based Remuneration	Stock Remuneration	
Directors	10	¥299 million	¥70 million	¥32 million	¥403 million
(Outside directors)	(4)	(¥36 million)	(—)	(—)	(¥36 million)
Audit & Supervisory Board Members	5	¥58 million	—	—	¥58 million
(Outside Audit & Supervisory Board Members)	(3)	(¥13 million)	(—)	(—)	(¥13 million)

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

*2 Includes one director and one Audit & Supervisory Board member who resigned during FY2020.

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 after adjustment based on the Company's performance in the preceding business year	
Performance standards	70%: Consolidated results (net sales, operating income, ROA) 30%: Non-consolidated results (net sales, ordinary income, ROA)		—
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 develops 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.

Dialogue with Stakeholders

Basic Stance

Nippon Paper Industries Co., Ltd. has established a policy for constructive dialogues with shareholders, etc. under its corporate governance policy. The Company value constructive dialogues with shareholders and other stakeholders, and endeavor to secure various opportunities to hold such dialogues.

The Nippon Paper Group's Action Charter and Codes of Conduct also include the provision that the Company will fairly and proactively disclose company information to all interested persons involved with the Company. The Group has also formulated, and is implementing, a basic policy on the disclosure of information (disclosure policy).

→Corporate Governance Policy

https://www.nipponpapergroup.com/english/ir/governance/governance_policy/E-CGP_20200515.pdf

→Corporate Governance Report

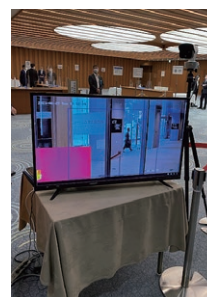
<https://www.nipponpapergroup.com/english/ir/governance/>

→Disclosure Policy

<https://www.nipponpapergroup.com/english/ir/disclosure/policy/>

— Annual General Meeting

- The Company works to energize its general shareholders' meetings and ensure smooth exercising of shareholders' voting rights.
- The Company sent out early a notice of convocation of the 97th Ordinary General Meeting of Shareholders held on June 29 2021, and disclosed the contents swiftly on the Group website. 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.



Conducting body temperature checks at the entrance to the meeting



Ensuring thorough hand sanitizing

— 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.
- The Corporate Planning Department publishes an "IR Weekly Report". In addition, IR activities are regularly reported at the Group Management Strategy Committee Meeting. (Reporting in FY2020: Once)

IR Activities in FY2020

Operating results and Management briefings	2 times
Operating results briefings	2 times
Individual meetings	88 times

— Communication Activities

- The Company mails shareholder newsletters to shareholders twice a year.
- The Group website is operated by the Public Relations Office of the Company and communicates information on the Company's activities to a wide range of stakeholders as and when it becomes available. The Company receives a broad range of questions and opinions through the website, which are then answered by the relevant divisions.
- The Group has established the Nippon Paper Group Risk Communication guidelines and work to communicate with local governments and communities with regard to environmental issues in those areas where the Group's mills are located.
- The Company held free discussions between the President and mid-level managers from July through August in 2021 based on the 2030 Vision and Medium-Term Business Plan 2025 (total 27 times).

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

Risk Management

Basic Stance

The Nippon Paper Group conducts risk management during normal operation and in the event of emergencies, with the aim of preventing managerial risks from manifesting and minimizing the impact of those that do occur.

All possibilities that may result in a physical or economical loss or a loss of credit or disadvantage to the 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

— Basic Policies

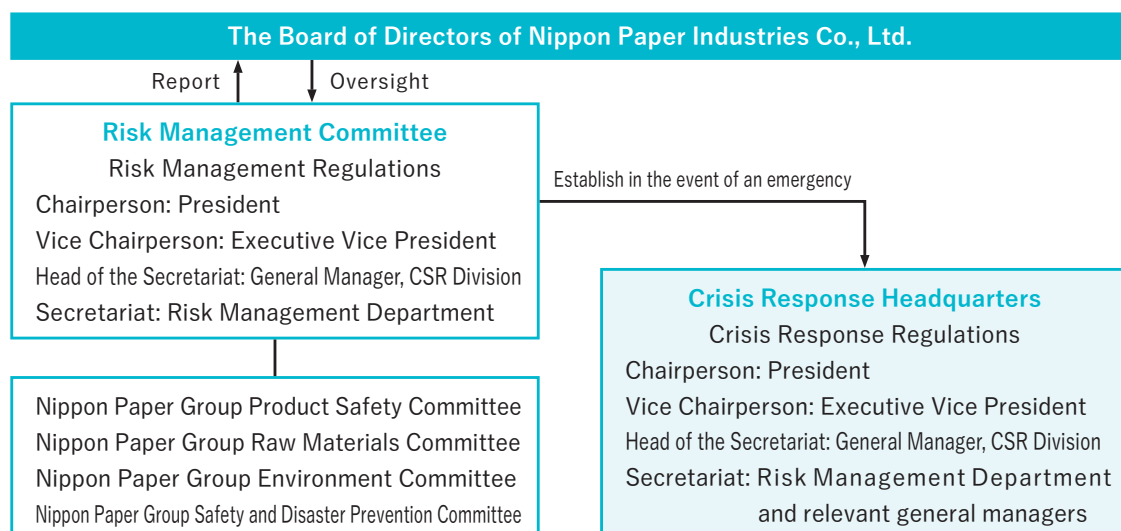
- ① Prioritizing human life and safety
- ② Continuing business

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

Risk Management Promotion Structure

The Company has established its Risk Management Committee, which is chaired by the president and representative director under the supervision of the Board of Directors; meetings are held once or more per year. The Risk Management Department established within the CSR Division serves as the secretariat. In normal operations, the committee regularly identifies and evaluates the Group's risks, considers and deliberates measures to reduce its risks and action to be taken should risks be realized, and reports to the Board of Directors.

In the event of an emergency, a crisis response headquarters will be launched. The crisis response headquarters swiftly carries out initial responses and BCPs (business continuity plans) in the event of emergencies depending on risks such as earthquakes, typhoons, and infectious diseases.



Risk Management Activities

In FY2020, the Risk Management Committee carried out an identified sampling of risks from the Company and five consolidated and non-consolidated subsidiaries to evaluate their managerial impacts and their frequency of occurrence.

Main Identified Risks	Decreased demand in Japan and overseas Changes in market demands Earthquakes, tsunamis, volcanic eruptions/ typhoons, floods, extraordinarily heavy snowfall Fires, explosions Equipment malfunction, deterioration, etc.
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The Group is working to establish Business Continuity Management (BCM) for the major risks it has identified based on the assumption of the occurrence of large-scale natural disasters, which have become more frequent in recent years. In addition to promoting the stockpiling of food and daily commodities, the Group is formulating and reviewing our BCP, including inventory response and alternative production to ensure a stable supply of products, based on the assumption of earthquakes, typhoons, and the spread of infectious diseases. Also, each plant uses hazard maps to recognize the characteristics of its location and formulates disaster mitigation measures in advance, which are utilized in daily preparations.

Committees Held (FY2020)

	Number	Attendees
Risk Management Committee	1	Nippon Paper Industries Co., Ltd. President / Executive Vice President/ General Manager, CSR Division/ General Manager, Personnel & General Affairs Division/ General Manager, Corporate Planning 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, Sales Planning Division
Crisis Response Headquarters (Response to COVID-19 and earthquakes)	6	Nippon Paper Industries Co., Ltd. Chairman, President, Executive Vice President, and all general managers

Report to Nippon Paper Industries Co., Ltd. Board of Directors	1	Nippon Paper Industries Co., Ltd. Chairman, President, Executive Vice President, and all directors
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Compliance

Basic Stance

The Company has formulated the Nippon Paper Group's Action Charter and the Nippon Paper Group's Codes of Conduct as a basic management principle based on its Corporate Governance Policy. Its Group companies also have codes of conduct.

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 are called upon to respond to the expectations and trust of society". The Group continually carries out activities that raise employees' awareness of compliance.

→Nippon Paper Group Action Charter and Codes Of Conduct

<https://www.nipponpapergroup.com/english/about/charter/>

Compliance Structure

The Company has established the Compliance Office which collaborates with the Legal Affairs Office of the Personnel & General Affairs Division, Management Audit Office, Human Resources Department, and other relevant sections. The Group companies appoint a person to be in charge of compliance. The Company supervises Group Compliance Liaison Meetings and aims to enhance collaboration with regard to compliance.

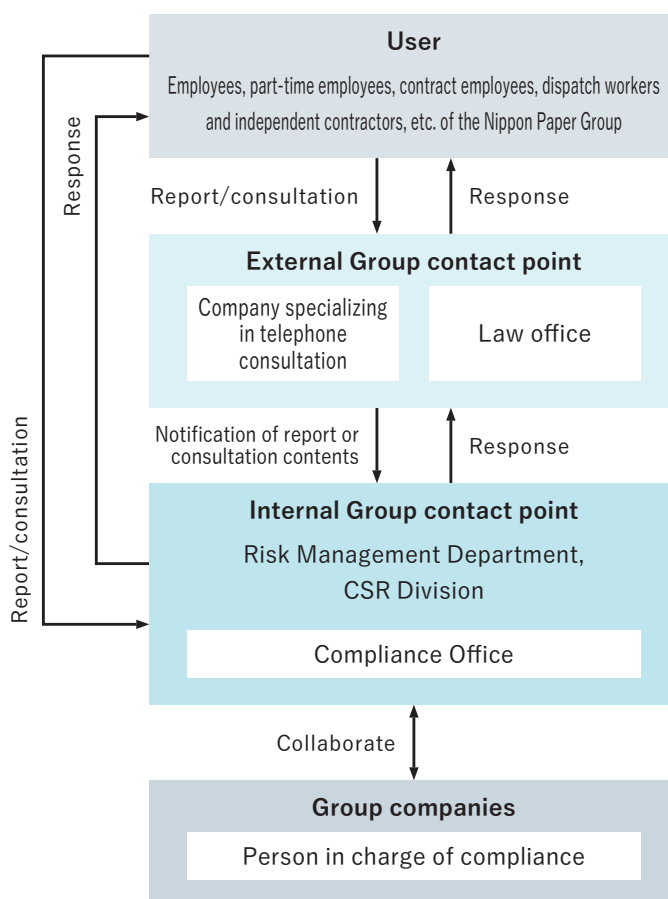


— Compliance Education

- The Group strategically carries out compliance training.
- In FY2020, training was carried out a total of 12 times at the Company. Approximately 1,000 employees studied examples of improper conduct.
- Furthermore, compliance training is carried out in sessions like training for new supervisors and new employees, including training for executives of the Company and its Group companies.

— 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 violate laws, regulations, social norms, or corporate ethics and that may become a problem in the workplace. The Company periodically notifies employees about Helpline.
- The Nippon Paper Group Helpline can even be used anonymously under the protection of privacy.
- The operation status is reported to the Audit & Supervisory Board and to the Management Executive Committee on a quarterly basis.



Number of Reports Made to Helpline

FY2016	FY2017	FY2018	FY2019	FY2020
11	32	33	46	39

— Personal Information Protection

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

→Basic Policies of Nippon Paper Industries Co., Ltd. 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.
- The Company works to conduct intellectual property rights education programs for Group employees, and a total of 454 employees attended such programs in FY2020.

— Preventing Corruption

- “Fairness” is one of the Values that the Group employees place importance on in the Nippon Paper Group Mission.
- The Nippon Paper Group Charter of Conduct 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 Code of Conduct specifically states that the Company will engage in “fair, transparent, and free corporate activities”
- In November 2017, the Company established the Basic Policy on Prevention of Bribery of Public Officials, and the Basic Policy on Compliance with Competition Laws.
- In FY2020, 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/about/Basic%20Policy%20on%20Prevention%20of%20Bribery_EN.pdf

→Nippon Paper Group’s Basic Policy on Compliance with Competition Laws

https://www.nipponpapergroup.com/english/about/Basic%20Policy%20on%20Compliance%20with%20Competition%20Laws_EN.pdf

Policy and Management

Basic Stance

The Nippon Paper Group maximizes renewable woody resources through diverse technology and know-how, thereby providing products that contribute to building a sustainable society. As the use of woody resources is indispensable to the Group, it has constructed a system to continually procure woody resources that are generated from sustainable forest management.

In 2005, the Group established its Philosophy and Basic Policy Concerning Raw Materials Procurement. Based on this philosophy and basic policy, the Group practices sustainable raw material procurement through supply chain management. It also promotes dialogues with stakeholders, and constantly works on improving the level of raw material procurement with consideration for the environment and society.

Philosophy and Basic Policy

- The Group also communicates the content of this Philosophy and Basic Policy to suppliers around the world by preparing both Japanese and English language versions and displaying them on our website.
- As defined in this Philosophy and Basic Policy, the Group ensures that the entire supply chain has appropriate human rights and labor practices. The Group requests that its suppliers pay care and consideration to human rights and labor practices, and conducts regular questionnaire surveys and interviews to audit important suppliers regarding these concerns.

Philosophy and Basic Policy Concerning Raw Materials Procurement (formulated on October 5, 2005)

Philosophy

We are committed to establishing a reliable raw materials procurement system through global supply chain management in consideration of the environment and society.

Basic Policy

1.Environmentally friendly raw materials procurement

- (1) We procure woodchips, lumber and pulp from forests under sustainable forest management.
- (2) We use and deal in no illegally logged lumber and we support the eradication of illegal logging.
- (3) We make active use of recycled materials to help build a recycling-oriented society.
- (4) We make appropriate procurement of chemical substances in compliance with relevant laws and regulations.
- (5) We build traceability systems to ensure the above policies are practiced throughout the supply chain.

2.Socially aware raw materials procurement

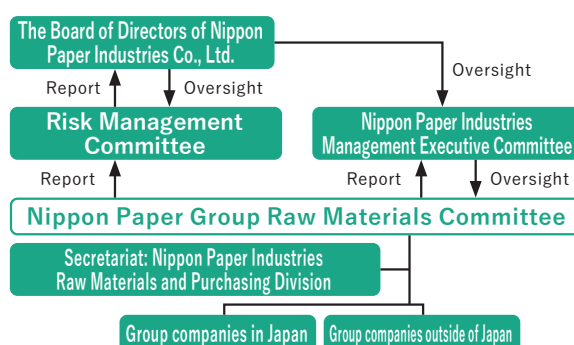
- (1) We pursue fair deals with suppliers on equal terms.
- (2) We ensure that the entire supply chain has appropriate human rights and labor practices.

3.Promotion of dialogues with stakeholders

- (1) We engage in dialogues with stakeholders to improve the quality of our raw materials procurement in constant consideration of the environment and society.
- (2) We proactively disclose information so that our initiatives are better known.

Structure for Promoting Raw Materials Procurement Management

The Group has established the Nippon Paper Group Raw Materials Committee, which is chaired by the General Manager of the Raw Materials Division at Nippon Paper Industries. This committee discusses important issues related to raw material procurement for the entire Group, such as policies of raw material procurement.



Sustainable Procurement of Wood Raw Materials

Basic Stance

— Key points of sustainable wood resources procurement

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

Sustainable forest management and resource procurement

— 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.

— Sustainable Procurement of Wood Raw Materials

i. 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.
 - ▶ Forest certification acquisition rate at Japan and abroad : 100%
- The Group is promoting overseas afforestation business and aiming for stable procurement by utilizing its own resources.

ii. 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 that they were sourced from.
- The Group utilizes forest certification schemes as a tool to check that procurement of woody raw materials is being conducted appropriately.

iii. 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, 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.
- The Group checks the status of forest certification at the time of contract with the supplier.

iv. 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.



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

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 all of wood raw materials procured both in Japan and overseas.
 - ▶ New business partner: Implemented at the time of new transaction
 - ▶ Existing business partners: Conducted regularly every year
- In FY2019, the Group carried out due diligence and verified the legality of all of its wood raw materials.

→ Legally Certified Due Diligence Manual
<https://www.nipponpapergroup.com/csr/forest/sustainability/DDmanual20180806.pdf>(Japanese only)

— Response to the Clean Wood Act

In 2018, Nippon Paper Industries and Nippon Paper Lumber completed its registrations as both a Type 1 and Type 2 Wood-related Business under the Act on Promotion of the Distribution and Use of Legally Harvested Wood (the Clean Wood Act), which took effect in 2017.

Nippon Paper Papyrus and Nippon Paper Creca, also completed their registrations in 2019. 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 Group's Philosophy and Basic Policy Concerning Raw Materials Procurement.

→ Action Plan for Wood-Based Raw Material Procurement
<https://www.nipponpapergroup.com/csr/forest/sustainability/actionplan/>

Sustainable woody resource procurement scheme

Philosophy and Basic Policy 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 companies using its own approach to verification, as provided in the Guideline for Verification of Legality and Sustainability of Wood and Wood Products. Based on the Japan Paper Association's guideline for measures against illegal logging.
Implementation content	Overall	<ul style="list-style-type: none"> 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 Guideline 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>※In FY2020, it was determined, based on questionnaire responses and shipping and other documents provided by each supplier, that no illegally harvested woodchips or pulp were procured from overseas suppliers.</p>
	Confirmation of sustainability	<ul style="list-style-type: none"> Based on information from sources such as results of supplier surveys*(once a year) and local interviews, the following has been confirmed. <ul style="list-style-type: none"> 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. *target : Import chip, domestic and import pulp The Group disseminates its procurement policy by describing it in the supplier questionnaire (Japanese and English). 	
	Independent 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 (FY 2020)		359 chip suppliers, 4 pulp suppliers (Implemented for all suppliers) Confirmation of conformance with the above action plan	23 chip suppliers, 10 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 Co., Ltd.,

- All company-owned forests in Japan and overseas have received forest certifications.

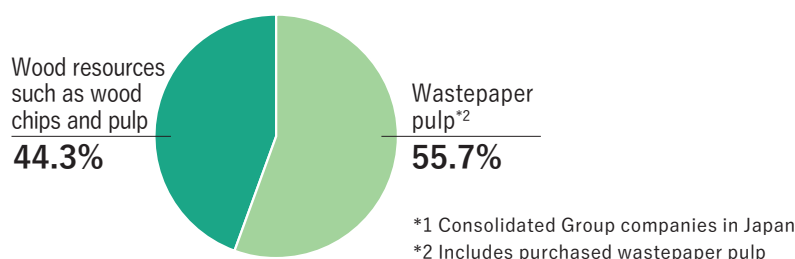
- All wood-based raw materials have been certified by the PEFC or FSC®

(All procured chips have been produced with wood from forests with an FM certification or have undergone a risk assessment for the CoC certification.)

Current Status of Raw Materials Procurement

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

Breakdown of main raw materials*¹ (FY2020)



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 circulation to newspapers, the Company are building and expanding a "Closed Loop System" in which we directly purchase 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* (FY2020)

Used paper (kt)	Recycled pulp (kt)	Total (kt)
2,650	11	2,661

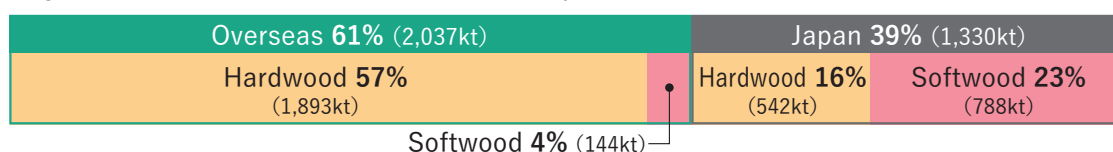
* Target of aggregation : Domestic consolidated companies excluding Cresia Kasuga

Initiatives aimed at stable wood resource procurement

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

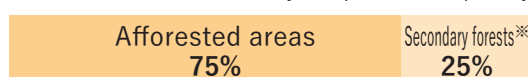
- ▶ Woodchips : About 60% from overseas, about 40% from Japan
- ▶ Woodchips from overseas : To ensure stable overseas procurement, sources of woodchip imports are diversified among Australia, South America, and other parts of the world.

Geographic breakdown of wood raw materials (chips) procured by Nippon Paper Industries (FY2020) (Bone dry units, kt=kilotonnes)



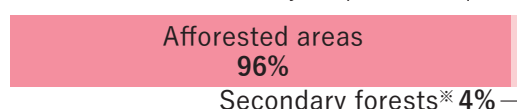
Hardwood resource breakdown (2,435kt)

*Factory acceptance base quantity



Softwood resource breakdown (932kt)

*Factory acceptance base quantity



※Natural forests as indicated here refers 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 procured by Nippon Paper Industries (FY2019)

Hardwood

Country	Percentage	Species
Vietnam	31%	Acacia
Brazil	25%	Eucalyptus, Acacia
Australia	17%	Eucalyptus
South Africa	16%	Acacia
Chile	10%	Eucalyptus
Eucalyptus	1%	Eucalyptus
Total	100%	

Softwood

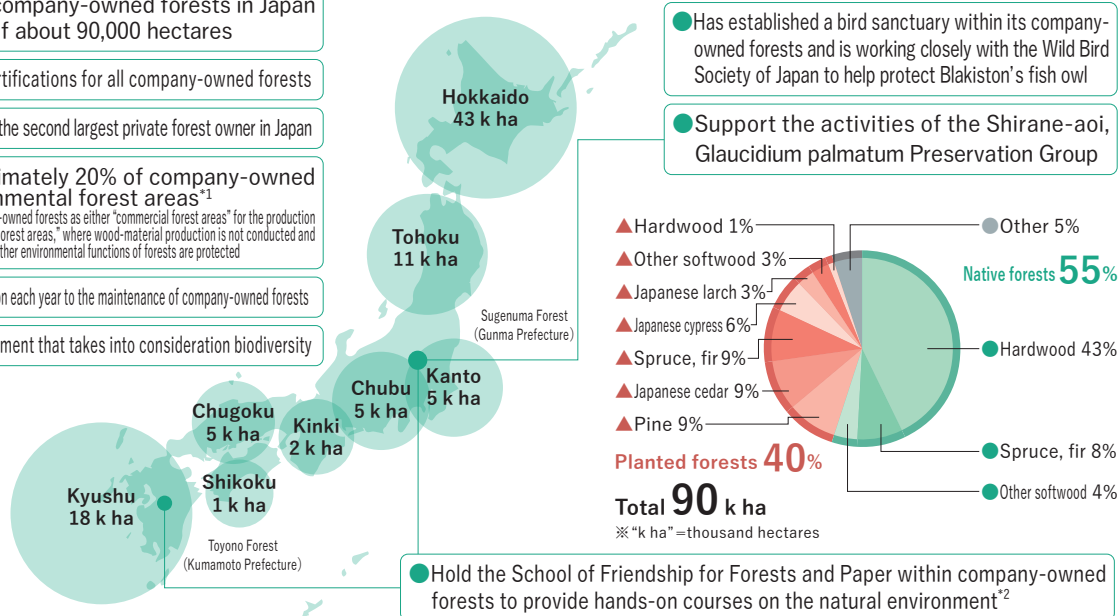
Country	Percentage	Species
Australia	76%	Pinus radiata
Russia	17%	Yezo spruce
U.S.A	7%	Douglas fir
Total	100%	

Protecting and Nurturing Japan's Woody Resources

Sustainable Management of Company-Owned Forests in Japan

Nippon Paper Group has forests in Japan and carries out balanced and sustainable forest management which can fully demonstrate public interest functions such as forest biodiversity conservation and water source retention.

- Owns about 400 company-owned forests in Japan with a total area of about 90,000 hectares
- Has acquired forest certifications for all company-owned forests
- Nippon Paper Industries is the second largest private forest owner in Japan
- Maintains approximately 20% of company-owned forests as environmental forest areas^{*1}
^{*1} The Company designates its company-owned forests as either "commercial forest areas" for the production of wood materials or "environmental forest areas," where wood-material production is not conducted and the ecological, water catchment, and other environmental functions of forests are protected
- Allocates approximately ¥0.5 billion each year to the maintenance of company-owned forests
- Engaged in forest management that takes into consideration biodiversity



^{*2} Canceled in FY2020 due to the impact of COVID-19

→ Representative domestic company-owned forests
<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	SGEC	Oct. 2007*
Kinki/Chugoku/Shikoku	SGEC	Dec. 2006
Kyushu	SGEC	Mar. 2005

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

Breakdown of company-owned forests in Japan by IUCN(International Union for Conservation of Nature) (as of March 31, 2021)

IUCN Category	Commercial forest areas k ha	Environmental forest areas k ha	Total k ha	Percentage %	Environmental forest %	
I Strict nature reserve Wilderness area	0	0	0	0	—	Protected area managed with the primary objective of scientific research or protection of wilderness
II National park	0.6	4.5	5.1	6	88	Area managed with the primary objectives of protection of habitat and recreation
III Natural monument	0	0	0	0	—	Area managed with the primary objective of protection of special natural phenomena
IV Habitat/species management area	0	0	0	0	—	Area managed with the primary objective of preservation through management
V Protected landscape/seascape	2.5	0.7	3.2	4	22	Area managed with the primary objectives of protecting the landscape and recreation
VI Managed resource protected area	0	0	0	0	—	Area managed with the primary objective of the sustainable use of natural habitat
Not applicable	68.9	12.4	81.3	91	15	
Total	72.0	17.6	89.6	100	20	

Invigorating Japan's Forest Industry

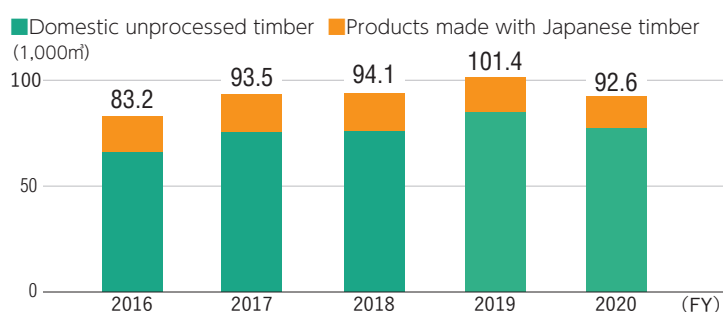
- The Group is promoting the maintenance of the domestic supply chain and the further use of domestic timber, with the forestry policy based on the basic policy of “green growth through the forest, forestry and timber industries” promoted by the Government of Japan.
- The Company is implementing initiatives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

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.
- The company has set the objective of handling 1 million m³ of domestic timber*, and has worked to increase its actual sales year by year. In FY2020, the figure became about 930,000 m³ due to the stagnation of economic activity due to the COVID-19 disaster.
- Nippon Paper Lumber will continue working to develop new applications and boost exports in order to utilize domestic timber and meet its goal of handling 1 million m³ of domestic unprocessed timber in FY2021.

* Does not include woodchips for paper manufacturing use.

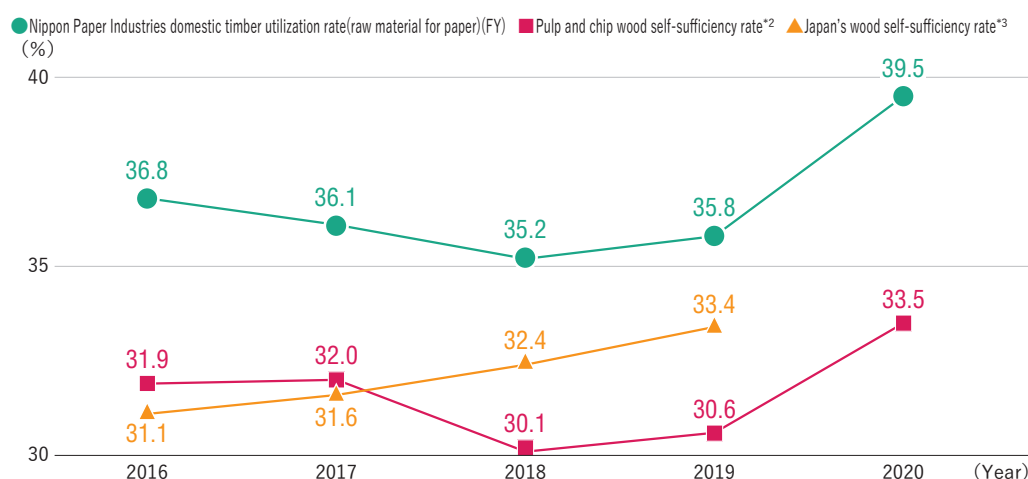
Domestic timber sales results by product type (Nippon Paper Lumber)



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 rose to 39.5% in FY2020.
- 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*1 (Nippon Paper Industries)



*1 The domestic (Japan) timber utilization rate 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

Contributing to Japanese Forestry Using Proprietary Technologies

The number of artificially planted forests in Japan that have reached the utilization stage is increasing. The regeneration logging and reforestation of these forest areas is expected, on the other hand, there are concerns over the nationwide shortage of seedlings available for reforestation purposes.

Applying the technology established by the Company through overseas afforestation business to produce large quantities of excellent seedlings in a short period of time, Nippon Paper Lumber has created a large-scale seed orchard in Japan's Kyushu region (Hitoyoshi, Kumamoto) for the production of seedlings of specified Japanese cedar mother trees*. It is now expanding its sapling production operations across the country. The Company has also begun using those Japanese cedar mother tree seedlings in its company-owned forests and is utilizing them to enable sustainable forest management.

*Specified mother trees:

Trees that are deemed suitable for harvesting cuttings to produce good-quality seedlings. They are designated by the Minister of Agriculture, Forestry and Fisheries for meeting specified criteria such as growth rate and wood quality.



Seedlings grown from cuttings of specified Japanese cedar mother trees

CASE STUDY

Public-private Collaboration in the Formation of Large-Scale Forestry Business Complexes (Intensification of Forestry Business)

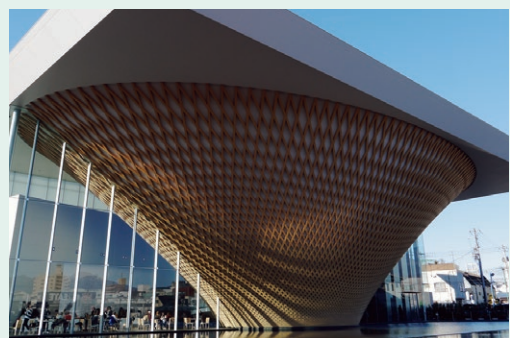
Since 2011, as a private-sector company that owns a forest in the Itsuki region of Kyushu, the Company has been involved in an agreement to promote forest management in the region, alongside Kyushu Regional Forest Office, Itsuki Village, ITSUKI Forest Owner's Cooperative, and others. Currently, the field 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 is planning cooperative shipping with the aim of building a stable supply chain for timber.

CASE STUDY

Supply of SGEC-Certified Wood

Nippon Paper Lumber was the first company in Japan to acquire SGEC CoC certification and is capable of delivering SGEC-certified wood from source forests—including those owned by the company—to end users. In 2018, the Company used Nippon Paper Lumber's CoC certification to supply SGEC-certified Japanese cypress from its Kitayama company-owned forest (Fujinomiya, Shizuoka) to the Exhibition Building Wooden Grid Project at the Mt. Fuji World Heritage Center, Shizuoka. This project was the first in Japan to acquire SGEC/PEFC CoC Project Certification, through local and cross-industrial cooperation between the forestry, processing, distribution, and construction industries.

SGEC-certified lumber from company-owned forests was also supplied for use in the construction of the Japan National Stadium, which was completed in 2019.



Mt. Fuji World Heritage Center, Shizuoka

Overseas Afforestation

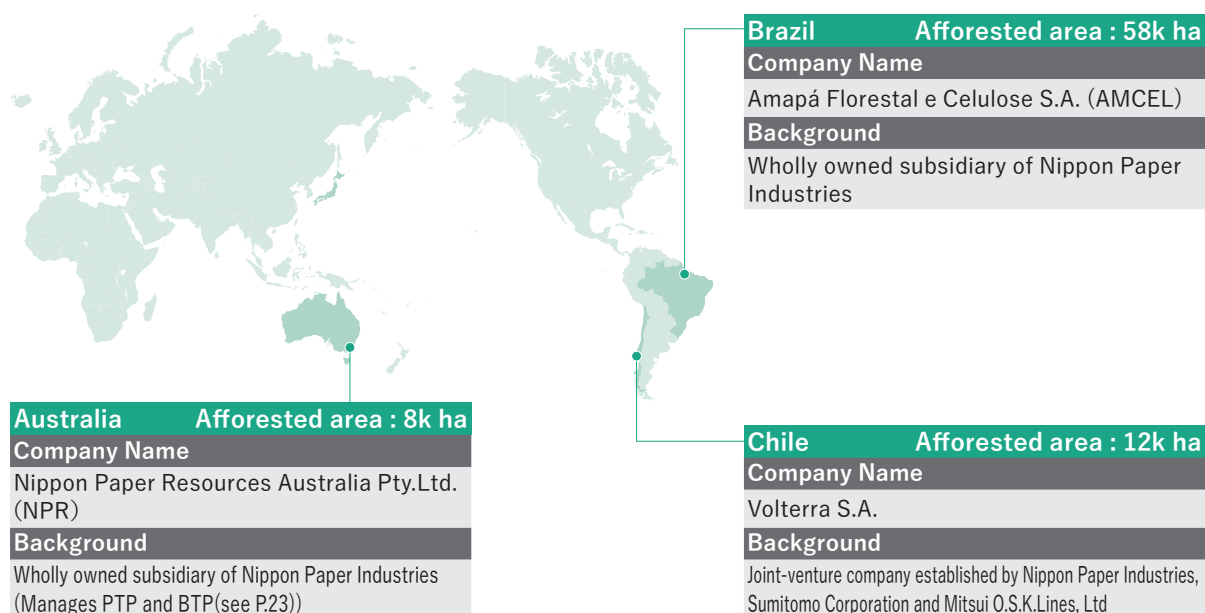
Tree Farm Initiative

The “Tree Farm Initiative” is the Company’s concept for overseas afforestation projects. The initiative aims to achieve sustainably procured raw materials through repeated cycles of growing, harvesting, and using trees, similar to the way crops are farmed.

→ Tree Farm Initiative
<https://www.nipponpapergroup.com/csr/forest/afforest/>

Overview of overseas forests under Nippon Paper Group management (as of December 31,2020)

Total forest area:78k ha



- Recognizing the importance of building positive ties with the local communities in and around its forests and of mutual development with them for the sake of sustainable forest management, the Group pays particular attention to the concerns of local residents, including indigenous peoples. It takes into consideration the cultures and traditions of each region, as well as the natural environment and ecosystems. The Group also contribute to local economies by creating employment opportunities and providing support for educational activities (see P.84).
- The Group perform 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 afforested 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.50).
- 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.



Tree planting that preserves riparian forests.
 (Bottom) The blue area indicates riparian forests

Status of forest certification acquisition for overseas afforestation projects

Overseas plantation project by operating company	Certification system name (License no.)	Acquisition year
PTP (Australia)	Responsible Wood	2006
BTP (Australia)	Responsible Wood	2006
Volterra (Chile)	FSC® (FSC®C120260) CERTFORCHILE	2014 2007
AMCEL (Brazil)	FSC® (FSC®C023383) CERFLOR	2008 2014

Examples of Activities to Coexist with Local Communities (see P.85)

	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.) ● Sponsorship of education and sports classes for children from low-income families (sponsorship/provision of materials, etc. to environmental patrol of the military police) ● Partnership with military police (sponsorship of education and sports classes for children from low-income families run by military police) ● 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

Basic Stance

The Nippon Paper Group provides society with a wide range of products and services through the effective use of wood, a renewable resource. At the same time, its manufacturing processes use a great deal of energy and water. Bearing this in mind, the Nippon Paper Group has formulated the Nippon Paper Group Environmental Charter. The Group practices environmental management that contributes to the formation of a circulation-oriented society by working from a long-term perspective to reduce environmental impact, promote resource recycling, conserve biodiversity, and respond to climate change. Under the 2030VISION, the Group has identified these priorities as materiality for realizing the Group Mission and will contribute to building a sustainable society through its business activities.

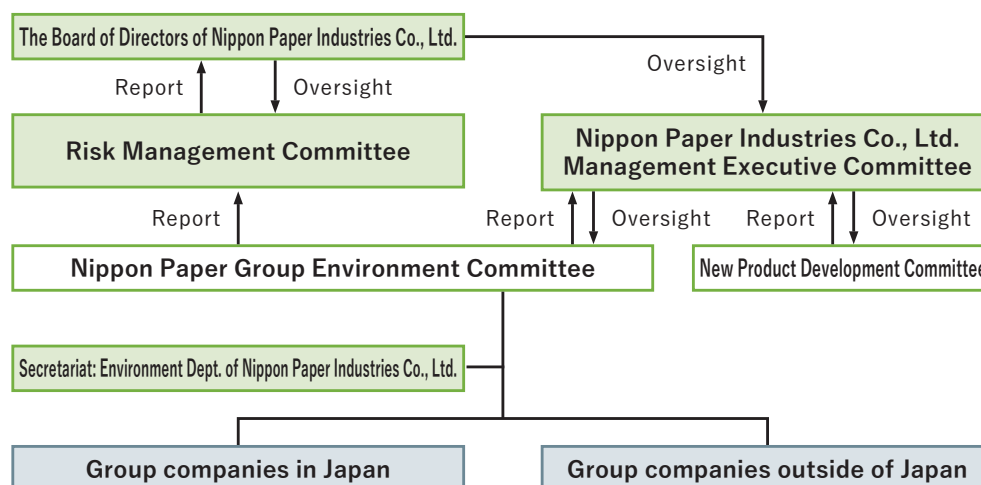
→ The Nippon Paper Group Environmental Charter

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

Environmental Management Promotion Structure

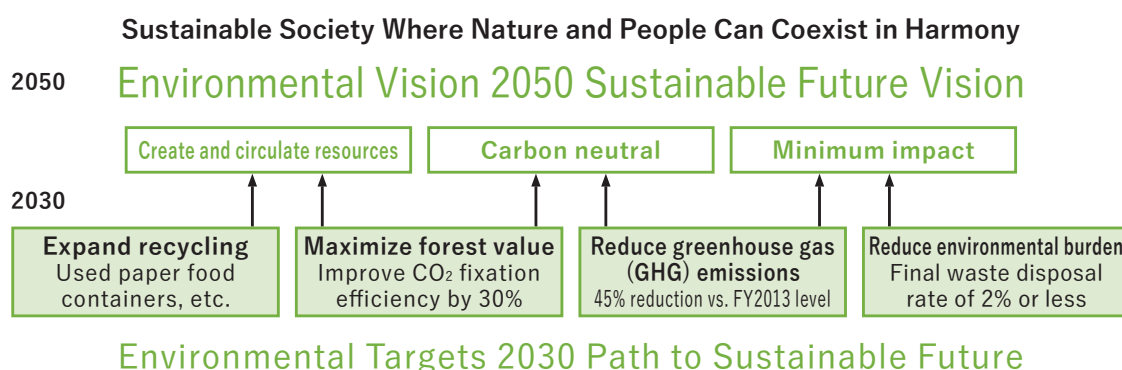
The Nippon Paper Group Environmental Committee, chaired by the general manager of the Technical Division, who is also the director in charge of environmental matters at Nippon Paper Industries, identifies management risks related to the Group's environmental activities and promotes countermeasures. Additionally, the committee manages and assesses the proper implementation of the Environmental Action Plan in accordance with the Nippon Paper Group Environmental Charter and reports to the Board of Directors through the Risk Management Committee.

With the aim of creating corporate value through environmental management, the Group regularly convenes the New Product Development Committee, and promotes the development of products derived from wood resources in line with growing environmental awareness. The Executive Committee deliberates and decides on environmental management policies and measures based on this information, and incorporates them into business strategies to address environmental risks and capture business opportunities, thereby enhancing the resilience of the Company's growth strategies.



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 and plans 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)

— 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.

— 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.

— 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

— 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 fiscal 2020 levels through modal shift and other measures.
- ▶ Collaborate with stakeholders to reduce indirect greenhouse gas emissions.

— 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 domestic forest resources.

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.

— Reduce environmental impact

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

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

Achievements of Environmental Action Plan (Green Action Plan 2020)

- The Group has established an environmental action plan—the Green Action Plan—in accordance with the six basic policies expressed in its Environmental Charter. Since the establishment of this action plan in 2006, the Group set quantitative and qualitative management targets every five years relating to response to climate change and all manner of other environmental issues and carried out specific initiatives to achieve those targets.
- Based on this, Group companies have each established their own environmental action plans to reflect their own individual business characteristics. Their efforts to fulfill these plans are improving our effectiveness towards achieving the targets of the Green Action Plan.

The Nippon Paper Group Environmental Action Plan (Green Action Plan 2020: from 2016 to 2020) FY2020 Achievement

Green Action Plan 2020		Main Initiatives and Final Results
1. Anti global warming action	Reduce greenhouse gas emissions by 10% compared to FY2013. 2013.*1	By systematic investment in energy saving equipment and promotion of fuel conversion, greenhouse gas emissions were reduced by 21% compared to FY2013.
	Reduce logistics generated CO ₂ emissions.	<ul style="list-style-type: none"> Continued efforts to reduce CO₂ emissions by shortening transportation distances and promoting modal shifts for efficient transportation. The Eco Rail Mark certification, established by the Ministry of Land, Infrastructure, Transport and Tourism, to recognize companies and products that engage in rail freight transportation with low CO₂ emissions per unit, has been obtained by Nippon Paper Industries for both the company and its products.
2. Protection and development of forest Resources	Advance domestic company owned forest operations and the overseas afforestation project (Tree Farm Initiative) to ensure the sustainable nurturing of forest resources.	As of the end of 2020, we had planted 78,000 hectares of trees in our overseas afforestation business.
	Maintain forest certifications in all proprietary forests, both domestically and internationally.	The company continues to maintain forest certification (FSC®*2, SGE, PEFC,) for all its forests in Japan and overseas.
	The wood chips and pulp used for papermaking in FY2020 were all made from wood approved by FSC®*2 or PEFC (including controlled wood and controlled sources)	The wood chips and pulp used for papermaking in FY2020 were all made from wood approved by FSC®*2 or PEFC (including controlled wood and controlled sources)
	Enhance traceability and facilitate the procurement of sustainable forest resources.	Utilized the forest certification system to enhance traceability and in FY2020, 100% of the risk assessments for imported woodchips were cleared under both PEFC and FSC rules.
	Advance the use of wood fiber produced from domestically grown trees to promote sound growth of forest resources in Japan.	The use of domestic wood at all Nippon Paper mills reached 39.5% in FY2020 (based on actual purchases).
3. Recycling of Resources	Promote greater use of wastepaper by achieving advances in wastepaper utilization technologies.	<ul style="list-style-type: none"> As a result of our efforts to use unused recovered paper, the utilization rate of recovered paper for paper and paperboard reached 34% and 89%, respectively. The Company started a new recycling project with the support of Hamamatsu City, to collect used paper containers which had previously been incinerated as general garbage. The Company have begun efforts to expand the recycling of discarded beverage paper packs with aluminum.
	Increase the waste recycling rate to at least 98%.*1	In addition to reducing waste generation, we achieved a 98% recycling rate through the recycling of boiler ash.
4. Observance of environment related laws and reduction of environmental load	Use the environmental management system to strengthen environmental management and reduce environmental impact.	At sites that have a high environmental load, environmental management systems such as ISO 14001 were introduced in an effort to comply with laws and regulations and reduce the environmental load.
	Properly manage chemical substances in accordance with the Nippon Paper Group Chemical Substance Management Guidelines.	For each site, chemical substances are managed appropriately according to type and amount together with the information from safety data sheets.
5. Development of eco Friendly technologies and products	Enhance the more sophisticated use of wood materials.	<ul style="list-style-type: none"> Commercial production is being carried out at the TEMPO oxidized CNF mass production machine at the Ishinomaki mill and the CM-CNF mass production machine at the Gotsu mill, and its adoption is increasing mainly for food and cosmetic applications. In addition, at the Fuji Plant / CNF Reinforced Resin Demonstration, sample work is being conducted for various users. CNF was adopted by the NEDO project "Development of cellulose nanofiber-related technologies that contribute to a carbon cycle society" (2 projects) and started research and development. For promotion of practical use of MinerpaR that has some characteristic such as deodorant, antibacterial, flame retardant, radiation blocking, etc., the Company implemented sample work for application development. The product from demonstration production equipment at Fuji mill has been adopted as cat sand (cat litter). Using a proprietary technology that removes only cellulose fibers that are easy for cows to digest from wood chips, the Company has developed "highly digestible cellulose" with excellent fiber content and nutritional value, and has started sample work for expanding sales. The NEDO project "Development of Bio-Asphalt Mixture Using Kraft Lignin from Pulp Digesting Process" was adopted, and the application development of craft lignin was started in this project. The Company has developed a resin composite material (Trefide Biocomposite TM) that contains a high amount of woody biomass and can reduce the amount of plastic used by 50%.
	Develop equipment technology for facilitating a departure from reliance on fossil energy.	Development of new fuel production technology using biomass has started.
	Reduce the environmental load through the provision of ecofriendly products and services.	<ul style="list-style-type: none"> Started selling "School POP®", a school lunch strawless paper pack. The world's first aseptic filling system for paper containers (NSATOM®), which can handle new beverages with solids, long fibers, and high viscosity and can be stored at room temperature instead of resin containers, has been completed and orders have started. Started production and sales of long toilet rolls that lead to reduction of CO₂ emissions and packaging materials. A new paper material to replace plastics, "Shield Plus", is a paper packaging material with excellent barrier properties against oxygen and water-vapor produced in combination with biodegradable resin. The new high-barrier product "Shield Plus® Premier" has been adopted as food wrapping paper. In addition, Shield Plus II, which is adapted to gravure printing and has an improved barrier bending tolerance, was launched. "Lamina®", a heat-sealing paper that does not require a laminating process and can be packaged with just paper, has been developed and has started providing samples. As a sustainable packaging material to replace Styrofoam, the multifunctional corrugated cardboard base paper "Waterproof Liner" was developed.
6. Environmental Communication	Disclose environment related information to stakeholders and accelerate environmental communication through dialogue and other means.	Through Integrated reports and risk communication held by each business site, dialogue with local communities and other communities was activated to share risk information.
	Proactively participate in and support environment conservation activities.	Actively participated in environmental preservation activities such as community cleanup etc. and made efforts to contribute to the conservation of the local environment.
7. Biodiversity Commitments	Advance companywide biodiversity initiatives in accordance with the Nippon Paper Group Basic Policies on Protection of Biodiversity.	<ul style="list-style-type: none"> For more than 10 years, the company has been working to preserve the habitat of the endangered Blakiston's fish owl in company-owned forests in Hokkaido under an agreement with the Wild Bird Society of Japan. While balancing with the company's forestry business, in 2020, the two companies jointly installed artificial nest boxes to support breeding. Since 2017, the Group have been working with a local NPO (Ecotourism Association) on Iriomote Island to exterminate the invasive plant American Hamaguruma.

*1 For manufacturing sites in Japan.

*2 FSC® Logo License No. FSC® C120260 (Volterra: Chile), FSC® C012171 (Forestco: South Africa), FSC® C023383 (AMCEL: Brazil)

— Introducing environmental management systems

- In order to promote environmental management, the Group is introducing various environmental management systems, including ISO14001 and Eco-Action 21.
- Nippon Paper Industries has obtained ISO 14001 certification for 100% of its production locations (as of March 31, 2021).

Acquisition of ISO 14001 Certification (as of March 31, 2021)

Company Name	Mills/Operating Division/Production Subsidiaries
Nippon Paper Industries	Kushiro Mill, 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 Papyrus	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
Juho Thermal	Kaattua

The status of Eco-Action 21 acquisition (as of March 31, 2021)

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

Strengthening Environmental Compliance

— Two-Pronged Approach to Environmental compliance

The Nippon Paper 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 with a priority on legal compliance.

Two-Pronged Approach

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Building Systems to Prevent Problems <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 | <ol style="list-style-type: none"> 2. Establishing a Framework that Ensures All Problems are Covered <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 (FY2020)	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 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 to search for and share information on revised laws and relevant trends, and ensure 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 double-checking of compliance with laws and regulations through internal audits by each business site and environmental audits by the Head Office’s environmental department.

- ▶ 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 the following initiatives.

- ▶ Environmental risk communication for local residents and local governments.
- ▶ Preliminary briefing session on the environmental impact of construction and operation when introducing large equipment, etc.

— Responses to Opinions and Complaints

- In addition to receiving opinions and inquiries via its website, the Nippon Paper Group has established a complaint and inquiry contact at each of its mills. We have also adopted environmental monitoring systems and take other steps to encourage input from local residents.
- When a complaint is received, we move swiftly to determine possible causes, and implement emergency and permanent solutions. We also explain to the person who lodged the complaint what happened and what we did to resolve the situation, so that they can be satisfied that we have responded appropriately.

Environment -Related Complaints(FY 2020)

Complaints	Noise/Vibration	Odor	Dust and mist dispersal	Smoke	Other	Total
Number	10	3	2	0	0	15

— Environmental Education and Training for Employees

The Group conducts the following as environmental education for employees.

- ▶ Environmental education for employees
- ▶ Encourage participation in pollution control-related qualifications and external training to gain specialized knowledge
- ▶ Awareness-raising 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 (FY2020)

Program Name	Number of participants
What we can do for the future "Let's think about recycling"	Over 7,100 employees

Alleviation of Environmental Burden and Promotion of Resource Circulation

Basic Stance

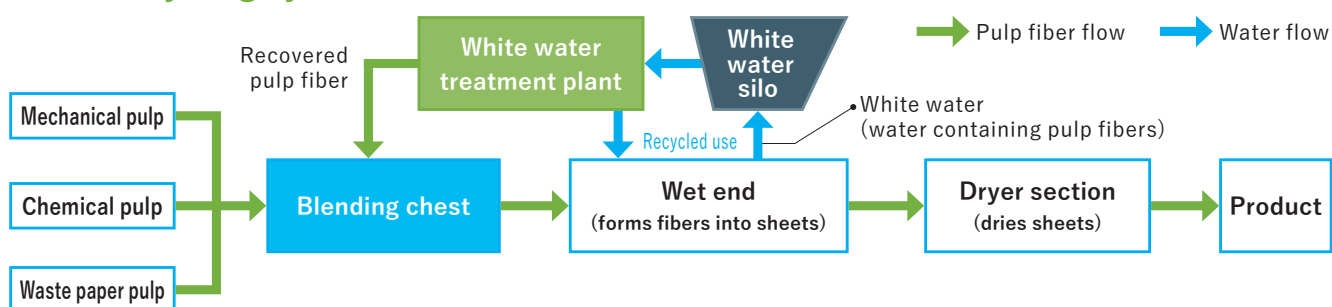
Environmental burden can never be fully eliminated in activities to provide products and services to society. However, companies have a responsibility to society to reduce their environmental burden as much as possible. The Nippon Paper Group identifies this priority as an important management issue for realizing the Group Mission. The Group has worked for many years to minimize its environmental burden by curtailing the generation of waste and other emissions, while promoting the circular use of resources. Under the 2030VISION, the Nippon Paper Group has clearly articulated a business model designed to expand and reinforce the three circulations, which take advantage of the characteristics of woody resources. The purpose of this business model is both to achieve business growth and also to contribute to realizing a circulating society. The Group will step up recycling, which is one of the three circulations, by harnessing its broad range of strengths, including recycling technology. This way, the Group will reduce its environmental burden and contribute to realizing a circulating society.

Alleviation of Environmental Burden

— Effective Use of Water Resources

- The Nippon Paper Group's papermaking process efficiently and effectively uses water resources, which are a form of natural capital. It does this by recovering "white water," which contains very fine pulp fibers from the wet end of the papermaking process, removing the fibers through a treatment process, and then sending the removed fibers to the pulp blending chest and returning the water to the wet end of the manufacturing process.
- At present, we have received no information from local government authorities or residents to indicate that the mills operated by Nippon Paper Group companies are having an environmental impact as a result of their water intake, and water risks in Japan are low.

Water Recycling System



— Controlling Chemical Substances

- The Nippon Paper Group examines the chemical substances it uses in its production processes in accordance with its Chemical Substance Management Guidelines. We do this in exercising risk management that monitors how much of these substances we use and how much we release into the environment.
- We disclose information on our management, release, and transfer of PRTR*-controlled substances to local stakeholders through environmental risk communications at each of our mills and other production sites.

Amounts of Substances Subject to the PRTR Law Released and Transferred*¹ (FY2020)

Cabinet Order No.	Chemical Substance	Amount Released	Amount Transferred	Total released and transferred
1	Water-soluble zinc compounds	730	0	730
2	Acrylamide	12	0	12
4	Acrylic acid and water-soluble salt	11	0	11
9	Acrylonitrile	1	0	1
53	ethylbenzene	0.5	0	0.5
57	Ethylene glycol monoethyl ether	300	4,500	4,800
63	1,1'-ethylene-2,2'-bipyridinium dibromide; diquat dibromide	0.3	0	0.3
80	Xylene	1,289	0	1,289
127	Chloroform	39,144	33,342	72,486
149	Tetrachloromethane	0	29,267	29,267
154	Cyclohexylamine	630	0	630
176	Dichlorofluoroethane	2	0	2
227	1,1'-dimethyl-4,4'-bipyridinium dichloride; paraquat; paraquatdichloride	0.2	0	0.2
232	N,N-dimethylmethanamide	46	220	266
243	Dioxins* ²	180	3,228	3,408
251	O,O-dimethyl O-3-methyl-4-nitrophenyl phosphorothioate; fenitrothion; MEP	1	0	1
272	Water-soluble copper salts (except complex salts)	124	0	124
296	1,2,4-trimethylbenzene	1,675	0	1,675
297	1,3,5-trimethylbenzene	3.4	0	3.4
300	Toluene	24,993	20,693	45,686
302	naphthalene	0.4	0	0.4
305	lead compounds	0.4	0	0.4
374	Hydrogen fluoride and its water-soluble salts	48,033	0	48,033
392	n-hexane	1	0	1
400	benzene	0.1	0	0.1
405	Boron compounds	16,620	0	16,620
406	polychlorinated biphenyls; PCBs	0	5,700	5,700
407	poly(oxyethylene)alkyl ether(alkyl C=12-15)	7	0	7
411	Formaldehyde	4,701	0	4,701
412	manganese and its compounds	10,950	0	10,950
415	Methacrylic acid	2	0	2
418	2-(dimethylamino) ethyl methacrylate	28	0	28
420	Methyl methacrylate	24	0	24
438	Methylnaphthalene	685	0	685
Total* ³ (Excluding dioxins) Unit : kg		150,015	93,722	243,737

*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 Nippon Paper Group mills contain almost no heavy metals, trichloroethylene or other soil contaminants.
- FY2020 was another year in which there were no instances of contaminated soil generated at the Group companies.

— Preventing Noise and Vibration

The Nippon Paper 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

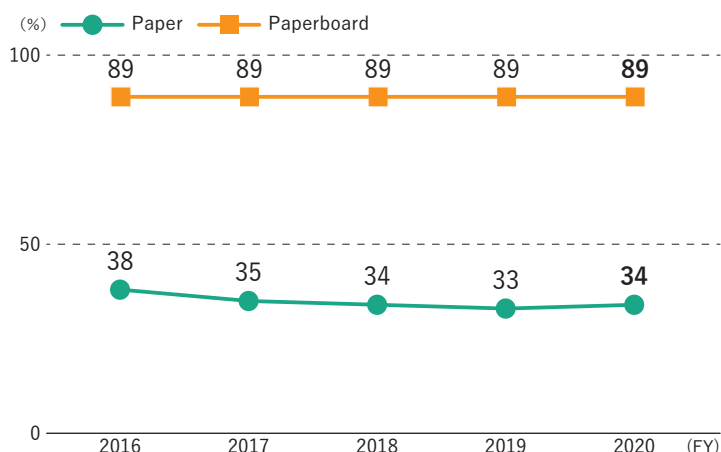
Pulp and paper mills use large machines incorporating numerous motors and other rotating parts that generate noise and vibration. Nippon Paper Industries and NIPPON PAPER UNITEC have developed—and are now operating—the “e-musen junkai®” (e-wireless patrol) system, which uses wireless sensors to constantly monitor equipment for signs of abnormalities. This system uses IoT technology to accumulate temperature and vibration acceleration data on machinery and equipment in operation. Analyzing trends in this data enables us to discover abnormalities early on. By discovering abnormalities at an early stage, this system helps to prevent the occurrence of equipment problems and avoid vibration, noise, and other causes of complaints. In addition to introducing this system at all NPI mills, the Company has also commenced sales to external clients, including customers in Thailand as of FY2019 and will sell to Indonesia, Vietnam.

Promotion of Resource Circulation

— Initiatives for Using Wastepaper

To further expand the use of wastepaper, the Group continues working to develop technologies that will enable the use of types of wastepaper which are currently difficult to recycle.

Trend of used paper utilization rate in Japan



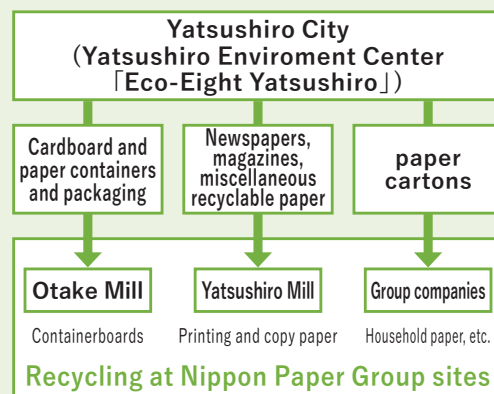
CASE STUDY

Circular Use of Wastepaper

Circular Use of Wastepaper Together with Local Governments

Nippon Paper Industries' 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.

**Collaborative business for recycling used food paper containers**

The Company received the support of Hamamatsu City and started yearlong tests and verification of a new recycling project from April 2021. This project, being carried out together with Hamamatsu Green Wave Co., Ltd. and NPO Ecolife Hamamatsu, uses a collection box installed at Ecohama, a facility in Hamamatsu City to raise environmental awareness, where used paper food containers are collected and brought to one of the Company's mills to be utilized as raw material for paper. By raising recycling awareness among ordinary consumers and using the Company's technologies to recycle old paper, this project utilizes the recyclability inherent in paper and reuses it as a resource. This will reduce the volume of incinerated rubbish and contribute to fixed carbon by prolonging use of woody resources.

Closed Loop Initiatives

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

Collection and Recycling of Paper Cups

Nippon Paper Industries collects paper cups used at its head office and recycles them into material for containerboard at its Kanto Mill (Ashikaga). Since this initiative was launched in September 2020, we have collected a total of around 225,000 cups (as of July 31, 2021).

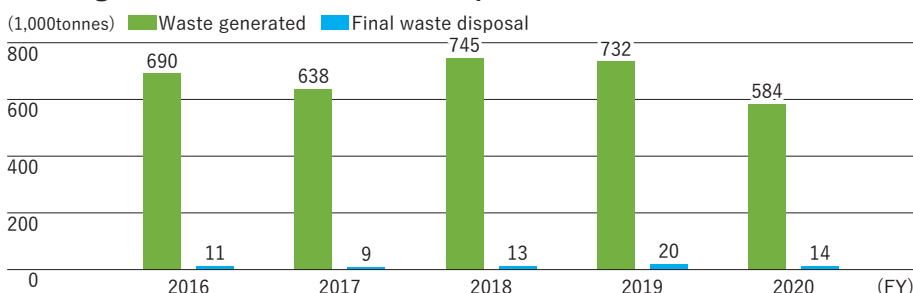
Paper-Pak Carton Collection and Recycling

The company is gradually installing 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 June 2017, the Company commenced collection activities using a proprietary method, primarily in Nerima City, Tokyo. In FY2020, four tonnes of Paper-Paks were collected and used as raw material for household paper products.

— Recycling Industrial Waste

- In its environmental action plan—the Green Action Plan 2020, the Nippon Paper Group had set the objective of achieving a waste recycling rate of at least 98% and we have advanced 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.
- In the environmental target 2030 (Path to Sustainable Future), we will set the goal of reducing the environmental load as “final waste disposal rate of 2% or less” and work on the recycling of industrial waste.

Waste generated and final waste disposal



CASE STUDY

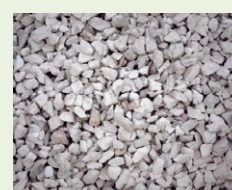
Recycling Industrial Waste

Circular Use of Quicklime (Nippon Paper Industries Ishinomaki and Iwanuma Mills)

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, Nippon Paper Industries' Ishinomaki and Iwanuma mills have started collaborating with a supplier that can recycle quicklime waste. Under this collaboration, the Ishinomaki and Iwanuma mills have commenced initiatives to reuse quicklime waste as a resource.



Quicklime waste



Quicklime

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

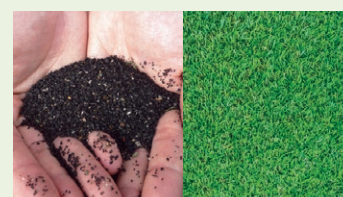
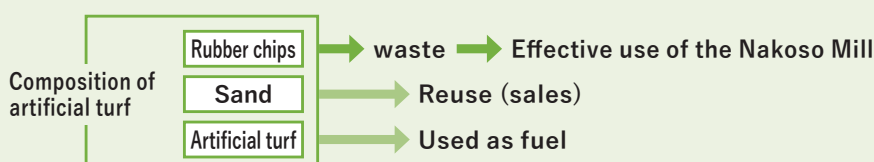
The Ishinomaki Mill operates a coal boiler to privately generate electricity on site. In the process, combustion ash is generated in its coal boiler. Nippon Paper Industries processes the combustion ash through heat modification, and sells the material as CfFA® (Carbon-free Fly Ash) concrete admixture. 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.



CfFA® was used in bridge beams, arches and vertical supports at the JR Kesennuma Line Sakuragawa Bridge on the JR Kesennuma Line (Minamisanriku Town, Motoyoshi District, Miyagi Prefecture)

Local Production and Consumption of Energy (Nippon Paper Industries Nakoso Mill)

At Nippon Paper Industries' 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.



Rubber chips

Artificial turf

Addressing Climate Change

Aiming for Carbon Neutrality in 2050

The Nippon Paper Group sees addressing climate change as one of its material issues for realizing the Group Mission. Under the 2030VISION, in its basic policy, the Company states “reduce CO₂ 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.

Initiatives to Reduce GHG Emissions

- The Group is working to reduce greenhouse gas emissions at each stage of our 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).
- To review the Group energy mix with an eye toward 2030, the Group began introducing internal carbon pricing in July 2021 in order to accelerate the reduction of GHG emissions.

The Nippon Paper Group's FY2031 Targets

Reduce GHG emissions (Scope 1 and 2) by 45% compared with FY2014

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

Green strategy

- Maximize the value of forests (Improve CO₂ fixation efficiency in overseas afforested areas by 30% compared with FY2014)
- Expand biomass products

Carbon neutrality in 2050

Realize carbon neutrality

The Nippon Paper Group's initiatives to reduce GHG emissions

Reduction of GHG emissions from business activities

Absorption and fixation of CO₂ in Company-owned forests

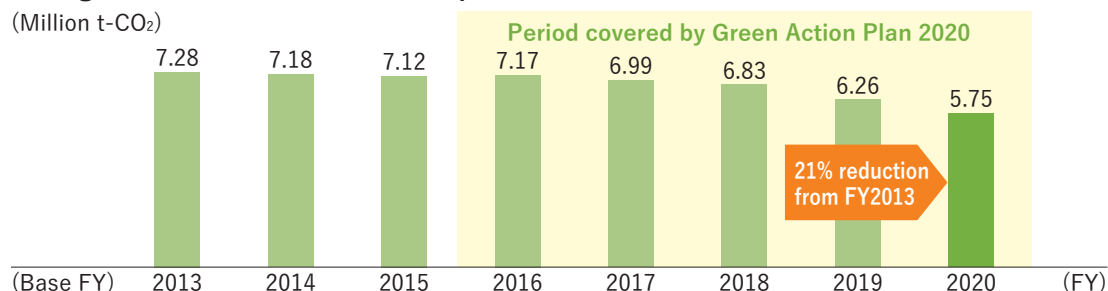
Fuel conversion

Energy conservation

Carbon fixation in forests

Changes in GHG emissions*1 (in Japan*2)

(Million t-CO₂)



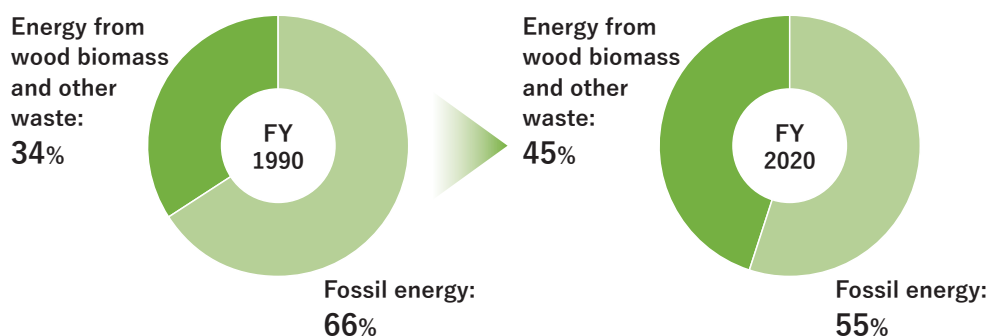
* 1 Sum total of Scope 1 and Scope 2 figures

* 2 Companies subject to the Act on the Rational Use of Energy at consolidated and non-consolidated subsidiaries in Japan

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.
- So far, too, the Group has installed two types of boilers—high efficiency boilers, and boilers capable of burning construction waste and other biomass fuels, used tires, RPF* and other waste fuels. In FY2020, the domestic Group's fossil energy usage ratio (calorie conversion) for its overall use of fuels fell to 55%.

Fossil energy usage ratio (calorie conversion) of all fuels used by the Nippon Paper Group (Japan)



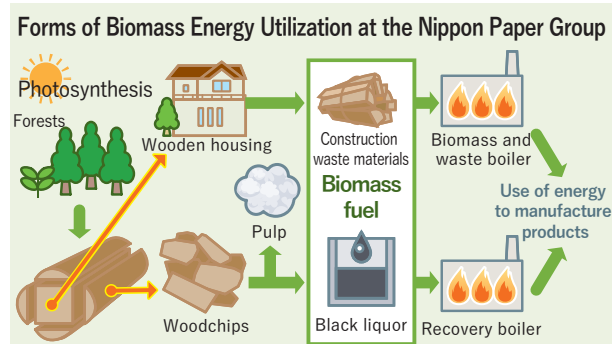
*RPF : Refuse derived paper and plastics densified fuel

This is a high-grade solid fuel made mainly from those paper and plastic industrial waste materials which are difficult to recycle.

— Use of Wood Biomass Energy

- The Group is working to increase its use of black liquor and other woody biomass fuels.
- The amount of woody biomass energy used by the group in FY 2020 was equivalent to around 3.3%* of all non-fossil energy supplied in Japan (excluding nuclear and hydroelectric power). *

* Estimated by Nippon Paper Industries Co., Ltd. based on domestic primary energy supply data (finalized data for FY2019) published by the Agency for Natural Resources and Energy



CASE STUDY

Use of Torrefaction Technology and Wood Biomass Fuels

Nippon Paper Industries Co., Ltd. has established a torrefaction technology which is useful in manufacturing 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 Company has established a torrefaction technology that contributes to the production of new woody biomass fuel to serve as an alternative to coal for thermal power generation.

CASE STUDY

In-house Production of Solid Fuel from Waste

Nippon Paper Industries' 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 FY2020, the mill produced 5,800 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.

— 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. We endeavor to increase the effectiveness of these efforts by seeking to share examples of effective initiatives with other mills.
- In recent years, energy-saving 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.

CASE STUDY

Overseas Deployment of Energy-saving Examples in the Dryer Part

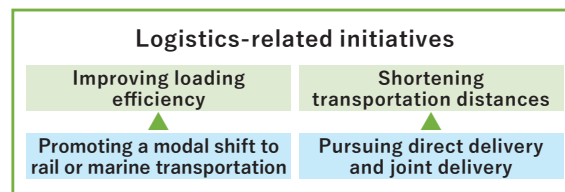
The Company's Asahikawa Mill has achieved energy-saving benefits by working to reduce the amount of steam used in the dryer sections of its paper machines, which dry sheets of pulp and finish them into paper. This is to use chemicals to create a water-repellent film inside the hollow equipment to repel water condensation and increase the efficiency of heat transfer. Based on this example, Siam Nippon Industrial Paper (Thailand) has adopted the same method, and is working to verify the energy-saving benefits of this approach.

Promoting energy-saving in logistics processes

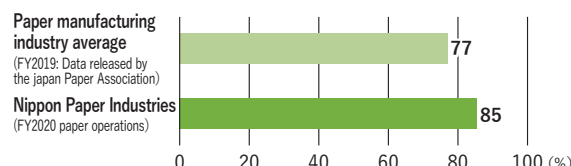
The Group is working to implement green logistics that will lead to reductions in greenhouse gas emissions, from the two perspectives of improving loading efficiency and shortening transportation distances.

- ▶ 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)

Achieving the Creation of a Low Carbon Society



Comparison of modal shift rates



CASE STUDY Obtaining Green Management Certifications^{*1}

Within the Group, 16 business locations of 8 Group companies have obtained Green Management Certification^{*2}. The Group is actively implementing ecological driving, vehicle inspection and maintenance, reduction of vehicle disposal and waste generation, proper waste handling and recycling, and other practices consistent with green management.

^{*1} 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.

^{*2} Of those locations that have obtained certification, 15 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).



Green Management Certification logo
(Left: trucking business, right: warehouse business)

Green Management Certifications[※] (As of July 30, 2021)

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

※ Consolidated and non-consolidated subsidiaries in Japan

CASE STUDY

Nippon Paper Industries obtained two Eco Rail Mark certifications which is a certification scheme established by Japan's Ministry of Land, Infrastructure, Transport and Tourism in 2021. One of the certifications is in the "Companies" category, and applies to the Company itself as a company, while the other is in the "Products" category, and applies to the company's paper products (newsprint, printing and writing paper, business communication paper, industrial paper, etc.). The certification applies to companies (and the products of companies) which make heavy use of rail freight transportation, which generates lower unit CO₂ emissions.

The Company has continued to work on building a logistics system with a lower environmental impact.



Eco Rail Mark for Companies certification



Eco Rail Mark for Products certification

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).

A double-coupled truck is a full-trailer with a total connected length extended from the conventional 21m to a maximum of 25m, and has the transportation capacity of about two large trucks. CO₂ emissions per weight of the trucks (vehicles over 21m) are reduced by about 30% compared to ordinary heavy-duty trucks (12m vehicles) (according to NLJ actual values).



double-coupled truck

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

The Group manages forests at home and abroad, consisting of about 90 thousand hectares in Japan and about 80 thousand hectares overseas. Based on the concept of sustainable forest management, the Group appropriately manages these forests and maintains the CO₂ absorption and sequestration capabilities of the trees. Forests owned by the Group continuously fix approximately 31 million tonnes of CO₂.

CASE STUDY

Quantifying CO₂ Absorbed by Appropriately Managed Company-owned Forests as Credits and Contributing to Offsetting Initiatives

The Nippon Paper Group engages in appropriate management of its company owned forests with the aim of achieving sustainable forest management. The greenhouse gas absorption effects of its partial tree thinning projects have been certified with J-Credits* as one of multifaceted values. The supply of these credits as forest-derived credits is contributing to attempts at carbon offsetting in local communities.

* A system in which the government certifies the amount of reduction and absorption of greenhouse gases such as CO₂ as “credits”



A forest where tree thinning projects have been certified under the credit scheme (Sudagai company forest, owned by Nippon Paper Lumber)

Response to TCFD (Task Force on Climate-related Financial Disclosure)

The Group endorsed the 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 Company regards addressing climate change issues as an important issue in realizing its corporate group philosophy. 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 environmental issues will report to the Board of Directors on issues once a quarter.

— Risk Management

The assessment of and response to climate-related risks is integrated into the Group's risk management system and is managed by the Risk Management Committee (see P.9). 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

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

Indicator: Carbon pricing information

Target : FY2030 GHG emissions (Scope 1+2) 45% reduction (compared to FY2013)
Non-fossil energy use ratio of 60% or more

— Strategy and scenario analysis

As a scenario analysis for the year 2020, the Company drew up a vision of society against the backdrop of growing awareness of ESG issues. Using two different scenarios, it conducted an analysis and qualitative assessment of 2030 projections, focusing on our business, and reported the results to the Board of Directors.

1. Scenario analysis methods

1-1. Establishing an image of society

2°C scenario

All kinds of policies will be introduced to keep the temperature rise below 2°C, and at the same time, society as a whole will take action to limit the 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 increases, and precipitation patterns.

4°C scenario

No policies will be introduced to control temperature rise. While some stakeholders will take actions to limit temperature increase 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 increase. As a result, temperatures will rise more rapidly than in the 2°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.

1-2. 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

2. Summary of Analysis Results

Since the pulp and paper industry is an energy-intensive industry, 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 Group is currently working to ensure strategic resilience through multifaceted measures such as a 45% reduction in greenhouse gas emissions (compared to FY2013) and multiple production sites.

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.

2-1. Climate change-related risks

Factors		Impact on the Company	Risk Assessment	
			2°C scenario	4°C scenario
Transition Factors	Policy introduction (e.g., carbon tax, change in energy mix)	• Energy procurement costs for fuel and raw materials will increase.	High	Low
		• Capital investment costs for fuel conversion and energy conservation measures will increase.		
		• Raw material procurement costs will increase.		
		• 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 Factor	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	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, decrease in production volume, and delay or stoppage of deliveries		
	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.		
		• Search for alternative materials and increase technology development costs		
		• Sales volume decreases or sales price declines due to difficulty in maintaining quality.		

2-1-1. Transition factors

① Risks mainly due to the introduction of policy

< Introduction of carbon pricing, etc. >

Under the 2°C scenario, fossil fuel prices are expected to rise and fuel procurement costs 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, while investment costs for fuel switching and energy conservation measures to curb greenhouse gas emissions will also increase.

Since the pulp and paper industry is an energy-intensive industry, it is at risk of being significantly affected by the introduction of these policies.

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

In response to the risk of rising fossil fuel prices due to the introduction of the policy, the Group will make maximum use of the Group's Nippon Paper Lumber biomass procurement network, which is one of the largest timber procurement companies in Japan and accelerate the shift to non-fossil fuels in order to achieve the target of a 45% reduction in greenhouse gas emissions (compared to FY 2013) set in the Nippon Paper Group 2030VISION. The Company will accelerate the conversion to non-fossil fuels. At the same time, by strengthening energy conservation measures through the introduction of internal carbon pricing and other measures, the Company will work to reduce risks by promoting efforts to realize the effects of greenhouse gas reductions as early as possible.

<Changes in energy composition>

In the 2°C scenario, there is a risk that the demand for biomass fuels will increase due to policies to promote the introduction of renewable energies, 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 the risk of increased demand for biomass fuel due to the introduction of the policy, 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 risk 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 our manufacturing from overseas, it may be affected by the policy trends of resource-supplying countries. Under the 2°C scenario, carbon prices are expected to be raised in resource-supplying countries to strengthen their policies, which will also increase the prices of raw materials purchased by the Company, 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 2°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 afforestation projects for the purpose of creating credits will lead to an increase in the price of land suitable for afforestation and an increase in the cost of land acquisition for the Company's afforestation business.

On the other hand, under the 4°C scenario, some stakeholders may secure afforested 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 afforestation business is considered to be small.

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.

② Risks arising primarily from changes in market needs.

<Rapid increase in demand for environmentally friendly products>

Under the 2°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. In response, the Company is working to mitigate risks by strengthening efforts to reduce its environmental impact.

The Company will further accelerate the reduction of greenhouse gas emissions through fuel conversion and energy conservation measures. By taking advantage of the fact that its production bases are dispersed throughout Japan, the Company will contribute to the reduction of greenhouse gas emissions throughout the supply chain by shortening the transportation distance to delivery destinations and reducing greenhouse gas emissions during transportation through the use of multiple production bases as well.

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 we are already working on, the Company will be able to promote the replacement of materials with renewable biomass materials, reduce the risks associated with changes in market needs, and at the same time use this as an opportunity to expand its business.

In addition, under the 2°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 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, which are a limited resource. There is a risk that the procurement cost of certified wood chips, a limited resource, will increase. In order 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.

2-1-2. Physical factors

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 lifelines, 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 occurrence of natural disasters is beyond the Company's control, it is taking advantage of the fact that its factories are dispersed throughout Japan to accelerate the transition to a system that allows production at multiple factories, thereby strengthening its system for business continuity and risk reduction. 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 today but is expected to become more frequent under the 4°C scenario.

Although the Company cannot control the occurrence of natural disasters, it 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 risk by developing a detailed system for business continuity in case production is suspended.

② Risk due to rising temperatures and changing precipitation patterns

<Forest fire occurrence>

As temperature rises, the probability of forest fires increases, and 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 the Company's plantation business will suffer damage. In order to reduce this risk, the Company is strengthening its fire prevention and extinguishing systems in its own forests, and at the same time, it is trying to reduce this risk by dispersing our own forests and suppliers in multiple countries and regions.

<Decrease in plant productivity>

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 a 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 is unable to procure raw materials, it will be difficult to maintain the quality and function of its products, and there is a risk of a decrease in sales volume or sales price. However, the Company is working to reduce this risk by diversifying our raw material supply sources and continuing to search for alternative materials.

2-2. Opportunities for business expansion

Factors			Transition Opportunities	The Company's Strength	Market Growth	
					2°C Scenario	4°C Scenario
Transition Factors	Introduction of policies (e.g. carbon tax, changes in energy mix)	• Renewable energy is being introduced.	• Demand for power generation facility locations will increase.	• Domestic company-owned forests and sites, etc. • Fuel procurement network • Biomass fuel production technology	Expansion	Stable
			• Demand for biomass fuels will increase.			
		• 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	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 Domestic Forestry • Forest Management Technology • Breeding and propagation technology	Significant Expansion	Stable
		• Resources will become more difficult to obtain due to stricter policies in resource-providing countries.	• Demand for domestically produced lumber will increase.	• Domestic Company-owned Forests and 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
	Transition to a decentralized society	• Increasing local production and local consumption of energy	• Small fuel demand will increase.	• Fuel procurement network	Expansion	Stable
		• Decentralization of product consumption	• 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 in Climate Change	Changes in market needs	• Demand for environmentally friendly products will increase.	• Demand for biomass materials will increase as the need to paperizing due to decarbonization.	Woody Biomass Material Development Technology • Technology for recycling unused waste paper	Significant Expansion	Expansion
			• Demand for paper made from sustainably sourced forest materials will increase.	• Track record of procuring certified forest materials • Relationship of trust with excellent suppliers	Expansion	Expansion
			• Demand for products that reduce greenhouse gas emissions from livestock farming will increase.	• Cellulose material utilization technology	Expansion	Stable
	Increase in the number of catastrophic disasters	• Increasing demand for stable supply of products	• Increased need to purchase from suppliers with established flexible systems for business continuity	• Multiple production sites	Expansion	Significant Expansion
		• Overseas raw material suppliers and distribution networks are damaged.	• Demand for domestically produced lumber will increase • Demand for recycled paper will increase.	• Domestic Company-owned Forests and Seedling Businesses • Recycled paper procurement network • Collaboration with Stakeholders • Unused recovered paper recycling technology	Expansion	Significant Expansion
		• 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
	Increase in temperature and change in precipitation patterns	• Decreases the amount of plant growth	• Demand for environmental stress tolerant trees will increase.	• Breeding and propagation technology	Expansion	Expansion

2-2-1. Transition factors

① Opportunities associated with the introduction of the policy

<Increase in demand for renewable energy>

In the 2°C scenario, policies are expected to promote the introduction of renewable energies, 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 can use these as an opportunity to expand its business of supplying renewable energy in cooperation with power generation companies. In response to the increasing demand for biomass fuels, this will also 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 2°C scenario, where a rapid increase in demand for renewable energy is expected, the Company believes that it has the tangible and intangible assets to meet this demand and can quickly respond to this market expansion so as to 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. The Company is pleased to announce that it has succeeded in developing the world's first dry, lightweight supercapacitor. 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 365 million in 2019 and is expected to grow at a significant rate of over 12% per annum from 2020 to 2027.^{*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 \$228.4 billion in 2019 and is expected to reach \$295.6 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 about 0.6 billion dollars in 2020, but it is expected to expand to about 250 million dollars 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 2°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 Ocean

*3 Yano Research Institute

<Expansion of the carbon credit market>

In the 2°C scenario, where the world is aiming for carbon neutrality (net zero CO₂), the demand for carbon credits will increase and the market will expand, and the demand for forest absorption credits is expected to increase accordingly.

The Company owns approximately 90,000 hectares of its forests in Japan. In addition to forest management technology cultivated through the management of Company-owned forests in Japan and overseas afforestation 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.

<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 2°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 operates a mountain seedling business. It is also 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.

Under the 2°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 2°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 greenhouse gases through the reduction of fossil fuel use.

In the Company's overseas afforestation business, by continuing the cycle of afforestation, 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 afforestation 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 contributes to the recycling of carbon resources, not only in the Company's own forests.

In addition, 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.

<Transition to a decentralized society>

Under the 2°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 2°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 increase, there will be a shift to decentralization, but at a slower rate than in the 2°C scenario, mainly 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 factories are dispersed throughout Japan and by responding to the decentralization.

② 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. Currently, there is a growing movement to switch from plastic to paper packaging as a means of solving the problem of ocean plastic. In the 2°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 will increase.

As part of the Company's strategy to meet the increasing demand for biomass materials, it is a 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 "waterproof liner", a multifunctional base paper for corrugated board that is a sustainable alternative to Styrofoam boxes. In addition to this, the Company believes that by providing society with a variety of biomass materials, such as resin composite materials with a high content of woody biomass, it can respond to changing market needs and capture and expand business opportunities.

<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 2°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.

< 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 it ensures certainty through its due diligence system and forest resource creation, which it believes will lead to future business expansion in terms of the reliability of the wood raw materials the Company uses.

2-2-2. Business opportunities due to changes in physical factors

< 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 and recovered paper use expand significantly, the Company can take advantage of its strong timber and recovered paper 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 2°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 2°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.

< 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.

Preserving Biodiversity

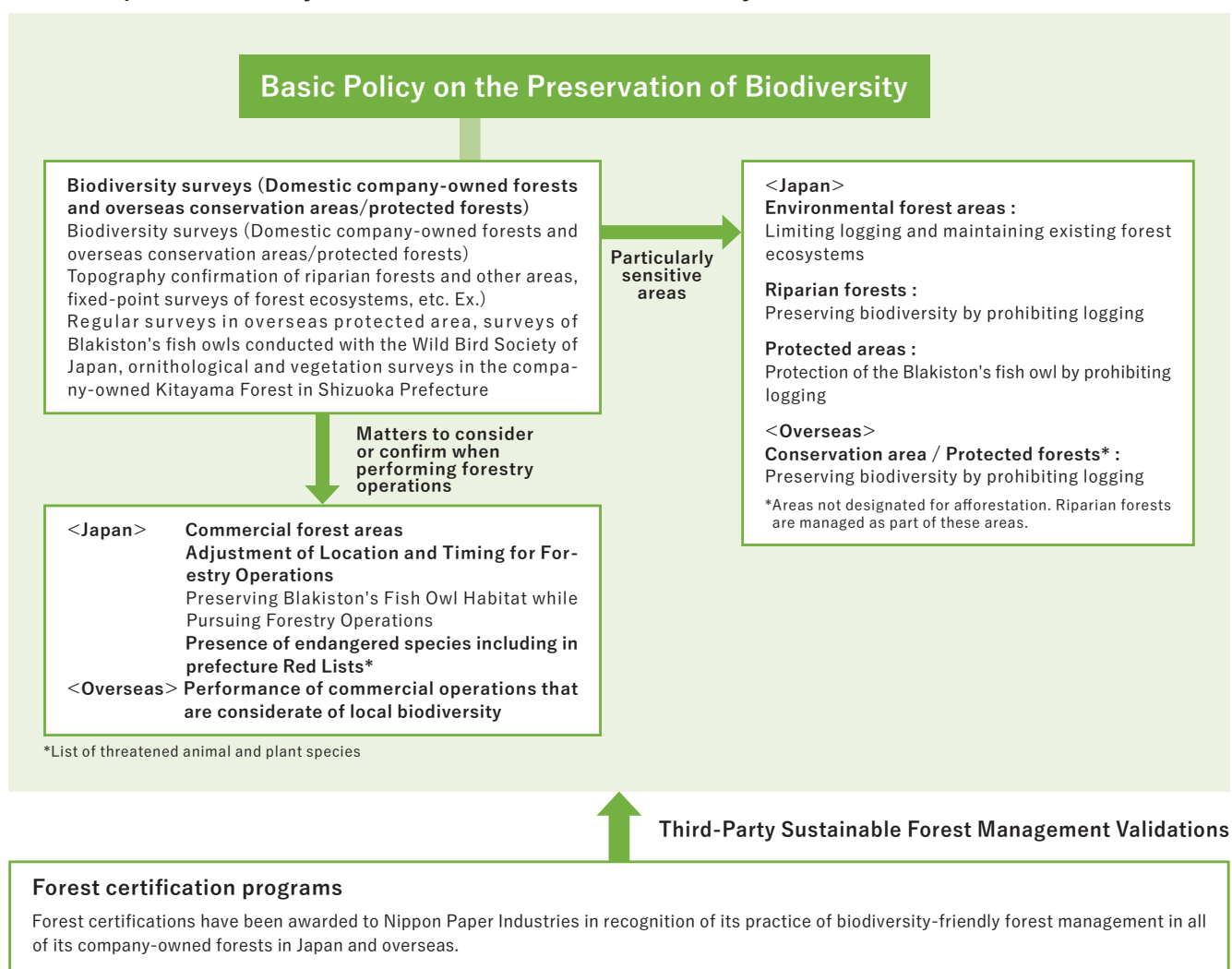
Basic Stance

The business foundation of the Nippon Paper Group is forest resources, and it is highly dependent on the forests that nurture biodiversity and at the same time has various impacts. “Conservation of biodiversity” is considered to be the fundamental function of forests. In addition, forests have environmental conservation functions such as soil conservation and water source recharge, and in order for them to be fully utilized, it is necessary to use the blessings of forests in a sustainable manner. Therefore, the Group set the Nippon Paper Group’s Environmental Charter which states that the Group will engage in corporate activities that recognize the importance of biodiversity and also established the “Basic Policies on the Preservation of Biodiversity” in 2016. The Group is working to preserve biodiversity through its main business activities, as well as activities utilizing its resources and technologies.

→Basic Policy on the Preservation of Biodiversity

<https://www.nipponpapergroup.com/csr/policies/>

The Group’s Biodiversity Conservation Initiatives (Summary)



Biodiversity Conservation Initiatives

- The Nippon Paper 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.
- The Group sustainably procures wood resources, which are the raw materials for our Group's products, from properly managed forests.
- The Group manages sustainable forests in its own forests in Japan and overseas.
- The Group properly manage forests for economic use and forests for environmental conservation forests by setting of Conservation area / Protected forests that are not logged to conserve biodiversity through confirmation of topographical information to be considered such as riparian forests and implementation of fixed-point surveys of forest ecosystems, etc.

CASE STUDY

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

In 2010, Nippon Paper Industries entered into an agreement with the Wild Bird Society of Japan where forestland owned by the company in Hokkaido was identified as a sanctuary for Blakiston's fish owl. In 2015, the Company set a new standard for the compatibility of business activities with the preservation of Blakiston's fish owl habitat in company-owned forests in the Kushiro area. In that standard the Company considers the scale and timing of forest operations. Also, the Company continued to conduct joint surveys accumulated data, on biodiversity in company-owned forests. In November 2020, the Company set up nest boxes and is not only conserving habitats, but also supporting the breeding of Blakiston's owls. In February 2021, evaluation of more than 10 years of working with the Wild Bird Society of Japan led to being awarded Hokkaido Biodiversity Conservation Awards (*Mirai e Tsunagu! Kitaguni no Ikimono Mamoritai Sho* prize) organized by the Hokkaido government.



(Photo courtesy of the Wild Bird Society of Japan)

* Blakiston's fish owl was identified as a national protected species in 1971, and placed on the Red List of critically endangered species by Japan's Ministry of the Environment

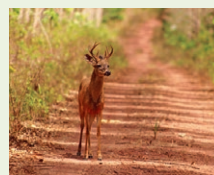
CASE STUDY

Conducting Biodiversity Research Overseas (AMCEL S.A, Brazil)

AMCEL S.A. (Brazil) 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

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 (Nippon Paper Group)**

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

On the part of the Nippon Paper Group, Nippon Paper Development—which manages Nippon Paper Industries’ Sugenuma Forest—has supported the operation of the Shiraneaoi Preservation Group since its initial establishment, and has made a portion of the Sugenuma Forest available to the group as a restorative plantation site for Shiraneaoi. Since 2002, Group employees have participated as volunteers in planting, seed collection, and other activities.



Care of the planting site with high school students in Oze

CASE STUDY**Eradicating Invasive Plant Species from Iriomote Island**

~Cooperation with the Iriomote Island Ecotourism Association (Nippon Paper Industries)

In August 2017, Nippon Paper Industries entered into an agreement with the Forestry Agency Kyushu Regional Forest Office Okinawa District Forest Office to carry out forest conservation activities such as the eradication of non-native plants on approximately nine hectares of national forest of Iriomote Island. It has since been engaged in such efforts through cooperation with the Iriomote Island Ecotourism Association, which conducts activities for conserving and ensuring the continuity of the nature and traditional culture of the island. Iriomote Island is covered with highly diverse forests, including Japan’s largest mangrove forest and subtropical broad-leaved trees, providing a habitat for precious animal and plant species such as the Iriomote wild cat, which has been designated a special national treasure (a Critically Endangered IA species). However, large numbers of invasive non-native plants have been found over an extensive area. The Company is therefore cooperating with the local people of Iriomote Island to eradicate non-native plant species such as the Bay Biscayne* creeping-oxeye, and conducting continuous surveys to detect their reappearance.



A removed Bay Biscayne creeping-oxeye

*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 (Nippon Paper Group)**

The Company, Nippon Paper Group company Marunuma Kogen Resort and Coca-Cola Bottlers Japan Inc. agree on mutual cooperation for the conservation and protection of forest and water resources. They are collaborating on initiatives to keep “Healthy forest” that nurtures “rich water” utilizing the knowledge and experience of The Group’s “Forest / Tree” and Coca-Cola Bottlers Japan’s “Water”. Because the water source area of Coca-Cola Bottlers Japan’s Saitama Mill and Iwatsuki Mill are located in part of Sugenuma company-owned forest in Katashina Village, Gunma Prefecture (1,746ha) where Marunuma Kogen Resort has developed a leisure business. The Group promotes the activities of forest conservation and maintenance.

Other environment-related data

Environmental Accounting

Environmental Conservation Costs (FY2020) (Millions of Yen)

	Investment	Cost
(1) Business area costs		
①Pollution prevention costs	4,091	11,484
②Global environmental conservation costs	2,333	339
③Resources circulation costs	41	8,738
(2) Upstream/downstream cost	—	3,202
(3) Administration cost	—	274
(4) R&D cost	—	3,099
(5) Social activity costs	—	42
(6) Environmental remediation costs	—	522
Total	6,465	27,760

Environmental conservation impacts (FY2020)

Categories	Environmental Impact Indicators		Results	YoY Change
Effects related to resources introduced to business activities	Afforestation projects overseas	Overseas afforestation areas	83kha	No change
	Energy-saving measures	Fuel reduction(Heavy oil equivalent)	54,638kl	Up 783kl
Effects related to environmental impact and waste from business activities	Greenhouse gas emissions		5.75Mt	Down 0.51Mt
	Air pollutant emissions	NOx emissions (NO equivalent)	7,268t	Down 1,210t
		SOx emissions (SO ₂ equivalent)	2,012t	Down 1,436t
		Soot and dust emissions	868t	Down 492t
	Effluent		798Mt	Down 65Mt
	Water contaminant emissions	COD/BOD emissions	43,195t	Down 5,420t
		SS emissions	18,558t	Down 2,647t
	Final waste disposal		14.2kt	Down 6kt
Effects related to goods and services produced from business activities	Product recycling	Recycled paper utilization rate(paper)	34%	Up 0.7%
		Recycled paper utilization rate (paperboard)	89%	Up 0.7%
	Shipping material recycling	Pallet recovery rate	46%	Down 0.7%

Environmental Benefits of Environmental Conservation (FY2020) (Millions of Yen)

Effect	Amount
Income from company-owned forests in Japan	549
Reduced expenses from energy saved	1,006
Reduced disposal expenses through the effective use of waste	3,702
Gain on sales from the recycled waste	386
Reduced expenses through the recycling of shipping material	1,526
Total	7,170

※Accounting standards are based on Environmental Accounting Guidelines 2005

Environment related

Balance of Materials for All Businesses (Principal Materials) (FY2020)

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

		Unit	FY2018 ^{※1}	FY2019 ^{※1}	FY2020 ^{※1}
Input					
Energy input	Purchased electricity	GWh	2,134	2,100	1,934
	Oil	Thousand kl	462	447	578
	Coal	Thousand t	2,841	2,637	2,039
	Gas		261	272	299
	Other fossil fuels		23	27.5	23
	Non-fossil fules ^{※2}		6,622	5,997	5,347
	(Of which Black liquor)		4,906	4,643	3,985
Chemical substances subject to the PRTR Law ^{※3}	Amount handled	t	9,257	9,270	11,568
Water consumption	Total	Million t	901	930	880
	River water		750	757	710
	Industrial water		123	143	140
	Well water		27	29	29
	Public water supply		1	1	1
Raw Material	Woodchips	Thousand BDt	5,443	5,228	5,446
	Logs	Thousand ADt	808	805	702
	Pulp		511	512	446
	Recycled paper(Pulp)		2,899	2,705	3,202
	Base Paper		100	102	123
Output					
Gas Emissions	GHG emissions	Million t-CO ₂	7.90	7.40	6.90
	(Scope 1)		7.06	6.62	6.26
	(Scope 2)		0.83	0.78	0.64
	SOx emissions	Thousand t	3.95	3.97	2.83
	NOx emissions		11.2	10.82	9.39
	Soot and dust		1.4	1.61	1.10
Chemical substances subject to the PRTR Law ^{※3}	Amount released	t	201	141	150
	Amount transferred		82	80	94
Waste Water	Wastewater Total	Million t	875	905	843
	Public water		866	896	835
	Sewerage		9	9	8
	COD/BOD	Thousand t	62	59	53
	SS		24	26	24
	Nitrogen		1.5	1.5	1.3
	Phosphorous		0.2	0.2	0.2
Waste	Total Waste Generated	Thousand BDt	982	989	760
	Final disposal subtotal		124	141	72
	Recycled subtotal		858	848	688
	Hazardous waste generation ^{※4}		—	—	1,541
Products manufactured	Paper, household Paper	Million t	4.3	4.02	3.29
	Paperboard		2.16	2.04	1.88
	Pulp	Thousand t	268	239	221
	Paper container		83	88	92
	Chemical products		101	100	93
	Building materials		85	126	80
Electricity	Electricity	GWh	2,523	2,199	2,384

※1 Coverage: FY2018 https://www.nipponpapergroup.com/english/csr/npg_csrr2019_e_all.pdf#page=2
FY2019 https://www.nipponpapergroup.com/english/csr/npg_csrr2020_e_all.pdf#page=2
FY2020 https://www.nipponpapergroup.com/english/csr/npg_esgdb2021_contents.pdf

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

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

※4 Only in Japan, Aggregated by specially controlled industrial waste

Balance of Materials in the Pulp and Paper Businesses in Japan(Principal Materials) (FY2020)

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

		Unit	FY2018 ^{※1}	FY2019 ^{※1}	FY2020 ^{※1}
Input					
Energy input	Purchased electricity	GWh	929	895	804
	Oil	Thousand kl	170	159	147
	Coal	Thousand t	1,942	1,773	1,619
	Gas		101	97	101
	Other fossil fuels		23	27	23
	Non-fossil fuels ^{※2}		4,608	4,281	3,582
	(Of which Black liquor)		3,315	3,130	2,561
Chemical substances subject to the PRTR Law ^{※3}	Amount handled	t	328	402	341
Water consumption	Amount of water intake	Million t	815	805	757
	water intake intensity	t/product-t	146	155	171
Raw Material	Woodchips	Thousand BDt	4,239	4,102	3,344
	Logs	BDt	25	28	23
	Pulp	Thousand ADt	430	424	350
	Recycled paper (Pulp)	ADt	2,823	2,619	2,658
Output					
Gas Emissions	GHG emissions (Scope 1 + 2)	Million t-CO ₂	6.56	6.00	5.49
	Scope 1		6.08	5.56	5.17
	Scope 2		0.49	0.44	0.31
	GHG emissions intensity during production	t-CO ₂ /product-t	1.18	1.16	1.24
	SOx emissions	Thousand t	3.3	3.2	1.7
	NOx emissions		8.4	8.2	7.0
	Soot and dust		1.1	1.3	0.8
	Amount released	t	147	97	104
Chemical substances subject to the PRTR Law ^{※3}	Amount transferred		0.23	0.22	6
VOC (Volatile Organic Compounds)	Amount released	t	48	41	49
Wastewater	Wastewater Total	Million t	763	789	731
	COD/BOD	Thousand t	44	40	35.6
	SS		18	18	16.2
	Nitrogen		1.5	1.4	1.2
	Phosphorous		0.2	0.1	0.1
Waste	Total Waste Generated	Thousand BDt	714	700	553
	Final disposal subtotal		12	19	13
	Recycled subtotal		702	681	541
Products manufactured	Paper, household Paper	Million t	3.86	3.57	2.86
	Paperboard		1.7	1.6	1.6
	Pulp	Thousand t	13	14	11

※1 Coverage: Pulp and Paper Businesses in Japan extracted from P.0 (the first page of this databook) coverage

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

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

GHG emissions Scope3 (FY2020)

Coverage : Nippon Paper Industries, Paper and Paperboard Business

Category		Emissions (thousand Million t-CO ₂)
1	Purchased goods and services	3,867
2	Capital goods	130
3	Fuel- and energy-related activities (not included in scope 1 or scope 2)	1,556
4	Upstream transportation and distribution	987
5	Waste generated in operations	1.26
6	Business travel	0.72
7	Employee commuting	3.98
8	Upstream leased assets	0
9	Downstream transportation and distribution	139
10	Processing of sold products	0
11	Use of sold products	0
12	End-of-life treatment of sold products	0
13	Downstream leased assets	0
14	Franchises	Not applicable
15	Investments	Not applicable
Total		6,685

Category 2,6 : Including other than Paper and Paperboard Business

Category 10-12 : Not subject to calculation because it is an intermediate good

However, categories 11 and 12 are considered as follows:

Paper and paperboard products do not use energy when used

CO₂ emissions at the time of disposal of paper and paperboard products are set to zero by offsetting from the concept of carbon neutrality.**External Awards for Environmental Conservation Activities (FY2020)**

Award	Recipient
Yamaguchi Prefecture Seto Inland Sea Environmental Conservation Association Slogan about environmental conservation in the first year of Reiwa	Nippon Paper Industries, Iwakuni Mill
Yamaguchi Prefecture Seto Inland Sea Environmental Conservation Association Senryu about environmental conservation in the first year of Reiwa	Nippon Paper Industries, Iwakuni Mill

Environmentally-participating initiatives and external collaboration, etc.

Name	Organizer	Year of participation
TCFD Consortium		2021
Initiative on Declaration of Biodiversity by Keidanren	KEIDANREN(Japan Business Federation)	2021
Task Force on Climate-related Financial Disclosures (TCFD)		2021
Japan Partnership for Circular Economy(J4CE)	Ministry of the Environment, KEIDANREN(Japan Business Federation)	2021
GREEN SEA SETOUCHI HIROSIMA PLATFORM	Hiroshima Prefecture	2021
Opinion exchange meeting for zero carbon	Kumamoto Prefecture	2021

Policy and Management

Basic Stance

The Nippon Paper Group has made “delighting our customers” (by accurately responding to the needs of customers), one of the requirements of the Vision to realize its Group Mission. Through the provision of products that contribute to the building of a sustainable society, the Group aims to enhance its social and economic value as a company and to realize its Group Mission.

The Group ensures safety and quality based on the Philosophy and Basic Policy of Product Safety, and strives for the stable supply of diverse products indispensable for daily living.

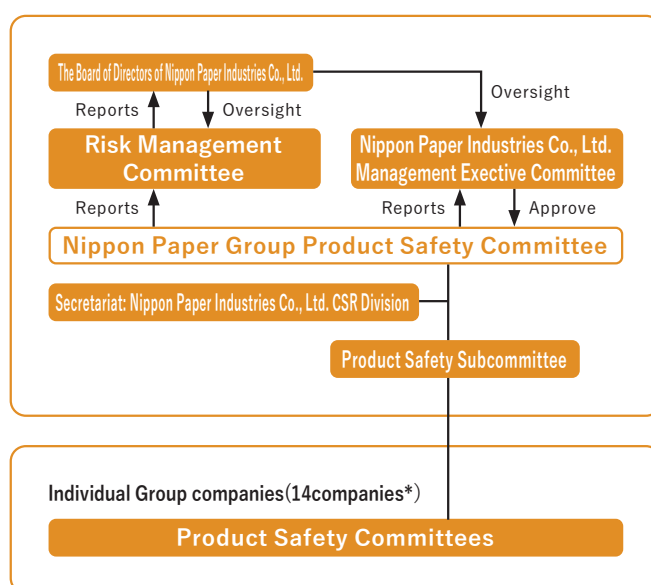
→Philosophy and Basic Policy on Product Safety

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

Product Safety Management Promotion System

Nippon Paper Industries has established a Risk Management Committee under the supervision of the Board of Directors. The Nippon Paper Group Product Safety Committee, chaired by the general manager of the CSR Division, manages activities related to the Group’s product safety and reports to the Risk Management Committee.

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 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.



* Nippon Paper Industries, Nippon Paper Crecia, Nippon Paper Papylia, Nippon Paper Lumber, Daishowa Uniboard, Nippon Seitai Corporation, Kyoei Seitai K.K., NP Trading, Nippon Paper Development, Opal, Jujo Thermal Oy, Siam Nippon Industrial Paper, Dyna Wave Holding Asia, Akita Jujo Chemicals (As of June 30, 2021)

Identifying Customer 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.
 - ▶ Explain the tree species, countries of origin, and legality of our raw materials in their efforts and third-party evaluation (see P.15-17)
 - ▶ Reply 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
 - ▶ Accepting factory tours and inspections^{*2}

^{*} 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 COVID19

CASE STUDY

Registration with a Global CSR Procurement Platform

The Nippon Paper Group

The Group is also registered as a supplier with EcoVadis*, a global information platform for CSR procurement. In 2021, the Group's CSR initiatives were evaluated as the top 5% of all registered companies and received a Gold Medal.



Nippon Paper Liquid Package Product

After registering with Sedex* in FY2019, Nippon Paper Liquid Package Product Egawa Mill has undergone SMETA audits of its CSR assessments.

^{*} EcoVadis (a French-based company) and Sedex (a British-based NGO) both operate global information platforms designed to promote CSR procurement by businesses.

CASE STUDY

Holding Technical Lectures for Customers

Nippon Paper Industries

The Paper-Pak Sales Division conducts technical lectures (Paper-Pak School) and Paper-Pak production plant tours for customers (dairy and beverage companies) providing them with information about overview of paper pack production offices.

CASE STUDY

Customer Consultation Desk

Nippon Paper Crecia

The customer consultation desk offers a system whereby the opinions and questions of customers can be utilized for the further development and improvement of products.

System for Advancing New-product Development

The Group has established its New Product Development Committee to accelerate business structure transformation. New product development teams operating under the committee identify research themes and present them in committee meetings held every three months. For themes approved by the committee, formal projects are established, with allocated human and financial resources, to promote the early development of new businesses.

New Product Development Committee

Chairperson: General Manager of Nippon Paper Industries' s Corporate Planning Div.
Committee members: Members of Nippon Paper Industries' s Management Execution Committee
Other meeting participants (as needed): Presidents of subsidiaries or affiliates, heads of relevant divisions, etc.

New Product Development Team

Product Safety and Quality Management

Approach toward Product Safety

The Nippon Paper Group complies with rules for the management of chemical substances contained in products in Japan and overseas, and works to ensure product safety using management methods that match the characteristics of its business and products. With regard to food-related products in particular, we engage in management in accordance with legal regulations on food safety, management systems and standards.

Product safety management approach

Overall level

Management of chemicals contained in products

Food related

Guidelines for paper and paperboard intended for direct contact with food

Specification of brands and production facilities subject to safety management measures; implementation of measures to prevent contamination by insects and other foreign objects and ensure promotion of hygiene management through enhancement of facilities and management systems; management of chemical substances based on Japan Paper Association voluntary standards; and confirmation of the functional status of the above measures

HACCP (Hazard Analysis and Critical Control Point)

A hygiene management methodology that ensures the safety of products through the establishment of management criteria based on identification and analysis of hazards that could occur at all stages of the food product manufacturing process; clarification of important management points for the prevention of those hazards; and constant monitoring, measurement and recording of data to ensure compliance with those criteria

ISO22000 food safety management system

An international standard for food safety management systems which incorporates the HACCP hygiene management methodology

FSSC 22000 food safety standard

A food safety management system certification scheme integrating the ISO 22000 international food safety management system standard, the ISO/TS 22002 prerequisite program on food safety, and other requirements

Acquisition of Akita Prefecture HACCP certifications (as of March 31, 2021)

Company Name	Mill, Operating Division
Akita Jujo Chemical	Headquarters factory

Acquisition of ISO22000 certifications (as of March 31, 2021)

Company Name	Mill, Operating Division
Nippon Paper Papylia	Kochi Mill* ¹
Opal	Opal Kiwi Packaging Cartons Christchurch
Jujo Thermal* ²	Kauttua

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

*2 Obtained certification in May 2021

Acquisition of FSSC 22000 certifications (as of March 31, 2021)

Company Name	Mill, Operating Division
Nippon Paper Industries	Gotsu Mill* ¹
Nippon Paper Liquid Package Product	Egawa Mill, Miki Mill, Ishioka Mill
Opal	Acquired at six 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

Halal certification obtained

In March 2017, halal certification* was obtained for the nucleic acid (RNA-M) and dissolving pulp produced at the Gotsu Mill. The same certification was obtained for CMC (carboxymethyl cellulose) in October of the same year.

As a result, the Gotsu Mill can now sell halal products required by Muslims both in Japan and overseas.

* 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.

Response to revision of the Food Sanitation Act and positive listing

A law promulgated on June 13, 2018 to partially revise Japan's Food Sanitation Act, etc. introduced a Positive List System that allows, for food production, only substances, equipment, containers and packaging that have been evaluated as safe for food use. On June 1, 2020, a Positive List System for synthetic resins was established. Nippon Paper Group's food product utensils, containers, and packaging comply with this system.

→ About the positive list system
https://www.mhlw.go.jp/stf/newpage_05148.html

Quality Management Initiatives

Each Nippon Paper Group company works to acquire ISO 9001 international quality management standard certification as necessary and engages in quality management suited to the characteristics of its products.

Acquisition of ISO 9001 Certification (as of March 31, 2021)

Company Name	Mill, Operating Division
Nippon Paper Industries Co., Ltd.	Shiraoi Mill* ¹ , Akita Mill, Nakoso Mill, Kanto Mill, Fuji Mill Yoshinaga, Gotsu Mill* ² , Otake Mill, Iwakuni Mill* ³ , Chemical Sales Division Higashimatsuyama Mill
Nippon Paper Industries CNF-related* ⁴	Research and Development Division's Cellulose Nanofiber (CNF) 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 Corporation	Hokkaido Office, Maebashi Mill, Saitama Mill, Kansai Office
Kyouei Seitai K.K.	
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	29 locations certified
Juho Thermal Oy	Kaustua
Siam Nippon Industrial Paper	
Nippon Dynawave Packaging Company, LLC	
TS Plastics	

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

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

*3 Chemical Production Department is certified

*4 As of July 2021

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 Company Paper-Pak Sales Division implements the following initiatives:
 - ▶ Provide continually quality and technical support to the business locations of Nippon Paper Liquid Package Product, which are production bases.
 - ▶ Conduct on-site quality meetings and product safety and hygiene audits on an annual basis at Nippon Paper Liquid Package Product business locations.

— Paper and paperboard division quality assurance initiatives

- The Company has adopted a Service Engineer (SE) system to shorten the distance between customers and production facilities.
 - ▶ Engineering staff involved in paper production visit sites that use paper (printing, processing) as SEs to conduct quality patrols.
 - ▶ The Company reorganized our quality assurance systems, assigning technical experts to sales divisions.
 - ▶ The Company have improved collaboration between sales and technical divisions through the holding of regular quality-information meetings

— Responding to instances of defective products

- For defective products, action is taken by individual Group companies.
 - < Example: Paper and Paperboard Division of Nippon Paper Industries >
 - ▶ Sales technicians act as the central contact point.
 - ▶ Works with the relevant mill and head office departments to develop solutions by using tools such as a database of safety-related problems.
 - < Example: Nippon Paper Crecia >
 - ▶ All products contain the contact information of the customer consultation desk.
 - ▶ Always accept questions and comments on the Company website.

— Verification and Audit of Wastepaper Pulp Blending Ratios and Use of Thinned Wood

- The Company established a management system for providing customers with guarantees that products are made with a specific percentage of wastepaper pulp content and with wood from forest thinning.
 - ▶ The Company manage and review production procedures at each of the Group's mills, based on the ISO 14001 environmental management system.
 - ▶ Operational management is confirmed through internal and external audits.

The Stable Supply of Products

Initiatives to Ensure Stable Production

- Nippon Paper Industries is implementing the following initiatives to ensure stable production:
 - ▶ To provide customers with the necessary supply at the necessary time, the Group work to secure stable raw materials supply and systematically develop and update production facilities.
 - ▶ Sales departments and production units coordinate on developing flexible production plans that avoid waste and managing 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 and implements business continuity plans (BCP) based on those standards.

CASE STUDY

Business Continuity Management System (Nippon Paper Industries Paper-Pak Sales Division)

Nippon Paper Industries' Paper-Pak Sales Division has developed its own business continuity guidelines and established its own management system, so that it can maintain production even in times of emergency. The division is moving ahead with the selection of priority items for emergencies and procurement of key raw materials from multiple manufacturers. It has also diversified its production across multiple production sites to lower its disaster risk exposure.

CASE STUDY

Earthquake and Disaster Response Guidelines (newsprint business)

- ▶ In the event of damage to production equipment and facilities as a result of a major disaster, the Company will follow the guidelines for response to earthquakes and other disasters established by the Japan Paper Association's Newsprint Committee to maintain the smooth supply of newsprint.

Stabilization of Operations

The pulp and paper industry is a prime example of a process industry, where the stable operation of equipment has a direct impact on the stable supply and quality of products. Maintaining equipment is therefore critical, and proper maintenance depends on monitoring for signs of abnormalities in machinery by conducting vibration and temperature checks.

CASE STUDY

Development and introduction of “e-musen junkai®” (e-wireless patrol) system

The Company and NIPPON PAPER UNITEC have developed—and are now operating—the “e-musen junkai®” (e-wireless patrol) system, which uses wireless sensors to constantly monitor machinery and equipment for signs of abnormalities.

In the past, signs of abnormalities have been discovered mainly by people patrolling production facilities. This approach depended greatly on unquantifiable skills and expertise in the form of the experience and intuition of those checking production facilities. With the e-wireless patrol system, IoT technology is used to accumulate temperature and vibration acceleration data on equipment in operation, enabling us to monitor trends in these numerical data. Responding appropriately when an abnormal trend is detected helps to prevent equipment problems and stabilize operations (see P.32).

The Company is installing the e-wireless patrol system at all of its domestic mills and actively selling it to companies outside the Group. In response to requests from domestic clients, it commenced overseas sales in Thailand in FY2019 and plans to start selling in Indonesia and Vietnam in FY2021.



“e-musen junkai” (e-wireless patrol) system webpage (Sales company: Sakurai)
<http://www.sakurai.co.jp/landing/e-musen/index.html> (Japanese Only)

Products that Contribute to the Building of a Sustainable Society

Basic Stance

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.

«Examples of the Group's environmentally friendly products»

* Improve transport efficiency

Devising new shapes and improving packing efficiency will lead to reducing CO₂ emission volume during transportation.

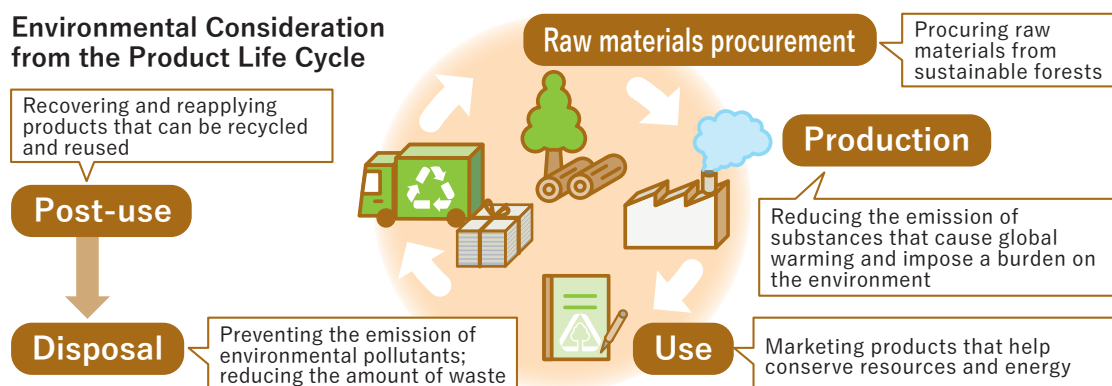
* Recyclability

By separating, collecting, and extracting wood fibers from used paper products, fibers can be used as pulp for recycled paper, which reduces the volume of waste.

* Reduce consumption of fossil-based raw materials

Converting conventional plastic products to paper reduces consumption of fossil-based raw materials and makes raw materials sustainable. Reducing packaging materials by devising new shapes will also lead to reducing the volume of fossil-based raw materials used.

* 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.



CASE STUDY

Forest Certification Labels on Paper-Pak products (Nippon Paper Industries)

In February 2016, the Company obtained CoC certification for FSC® (FSC®C128733) and PEFC (PEFC/31-31-171), an international forest certification system, in order to reevaluate the value of paper pack products made from biomass materials and provide customers with environmental added value not found in containers such as PET bottles and metal cans. In order to communicate to the end consumer that it is an environmentally friendly product in an easy-to-understand manner, the Company establishes a system to supply paper packs with forest certification labels to all customers.

<Achieving SDGs through the Group's products>

- Uses woody raw materials from sustainably managed forests



CASE STUDY

School POP® Strawless Paper Pack for School Milk (Nippon Paper Industries)

The Company developed the “NP-PAK-mini School POP®”, a strawless school paper pack, and commercialized it in 2020. As a result of devising the shape of the pack, improving the ease of opening, pouring, and drinking, small children and students can easily open the paper container and drink from it without using a straw.



[Example of use] Himawari Kochi Milk/Ripple
Himawari Low Fat/
Himawari Coffee
(Himawari Milk Co., Ltd.)

<Achieving SDGs through the Group's products>

- Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Helps to minimize marine plastic waste
- Uses wood raw materials from sustainably managed forests



<https://www.nipponpapergroup.com/news/year/2020/news200623004677.html>

CASE STUDY

SPOPS® New Style Refill Containers (Nippon Paper Industries)

The Company has developed and commercialized SPOPS®, a replaceable paper container designed to take the place of plastic pouches for refills of shampoo and other products. The container eliminates the need for pouring from a pouch into a dispenser; Product refills are accomplished simply by replacing a cartridge (see figure). SPOPS® reduces the amount of time required for refills, its shape minimizes the amount of liquid residue leftover and offers greater stability enabling more compact storage, improving usability for customers.

Since its launch 2019, the product has been used for body soap and other hotel amenities. Furthermore, due to the recent covid-19 pandemic, the need for disinfection and disinfection products has been greatly increased. Company developed “SPOPS® Hygiene”, a specification compatible with disinfectants and sterilizing products, in September 2020, and is now preparing for full-scale sales.



[Example of use] Dakekanba body soap (Nippon Paper Development)

<Achieving SDGs through the Group's products>

- Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Helps reduce GHG emissions by reducing packaging volume (improving transportation efficiency)
- Helps to minimize marine plastic waste
- Uses wood raw materials from sustainably managed forests

→ <https://www.nipponpapergroup.com/products/package/development/spops.html>



CASE STUDY

NSATOM® New Aseptic Filling System for Paper Containers (Nippon Paper Industries)

The Company and Shikoku Kakoki developed NSATOM®: an aseptic filling system for paper packaging that supports filling with solid-particle, long-fiber and high-viscosity products, and started receiving orders mainly from beverage manufacturers in November 2020.

“NSATOM®” has a unique spout and closure arrangement, and container design, making pouring easier. It is also possible to carry it around like a PET bottle because it is resealable. The Company is offering a wide range of paper containers to replace plastic ones.



<Achieving SDGs through our products>

- Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Helps to minimize marine plastic waste
- Uses woods raw materials from sustainably managed forests

→ https://www.nipponpapergroup.com/products/paper_pak/nsatom/nsatom.html



CASE STUDY SHIELDPLUS® Series Paper Barrier Materials (Nippon Paper Industries)

The Company has developed SHIELDPLUS®: an environmentally-friendly packaging material with similar barrier properties to plastic. Performing as well as existing products, SHIELDPLUS® offers barrier properties and can be used as a substitute for other barrier films. Sales of the product began in 2017, and it has since been adopted as a packaging material for confectionery and daily use products.

The Company also started selling SHIELDPLUS II in 2020, which improves the flexible resistance of the barrier layer and enables the material to be shaped into various packaging forms. SHIELDPLUS II is an additional suitable brand for gravure printing, which is now mainstream in the soft packaging market.



[Example of use]
Shobre/Round Baby
(IZUMIYA TOKYOTEN Co., Ltd.)



[Example of use]
Tenshi no (Angel) Bath Powder
(Max Co., Ltd.)

<Achieving SDGs through the Group's products>

- ● ● Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Helps to minimize marine plastic waste
- Uses woody raw materials from sustainably managed forests

→ <https://www.nipponpapergroup.com/english/products/shieldplus/>



CASE STUDY LAMINA® Heat Shield Paper that Enables Packaging to be made from Paper Alone (Nippon Paper Industries)

The Company has developed and started selling LAMINA®, a packaging material that enables the creation of packaging using only paper, without the use of plastic. This packaging material uses paper as the base material, and enables the creation of packaging without laminate processing.

LAMINA® can be used for a wide range of applications, including food products that do not require barrier-type packaging, secondary packaging, daily use items and magazines.



[Example of use]
Bijinkenkyujo/Macrobiotic
Beauty Paste
(ALL is GOOD)



[Example of use]
Nonno pocket size toilet paper
(Tokyoshiko Co., Ltd.)

<Achieving SDGs through the Group's products>

- ● ● Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Helps to minimize marine plastic waste
- Uses wood raw materials from sustainably managed forests

→ https://www.nipponpapergroup.com/products/package/thick_paper/lamina.html



CASE STUDY Paper Straws (Nippon Paper Industries)

In response to rapidly growing demand for alternatives to plastic in recent years, the Company has developed highly durable paper straws with a pleasant texture. Sales of these straws began in 2019.

The Group's paper straws are used in numerous stores, including restaurants, cafes and shopping center food courts.



[Example of use] AlohaTable (Photograph obtained with cooperation from AlohaTable Daikanyama)

<Achieving SDGs through the Group's products>

- ● ● Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Helps to minimize marine plastic waste
- Uses woody raw materials from sustainably managed forests

→ <https://www.nipponpapergroup.com/english/products/paperstraw/>



CASE STUDY

CELLENPIA® A Biomass Material Derived from Plant Fiber (Nippon Paper Industries)

The Company developed cellulose nanofiber (CNF), CELLENPIA®. CNF is a cutting-edge biomass materials produced by defibrating plant fibers into nanofibers. There are two types of CELLENPIA®: TEMPO-oxidized CNF and Carboxymethylated CNF (CM-CNF). The Company is promoting both types for use in industrial applications, but CM-CNF can also be used in food and cosmetics. CNF has a wide variety of functions (for example: strength reinforcement, thickening, moisturizing, emulsification stability, oxygen barrier properties), so it is expected to be used in a wide range of fields. It is already being used in coating agents, dispersion stabilizers, reinforcements, foods (Japanese sweets, etc.), various cosmetics, etc.



[Example of use] Dorayaki (pancakes stuffed with sweet red bean paste) (Tago no Tsuki Co., Ltd.)

<Achieving SDGs through the Group's products>

- Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Uses wood raw materials from sustainably managed forests

→ <https://www.nipponpapergroup.com/english/products/cnf/>



CASE STUDY

Metal-Supported Modified Cellulose (Nippon Paper Industries)

The Company has developed metal-supported modified cellulose, which uses modified cellulose as an intermediate product of CNF production. A metal ion support is then applied to the surface to create a biomass material that has the same antimicrobial, antiviral, and deodorizing properties as metal ions. Since the material is easy to process into unwoven fabric, paper, etc., it can be used in daily miscellaneous goods and industrial applications such as sanitary materials, and filters made from an unwoven fabric base.

The Company has developed npi antiviral paper* based on this product. The high antiviral, antibacterial, and deodorizing properties of metal ions make it possible to use them in a variety of applications, including mask case.

*This product is not intended for medical use, such as pharmaceuticals or medical devices.

The antiviral properties are not maintained in all printing and processing methods.

<Achieving SDGs through the Group's products>

- Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Uses woody raw materials from sustainably managed forests

→ <https://www.nipponpapergroup.com/news/year/2020/news200818004742.html>



CASE STUDY

CNF-Reinforced Plastic (Nippon Paper Industries)

The Company has developed CNF-reinforced plastic, a high-strength resin achieved by mixing CNF with plastic such as polypropylene and nylon.

Compared to glass fiber, which is a widely used reinforcing material, this reinforced plastic is expected to reduce the weight of automobile parts by using CNF with low relative density. It is also highly recyclable and expected to be used in a wide range of industries such as building materials and home appliances.

<Achieving SDGs through the Group's products>

- Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Uses woody raw materials from sustainably managed forests
- Adding CNF improves strength, etc. and makes the material thinner and lighter, thus reducing environmental impact when driving (example: automotive parts)

→ <https://www.nipponpapergroup.com/news/year/2017/news170712003856.html>



CASE STUDY

MinerPa® New Functional Material (Nippon Paper Industries)

The Company has developed MinerPa®, a new material in which particulate minerals are densely bonded to the surface of wood pulp (cellulose fiber).

Using wood pulp—which is a recyclable natural fiber—as its basic raw material, MinerPa® is a functional material that offers the unique formability of pulp together with various functions derived from minerals, including deodorizing/antibacterial properties, flame retardancy, X-ray radiation shielding effects and antiviral properties. In 2018, a demonstration plant was established at our Fuji Mill to carry out sample work for commercialization. The deodorizing properties were highly evaluated, and the material was used in cat litter from February 2021.



[Example of use]
Cat litter (Iris Ohyama Inc.)

<Achieving SDGs through the Group's products>

- Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Uses woody raw materials from sustainably managed forests

→ <https://www.nipponpapergroup.com/research/organize/minerpa/>



CASE STUDY

Torrefied Biocomposite™ New Resin Composite (Nippon Paper Industries)

The Company developed a composite material (Torrefied Biocomposite™) made from woody raw materials and resins in collaboration with the Japan Steel Works, Ltd.

The Company applied its torrefaction technology to create Torrefied Biocomposite™ as a high blend of woody raw materials that is heat resistant, pulverized, and hydrophobic, and that can reduce plastic use by over 50%, and, as such, help reduce GHG emissions.

Going forward, the Company intends to commercialize Torrefied Biocomposite™ by developing applications in various fields, including building materials, home appliances, and horticulture.



<Achieving SDGs through the Group's products>

- Plant-derived biomass materials with low environmental impact in terms of production and disposal
- Helps reduce GHG emissions
- Helps to minimize marine plastic waste
- Uses wood raw materials from sustainably managed forests

→ <https://www.nipponpapergroup.com/news/year/2021/news210204004808.html>



CASE STUDY Series of Long-lasting Rolls (Nippon Paper Crecia)

Nippon Paper Crecia has developed and launched a longer lasting toilet paper roll, which increases usability for customers and also contributes to reducing environmental load. The Scottie® Flowerpack four-roll, triple-length (double) pack offers rolls that are three times* longer than previous versions. This reduces the time and effort of replacing spent toilet paper rolls and reduces the amount of storage space required, enabling more effective use of available space. The rolls are also compact and highly portable, offering greater usability for customers.

The product also contributes to reducing environmental load*, such as by reducing the need for secondary materials such as toilet roll cores and cutting CO₂ emissions by improving loading efficiency during transportation. It also sells SCOTTIE® fine Four-roll, triple-length Kitchen Paper Towel as part of our long-lasting roll series.

*Comparison with Scottie® Flowerpack 12-roll (double) pack



<Achieving SDGs through the Group's products>

- Uses ecofriendly energy
- Helps conserve resources by reducing secondary material, etc.
- Helps reduce GHG emissions by improving transportation efficiency
- Uses woody raw materials from sustainably managed forests

→ <https://scottie.crecia.jp/nagamochi/>



CASE STUDY Waterproof Linerboard, Multi-functional Corrugated Paper(Nippon Tokai Industrial Paper Supply)

Nippon Tokai Industrial Paper Supply developed a recyclable, multi-functional corrugated paper “waterproof linerboard” in response to recent demand for ecofriendly products and de-plasticization.

The waterproof linerboard is highly watertight and can be molded into different shaped boxes to facilitate the transportation of ice-filled products in the same way as styrofoam. The cardboard can also be folded into a small, compact shape so it doesn't take up much storage space before and after use and, as such, improves transportation efficiency.

After use, it can be recycled as waste paper. When no longer need, it can be recycled as used paper.



Transporting fresh fish (illustration)

<Achieving SDGs through the Group's products>

- Can be recycled as used paper
- Helps reduce GHG emissions by improving transportation efficiency
- Lower use of petroleum-derived raw-materials
- Helps to minimize marine plastic waste
- Uses wood raw materials from sustainably managed forests

→ <https://www.nipponpapergroup.com/news/year/2021/news210316004835.html>



Human Rights

Basic Stance

The Nippon Paper Group established its Philosophy and Basic Policy on Human Rights, Employment and Labor in 2004 based on the Ten Principles of the UN Global Compact in four areas (human rights, labor, environment, and anti-corruption). Furthermore, the Philosophy and Basic Policy Concerning Raw Materials Procurement formulated in 2005 shows consideration for the human rights of all Group employees and the Group advances activities emphasizing respect for human rights throughout the supply chain.

Going forward, the Group will move ahead with efforts to reinforce respect for human rights throughout the entire value chain in accordance with the UN's Guiding Principles on Business and Human Rights.

→ Philosophy and Basic Policy on Human Rights, Employment and Labor

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

- ▶ The Company publishes the Philosophy and Basic Policy in English as well as Japanese and communicates it on the Group website to be accessed worldwide by stakeholders.
- ▶ In addition to the Philosophy and Basic Policy, all business entities of the Company comply with laws and regulations including minimum wages.

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.10).

In addition to the Nippon Paper Group Helpline system (see P.12), which the Company set up as an internal whistleblower system, the Group also accepts inquiries regarding concerns about any possible violation of human rights through the Group's corporate website (<https://www.nipponpapergroup.com/english/inquire/>), and the Company's Compliance Office and associated departments respond to them.

Activities Related to Respect for Human Rights

- The Company has the opportunity to share opinions with Amnesty International Japan at least once a year.
- Based on the exchanges with Amnesty International Japan, the Company has conducted annual field surveys of human rights issues at subcontracted mills in Japan, and audits of overseas chip suppliers, since 2015.
- ① **Human Rights Surveys at Subcontracted Mills in Japan**
 - ▶ The Company sends surveyors to subcontracted mills in Japan once a year and has them conduct a self-check, mainly to confirm compliance with labor and safety laws and regulations.
 - ▶ Survey results are shared with the human resource managers of each mill for the purpose of supporting improvements.
 - ▶ Follow-up surveys have been conducted since FY2019
- ② **Confirmation of Consideration for Human Rights at Overseas Wood Chip Suppliers**
 - ▶ Based on the Philosophy and Basic Policy Concerning Raw Materials Procurement, the Company has employees in charge of procurement visits overseas wood chip suppliers. They conduct interviews and local inspections covering matters such as health, hygiene, safety, disaster preparedness, working conditions, and local environmental concerns from a human rights perspective.
 - ▶ The target area of surveys is all countries from which the Company procures wood chip (with priority given to countries with high-volume transactions or high risks). The contents of the interviews and inspections are reviewed annually.
 - ▶ In FY2020 local representatives of the Company visited, and surveyed, the supplier in Thailand.

Table of On-Site Surveys of Overseas Chip Suppliers Conducted

Year of Survey	Country	Results
FY2015	South Africa	No problems found.
FY2016	Vietnam, Australia	No problems found.
FY2017	Vietnam, United States	No problems found.
FY2018	Vietnam, Chile	No problems found.
FY2019	Malaysia, Russia	No problems found.
FY2020	Thailand	No problems found.

— 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 implements education and training on diversity-related issues on an annual basis (FY2020 training focused on a LGBTQ theme. see P.80).
- Since June 1, 2020, in light of the establishment of legislation on measures for the prevention of power harassment, the Company has revised parts of its work regulations, and conducts compliance training (see P.12) to encourage all employees to help prevent harassment in the workplace.

— Labor Initiatives

The Group supports the universal principles of freedom of association and right to collective bargaining on the basis of the Ten Principles of the UN Global Compact in four areas (human rights, labor, environment, and anti-corruption) (see P.82).

— 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.30)
- ▶ Human rights considerations for overseas forest plantations (see P.22)

Occupational Safety and Health

Basic Stance

The Nippon Paper Group upholds instilling pride in employees as a necessary condition of its Vision to realize its corporate Group Mission. This is based on the prerequisite of ensuring the safety and health of employees at each of the Group's locations, which is a critical issue for maintaining sound management. The Group formulated a Philosophy and Basic Policy on Safety and Health Measures and constructed a system for occupational safety and health under which all employees and members of management are united. It maintains the health of employees, realizes a comfortable and friendly working environment and helps to prevent disasters.

→ Philosophy and Basic Policy

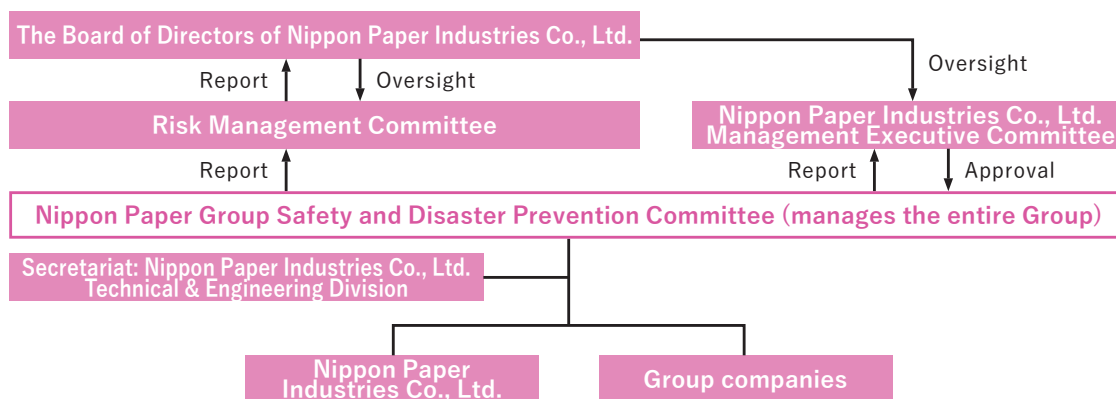
<https://www.nipponpapergroup.com/english/csr/policies/>

Occupational Safety and Health Promotion Structure

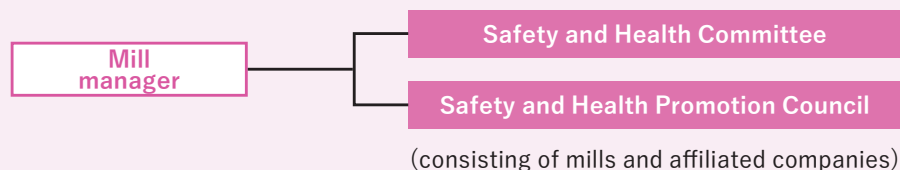
The Group established the Risk Management Committee under the supervision of the Board of Directors of the Company. Under this committee, the Nippon Paper Group Safety and Disaster Prevention Committee, which is chaired by the general manager of the Technical & Engineering Division, supervises and promotes occupational safety and health and disaster prevention.

In case of a disaster, the Group has established a communication system between the mills and the head office as well as the departments within the head office. It also operates a system to report necessary information to the Safety and Disaster Prevention Committee and top management.

The Company 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 affiliated companies) are held separately at each location including mills and offices. The Company promotes safety and health management activities by cooperating and collaborating with management and employees, as well as subcontractors and related contractors working at each location.



Example of a mill's safety and health organization structure (Nippon Paper Industry Co., Ltd.)



External Awards for Safety Activities (FY2021)

Award	Awarded Company, Office
60 th National Conference of the Pulp and Paper Industry on Safety and Health (Safety Grand Excellence Award Class I)	Nippon Paper Industries Ishinomaki Mill
60 th National Conference of the Pulp and Paper Industry on Safety and Health (Safety Grand Excellence Award Class I)	Nippon Paper Industries Kanto Mill
60 th National Conference of the Pulp and Paper Industry on Safety and Health (Safety Grand Excellence Award Class I)	Nippon Paper Papyrus, Harada Mill
60 th National Conference of the Pulp and Paper Industry on Safety and Health (Safety Grand Excellence Award Class II)	Nippon Paper Industries, Ishinomaki Mill Safety Association (contractors)
60 th National Conference of the Pulp and Paper Industry on Safety and Health (Safety Grand Excellence Award Class I)	Nippon Paper Industries, Nakoso Mill Safety Association (contractors)
60 th National Conference of the Pulp and Paper Industry on Safety and Health (Safety Grand Excellence Award Class I)	Nippon Paper Papyrus, Suita Mill Safety Association (contractors)
60 th National Conference of the Pulp and Paper Industry on Safety and Health (Safety Excellence Award)	Nippon Paper Industries, Yatsushiro Mill Safety Association (contractors)

— Occupational Safety and Health Management System

- In 2009, the Group started operating 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.

- The Group formulates and promotes safety and health plans for each mill, business site, and Group company, and conduct Mill Safety Audits at least once a year as part of our drive to improve safety standards.
- The Company also incorporates into our safety activities any advice from external experts on ways to improve our standards, including as safety diagnoses conducted by the Japan Industrial Safety and Health Association.
- The Nippon Paper Philosophy and Basic Policy on Safety and Disaster Prevention also applies to any affiliated companies and subcontractors working on site.

Certification Status: OHSAS 18001 (December 31, 2020)

	Number of certified companies	Total number of companies
Consolidated companies in Japan	0	28
Consolidated companies outside Japan	2*	11
Total	2	39

*Certified companies: Jujo Thermal and Opal (Opal certification: AS4801)

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.

— 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 investigate the dangers and toxicity of these substances and use what we learn to take appropriate risk reduction measures and manage residual risks.

Efforts regarding Safety and Disaster Prevention

— Medium-Term Safety Activity Plan

In July 2020, the Company formulated and implemented the following 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 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*	2020-2023 Period for introducing measures to eliminate serious accidents 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

*Mill management indicators are determined every 12 months

— Safety Education

- To ensure high awareness with regard to occupational safety, the Group invests considerable efforts into safety training for all employees, including those in management positions.
- The Company formulates annual Occupational Safety and Health Management System plans at each of its mills and offices, and, implements safety education in line with those plans for different levels of staff within the Company and new hires.

— Ensuring Thorough Safety on Site

- Based on its mission of eliminating all personal injuries within its mills*, the Company conducts safety patrols and safety training in collaboration with labor unions and subcontractors.
 - ▶ Safety patrols: Provide instructions and guidance for immediately correcting unsafe conditions.
 - ▶ Safety education: As a principal employer, we provide information, reference materials, venues, and other resources for safety education, and verify that safety training is being conducted properly.

- Provide guidance to subcontractors and promote voluntary safety activities, including risk prediction and risk assessments.

*This mission includes all stakeholders on Nippon Paper Group premises including Group employees, employees of subcontractors working on site, visitors from outside and service business operators entering and leaving the premises.



Safety patrol

— Preparing for Natural Disasters and Fires

- Individual Locations Within the Group
 - ▶ 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.
- Individual Locations Within the Company
 - ▶ Undergo regular disaster prevention surveys by specialist risk assessment companies.

— Raising Awareness of Traffic Safety

- Nippon Paper Group
 - ▶ 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

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

(Calendar year)

	2015	2016	2017	2018	2019	2020
Nippon Paper Group*	0.40	0.10	0.69	1.16	0.54	0.37
Nippon Paper Group (affiliates only)	0.46	0.57	0.61	0.54	0.98	1.10
Nippon Paper Group (including affiliates)	0.44	0.40	0.64	0.77	0.79	0.79
Manufacturing industry	1.06	1.15	1.02	1.20	1.20	1.21
Pulp, paper and processed paper product manufacturing industry	1.79	1.31	1.46	1.88	1.94	1.54

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

Occupational Accident Severity Rate

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

(Calendar year)

	2015	2016	2017	2018	2019	2020
Nippon Paper Group*	0.02	0.01	0.02	0.03	0.03	0.01
Nippon Paper Group (affiliates only)	0.02	0.04	0.03	0.47	0.55	1.10
Nippon Paper Group (including affiliates)	0.02	0.03	0.03	0.30	0.33	0.64
Manufacturing industry	0.06	0.07	0.08	0.10	0.10	0.07
Pulp, paper and processed paper product manufacturing industry	0.35	0.04	0.24	0.22	0.63	0.39

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

Number of work-related employee/affiliate fatalities of Nippon Paper Group*

(Calendar year)

	2016	2017	2018	2019	2020
Nippon Paper Group Employees	0	0	0	0	0
Affiliates	0	0	1	1	2
Total	0	0	1	1	2

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

— Fatal In-House Accidents

In FY2020, two fatal accidents occurred at Company affiliates

Overview of the Accidents

① Gotsu Mill affiliates

- **Date of accident**
July 3, 2020
- **Location**
Wood chip bucket elevator, Gotsu Mill
- **Victim**
55-year old male who had worked at the company for 23 years and 5 months
- **Operation**
Removing clogged woodchips from bucket elevator
- **Situation**
It is assumed that he went beyond the inspection entrance and was caught in the bucket elevator during cleaning as it reversed*.
- **Countermeasures**
 - ▶ Equipment remodeled to facilitate operation without entering.
 - ▶ Made further improvements to System to Promote Occupational Safety and Health (with guidance from external organizations)

② Yatsushiro Mill affiliates

- **Date of accident**
December 29, 2020
- **Location**
Near the N2 machine waste paper insertion area, Yatsushiro Mill
- **Victim**
41-year old male who had worked at the company for 8 months
- **Operation**
Inserting waste paper
- **Situation**
It is assumed that he got caught in the rolled paper winding while inserting waste paper*.
- **Countermeasures**
 - ▶ Equipment remodeled to prevent trapping.
 - ▶ Strengthening committee activities to improve fundamental issues surrounding occupational accidents.

*Already reported to the Labour Standards Inspection Office

Maintenance of a Vigorous Organization

Basic Stance

The Nippon Paper Group upholds instilling pride in employees as a necessary condition of its Vision to realize its Group Mission. For that reason, as the human resources environment within Japan (declining population, declining birthrate and aging population) changes, it views building an organization in which diverse employees can maximize their potential as a critical issue.

The Group will allocate its workforce in line with its growth strategy in such ways that a diverse range of people with different personalities can maximize their individual capabilities. By establishing an organizational structure that encourages this, and by strengthening employee engagement, the Group aims to become an organization where both employees and the company can grow together.

Recruitment and Employment

- As the responsibility to the local community, which is the basis of our corporate activities, the Group strives to stabilize employment and continue to recruit new employees, and hire without discrimination based on the “Philosophy and Basic Policy on Rights, Employment and Labor”.
 - ▶ Clearly and formally communicate the recruitment process to all recruitment candidates
 - ▶ Interviewer training to avoid discrimination based on nationality, place of origin, gender, educational background etc.

— Employment of people with disabilities

- As of April 1, 2021, Nippon Paper Industries has achieved the statutory employment rate of 2.39% for persons with disabilities. The Company will continue to maintain and improve the employment rate at each site.

— 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. Furthermore, in response to the amended Law Concerning Stabilization of Employment of Older Persons, which took effect in April 2013, we have 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.

— Mid-career Hiring

- In addition to utilizing human resources within the company, the Company is also hiring mid-career employees, and continues to work on in the future.

— Rehiring retired employees

- The Company has established a system that allows employees who have retired due to “family circumstances” such as marriage, childbirth, childcare, nursing care, and spouse transfer, and can play an active role in the company again by making use of the experience and abilities cultivated at the company.

Employment Indicators

	Unit	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Number of Employees on a Consolidated Basis ^{※1 ※3}	Persons	13,057	12,881	12,943	12,592	16,156
Male	Persons	11,691	11,451	11,503	11,118	13,984
Female	Persons	1,366	1,430	1,440	1,474	2,172
Paper and Paperboard Business ^{※1 ※2}	Persons	6,967	6,818	7,229	6,764	5,586
Daily-Life Products Business ^{※1 ※2}	Persons	2,433	2,448	2,536	2,652	7,350
Energy Business ^{※1 ※2}	Persons	19	35	54	76	78
Wood Products and Construction Related Business ^{※1 ※2}	Persons	2,273	2,192	1,411	1,384	1,382
Other Businesses ^{※1 ※2}	Persons	1,365	1,388	1,713	1,716	1,760
Overseas	Persons	2,723	2,582	2,587	2,504	5,961
Male	Persons	2,385	2,257	2,263	2,158	4,965
Female	Persons	338	325	324	346	996
Percent of upper management from the local community	%	74.1	80.6	82.1	89.3	94.7
New graduate hired ^{※4}	Persons	265	245	200	182	214
Male	Persons	239	220	171	146	167
Female	Persons	26	25	29	36	47
Mid-career recruits ^{※4}	Persons	163	198	204	222	172
Male	Persons	141	169	180	199	149
Female	Persons	22	29	24	23	23
Employees seeking reemployment after retirement Nippon Paper Ind.	Persons	185	46	168	95	80
Employees reemployed after retirement age Nippon Paper Ind.	Persons	185	46	168	95	81
Consolidated companies in Japan	Persons	331	227	332	296	301
Average age of employees ^{※1 ※4}	Years	43.3	43.4	43.4	43.7	43.6
Male	Years	43.3	43.4	43.3	43.6	43.6
Female	Years	43.1	43.5	43.6	43.7	43.5
Average years of employment ^{※1 ※4}	Years	19.1	19.4	19.3	19.2	18.8
Male	Years	19.2	19.6	19.5	19.3	19.1
Female	Years	18.2	18.0	17.8	17.8	17.0
Turnover rate(Includes employees leaving at the mandatory retirement age) ^{※1 ※4}	%	2.9	2.6	5.7	4.6	3.0
Number of Managers(Nippon Paper Ind.) ^{※1 ※5}	Persons	1,128	1,095	1,134	1,112	1,132
Female	Persons	21	27	26	27	30
Number of Managers (Consolidated companies in Japan) ^{※1 ※5}	Persons	2,336	2,305	2,227	2,302	2,385
Female	Persons	50	55	55	62	67
Number of Managers(Consolidated subsidiaries outside Japan) ^{※6}	Persons	112	139	151	196	358
Female	Persons	26	20	24	33	82
Female employees in management Nippon Paper Ind. ^{※1 ※5}	%	1.86	2.47	2.29	2.43	2.65
Consolidated companies in Japan	%	2.14	2.39	2.47	2.70	2.81
Consolidated subsidiaries outside Japan ^{※6}	%	23.2	14.4	15.9	16.8	22.9
Dispatched workers ^{※1 ※4}	Persons	77	105	89	108	111
Male	Persons	27	39	41	47	46
Female	Persons	50	66	48	61	65
Percent of dispatched workers	%	0.7	1.0	0.8	1.1	1.1
Part-time workers ^{※1 ※4}	Persons	392	431	465	512	514
Male	Persons	224	245	293	293	290
Female	Persons	168	186	172	219	224

※1 Fiscal year-end data

※2 Estimates based on re-organized segments formed in FY2019

※3 Data scope: consolidated companies

※4 Data scope: consolidated companies in Japan

※5 Percent 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

※6 Managerial personnel at the level of section manager or positions higher

Employees by Age Group (Nippon Paper Industries Co., Ltd., March 31, 2020)

	Units	Less than 30	30 to 50	Over 50	Total
No. of employees	Persons	876	2,956	1,497	5,329
Men	Persons	810	2,753	1,364	4,927
Women	Persons	66	203	133	402

Realizing Flexible Work Styles

Nippon Paper Industries focus on improving its working environment where employees can demonstrate their abilities more. The company is also working to create a working environment that realizes “flexible work styles” and to review its system.

Regarding such work styles, it is not only necessary to promote diversity, but BCP that incorporates measures for events such as pandemics must also be considered.

« 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.)
- ▶ A system that allows employees to take expired annual paid leave (preserved leave) in half-day units
- ▶ 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)
- ▶ A system of 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 Overseas personnel (Treatment tailored to other countries. For those seconded from Japan, overseas secondment system, hardship allowance, etc.)

System introduced and revised from April 2021

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

— 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 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 have been designated by Japan’s Minister of Health, Labour and Welfare as a company that supports child rearing and have 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 with regard to 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 works and nursing care, including preparation towards 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)

	Unit	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Employees taking child-care leave ^{※1}	Persons	26	26	23	23	28
Male	Persons	0	0	3	2	5
Female	Persons	26	26	20	21	23
recently giving birth	%	100	100	100	100	92
who returned to work	%	100	100	90	100	100
Employees taking maternity/paternity leave ^{※1}	Persons	186	148	183	203	154
Male	Persons	160	122	163	184	129
Female	Persons	26	26	20	19	25
Average number of days taken for maternity/paternity leave ^{※1}						
Male	Days	3.0	3.4	3.7	3.8	4.0
Female	Days	64.9	78.0	79.2	67.9	77.7
Employees taking nursing-care leave ^{※1}	Persons	1	1	2	1	0
Total number of working hours ^{※2}						
Non-management employees	Hours per person	1,927	1,903	1,900	1,885	1,861
All employees	Hours per person	—	1,927	1,923	1,894	1,888
The rate of annual paid leave taken by employees ^{※1}	%	—	—	—	74.4	64.7
The rate of annual paid leave taken by employees ^{※3}	%	68.3	71.8	75.1	76.6	67.9

※1 Data scope: consolidated subsidiaries in Japan

※2 Data scope: Nippon Paper Industries

※3 Data scope: Nippon Paper Industries Non-management employees

— Welfare

The Company has the following welfare programs.

► Company housing / single dormitory

Large-scale offices such as the head office and factories are fully equipped with company housing and single dormitories. If there is no company housing or dormitory, or if there are no vacancies, the Company rents out and prepares houses or condominiums.

► recreational facilities

The Company has 3 retreats in Japan. It also has contracted recreational facilities throughout the country.

► Property formation

The company has established systems to support employee property formation, such as property formation savings (general property accumulation, property accumulation housing, property accumulation pension), employee stockholding associations (regular employees can join), and housing loan system. For property accumulation housing and property accumulation pension, the company supports 10% of the reserve amount, and at the employee stockholding association, the company can purchase its own stock by adding 15% to the monthly purchase amount.

Active roles for diverse personnel

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

In working to create conditions that enable women to advance their careers, the company has set up the following plans.

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

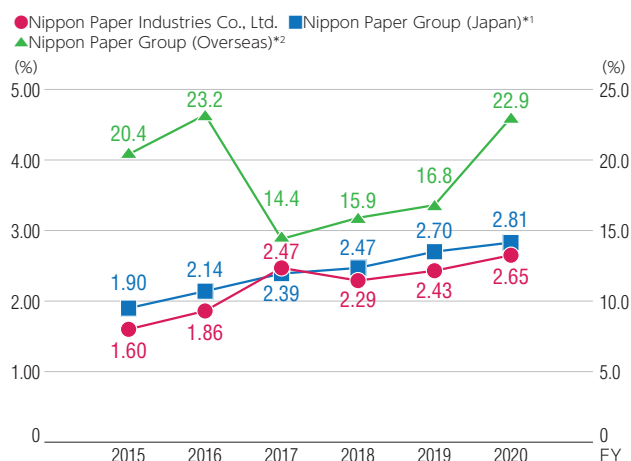
2. Contents

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 flextime, taking leave in hourly increments and working from home will be set at 70% for both men and women to promote diversity.

— Female Management Participation and Recruiting

Percentage of female employees in management



Percentage of regular employees excluding counselors, advisors, directors, temporary employees, and employees on loan

*1 Figures are for the Nippon Paper Group's consolidated companies in Japan.

*2 Includes all managers of section and higher level organizational units as of the end of December.

Hiring of new graduates for career-track positions (Nippon Paper Industries Co., Ltd.)

FY	2015	2016	2017	2018	2019	2020
Career-track hires (Persons)	52	61	56	53	50	48
Female (Persons)	11	11	14	13	13	17
Male (Persons)	41	50	42	40	37	31
Percent women (%)	21	18	25	25	26	35

**CASE
STUDY**

Holding a Study Session about Diversity (Nippon Paper Crecia)

Nippon Paper Crecia held a study session about diversity in March 2021.

This time, based on the theme of learning about LGBTQ*, employees first learned basic knowledge about LGBTQ. Afterward, two speakers, Yu-kun (who is transgender) and Kazue-chan (who is gay), were invited to share their life stories and experiences. The event was held both at a venue and online, and approximately 320 Group employees attended. Employee impressions, expressed through a questionnaire conducted after the study session, included “We must be aware that everyone has unconscious biases” and “This was an opportunity to properly learn about LGBTQ and help foster a corporate culture so that we can become a company where diverse employees thrive.”



※ L : A woman who is emotionally or sexually attracted to other women
 G : A man who is emotionally or sexually attracted to other men
 B : A person who is emotionally or sexually attracted to more than one gender (men and women)
 T : A person whose gender identity is not aligned with the gender they were assigned at birth
 Q : A person who is in the process of understanding and exploring what their sexual orientation and/or gender identity and gender expression might be

Initiatives Aimed at Developing Human Resources

— Training Personnel to Match the Group’s Ideal Vision

In order to strengthen the development of leaders who will promote change, the company is implementing the following initiatives.

- ▶ 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 our 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, and selective training with the purpose of developing employees into candidates for senior management roles.

— 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 five key points.

① Support for self-development and voluntary skill acquisition

The Group is implementing the following initiatives to support the autonomous capacity development of employees.

- ▶ 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 and new managers, is conducted jointly by Group members.
- ▶ Joblevel-based training at mills is conducted not just for a single mill but together with neighboring mills.

Training time for individual employees (Consolidated companies in Japan)

7.5 hours/year

② Assignment of the right people to the right positions

The Company is implementing the following measures to allocate the right person to the right position.

- ▶ 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.

③ Development of employees capable of acting on a global stage

The company is implementing the following initiatives to develop global human resources.

- ▶ 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

The Company is implementing the following initiatives to strengthen our on-site capabilities.

- ▶ Creating a committee to strengthen frontline capabilities in FY2006.
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

The major companies of the Group are implementing the following initiatives to support career planning and life planning.

- ▶ 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.

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 (once a year)
- ▶ Nippon Paper Group (including overseas): presentation meeting*² (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 Canceled in FY2020 to prevent COVID-19 infection

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 table 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 is called upon to enhance objectivity for decisions on promotions to management and other positions.

CASE STUDY

Holding a Study Session about Diversity (Nippon Paper)

The Company held the 5th Diversity Management Study Group in October 2020.

Mr. Shuhei Uebayashi, CEO of NEW ONE Co., Ltd., spoke on the theme of “What is the management ability required for managers in the future?”

He explained the changes in the relationship between organizations and individuals and engagement, and also introduced the importance of engagement management by managers.

It was conducted online to prevent COVID-19 infections, and recordings were distributed by e-learning to employees who could not participate due to inconvenience on the day.

A total of about 700 employees attended the lecture, showing the high level of interest in “engagement.”

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.
- 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.
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.
- At the Company, there are 4,763 labor union members (as of March 31, 2021). Workplaces are union shops and all of the employees covered by collective bargaining agreements are union members.

Responsibility to Communities

Basic Stance

As one of its members, the Nippon Paper Group aims to contribute to society as a whole. While continuing to provide needed products, The Group would like to play a useful role in protecting the global environment, and in the advancement of culture and local communities. The Group is confident that building a consistent track record along these lines will earn the trust of society and allow it to continue its business activities in coexistence with local communities.

→Philosophy and Principles

<https://www.nipponpapergroup.com/csr/policies/>

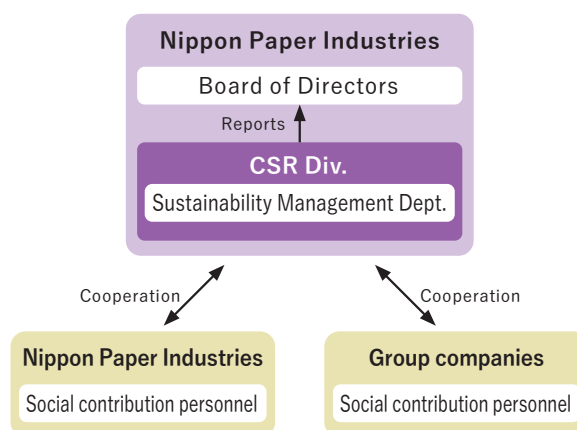
Structure for promoting social contribution activities

Personnel responsible for social contribution activities at each of Nippon Paper Industries' mills and other Group companies constantly engage in locally focused activities in their communities. The CSR Div. collaborates with mills and group companies to ascertain the state of these social contribution activities and reports this to the Board of Directors of the Company.

The Company also provide volunteer leave to systematically support employees' participation in volunteer activities.

— Specific activity themes

- 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



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) Raising awareness of traffic safety Cooperation in preventing bank transfer fraud Participation in fire brigades, and Participation in fire brigades in afforestation areas*
Preserving local community cultures	Donation of paper mask cases to ethnic promotion facilities
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 Providing goods to low-income people* Participating in and cosponsoring social welfare events
Providing awareness-raising opportunities	CSR Lecture (Online Distribution)
Advancing science and technology	Supporting the Fujihara Foundation of Science
Disaster relief activities	Donations of money and emergency supplies 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 Blackiston'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	Holding the School of Friendship for Forests and Paper
Providing opportunities o tour group companies and their mills	Factory tours and tours of forestry operations
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	Sponsoring marathons 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



2021 CONSTITUENT MSCI JAPAN
EMPOWERING WOMEN INDEX (WIN)

2021 CONSTITUENT MSCI JAPAN
ESG SELECT LEADERS INDEX

Environmental rating



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



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

Supplementary data

Principal organization memberships (as of July 2021)

団体名	役職
Japan Paper Association	Chairman
Japan Tappi	Vice-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	Secretary-General

Political contribution amount (Nippon Paper Industries)

	FY2018	FY2019	FY2020
Political contribution amount (thousandyen)	170	140	35

Status of CoC certification acquisition at principal production sites (as of July 31, 2021)

Company Name	FSC®		PEFC
	Mill, Production Company	License no.	Mill, Production Company
Nippon Paper Industries	Kushiro Mill	FSC®C129049	
	Asahikawa Mill	FSC®C001751	
	Shiraoi Mill		Shiraoi Mill
	Ishinomki Mill		Ishinomki Mill
	Iwakuni Mill		Iwakuni Mill
	Yatsushiro Mill		Yatsushiro Mill
	Iwanuma Mill		
	Akita Mill	FSC®C133166	Akita Mill
	Nakoso Mill	FSC®C020977	
	Kanto Mill(Soka, Ashikaga)	FSC®C133163	
	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®C125026	
	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	FSC®C002059	Opal Australian Paper Preston
	Opal Cartons Botany	FSC®C127957	
	Opal Cartons Heidelberg		
	Opal Cartons Regency Park		
	Opal Fibre Packaging Launceston		
	Opal Fibre Packaging Brooklyn		
	Opal Fibre Packaging Scoresby		
	Opal Fibre Packaging Revesby		
	Opal Botany Paper Mill	FSC®C113466	